Atheists, devils, and communists cognitive mapping of attitudes and stereotypes of atheists

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ATHEISTS, DEVILS, AND COMMUNISTS: COGNITIVE MAPPING OF ATTITUDES AND STEREOTYPES OF ATHEISTS

by

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A thesis submitted in partial fulfillment of the requirements for the Honors in the Major Program in Psychology in the College of Sciences and in The Burnett Honors College at the University of Central Florida Orlando, Florida

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Abstract

Negative attitudes towards atheists are hardly a new trend in our society. However, given the pervasiveness of the prejudices and the lack of foundation for them, it seems warranted to explore the underlying elements of these attitudes. Identifying these constitutive elements may help pick apart the different contributing factors and perhaps mitigate or at least understand them in the future. The present study was designed to identify which myths or stereotypes about atheists are most influential in these attitudes. A Lexical Decision Task was utilized to identify which words related to popular stereotypes are most related to the label atheists. The labels Atheists, Christians, and Students were compared to positive words, negatives words, words or interests, neutral words, and non-word strings. Analyses revealed no significant differences among the participants’ reaction times in these various comparisons, regardless of religion, level of belief in god, level of spirituality, or being acquainted with atheists. Possible explanations for these results are discussed in this thesis.
Dedication

This work is dedicated to my mother Liliana, without whom I’d never have had the courage to believe in myself and pursue my dreams in school and beyond.
Acknowledgments

I owe many thanks to my committee chair Dr. Valerie Sims for her invaluable guidance, suggestions, and support in the two years I took putting together this project. Her fellow committee members are also due much gratitude. Dr. Matthew Chin has contributed greatly to making this study as well-founded and substantial as possible. Dr. Mason Cash has provided much needed emotional buoying and consistent encouragement. I thank all three of you incredibly brilliant mentors.

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Introduction

Standing in America

Atheists seem to be one of the last groups in America against whom it is still socially acceptable to discriminate. Atheism has been equated to communism and devil worshipping, two concepts that still carry negative feelings. If these beliefs are still held, the negative prejudice atheism receives is in some respects understandable, if not well founded. To properly understand the underlying causes for these prejudices, it is important to understand the nature of prejudice in general as well as the religious climate of our society today. One of the major factors of prejudice is the dichotomy between in-groups and out-groups, a binary that requires definitional boundaries. Edgell and Tranby (2010) show that an important factor in defining the boundaries of societal and cultural acceptance of others is the degree to which the groups share a vision of their society. Thus, if the group in question defines society as being founded upon a belief in God, then those who lack this belief will inevitably be cast into this out-group category. Indeed, belief in God has increasingly been considered an essential characteristic of being an American, despite the supposed freedom to believe whatever one chooses (Weiler-Harwell, 2008). Perhaps one of the most striking statements regarding this supposedly necessary quality was said by former President George H. W. Bush, who said in an interview with Robert Sherman, “No, I don’t know that atheists should be considered as citizens, nor should they be considered patriots. This is one nation under God” (August 27, 1987). Citizenship and patriotism take new meanings in this light, requiring citizens of the land of the free to adhere to the same ideological beliefs in order to be considered true patriots. Thus, this us-versus-them mentality is reinforced in terms of religious belief.
Studies have consistently found that religious individuals, especially those who attend church regularly or are more religiously conservative, are significantly more prejudiced against other ethnic and ideological groups (Allport & Ross, 1967; Allen & Spilka, 1967; Hoge & Carroll, 1973; Laythe, Finkel, & Kirkpatrick, 2001; Laythe, Bringle, Finkel, & Kirkpatrick, 2002). This effect is compounded by atheists’ lack of belief; as a belief in God is generally the norm in our society, it is expected that theists would have negative attitudes towards their nonbelieving counterparts.

Edgell and Tranby (2010) found that anti-atheist sentiments outweigh negative sentiments toward other deviant and minority groups, including homosexuals, Muslims, and African-Americans. For instance, when asked if they would disapprove of their child marrying a person with a characteristic chosen from a list of such characteristics, 47.6% of respondents said they would disapprove of the atheist suitor for their child. By comparison, 33.5% said they would disapprove if the person were Muslim, 27.2% for an African-American person, and a mere 2.3% for a white person. Similar results were reported for questions regarding whether or not respondents would vote for a given candidate for President of the United States, all else held constant, if they had X characteristic. On this question, atheists (47% responded “No”) outweighed gays (37% “No”), Muslims (38%), Mormons (17%), women (8%), Baptists (6%), blacks (5%), and Catholics (4%). More recent polls have yielded similar results. Campbell and Putnam (2011) report in a soon to be published study that atheists rank among the least favorable in a list of major groups and political figures in America.

Given these unfavorable opinions and the stigma that atheism has garnered in America, efforts like Geissert and Fetrell’s Brights movement and the increased popularity of the term *secular humanist* have sprouted in an attempt to side-step this overt and celebrated prejudice against atheism (Dawkins, 2003).
Previous Literature

The atheist community is an under-studied minority in the research community. Despite their growing numbers and their surprisingly poor polling figures, comprehensive studies on atheists and others’ perceptions of atheists are few and far between. Bloesch, Forbes, and Adam-Curtis (2004) developed a brief measure of negative attitudes towards atheists, but this measure consists of very few questions and is limited in its ability to measure different aspects of anti-atheist sentiments. Other than this measure, however, very little exists by ways of measuring these prejudices. This makes investigating people’s attitudes towards atheists something of a challenge.

Most of the research that has been conducted on atheists has focused on the element of trust that factors into attitudes about the group. Many studies show that the main drive behind anti-atheist sentiment is a shared belief that atheists are devious and untrustworthy (Jenks, 1986; Gervais, 2011; Gervais, Shariff, & Norenzayan, 2011). These findings hint at a starting point for investigating the stereotypes and concepts underlying these negative attitudes. I believe that a great deal of this pervasive distrust stems from the overwhelming stigma associated with atheism and the myths and stereotypes that surround the term atheist.

Myths and Stereotypes

Compared to other groups and cultural denominations, atheists are a rather diffuse and unorganized group. They hold little power in society and are incredibly diverse in many other respects. The prejudices against them then beg explanation: Why are atheists so disliked in society? The main responses to this question tend to reveal the myths and stereotypes that people hold about atheists as a group. These stereotypes range from bizarre contradictions, such as the belief that
atheists worship the devil, to historical correlations, such as the conflation of atheism and communism.

While many stereotypes and myths are acknowledged by atheists and theists alike, there are no comprehensive, agreed upon lists to draw from for the purposes of this study. However, lists in popular press media offer a starting point (Loftus, 2011). There are a great number of stereotypes about atheists and even more variations of each of them, but the following is a moderately comprehensive list of stereotypes that are commonly given:

- Atheists are communists.
- Atheists worship Satan.
- Atheists let whims of society define their behavior, morality.
- Atheists have no moral values.
- Atheists are selfish and uncaring.
- Atheists cannot understand compassion, love, or beauty.
- Atheism is responsible for mass murder.

Given the weight that is given to these misconceptions, I believe it is important to see which of these most heavily affects the attitudes that people—believers and nonbelievers alike—have towards atheists.

