

MORAL REASONING AND POLITICAL AFFILIATION  
IN LIBERAL AND CONSERVATIVE VOTERS:  
APPLYING A MODEL OF HIERARCHICAL COMPLEXITY

by

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A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Capella University

December 2006

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## Abstract

There exists an apparent contradiction in American political thought about moral reasoning. On the one hand, political conservatives often claim moral superiority over liberal Democrats. Based upon the results of the 2000 and 2004 U.S. Presidential elections, it appeared as though a majority of the voting public discounted important issues such as the economy, healthcare, and the environment in favor of conservative moral issues by voting for Republican George W. Bush. On the other hand, studies based on Kohlberg's stages of moral development have concluded that liberals tend to operate within higher principled stages of moral reasoning, while conservatives operate within lower conventional levels. Critics argue that Kohlberg's concept of developmental stage is invalid, thereby questioning the results of these studies. In order to provide empirical evidence for these results, as well as to support the notion of developmental stages, this study utilized the Model of Hierarchical Complexity (MHC) to relate an individual's performance on multiple measures of moral reasoning to a mathematical order of hierarchical complexity. Rather than using standard performance-based tests of moral reasoning, such as the Defining Issues Test (DIT), or the Moral Judgment Test (MJT), this study utilized moral dilemmas from these measures, and the and specific items typically used to measure the responses. A mathematical order of hierarchical complexity was applied to each item, and the results were analyzed using the Rasch analysis. Overall results indicated that with a few specific exceptions the order of hierarchical complexity did not predict political affiliation however, findings did support the notion that the test items were measuring moral reasoning levels which provides support for Kohlberg's stage theory. Education-level and household income, were found to be highly correlated and significant predictors of political affiliation while level of religiosity was correlated with, and found to be a significant predictor of one's identification as a liberal or a conservative. Future research is needed to compare the results of traditional moral reasoning tests with the hierarchical methodology used in this study. Hierarchical complexity may prove to be a valuable tool to objectively measure individual differences in other realms of social science.



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## CHAPTER 1. INTRODUCTION

Thirteen percent more American voters went to the polls on November 2, 2004 than in any other U.S. Presidential election. However, the results showed a deeply divided nation. President George W. Bush received 51.5% of the popular vote, winning the election over opponent Senator John Kerry who received 48.5% (Gallup Poll, 2004). Many disappointed Kerry supporters expressed a concern that the election was actually a vote in favor of war, deficits, job losses, and conservative moral values (Frank, 2004). An analysis of Gallup exit polls following the 2004 U.S. Presidential election provided interesting insights into voting patterns. Final exit polls showed that President George W. Bush's victory over Senator John Kerry was led by strong support among conservatives, men, Whites, southerners, married voters, churchgoers, Protestants, gun owners, and veterans. On the other hand, Kerry appealed to liberals, Blacks, union households, unmarried women and men, those who seldom or never attend church, 18- to 29-year-olds, Easterners, and urban residents (Gallup Poll, 2004).

Exit polls also found differences in how voters viewed social issues. Kerry voters were concerned with issues such as education (73%), the Iraq war (73%), the economy (80%), and healthcare (77%); while Bush voters indicated that taxes (57%), terrorism (86%), and moral values (80%) were important deciding factors in their vote (Gallup Poll, 2004). Moral values included issues such as abortion rights and same-sex marriage. Table 1 presents the exit poll numbers regarding these two moral issues. Those who believed that abortion should be legal in all cases (73%), or in most cases (61%), tended to vote for Kerry, while those who believed that abortion should be illegal in all cases (77%) tended to vote for Bush. Voters who believed that same-sex individuals should be allowed to marry (77%) tended to vote for Kerry, and those who disapproved legal recognition of same-sex marriage (70%) voted for Bush (Beliefnet, 2004).