In order to study these beliefs, it is important to keep in mind that directly asking someone their opinions of other groups does not necessarily yield the best results. Explicit attitudes on atheists can be interesting, but often when asking such questions directly, people will respond in a socially desirable way. Thus, explicit measures may not reveal the true attitudes and makeup of these
attitudes. To access the conceptual foundation of these attitudes, implicit measures, such as the Lexical Decision Task, must be employed.

**Lexical Decision Task**

The Lexical Decision Task is an implicit associations measure used to analyze the relatedness of different concepts by looking at reaction times for determining whether a combination of letters is in fact a word. Meyer and Schvaneveldt (1971) first coined the term Lexical Decision Task (LDT) and found that word pairs that were commonly associated with each other in subjects’ conceptual space were identified as words (as opposed to non-words) more quickly than words that were not associated with each other as well as more quickly than pairs of non-word strings. An LDT is akin to a word recognition task, wherein the participant is shown two letter strings (words or non-word strings) and they identify if the two are words or not. The idea behind an LDT is that related concepts are stored near one another in an individual’s cognitive map; therefore, activating a term should facilitate activation of related terms, since they are near the current activation pattern. For the LDT, this means that the faster one can recognize two words as being real words, the more related these words must be. For instance, if participants were shown the words *cat* and *dog*, they would be able to identify that those two were words more quickly than they would be able to do for *cat* and *mountain*, which in turn would be faster to recognize as words than *cat* and a non-word string like *flarglef*. Because the speed of reaction time is connected to relatedness, it the LDT is a useful took for the current study. This method has been replicated and updated since the original study and is still used today to analyze implicit associations between concepts. Wittenbrink, Judd, and Park (2001) used the LDT to analyze conceptual judgments made in automatic stereotyping and
prejudice. The present study will follow in these lines and investigate the relatedness of concepts involved in implicit prejudices about atheists.

**Current Study and Area of Focus**

The aim of the current research is to pinpoint the nuances of prejudicial attitudes towards atheists by attempting to isolate the various beliefs that correlate most with these attitudes. In order to do this, I utilized a Double LDT to map out the relatedness of words representative of several myths and stereotypes about atheism and atheists. Reaction times on these given words will be compared to reaction times for neutral and positive words. These three categories were also compared with reaction times to pairings with two other labels (the three labels were Atheists, Christians, and Students). These labels were paired with neutral words, positive words, negative words, and other words of interest. Further details about these words are given in the Method section. This study looks at the individual differences in religion, spirituality, and belief in a god or gods and how these differences relate to the supposed associations with these labels and the word types and concepts. Before exploring the nuances of the attitudes, we have to establish what the general charge of these attitudes. Thus, for the present study, the general attitudes are analyzed to see if there are observably negative attitudes in the first place. Neutral and positive attitudes are also explored with the methodology. There are many effects and differences I expect to see as a result of the manipulations mentioned above. These differences are given in the following hypotheses.

**Hypotheses**

1. I expect participants will have faster reaction times (and thus higher relatedness) for the label *Atheists* and the negative words, whereas for the *Christians* label they will have faster reaction times with the positive words.
2. Additionally, religious individuals, particularly those who are Christian, will have faster reaction times in these two conditions than will the non-Christian and nonreligious individuals.

3. Higher belief in a god or gods will yield the same sort of pattern as in Hypothesis 1 and Hypothesis 2.

4. Higher level of spirituality will also yield a similar pattern, but will exhibit this trend less so than higher belief in god or gods.

5. Being acquainted with at least one atheist will diminish this trend so that those who know an atheist will reveal relatedness between negative words and the label *atheist*. 
Current Study

Method

Participants

Participants for this study were recruited through the use of UCF SONA Systems. A minimum age of 18 was set through this system. A total of 47 participants was run in the experiment. Their demographic distribution is listed in Figure 1. Attempts were made to recruit non-Christian participants in order to balance the religious groups analyzed in this study; these attempts were met with little success. Participants ranged from 18 to 25 years of age, with an average age of 18.8.

![Ethnicity and Current Religion Pie Charts](image_url)

Figure 1: Demographic information on participants' ethnicity and stated religion.
Materials

Surveys

Several surveys were implemented in the course of this study, all of which were administered to participants through an online survey created using Qualtrics. The following measures were given to the participants (a copy of each can be found in Appendix B):

- Intrinsic vs. Extrinsic Religiosity (Gorsuch & McPherson, 1989).
- Paranormal Beliefs Scale (Tobacyk, 2004)
- Brief Reliable Measure of Negative Attitudes Toward Atheists (Bloesch, Forbes, & Adams-Curtis, 2004).

In addition to these surveys, participants answered an original survey created for the purposes of this thesis. This survey was comprised of questions regarding the character of atheists, along with other relevant topics. These questions ranged in topic and included questions on character, trust, beliefs, and rights of atheists along with questions about topics such as separation of church and state. The questions were randomized once before putting the survey online and then presented in that same order to each participant. Each question was listed on a separate page; time spent on each page was recorded. The following seven-point scale was given as available responses (displayed horizontally, left to right, under each statement): Strongly Disagree, Disagree, Somewhat Disagree, Neither Agree nor Disagree, Somewhat Agree, Agree, Strongly Agree. The list of the questions is given in Appendix C in the order it was presented to the participants.
Lexical Decision Task

The LDT consisted of seven different letter string categories: labels, neutral words, positive words, negative words, words of interest, non-word strings, and associated neutral word pairs (included for control purposes but not analyzed for this paper). A comprehensive list of the words in the LDT, their respective frequencies and lengths, and the distribution of each word type and label within these categories can be found in Appendix D. The labels Atheists, Christians, and Students were selected for the purposes of comparison. Since the main question in the study is comparing atheists to other groups, Christians was chosen as the opposing group. Because these first two labels are religious in nature, it might be the case that these words may trigger a general schema of religion rather than the intended charge of each. For this reason, Students was chosen as a neutral label. Neutral associated words that were established from previous studies (Meyer & Schvaneveldt, 1971).

In the process of selecting the remaining words, special attention was given to word length and frequency of the other words chosen. The frequencies were determined using the Project Gutenberg database of word frequencies (2006). It is important to note here that Project Gutenberg does not necessarily offer the current frequencies; given its sources (public domain literature), many words considered for these counts are no longer used regularly (e.g., thee). However, frequency lists that aim to be more contemporary (and thus more relevant for the current study) rarely contain more than 5,000 words, making them inappropriate for the purposes of this study. Thus, while the frequencies in the Gutenberg database may not be the most current, this database was the most appropriate choice to ensure consistency throughout the list chosen for the LDT.

Excepting words of interest, labels, and neutral associated words, all chosen words were adjectives. The label words were necessarily nouns, as were words of interest. The words of interest were separated from the rest of the words specifically because of their differing form; they were
words we were interested in investigating in the LDT, but not adjectives (e.g., communist). The neutral words conformed to the adjectival form requirement. The associated neutral words drawn from other studies were used as a comparison of relatedness; their nonmatching form may give rise to some issues when trying to draw comparisons to the rest of the words.

The LDT was constructed in SuperLab such that each stimulus in the experiment had two letter strings, most screens contained one label and one other string (word or non-word). Some non-word-neutral word pairs were included for control. Every stimulus word was typed in 18-point font in capital letters. To control for order and positioning effects, all words were presented twice (once at the top of the screen over another string, once at the bottom under the same string). These paired word events were randomly divided into two blocks prior to importing them to SuperLab. Events (stimuli) within the blocks were randomly ordered with SuperLab’s randomization features.