Table 1. 2004 Presidential Election Exit Poll  
Results on Abortion Rights and Same-Sex Marriage

	Kerry	Bush
Abortion-Rights		
Legal in all cases	73%	25%
Legal in most cases	61%	38%
Illegal in all cases	22%	77%
Same-Sex Marriage		
Legally marry	77%	22%
No legal recognition	29%	70%
Approve civil unions	47%	52%

Although many Americans indicated that moral values had a major influence on their candidate preference, the majority of voters supported George W. Bush, who many believed was engaged in an unjustified, immoral war in Iraq, who had run up a huge national deficit, and who vowed to restrict human rights with regard to same-sex marriage and abortion rights. War, the restriction of human rights, and revenge for the September 11 attacks were not what many liberal Americans believed to be moral actions. Savoy (2004) noted that “even after news about the torture of Iraqi prisoners was reported, a majority of Americans remained convinced that the war was morally justified” (p.16).

The 2004 Democratic National Platform for America (Democratic National Committee, 2004) outlined plans for protecting the American public; rebuilding alliances with other countries; building a strong, growing economy; providing quality health care; offering world-class education; and ensuring clean air and water. In addition, the platform called for honoring the values of a strong American community, widening the circle of equality, and protecting the sanctity of freedom. Many liberals thought that these planks expressed strong moral values. Nevertheless, a large majority of Americans who voted on the basis of moral values chose George W. Bush.

Lawler (2005) has argued that those who voted for George W. Bush because of moral values were really voting for virtue. He describes conservatives as those who believe that the key to finding livable compromises to important social issues is to oppose court-imposed, radically individualistic solutions. He indicates that conservative voters are aware of the problems brought about by promiscuous individualism because they see themselves as much more than mere individuals. Lawler explains that “they connect a devotion to children, belief in a living, loving, and at least somewhat judgmental God, and love of country as moral resistance to libertarianism in public policy” (p. 26). Their aim is to save the country from those who wish to make libertarianism a dominant force in public policy.

The 2000 and 2004 Presidential election results elicited lengthy discussions surrounding morals and moral reasoning. It appeared that what liberals and conservatives viewed as moral differed considerably. To many liberals, the act of war, the elimination of basic human rights, and the torturing of prisoners are immoral behaviors. Yet conservatives may see these same behaviors as moral actions that punish wrongdoers and inhibit people from committing acts considered immoral in religious teachings. The aim of this study is to investigate the perceived discrepancy between how liberals and conservatives reason about moral issues and how moral reasoning can be objectively measured.

Psychologists such as Kohlberg (1984) and Piaget (1932/1965) described a cognitive-developmental progression of moral reasoning in which an individual advances from making moral judgments in accord with perceived, self-interested factors to making judgments on the basis of an internalized set of principles that optimize the welfare of others. Building on Piaget’s concept that cognitive stages are hierarchical, Kohlberg outlined six stages of moral development that did not simply represent increasing knowledge of cultural values, but rather represented the transformations that occur in a person’s structure of thought (Kohlberg & Hersh, 1977).

Many different approaches have been taken in determining what is moral. Kohlberg believed that an essential component of morality is the concept of justice, which he defined as the distribution of rights and duties regulated by concepts of equality and reciprocity. He argued that moral development is a cognitive transformation that occurs over time as individuals interact with their environment. Kohlberg demonstrated that moral reasoning develops in hierarchical stages that are consistent, invariant, and cognitively integrated (Kohlberg & Hersh, 1977).

Kohlberg's cognitive-developmental stage notion of moral reasoning is not universally accepted. Some theorists reject the idea of mental processes or developmental stages. They assert that thoughts, emotions, and behaviors are all constructed by way of cultural traditions and social practices (Sparks & Durkin, 1987). Others (Turiel, 1998) see morality as based in genetics, thereby providing uniformity of moral ideas among people. Gilligan (1982/1993) proposed that there are gender differences are important in defining what is moral. She held that a morality of justice fails to account for women's moral judgments because it focuses on rules, rights, and autonomy, rather than on the morality of care which emphasizes fulfillment of responsibility and avoidance of exploitation.

### Background of the Study

Relationships between political attitudes and moral reasoning have been found in numerous studies (e.g., Alker & Poppen, 1973; Emler, Renwick, & Malone, 1983; Fishkin, Keniston, & MacKinnon, 1973; Gross, 1996; Hoagland, 1984; Raaijmakers, Verbogt, & Volleberg, 1998; Rest, 1976). Kohlbergian cognitive-developmental interpretations of these results have concluded that those on the political right (conservatives) tend to use conventional Stage four moral reasoning, while those on the political left (liberals) prefer principled or Stage five reasoning; reflecting the influence of moral maturity on political orientation (Emler, Palmer-Canton, & St. James, 1998).

Kohlberg (1984) classified moral reasoning as progressing through the following three levels, and six stages of development:

- I. *Preconventional Level.* Moral values reside in external events rather than in persons or standards. The *preconventional* level consists of two stages. Stage one incorporates a punishment and obedience orientation, in which the individual displays an egocentric deference to superior power or prestige. The objective is responsibility. Stage two is a naively egoistic orientation where "right action" satisfies self needs. A naïve egalitarianism and orientation toward the concepts of exchange and reciprocity pervades individual decisions.
- II. *Conventional Level.* Moral values reside in performing good or right behaviors that maintain social conventions and the expectations of others. Stage three incorporates an interpersonal orientation to decision making, where good behavior is what pleases or helps others and is approved by them. Stage four is oriented towards law and order. The individual makes decisions in deference to authority, rules, and social order.

- III. *Postconventional Level*. Moral value resides in conformity to shared standards, rights, and duties. Stage five is oriented towards social-contracts, where right action is defined in terms of individual rights and standards which have been agreed upon by society. Stage six is a universal-ethical principle orientation, where right decisions are defined by conscience, along with self-chosen ethical principles.

In another interpretation of the results that found stage differences between liberals and conservatives, Emler et al. (1983) argued that the moral stages associated with different political positions are, in fact, contrasting politico-moral ideologies, and that individuals choose the form of moral reasoning that best expresses their own political identity. In addition, critics of Kohlberg's cognitive-developmental view of moral reasoning question the validity of the moral reasoning measures which have been widely used to determine an individual's level of moral reasoning based upon Kohlberg's moral development theory. In essence, critics argue that moral reasoning is not a developmental construct and that the stages proposed by Kohlberg are invalid, along with the existing tests of moral development based on his model. In order to prove their point, Emler, et al. conducted a study that would question the major premises of Kohlberg's cognitive-developmental stage theory.

One of the major premises of cognitive-developmental theory is the notion that moral reasoning develops in discrete stages that form increasingly differentiated and integrated structures. Therefore, it would be impossible for a person to understand or reproduce moral responses reflecting a stage higher than their own. Over the years, tests have been developed to measure these hierarchically integrated stages of moral reasoning. The most widely used of such tests is the Defining Issues Test (DIT) that emphasizes cognition, personal construction of basic epistemological categories, and levels of moral development (Rest, Narvaez, Thoma, & Bebeau, 2000).

However, the concept that moral reasoning develops in discrete stages has been an issue with critics such as Emler et al. (1983), and Fisher and Sweeney (1998). In a landmark study Emler et al. (1983) found that participants taking the DIT could fake higher *postconventional* scores on the DIT when asked to modify their moral judgment responses in a direction consistent with an alternative political perspective. The *postconventional*, or P-score, is the standard measure used in the DIT to reflect the importance placed by the respondent on statements that involve moral reasoning (Dollinger & LaMartina, 1998). The P-score ranges from 0 to 95 and indicates the percentage of *postconventional*, or higher order thinking preferred by the participant (Narvaez, 1998). The results by Emler et al. (1983) were in direct opposition to Kohlberg's (1984) moral development theory that maintained that stages are invariant, and that it is impossible for those at lower moral development stages to fake upwards.

In response to these criticisms, changes were made to the DIT, resulting in a revised test called the DIT-2. The DIT-2 indexes test data using the N2 index which has been found to have superior performance on seven construct validity criteria, over the older P-score. The N2 scores have two parts: the degree to which *postconventional* items are prioritized, and the degree to

which lower stage items receive lower ratings than the ratings given to *postconventional*, or higher stage items. The two parts are combined into one score by adding the P-score to the rating data weighted by three. The N2 scores have the same mean and standard deviation as the P-score so comparisons can be made (Bebeau & Thoma, 2003).