Reading Task

A Cloze Reading test (Aitken, 1977) was created using a passage from Wizard’s First Rule by Terry Goodkind (1994). The original passage with the marked chosen blanks, the instructions page, and the formatted passage with the blanks are given in Appendix E.

Demographics

A demographics form was given to gather additional, relevant information about the participant. This form included questions about current religion, political ideology, belief in a god or gods, and level of spirituality. Questions regarding ethnicity, age, and sex were also included. A copy of this form is given in Appendix F.
Software

SuperLab 4.5 was used to develop and run the experiment. Qualtrics was used to give the participants the surveys and demographics form. SPSS Statistics 20 was used to organize and analyze data. Microsoft Excel 2011 for Mac was used to produce the tables in this paper. Microsoft PowerPoint 2011 for Mac was used to create the screens imported into SuperLab for the LDT.

Design

This study employed a 3 by 3 within-subject experimental design. The LDT had three conditions in it (Atheist Label, Christian Label, and Student Label), and each of those labels was paired with the word types (Neutral, Positive, and Negative). Words of interest were analyzed and compared separately from these three categories. The dependent variable was reaction time on each of the word pair groups. Reaction times for the labels with each word type were compared for relatedness.

Procedure

The study was submitted for review at the UCF IRB. A copy of the approval letter is given in Appendix A, along with other relevant documents required by the IRB.

The study consisted of two main parts: 1) Double Lexical Decision Task, and 2) established measures, original questionnaire, and demographic forms. Participants first ran through the LDT, which itself was divided into a tutorial, trial runs, and two blocks. The instructions The tutorial consisted of a set of 10 string pairs participants had to identify correctly as being either two words or a word and a non-word; they could not advance to the next screen without correctly answering each of these 10 trials. Twenty additional trials followed the first tutorial. Here, any response from the participants advanced to the next screen. Following this, they began the task analyzed for this study.
In between the blocks, in order to reduce recall of the words from block 1, participants were given the reading task; they were allotted as much time as needed to fill in each of the 50 blanks in the task. After completing block 2 of the LDT, participants were directed to a Qualtrics page with the scales, surveys, and demographics forms. After finishing this section and confirming their responses had been recorded, participants were done with the experiment.

Results

Of the 47 participants recruited for this study, seven were not used in the analyses due to missing data (i.e., incomplete scales) or corrupt data files. Reading scores were analyzed, but found not to be significant. When included as a covariate in analyses, reading score did not remove any significant difference or error, and thus the results presented in this thesis were run without the use of the covariate. Analyses performed are listed here broken up by variable.

Religion of Participants

As is seen in Figure 1, the sample population was predominantly Christian. A 3 (Current Religion: Christian, Agnostic, Other) by 3 (label) by 3 (word type) ANOVA revealed no significant differences among these three groups \( F_{(6,70)} = .188, p = .979 \) and no significant interactions \( F_{(3,39)} = 1.018, p = .436 \). Nominally speaking, there were some trends across the means for this analysis. These results are graphically represented in Figures 2 through 4. Christian respondents tended to be faster across the board. Generally, neutral words had longer reaction times. Looking at the Atheist label for Christian responders, negative words were the fastest. With the Christian label, positive words were the fastest. All these nominal trends are not significant, but they are in the predicted direction.
Figure 2: Atheist Label mean reaction times given by word type for each religious group.

Figure 3: Christian Label mean reaction times given by word type for each religious group.

Figure 4: Student Label mean reaction time given by word type for each religious group.
Christian Participants

Splitting the data by religion, a repeated measures ANOVA (word type by label) yielded no significant interactions $[F_{(3,39)} = 1.013, \ p = .405]$. Looking at Christians as a separate group (Figure 5), there is very little difference between the reaction times for the different labels with negative words; nominally, the atheist label had longer reaction times (presumably less relatedness) with neutral and negative words. This trend is the opposite direction of the original predictions.

![Reaction Times: Christians Only](image)

Figure 5: Christians’ reaction times for the labels and word types.

Level of Belief in God

Responses to the question about level of belief in a god or gods were separated into two levels with a median split. A 2 (higher-belief vs. lower-belief) by 3 (label type) by 3 (word type) ANOVA was then performed. The analysis was just short of significance for an interaction effect $[F_{(4,152aa)} = 2.416, \ p = 0.051]$. The trend observed in Figures 6 and 7 were at odds with the hypotheses. While the differences between the groups is not significant, their direction was still unexpected and surprising; individuals with lower belief in a god or gods had nominally more
association between negative words and the atheist label than did those with higher belief in a god or gods.

![Figure 6: Reaction times for people with High belief in a god or gods.](image)

![Figure 7: Reaction times for people with Low belief in a god or gods.](image)

**Remaining Analyses**

Of the remaining analyses of interest, no significant results were obtained. There was no significant difference in reaction times across the labels or word types based on the participants’ level of spirituality or their being acquainted with an atheist or not.
Discussion

Ultimately, the original hypotheses failed to be supported by the results of the study. I had originally expected that participants would overall have more negative views of atheists (faster reaction times with negative words and the label *atheists*), while having more positive views of Christians (faster reaction times with positive words and the label *Christians*). This trend was not observed in the data. I had also predicted that religious individuals, Christians in particular, and those with higher belief in god or gods would have observably more negative views of atheists. This, too, was not supported by the data. Generally, the data indicate that negative associations for the three labels were not significantly different from one another. However, when looking at the positive associations, participants were nominally faster with the other two labels than they were with the label *atheists*, suggesting that while they did not have more negative attitudes towards atheists than they did the other groups, they did have more positive views of the other two groups. In other words, they lacked a positive attitude towards atheists. The implications of this suggestion are discussed further in the concluding section of this paper.

Overall, while the results lacked significant differences, there were some interesting results in the study. One unexpected finding in this study was the difference between those with higher belief in a god or gods to those with lower belief. The difference between these two was in the opposite direction from the original predictions. The higher belief group had slower reaction times across the board, but particularly for the negative and atheism pairs, when compared to those with higher belief. The negative attitudes towards atheists were very nearly significantly higher among those with lower belief in a god or gods than in those with higher belief. This might suggest that those with higher belief in a god or gods may be adhering to the “myth of atheism” mentality proposed by books with evangelical leanings that suggest that professed atheists are merely closeted believers.
trying to rationalize their lifestyle choices. Thus, while lacking positive views on them, they did not hold very negative views about atheists either. This perspective is akin to having strongly negative views of something like a troll or ogre; these are creatures with negative connotations, but their fictional quality makes harboring strong negative views about them silly. A similar effect might be taking place here with those with higher belief in a god or gods. Individuals with lower belief in god or gods may be more open to the idea of atheists sincerely existing, not merely being a myth or a façade for suppressed belief. They may also be more aware of these negative views, and thus have internalized them without, perhaps, harboring them themselves. This may or may not have to do with actually knowing an atheist, as the analysis of this variable in my data did not yield significant differences. Knowing an atheist might enable an individual to empathize more with atheists’ feelings about their maligned status in society, or it might make an individual more aware of this status by virtue of hearing about it from their acquaintance. Further research is needed to know if any of these speculations are the reasoning for the nearly-significant difference between those with higher belief in a god or gods and those with a lower belief. Analyzing the questions in the survey that dealt specifically with the existence of atheists may help address this question.

That I was unable to reject the null hypothesis on any of the analyses performed might be a result of many different things. One possibility is that the sample size in this study was too small; while there was a total of 47 participants recruited, the religious groups were too unequal to properly examine the differences among them. Furthermore, when analyzing the Christian participants alone, \( n \) dropped to 24. Future research endeavors in this topic will aim to get a larger, more representative sample across different religions. This effort will help identify what role, if any, an individual’s religion plays into their perception of atheists.
Given the age and context of the population sample (generally, freshmen at a university), the lack of a measurable association between the negative words and the label *atheists* may be a result of the liberal culture of a college atmosphere. The case may be that these chosen words are truly representative of the stereotypes, and perhaps if this same setup were repeated with an older population, or even a non-academic population, a significant difference could be seen in the groups, labels, and/or word types. Future studies will endeavor to sample older adults who have not attended an institute of higher education, older adults who have attended or are attending an institute of higher education, and young adults who have not attended such an institution in addition to the kind of participant sampled in the present study. By comparing these groups, it will be possible to see if the attitudes are related to education level, age, or ideology.

While the sample was small and different from the general population in some important ways, the lack of significant results in this study may be attributable more to the materials and design than to subject variables. One possible explanation for the results is that the words chosen for this experiment simply are not associated with these labels in the way that was expected. Perhaps the words I chose to study here are not as sensitively related conceptually to the label as would be measurable with an LDT. While one cannot necessarily conclude this from the given data, it is possible that negative attitudes towards atheists in contemporary times are not rooted in the stereotypes I listed at the beginning of the paper. If this is the case, future studies will have to try different stereotypes, different words for the stereotypes, or maybe something other than stereotypes altogether. Ultimately, if this is the case, then this thesis has at least served to highlight what kinds of concepts do not factor into the prejudices observed against atheists currently.

Another possible explanation is that the words were grouped in such a way that is not consistent with our schemas of atheists. For instance, the word *intelligent* is considered by popular
wisdom to be connected with atheists in general, but in this study, it gets categorized under the positive word type. The issue here is that intelligence when discussing atheism is often regarded as arrogance or elitist. Thus, when considering the two terms *intelligent* and *atheism*, the participants may have had a negative association. So while the classification used in this study makes sense and is consistent with prior research, the association of intelligence with a negative quality in the stereotypes of atheists may have artificially decreased average reaction times for positive words. Future analyses should look into the individual words and see how each word’s reaction time compares by label. The issue of determination of word frequency might come in at this point. While extensive measures were made to control for frequencies, the use of Project Gutenberg’s databases might not have produced accurate frequencies for today’s lexicon. Analyses comparing the reaction times by word frequencies might help assessing whether the observed reaction times follow an expected trend (faster reaction times for higher frequency words). Alternative methods for determining frequencies should be something considered for future research and replications of this study.
Conclusions and Implications

The current study, though lacking properly significant results, hints at two very interesting trends underlying the attitudes towards atheists. The first is that people seem to lack positive attitudes towards atheists without harboring strongly negative attitudes towards them. The second is that this trend seems especially true for those who have a higher belief in a god or gods and thus might be a result of not taking atheism to be a real ideology. My anecdotal observations make me hesitate in endorsing the view that higher belief in a god or gods leads to lower negative attitudes towards atheists. I would suggest tempering these claims by limiting them to the current population sample, college freshmen.

Despite this qualification, the implications are still exciting. That young college students lack tangibly negative views of atheists is encouraging, if we assume their beliefs are due to the progressive ideologies of their cohort. I expect that when this study is rerun in the future to include more diverse age groups and education levels, there will be enough of a difference between the non-freshmen population to draw more definite conclusions. I expect the older participants or the participants who did not attend institutes of higher learning will yield observable differences in their attitudes towards atheists and will likely confirm the anecdotal evidence of these negative attitudes.

The issue of belief in a god or gods and possible lack of belief in atheists is more difficult to assess in terms of its implications. It might be that raising awareness or belief in atheism might lead to more negative attitudes towards atheists in the types of individuals sampled in this study. For this reason, the level of belief in atheism in the sample must be addressed before making any suggestions or assessments. The analyses might show that on the explicit measures of their attitudes, participants with higher belief in a god or gods were not the same who answered that they believed
that atheists were pretending or acting on an impulse. Alternatively, the data might show that those who did not believe in atheists actually had higher negative attitudes towards them.

Ultimately, this thesis did not have the opportunity to address the individual characteristics of the attitudes towards atheists. This element of the study is something I am very interested in pursuing in future research as well as in further analyses of the current data. I suspect that the lack of observably negative attitudes is in part due to a misclassification of the words used in the study, and thus by picking apart the word types and comparing the reaction times of the labels paired with individual words will allow for more understanding of the attitudes. In the future, I hope to be able to more definitely establish the underlying elements of attitudes towards atheists, and, in doing so, aid in the understanding of how these attitudes can be mitigated. If these attitudes can be understood and then addressed, perhaps eventually atheists can be judged more on the basis of their individual characters than on preconceived notions attached to their ideologies.
Appendix A – IRB Documents
University of Central Florida

IRB Outcome Letter

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA0000633, IRB00001138

To: Valerie K. Sims and Co-PI: Maxine B. Najle

Date: March 06, 2012

Dear Researcher:

On 3/6/2012, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Word Recognition and Schema Activation
Institutional Investigator: Valerie K. Sims
IRB Number: SBE 12-08257
P?

Funding Agency:
Grant Title: 
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in IRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/06/2012 05:04:20 PM EST

IRB Coordinator
EXPLANATION OF RESEARCH

Title of Project: Word Recognition and Schema Activation

Principal Investigator: Valerie Sims, Ph.D

Other Investigator: Maxine Najie

You are being invited to take part in a research study. Whether you take part is up to you.

- You will be completing a short, word-recognition task followed by a series of surveys. You may withdraw from this task at any time during the procedure and do not have to answer every question or complete every task. Participation is completely voluntary.

- If at any time you wish to withdraw from the study and have your responses to the survey questions discarded completely, please feel free to contact either of the researchers. We would be more than happy to accommodate you.

- The expected duration of this study is ninety minutes. You will receive 1.5 SONA credits for your time.

You must be 18 years of age or older to take part in this research study.

If you wish to participate, please go to the specified location in your SONA Timeslot. Coming to the study constitutes consenting to participate. If you do not wish to participate, you may either come to the specified location at your given time or email Maxine Najie at maxinenajie@knights.ucf.edu. You will not be penalized for choosing not to continue with the study. Please note that the experimenters need 24-hour notice for cancelation or withdrawal from your timeslot in order to have adequate time to fill that slot.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints contact the Investigators: Dr. Valerie Sims, Faculty Supervisor, by email at vsims@mail.ucf.edu or by phone (407) 823-0343; or Maxine Najie, Student Investigator, by email at maxinenajie@knights.ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 601, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

Risks for Participations: There are no expected risks to you for participating in this study. However, some people become anxious or upset when answering questions about their behavior, beliefs and well being. If you believe you need counseling, please contact the UCF Counseling Center at (407) 823-2811 or Email counctr@mail.ucf.edu.
IRB Approved Debriefing Form

Debriefing Statement

The study is now complete. You will be awarded credit for your participation.