Other tests of moral reasoning, such as the Moral Judgment Test (MJT; Lind, 1985) were designed to assess participant moral judgment competence by recording how an individual deals with counter-arguments to moral dilemmas which are the moral tasks with which the individual must cope. The MJT also measures moral attitudes toward each stage of moral reasoning. The simultaneous assessment of cognitive and affective aspects of moral judgment behavior is the most unique feature of the MJT, and is rooted in the dual aspect theory of moral development that posits that moral behavior consists of both a person's preference for certain moral ideals or principles, and their ability to reason and act accordingly (Lind, 2002).

However, according to Commons and Pekker (2005) one of the major problems with existing moral reasoning tests is that the properties of the tasks have not been separated from the performance itself. Replacing performance-based measures of difficulty with task-based measures allows for an objective measure of task difficulty to which performance can be related. Performance is regarded as being partly, but not exclusively, related to task properties. If the psychological and logical assumptions of moral stage are removed, and the notions that higher stages are defined in terms of lower ones, and that the higher stages organize lower stages are retained, then stage theory is strengthened.

The Model of Hierarchical Complexity (MHC) relates stage of performance to properties of tasks and specifically to a property called the order of hierarchical complexity. If task difficulty is a valid dimension, then a task that orders as highly hierarchically complex should be more difficult to perform than a task that orders as less hierarchically complex. Using the concept of hierarchical complexity, new measures of moral development were developed for use in the present study. They include the Politician-Voter Problem (PVP), and the Right to Bear Arms test (RBA) by Commons and Robinett (2006). The items on these tests were designed to reflect hierarchical complexity. In other words, items were written to reflect each of the levels of hierarchical complexity. The levels of hierarchical complexity and how the items were written are covered in the Methods section of this study.

The Rasch Model (Rasch, 1960) is recommended by Commons and Pekker (2005) as the preferred analysis tool when study participants respond to a set of items for assessment. Its objectivity in constructing scales that are separable from the distribution of the attribute in the individual it measures is one of its benefits (Bond & Fox, 2001). According to Bond and Fox (2001) "there is only one readily accessible tool to help construct objective, additive scales: the Rasch Model" (p. 7). When analyzing data using a Rasch model, it allows the investigator to see what a construct would look like if he or she could measure it using a ruler. Importantly, it helps to understand the underlying reasons people and items behave in a particular way by providing an approximation of measures.

Rasch Models are probabilistic measurement models that provide a foundation for the measurement of quantitative attributes and traits on a continuum based on categorical data derived from interactions between persons and items. Rasch scaling procedures find a best fit score for each individual and each item by minimizing the errors. In the case of stage instruments, Rasch analysis processes data using logistic regression to compile test scores, and to create a rating for each participant and each item from the instruments (Commons & Pekker, 2005).

### Statement of the Problem

Following the 2000 and the 2004 U.S. Presidential elections, many Americans questioned why millions of impoverished, or relatively impoverished citizens voted for the Republican presidential candidate, George W. Bush. According to Frank (2004) these results were seemingly opposed to that which many believed to be the genuine interests of most Americans, namely poverty, the environment, health care, and the economy. Instead, many voters had been diverted to right-wing conservative moral issues such as race, crime, moral decay, homosexuality, guns, abortion, feminism, anti-Americanism, and other issues that seemed irrelevant to their daily lives.

Contrary to the moral superiority claims of right-wing conservatives, research studies of moral development and reasoning have consistently shown that liberals tend to score at higher principled stages of Kohlberg's developmental levels, whereas conservatives tend to score at lower, more conventional levels of moral reasoning (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976). This seems to indicate that although right-wing conservatives claim higher moral ground, in fact, liberals tend to operate at higher, more principled levels of moral reasoning. Critics take issue with these results by questioning the cognitive-developmental based stage approach used to interpret these findings, as well as to question the validity of the existing measures of moral reasoning (Emler et al., 1983).

### Purpose of the Study

This study had several different but related purposes. First, it was an important developmental stage validation study as it utilized a mathematical model of hierarchical complexity of tasks to predict levels of moral reasoning, rather than the cognitive approach of interpreting stage from a participant's performance on a test. Second, this study utilized items from multiple measures of moral reasoning, including items from existing tests as well as from new tests based upon the order of hierarchical complexity. All of the items were scored using the Hierarchical Complexity Scoring System (HCSS) rather than traditional standard scoring systems.

Using hierarchical complexity, which is an objective mathematical model rather than a subjective cognitive-developmental model of moral reasoning, the expectation was that the results would validate Kohlberg's theory that stages of moral development exist, and refute the claims of Emler et al. (1983) that measures of moral reasoning are invalid. In addition, the results



of this study may assist in predicting voting behavior of U.S. citizens in understanding cognitive developmental processes regarding moral, social, and political issues, and in assessing how levels of moral development define how people make important decisions.

### Research Questions

There are three important research questions that were addressed in this study. They include the following:

- 1) Does the order of hierarchical complexity in political liberals and conservatives differ as measured by items from the DIT-2, the MJT, PVP, and the RBA? As stated previously, research has shown that conservatives tend to operate at Kohlberg's conventional (Stage 3 to 4) moral development stages, while liberals operate at the principled (Stage 5) moral development stage. Although one can compare order of hierarchical complexity and moral stage (see Table 7), the question is will similar results be found using the Model of Hierarchical Complexity?
- 2) Do moral reasoning scores as measured by the HCSS and items from the DIT-2, MJT, PVP, and the RBA correspond with each other in this population? Are they measuring the same underlying construct?
- 3) Does the order of hierarchical complexity in moral reasoning scores explain the greater portion of variance in political affiliation, not better accounted for by education-level, household income, or religiosity?

### Hypotheses

There are three research hypotheses which correspond to the research questions above. They are as follows:

- 1) Political liberals and conservatives differ in their levels of moral reasoning as measured by hierarchical complexity.
- 2) Moral reasoning scores as measured by items from the DIT-2, MJT, PVP, and the RBA will closely correspond with each other, indicating that they are measuring the same underlying constructs.
- 3) The order of hierarchical complexity in moral reasoning scores explains the greater portion of variance in political affiliation, not better accounted for by education-level, household income, or religiosity.

### Significance of the Study

As stated in the first research question, one of the goals of this study was to replicate previous studies (i.e., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976) that found differences in moral reasoning levels in conservatives and liberals. Replication was done using a model of hierarchical complexity rather

than the cognitive-developmental approach used in other studies. Instead of using the standard performance-based tests, such as the Moral Judgment Interview (MJ: Kohlberg, 1984) and the DIT-2, this study utilized hierarchical complexity to examine moral levels. If a mathematical model such as order of hierarchical complexity found similar results in the moral reasoning levels of liberals and conservatives, it would follow that moral stage is a predictor of political affiliation and identity. The methods used, including the Hierarchical Complexity Scoring System, are presented in the Methods section of this study.

As stated in research question number two, another goal of this study was to provide evidence contrary to the claim by Emler et al. (1983) that Kohlberg's developmental stages, and tests of moral reasoning are invalid. If items taken from existing tests of moral reasoning, as well as items that were developed using hierarchical complexity correlate with one another; and if analyses show that they fall on a single dimension of moral reasoning, Kohlberg's notion of stages, and the validity of testing moral reasoning would also be empirically supported. The methods used, and the results of these analyses are presented in the Results section of this study.