We thank you for your time and participation. Your input will be invaluable for our investigative efforts.

The purpose of this study is to investigate the differences in opinions about four specific groups: Atheists, Secular Humanists, Nonreligious individuals, and Christians. The statements in the first survey were designed to gauge these opinions. The responses to these survey items will be compared between subjects across the conditions in order to see the differences between these groups in terms of perception in the various subjects asked about in the items. These responses will also be compared within-subjects to the responses in the later measures and the demographic form.

If you have any concerns about your participation or the data you provided in light of this disclosure, please discuss this with us. We will be happy to provide any information we can to help answer questions you have about this study.

The responses in this study are de-identified and cannot be linked to you.

Once again, we thank you for your time and honesty in answering these questions.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints contact the investigators: Dr. Valerie Sims, Faculty Supervisor, by email at vsims@mail.ucf.edu or by phone (407) 823-0343; or Maxine Najie, Student Investigator, by email at maxinenajie@knights.ucf.edu. If you wish to be informed of the overall results when they are compiled and analyzed, please contact the investigators to be placed on an email list for that information.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

Risks for Participation: There are no expected risks to you for participating in this study. However, some people become anxious or upset when answering questions about their behavior, beliefs, and well-being. If you believe you need counseling, please contact the UCF Counseling Center at (407) 823-2911 or Email counctr@mail.ucf.edu
Appendix B – Scales
Revised Paranormal Belief Scale

Please put a number next to each item to indicate how much you agree or disagree with that item. Use the numbers as indicated below. There are no right or wrong answers. This is a sample of your own beliefs and attitudes. Thank you.

1=Strongly Disagree 2=Moderately Disagree 3=slightly Disagree
4=Uncertain 5=slightly Agree 6=Moderately Agree 7=Strongly Agree

1. The soul continues to exist though the body may die.
2. Some individuals are able to levitate (lift) objects through mental forces.
4. Black cats can bring bad luck.
5. Your mind or soul can leave your body and travel (astral projection).
6. The abominable snowman of Tibet exists.
7. Astrology is a way to accurately predict the future.
8. There is a devil.
9. Psychokinesis, the movement of objects through psychic powers, does exist.
10. Witches do exist.
11. If you break a mirror, you will have bad luck.
12. During altered states, such as sleep or trances, the spirit can leave the body.
14. The horoscope accurately tells a person’s future.
15. I believe in God
16. A person’s thoughts can influence the movement of a physical object.
17. Through the use of formulas and incantations, it is possible to cast spells on persons.
18. The number “13” is unlucky.
19. Reincarnation does occur.
20. There is life on other planets.
21. Some psychics can accurately predict the future.
22. There is a heaven and a hell.
23. Mind reading is not possible.
24. There are actual cases of witchcraft.
25. It is possible to communicate with the dead.
26. Some people have an unexplained ability to predict the future.

Note: Item 23 is reverse scored. Traditional Religious Belief = Mean of Items (1, 8, 15, 22); Psi = Mean of Items (2, 9, 16, 23); Witchcraft = Mean of Items (3, 10, 17, 24); Superstition = Mean of Items (4, 11, 18); Spiritualism = Mean of Items (5, 12, 19, 25); Extraordinary Life Forms = Mean of Items (6, 13, 20); Precognition = Mean of Items (7, 14, 21, 26).

(Tobacyk, 2004)

As seen in original paper.
Intrinsic vs. Extrinsic Religiosity

<table>
<thead>
<tr>
<th>Scale</th>
<th>Old No.</th>
<th>New No.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>1</td>
<td>I enjoy reading about my religion.</td>
</tr>
<tr>
<td>Es</td>
<td>2</td>
<td>2</td>
<td>I go to church because it helps me to make friends.</td>
</tr>
<tr>
<td>I reversed</td>
<td>3</td>
<td>3</td>
<td>It doesn’t much matter what I believe so long as I am good.</td>
</tr>
<tr>
<td>I</td>
<td>5</td>
<td>4</td>
<td>It is important to me to spend time in private thought and prayer.</td>
</tr>
<tr>
<td>I</td>
<td>7</td>
<td>5</td>
<td>I have often had a strong sense of God’s presence.</td>
</tr>
<tr>
<td>Ep</td>
<td>8</td>
<td>6</td>
<td>I pray mainly to gain relief and protection.</td>
</tr>
<tr>
<td>I</td>
<td>9</td>
<td>7</td>
<td>I try hard to live all my life according to my religious beliefs.</td>
</tr>
<tr>
<td>Ep b</td>
<td>10</td>
<td>8</td>
<td>What religion offers me most is comfort in times of trouble and sorrow.</td>
</tr>
<tr>
<td>Ep</td>
<td>13</td>
<td>9</td>
<td>Prayer is for peace and happiness.</td>
</tr>
<tr>
<td>I reversed</td>
<td>14</td>
<td>10</td>
<td>Although I am religious, I don’t let it affect my daily life.</td>
</tr>
<tr>
<td>Es</td>
<td>15</td>
<td>11</td>
<td>I go to church mostly to spend time with my friends.</td>
</tr>
<tr>
<td>I</td>
<td>16</td>
<td>12</td>
<td>My whole approach to life is based on my religion.</td>
</tr>
<tr>
<td>Es b</td>
<td>17</td>
<td>13</td>
<td>I go to church mainly because I enjoy seeing people I know there.</td>
</tr>
<tr>
<td>I reversed</td>
<td>20</td>
<td>14</td>
<td>Although I believe in my religion, many other things are more important in life.</td>
</tr>
</tbody>
</table>

a Number of item in Table 1.
b Single-item measures for that factor.

(Gorsuch & McPherson, 1989)
As seen in original paper.
Religious Fundamentalism Scale

The Revised 12-Item Religious Fundamentalism Scale

This survey is part of an investigation of general public opinion concerning a variety of social issues. You will probably find that you agree with some of the statements, and disagree with others, to varying extents. Please indicate your reaction to each statement by blackening a bubble in SECTION 1 of the bubble sheet, according to the following scale:

Blacken the bubble labeled: 
-4 if you very strongly disagree with the statement.
-3 if you strongly disagree with the statement.
-2 if you moderately disagree with the statement.
-1 if you slightly disagree with the statement.

Blacken the bubble labeled: 
+1 if you slightly agree with the statement.
+2 if you moderately agree with the statement.
+3 if you strongly agree with the statement.
+4 if you very strongly agree with the statement.

If you feel exactly and precisely neutral about an item, blacken the “0” bubble.

You may find that you sometimes have different reactions to different parts of a statement. For example, you might very strongly disagree (“–4”) with one idea in a statement, but slightly agree (“+1”) with another idea in the same item. When this happens, please combine your reactions, and write down how you feel on balance (a “–3” in this case).

1. God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed.
2. No single book of religious teachings contains all the intrinsic, fundamental truths about life.
3. The basic cause of evil in this world is Satan, who is still constantly and ferociously fighting against God.
4. It is more important to be a good person than to believe in God and the right religion.
5. There is a particular set of religious teachings in this world that are so true, you can’t go any “deeper” because they are the basic, bedrock message that God has given humanity.
6. When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by God; and the rest, who will not.
7. Scriptures may contain general truths, but they should NOT be considered completely, literally true from beginning to end.
8. To lead the best, most meaningful life, one must belong to the one, fundamentally true religion.
9. “Satan” is just the name people give to their own bad impulses. There really is no such thing as a diabolical “Prince of Darkness” who tempts us.
10. Whenever science and sacred scripture conflict, science is probably right.
11. The fundamentals of God’s religion should never be tampered with, or compromised with others’ beliefs.
12. All of the religions in the world have flaws and wrong teachings. There is no perfectly true, right religion.

* indicates item is worded in the con-trait direction, for which the scoring key is reversed.

(Altemeyer & Hunsberger, 2004)

As seen in original paper.
# Moral Judgment Test

## Workers’ Dilemma

Recently a company fired some people for unknown reasons. Some workers think the managers are listening in on employees through an intercom system and using the information against them. The managers deny this charge. The union says it will only do something about it when there is proof. Two workers then break into the main office and take the tapes that prove the managers were listening in.

<table>
<thead>
<tr>
<th>I strongly disagree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
</tr>
</tbody>
</table>

15. Would you disagree or agree with the workers’ behavior? 

How acceptable do you find the following arguments in favor of the two workers’ behavior? Suppose someone argued they were right . . .

<table>
<thead>
<tr>
<th>I strongly reject</th>
<th>I strongly accept</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4 -3 -2 -1 0 +1 +2 +3 +4</td>
<td></td>
</tr>
</tbody>
</table>

16. because they didn't cause much damage to the company. 
17. because due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order. 
18. because most of the workers would approve of their deed and many of them would be happy about it. 
19. because trust between people and individual dignity count more than the firm's internal regulations. 
20. because the company had committed an injustice first, the two workers were justified in breaking into the offices. 
21. because the two workers saw no legal means of revealing the company's misuse of confidence, and therefore chose what they considered the lesser evil.

How acceptable do you find the following arguments against the two workers’ behavior? Suppose someone argued they were wrong . . .

<table>
<thead>
<tr>
<th>I strongly reject</th>
<th>I strongly accept</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4 -3 -2 -1 0 +1 +2 +3 +4</td>
<td></td>
</tr>
</tbody>
</table>

22. because we would endanger law and order in society if everyone acted as the two workers did. 
23. because one must not violate such a basic right as the right of property ownership and take the law into one’s own hands, unless some universal moral principle justifies doing so. 
24. because risking dismissal from the company on behalf of other people is unwise. 
25. because the two should have run through the legal channels at their disposal and not committed a serious violation of the law. 
26. because one doesn't steal and commit burglary if one wants to be considered a decent and honest person. 
27. because the dismissals of the other employees did not affect them and thus they had no reason to steal the transcripts.
**Doctor's Dilemma**

A woman had cancer and she had no hope of being saved. She was in terrible pain and so weak that a large dose of a pain killer such as morphine would have caused her death. During a temporary period of improvement, she begged the doctor to give her enough morphine to kill her. She said she could no longer stand the pain and would be dead in a few weeks anyway. The doctor decided to give her a overdose of morphine.

38. Do you disagree or agree with the doctor's behavior?

<table>
<thead>
<tr>
<th>I strongly disagree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 -2 -1 0 +1 +2 +3</td>
<td></td>
</tr>
</tbody>
</table>

How acceptable do you find the following arguments in favor of the doctor? Suppose someone said he acted *rightly* ...

- because the doctor had to act according to his conscience. The woman's condition justified an exception to the moral obligation to preserve life. ................................. .................................
- because the doctor was the only one who could fulfill the woman's wish; respect for her wish made him act as he did. .................................
- because the doctor only did what the woman talked him into doing. He need not worry about unpleasant consequences. .................................
- because the woman would have died anyway and it didn't take much effort for him to give her an overdose of a pain killer. .................................
- because the doctor didn't really break a law. Nobody could have saved the woman and he only wanted to shorten her suffering. .................................
- because most of his fellow doctors would presumably have done the same in a similar situation. .................................

<table>
<thead>
<tr>
<th>I strongly reject</th>
<th>I strongly accept</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4 -3 -2 -1 0 +1 +2 +3 +4</td>
<td></td>
</tr>
</tbody>
</table>

How acceptable do you find the following arguments against the doctor? Suppose someone said that he acted *wrongly* ...

- because he acted contrary to his colleagues' convictions. If they are against mercy-killing the doctor shouldn't do it. .................................
- because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die. .................................
- because the protection of life is everyone's highest moral obligation. We have no clear moral criteria for distinguishing between mercy-killing and murder. .................................
- because the doctor could get himself into much trouble. They have already punished others for doing the same thing. .................................
- because he could have had it much easier if he had waited and not interfered with the woman's dying. .................................
- because the doctor broke the law. If one thinks that mercy-killing is illegal, then one should refuse such requests. .................................

<table>
<thead>
<tr>
<th>I strongly reject</th>
<th>I strongly accept</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4 -3 -2 -1 0 +1 +2 +3 +4</td>
<td></td>
</tr>
</tbody>
</table>

Thank you!

(Lind 1997-2002)

As seen in original paper.
Brief Reliable Measure of Negative Attitudes Toward Atheists

Please select a bubble each item to indicate how much you agree or disagree with that item. There are no right or wrong answers. This is a sample of your own beliefs and attitudes.

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Atheists should not be allowed to work with children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Atheists should have the same rights as people who believe in God.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Atheists are immoral.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. People who support the rights of atheists are probably atheists themselves.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Atheists should be avoided whenever possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I could never be friends with an atheist.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Bloesch, Forbes, Adams-Curtis, 2004)
As displayed in Qualtrics survey.
Appendix C – Original Questionnaire On Atheists
Survey One

- You will now be answering a series of attitudinal questions.
- Each question will be displayed on its own page.
- The questions will consist of a statement and a set of responses. The responses will be on a scale from Strongly Disagree to Strongly Agree. Your task will be to indicate how strongly you agree or disagree with the given statement.
- The statements asked will focus on different groups of people. For the purposes of this survey, please answer about the groups in a general sense. As an example, take the group republicans and the statement, “Republicans care more about individual rights than they do about social safety nets.” If you know of a particular republican who defies this statement but think that, in general, republicans do care more about individual rights than they do about social safety nets, you would indicate that you agree with this statement. These questions are meant to ask about the groups in general, not be an absolute statement about every member of the group.
- Items in this survey will be both positively and negatively worded. For example, you will see items like “Sunflowers are pretty,” as statements like “Sunflowers are NOT pretty.” The negative word “NOT” is capitalized to help differentiate it from the statement without the word. Its capitalization is purely for the purposes of clarity. It should not be taken to show emphasis or inflection in the statements.
- Please read each question carefully.
- Remember, there are no right or wrong answers. Please answer each question as honestly as possible.
Atheism Questions
In the order they were seen

1. Atheists should be allowed to vote.
2. Atheists are communists.
3. Atheists should NOT be allowed to teach high school.
4. Atheists are probably secretly theists.
5. Atheists are NOT selfish.
6. Atheists do NOT let the whims of society define their behavior.
7. People are inherently good.
8. The United States of America should be a theocracy.
9. Atheists are more likely to be vegetarians.
10. Atheists are NOT merely trying to feel better about their sinful lives.
11. Atheists actively recruit younger individuals.
12. Atheists should NOT be allowed to teach college.
13. Atheists worship the devil.
15. Atheists actively try to recruit new nonbelievers.
16. The Pledge of Allegiance should have the words under God.
17. Atheists are NOT rebelling against religious authority.
18. Atheists do NOT worship the devil.
19. Atheists do NOT actively recruit younger individuals.
20. Atheists do NOT believe in an afterlife.
21. Atheists are NOT more likely to be vegetarians.
22. The US Government should be separate from institutionalized religion.
23. Atheists are bitter.
24. Atheists do NOT respect others' religious beliefs.
25. Atheists are more likely to be Apple product users.
26. Atheists do NOT have moral values.
27. Atheists are selfish.