#### Definition of Terms

1. Hierarchical Complexity Scoring System (HCSS): The HCSS is a framework for scoring moral reasoning stages based on the mathematical complexity of hierarchical organization of information.
2. Model of Hierarchical Complexity (MHC): The model of hierarchical complexity is a cross-domain/universal system that classifies the task-required hierarchical organization of responses. The model asserts that all tasks fit into some sequence of tasks, making it possible to determine at what order of hierarchical complexity an ideal action would have to be in order to address the task (Commons & Richards, 2002).
3. Moral Reasoning: Moral reasoning is individual or collective practical reasoning about what, morally, one ought to do (Richardson, 2003).
4. Moral Stage: The concept of moral stage posits that individuals progress from lower stages to higher stages via a transformation of cognitive structure, which is the result of an interaction between the organism and the environment (Kohlberg, 1984).
5. Political Conservatism: Political conservatism is a political philosophy based on tradition and social stability, stressing established institutions and preferring gradual development to abrupt change. Many people who call themselves conservatives believe strongly in the Judeo-Christian social tradition and strict interpretation of the U.S. Constitution (Conservatism, 1979).
6. Political Liberalism: Political liberalism is a cluster of political positions supported by people called liberals who typically support social programs, environmentalism, public education, equal rights for women, gays, and ethnic minorities, affirmative action, and the pro-choice stand on abortion (Lakoff, 2002).
7. Rasch Analysis: A Rasch Analysis is an analysis model that produces an objective, additive scale independent of the particular items used, and of the particular participants tested. Through the use of probabilistic equations this model converts raw ratings of items into scales that have equal intervals (Wright & Linacre, 2001).

### Assumptions

1. Participants completed all of the instruments in an honest and truthful way.
2. All instruments demonstrated reliability and validity.
3. A sufficient number of participants at all orders of hierarchical complexity participated.
4. The sample is representative of the U.S. population.
5. It is possible to accurately measure moral reasoning.

### Limitations

The majority of the participants consisted of community college students from the College of the Desert, in Palm Desert, California and therefore, conclusions may not generalize to other populations. Most of the participants were between 20 and 30 years old with some college education. A pilot test used items from all of the moral tests with the exception of the RBA. Although it was included in the IRB, it was not completed at the time of the pilot test. The Politician-Voter Problem (PVP), and the Right to Bear Arms (RBA) were new instruments therefore, their reliability and validity are based solely on the results of this study. Additional empirical studies must be done to provide further reliability and validity data for these instruments. In addition, the items from the existing tests of moral reasoning were scored using the Hierarchical Complexity Scoring System rather than the scoring systems recommended by the authors; therefore, claims are not being made regarding the validity or reliability of these tests as used in this study.

Participants volunteered for this study. Therefore, volunteer bias may have been a factor in the overall results of the study. It is possible that these volunteers differed in meaningful ways from nonvolunteers and that the differences between volunteers and nonvolunteers would affect the external validity of the research (Bordens & Abbott, 1991). Variables relating to voluntary participation may cloud any causal inferences drawn about the relationship between the independent and dependent variables.

To remedy this situation the researcher reduced bias inherent in the recruitment of volunteers by following suggestions of Bordens and Abbott (1991). The request for participants was appealing and interesting, as well as non-threatening. The researcher discussed the importance of the research with potential participants. Student volunteers were given extra credit points toward their grade for their participation. Requests for participation were made in person by the primary researcher, and all participants were assured that the tasks were not psychologically or biologically stressful.

In addition, since this study topic is controversial in nature, Mullen and associates (2003), caution that researchers need to be aware of their own values and how those values may shape the research and the inferences drawn from that research. Results can be construed differently depending upon the viewpoints of the researchers. They point out that some of the research conducted between cognitive styles and political attitudes have demonstrated that “individuals on both the political left and the right can, at times, demonstrate low levels of integrative

complexity, cognitive rigidity, dogmatic thinking, and intolerance for ambiguity” (p. 175). Therefore, it is important to review the findings of this study with that caution in mind.

### Organization of the Remainder of the Study

In Chapter Two, I discuss the relevant literature associated with moral development, moral reasoning, and moral politics. This provides the basis and background for the discussion in Chapter Three of the research methodology used in the present study, the relationship between the problem, the research questions and hypotheses, and the design methods. Chapter Three also outlines the population and participant selection, data collection methods, and anticipated findings. In Chapter Four I present the study results in a nonevaluative stance including tables, graphs, figures, charts and other appropriate means of explaining the data. In Chapter Five I present the interpretation and conclusions of the study as well as recommendations for future empirical research.