1 Each question is worded normally and with a NOT to control for wording effects.
28. Atheists are NOT bitter.
29. Atheists are more NOT likely to be Apple product users.
30. Atheists should be allowed to testify in court.
31. Atheists are arrogant.
32. Atheists should NOT be allowed to marry.
33. Atheists are NOT more likely to be homosexuals.
34. Atheists do believe in an afterlife.
35. It is unconstitutional to have the words under God in the Pledge of Allegiance.
36. Atheists are more likely to be homosexuals.
37. The United States of America was founded on Christian beliefs.
38. People are inherently evil.
39. Atheists do NOT conspire to corrupt youths.
40. Atheists should NOT be allowed to vote.
41. Atheists should be allowed to teach college.
42. Atheists are NOT socialists.
43. The United States of America should NOT be a theocracy.
44. The US Government should NOT be separate from institutionalized religion.
45. The United States of America is NOT a theocracy.
46. Atheists have moral values.
47. Atheists do NOT understand love, beauty, and compassion.
48. Atheists are socialists.
49. Atheists believe in love.
50. Atheists are NOT arrogant.
51. Atheists do NOT hate God.
52. Atheists conspire to overthrow religion.
53. Atheists should be allowed to marry.
54. The United States of America was NOT founded on Christian beliefs.
55. The United States of America is a theocracy.
56. Atheists are rebelling against religious authority.
57. Atheists hate God.
58. Atheists respect others' religious beliefs.
59. Atheists should NOT be allowed to testify in court.
60. Atheists should be allowed to teach high school.
61. Atheists let the whims of society define their behavior.
62. Atheists should be trusted to testify in court.
63. Atheists should NOT be trusted to testify in court.
64. It is constitutional to have the words under God in the Pledge of Allegiance.
65. Atheists are more patriotic than theists.
66. Atheists are merely trying to feel better about their sinful lives.
67. Atheists are probably NOT secretly theists.
68. Atheists are NOT communists.
69. The Pledge of Allegiance should NOT have the words under God.
70. Atheists do NOT actively try to recruit new nonbelievers.
71. Atheists should NOT be allowed to teach elementary school.
72. Atheists should be allowed to teach elementary school.
73. Atheists do NOT conspire to overthrow religion.
74. Atheists understand love, beauty, and compassion.
75. Atheists conspire to corrupt youths.
Appendix D – Double Lexical Decision Task
## Lexical Decision Task Words and Frequencies

<table>
<thead>
<tr>
<th>Label</th>
<th>Word</th>
<th>Range of rank of word</th>
<th>Frequency per billion</th>
<th>Freq Label</th>
<th>Length</th>
<th>Length Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asstd. Neutr.</td>
<td>doctor</td>
<td>1001 - 1100</td>
<td>78,281.90</td>
<td>high</td>
<td>6</td>
<td>med</td>
</tr>
<tr>
<td>Asstd. Neutr.</td>
<td>bread</td>
<td>1201-1300</td>
<td>65,708.40</td>
<td>high</td>
<td>5</td>
<td>short</td>
</tr>
<tr>
<td>Asstd. Neutr.</td>
<td>chair</td>
<td>801 - 900</td>
<td>97,567.40</td>
<td>high</td>
<td>5</td>
<td>short</td>
</tr>
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(Project Gutenberg, 2006)

Frequency:
- Low \( \leq 10,000; \)
- Med \( 10,000 < x \leq 40,000; \)
- High \( > 40,000 \)

Length:
- Short \( 4-5, \)
- Med \( 6-8, \)
- Long \( 9-12 \)

---

2 Frequency cutoff points were chosen for simplicity.
## LDT Word Frequencies and Lengths

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**Frequency:**
- Low $\leq 10,000$;
- Med $10,000 < x \leq 40,000$;
- High $> 40,000$

**Length:**
- Short 4-5,
- Med 6-8,
- Long 9-12
Non-word Strings Created from LDT Words

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</tr>
<tr>
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<td>momuncist</td>
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<td>chari</td>
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### Word and Non-word Pairings

#### Trial Words

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<th>Coding – Plate</th>
<th>Hall – Orange</th>
<th>Soft – Zumap</th>
<th>Switch – Lirth</th>
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<td>Switch – Purple</td>
<td>Door – Bottle</td>
<td>Bowl – Kupod</td>
<td>Doll – Florp</td>
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<td>Circle – Flower</td>
<td>Bowl – Folder</td>
<td>Frame – Jitler</td>
<td>Plate – Denf</td>
</tr>
<tr>
<td>Soft – Wet</td>
<td>Plant – Biscuit</td>
<td>Biscuit – Wenfar</td>
<td>Flower – Vordil</td>
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<tr>
<td>Spider – Grass</td>
<td>Frame – Doll</td>
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#### Associated Words

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<th>Table – Doctor</th>
<th>Table – Clopt</th>
<th>Chair – Lelve</th>
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</thead>
<tbody>
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<td>Bread – Butter</td>
<td>Bread – Chair</td>
<td>Bread – Polef</td>
<td>Butter – Fland</td>
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<tr>
<td>Doctor – Nurse</td>
<td>Nurse – Butter</td>
<td>Nurse – Marg</td>
<td>Doctor – Tharg</td>
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(Meyer & Schvaneveldt, 1971)
Screenshots of Stimuli

Cue – displayed between each stimulus

Stimulus Layout

Reversed Stimuli, Presented in Other Block
Appendix E – Cloze Reading Test
Original Passage

Michael's house was a massive structure of white stone, set back quite a distance from the road.

Slate roofs in a variety of angles and rakes came together in complicated junctures topped with a leaded-glass peak that let light into the central hall. The walkway to the house was shaded from the bright afternoon sun by towering white oaks as it passed through sweeping stretches of lawn before coming to formal gardens laid in symmetrical patterns to each side. The gardens were in full bloom. Since it was so late in the year, Richard knew the flowers had to have been raised in greenhouses just for the occasion.

People in fine clothes strolled the lawns and gardens, making Richard feel suddenly out of place. He knew he must look a mess in his dirty, sweat-stained forest garb, but he hadn't wanted to waste the time going out of his way to his house to get cleaned up. Besides, he was in a dark mood and didn't much care how he looked. He had more important things on his mind.

Kahlan, on the other hand, didn't look so out of place. The unusual but striking dress she wore belied the fact that she, too, had just walked out of the woods. Considering how much blood there had been up on Blunt Cliff, he was surprised that she didn't have any on her. She had somehow managed to stay clear while the men killed each other.

When she had seen how upset he had become when she had told him she had come through the boundary from the Midlands, she had fallen silent on the subject. Richard needed time to think about it, and hadn't pressed. Instead she asked him about Westland, what the people were like and where he lived. He told her about his house in the woods, how he liked living away from town, and that he was a guide for travelers through the Hartland Woods on their way to or from the town itself.

As unsettling as the day's events had been, on top of his grief, it felt good to have someone to talk to, even if she did dance around her secrets.

(Goodkind, 1994)
Instructions Given to Participants

(Aitken, 1977)
As suggested in the original paper.
Michael’s house was a massive structure _______ white stone, set back quite a _______ from the road. Slate roofs in _______ variety of angles and rakes came _______ in complicated junctures topped with a _______ peak that let light into the _______ hall. The walkway to the house _______ shaded from the bright afternoon sun _______ towering white oaks as it passed _______ sweeping stretches of lawn before coming _______ formal gardens laid in symmetrical patterns _______ each side. The gardens were in _______ bloom. Since it was so late _______ the year, Richard knew the flowers _______ to have been raised in greenhouses _______ for the occasion.

People in fine _______ strolled the lawns and gardens, making Richard _______ suddenly out of place. He knew _______ must look a mess in his _______ sweat-stained forest garb, but he hadn’t _______ to waste the time going out _______ his way to his house to _______ cleaned up. Besides, he was in a _______ mood and didn’t much care how _______ looked. He had more important things _______ his mind.

Kahlan, on the other _______, didn’t look so out of place. _______ unusual but striking dress she wore _______ the fact that she, too, had _______ walked out of the woods. Considering _______ much mud there had been up _______ Blunt Cliff, he was surprised that _______ didn’t have any on her. She _______ somehow managed to stay clear while _______ men fought each other.

When she _______ seen how upset he had become _______ she had told him she had _______ through the boundary from the Midlands, _______ had fallen silent on the subject. _______ needed time to think about it, _______ hadn’t pressed. Instead she asked him _______ Westland, what the people were like _______ where he lived. He told her _______ his house in the woods, how _______ liked living away from town, and _______ he was a guide for travelers _______ the Hartland Woods on their way _______ or from the town itself.

As _______ as the day’s events had been, _______ top of his grief, it felt _______ to have someone to talk to, _______ if she did dance around her secrets.
Appendix F – Demographics Form
Screenshots from Demographics Form

Page One

Demographic Information

Age

Gender
- Male
- Female

Major(s)

Minor(s)

What is your highest current year in college?
- Freshman
- Sophomore
- Junior
- Senior
- Non-Degree Seeking

What best describes your ethnicity?
- American Indian or Native Alaskan
- Asian
- Black or African-American
- Hispanic or Latino
- Native Hawaiian
- White
- Mixed:
- Other

Qualtrics banner, next button, and progress bar present on every page.
Do you try to stay up-to-date with politics?

☐ Yes
☐ No

How often do you engage in activities to remain current with politics? (i.e., watch tv, read articles, read blogs, listen to radio about politics or political news.)

☐ Never
☐ Only Around Election Time
☐ Less than Once a Month
☐ Once a Month
☐ 2-3 Times a Month
☐ Once a Week
☐ 2-3 Times a Week
☐ Daily
☐ More than Once a Day

Please indicate which of the following you follow. (Select as many as apply)

☐ Local Politics
☐ State Politics
☐ National Politics
☐ World Politics

What sources do you go to for your news? (Select as many as apply)

☐ CNN
☐ MSNBC
☐ CBS
☐ Fox News
☐ BBC
☐ Al Jazeera
☐ The Daily Show/Colbert Report
☐ Morning talk shows
☐ NPR
☐ Conservative Radio
☐ New York Times
☐ USA Today
☐ State
☐ Time Magazine
☐ Newsweek
☐ The Nation
☐ Washington Post
☐ Wall Street Journal
☐ Huffington Post
☐ Politico

☐ Other TV:
☐ Other Radio:
☐ Other Newspaper:
☐ Other Magazine:
☐ Other Blog:
☐ Other:
How important do you believe it is to stay up-to-date with politics?

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<th>Somewhat Unimportant</th>
<th>Neither Important nor Unimportant</th>
<th>Somewhat Important</th>
<th>Very Important</th>
<th>Extremely Important</th>
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How knowledgeable do you consider yourself to be about politics?

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<th>2</th>
<th>3</th>
<th>About Average</th>
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<th>5</th>
<th>6</th>
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</table>

What best describes your political ideology?

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<th>Moderate</th>
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<th>Conservative</th>
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<td></td>
<td></td>
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</tbody>
</table>

Which best describes your political affiliation?

- Democrat
- Republican
- Independent
- Other: ____________

Are you a registered voter in the US?

- Yes
- No

If so, what party are you registered as?

______________________________
What best describes your religious affiliation?

- Catholic
- Church of Jesus Christ of Latter-day Saints
- Jehovah's Witness
- Protestant (please specify denomination):
- Christian (None of the Above):
- Jewish
- Muslim
- Hindu
- Buddhist
- Pagan
- Wiccan
- Unitarian Universalist
- Atheist
- Agnostic
- Other:

What best describes the religious affiliation with which you were brought up?

- Catholic
- Church of Jesus Christ of Latter-day Saints
- Jehovah's Witness
- Protestant (please specify denomination):
- Christian (None of the Above):
- Jewish
- Muslim
- Hindu
- Buddhist
- Pagan
- Wiccan
- Unitarian Universalist
- Atheist
- Agnostic
- Other:

How often do you attend religious practices?

- Never
- A few times a year
- Once every month or two
- Two or three times a month
- Once a week
- Daily
How spiritual would you consider yourself to be?

Not at all 2 3 4 5 6 Very Spiritual

Please indicate your level of belief in a God or Gods.

1. Strong Theist: 100% convinced that there is a God(s).
2. Very high, but short of 100%.
3. Higher than 50%, but not very high.
4. Exactly 50%. Impartial agnostic. Equal probability for or against existence of God(s).
5. Lower than 50%, but not very low.
6. Very low, but short of 0%.
7. Strong atheist: 100% convinced that there is are no God(s)

Do you know anyone who is an atheist? (other than yourself)

Yes
No
I don’t know

Have you ever taken any courses about religion? (i.e., World Religions)

Yes
No
Page Four – Define Atheism

In your own words, what do you consider an atheist to be?

Page Five – Define Secular Humanist

In your own words, what do you consider a secular humanist to be?

Page Six – Familiarity with Passage from Reading Test, 1

Have you ever read the book *Wizard's First Rule* by Terry Goodkind?

☐ Yes
☐ No

Page Six – Familiarity with Passage from Reading Test, 2

If so, how long ago?

☐ Sometime in the past month
☐ Sometime in the past 6 months
☐ Sometime in the past year
☐ Sometime in the past 2 years
☐ Sometime over 2 years ago.

Have you ever watched the show *Legend of the Seeker*?

☐ Yes
☐ No
What is the city, state, and zip code in which you grew up?

City
State
Zip-code

Which best describes the type of area in which you grew up?
- Urban
- Suburban
- Rural
- None of the above

What is your father’s highest level of education?
- Some high school
- High school
- Some college
- Associate’s Degree
- Bachelor’s Degree
- Doctoral Degree

What is your mother’s highest level of education?
- Some high school
- High school
- Some college
- Associate’s Degree
- Bachelor’s Degree
- Doctoral Degree

Are (or were) you a member of the United States military?
- Yes
- No

Are (or were) you a member of ROTC?
- Yes
- No
References