## CHAPTER 2. LITERATURE REVIEW

### Moral Reasoning and Political Affiliation

The relationship between moral reasoning and political beliefs has been studied since the concept of moral development was introduced by Piaget (1932/1965) in his book “The Moral Judgment of the Child”. Many studies have focused on the cognitive growth of an individual that allowed him or her to deal effectively with complex political concepts. Typically, this growth was explained in terms of hierarchical stages ranging from personal and individualistic points of view, to higher principled thinking. Most of the studies of moral development and political attitudes have reported significant correlations between the two (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976). Similar findings have been reported for voting behavior, and political affiliation. The conclusions from these studies claim that progressive political ideas require a higher level of moral reasoning than conservative ideas (Raaijmakers et al., 1998).

An important aspect of cognitive development is a change in moral reasoning—how an individual thinks when making moral decisions. The most influential theory of moral development was proposed by psychologist Lawrence Kohlberg (1984). Kohlberg analyzed responses to hypothetical moral dilemmas and concluded that he could identify three distinct levels of moral development. These levels, which unfold in an age-related step-by-step fashion, were identified as *preconventional*, *conventional*, and *postconventional*. The term moral refers to situations that call for judgments involving deontological, or obligatory concepts such as right and wrong, duty and obligation, having a right, and fairness (Kohlberg and Hersh, 2001).

Individuals operating at the *preconventional* level of moral reasoning are responsive to cultural rules and labels of good and bad, right or wrong, but interpret these labels either in terms of the physical or emotional consequences of the judgment (Kohlberg, 1984). Kohlberg indicated that those operating at the *conventional* level exhibit an attitude of conformity to personal expectations and social order and more importantly believe that the order should be maintained and justified. At the *postconventional* level, the individual makes a clear effort to define moral values and principles that have validity and application apart from the authority of the groups or persons holding these principles. He also thought that research should focus on the cognitive structures that underlie moral content and give it a claim to be called moral. In other words, Kohlberg claimed that it is not so much the decision itself that determines moral stage; rather, it is the way he or she makes the decision that quantifies stage.

Others such as Heidbrink (1985) argue that political learning is an interactive process between the individual and the environment. When interacting with political concepts the individual’s stage of moral judgment is important. New information can be easily assimilated at the level of moral reasoning that is appropriate for each individual. The more strongly one is bound to a current stage of moral development, the less able one will be to alter the quality of political awareness and decision-making. Unsubstantiated assumptions about reality based upon lower

levels of moral reasoning may lead to a rigid perception of the world, as well as naïve and undifferentiated political decisions.

According to Hartwell (2004) individuals socialized in a democratic society develop a capacity to engage in conventional moral thinking. These conventional thinkers tend to identify morality with the duty to follow socially established norms, such as the law, professional codes of ethics, the bible, and religious authorities. Other individuals develop a more sophisticated capacity for moral thinking beyond the *conventional* level. These *postconventional* thinkers treat moral dilemmas in terms of moral principles or ideals that transcend the existing norms or rules.

Those who use the concept of moral stage seek to explain how individuals reason about moral dilemmas; *preconventional* reasoners identify with self-serving reciprocity; *conventional* thinkers with stereotypical behavior of fairness and responsibility within a tight moral framework; and *postconventional* reasoners utilize universal norms and reversibility. According to Gross (1996) nothing inherent in Kohlberg's theory leads one to assume that principled reasoners will adopt any particular political orientation; however the studies that have been conducted report otherwise.

As stated previously studies using a variety of dilemma-based moral measures have consistently found correlations between moral reasoning levels and political beliefs and attitudes. For example, Fishkin et al. (1973) conducted a study with 75 undergraduate students in which the participants were given Kohlberg's Moral Judgment Interview (MJ), as well as measures of political ideology. Participants who reasoned at the conventional level of moral reasoning tended to be politically conservative, while those who scored at the postconventional level tended to reject conservative ideas in favor of liberal views. Their results demonstrated that Kohlberg's theory of moral development does identify a cognitive-developmental dimension of personality with a high correlation with political ideology. Alker and Poppen (1973) also examined the results of Kohlberg's MJ that they had administered to 192 students at Cornell University. They found a clear similarity between liberal ideology and the choice of principled moral thinking. Likewise a closed belief system correlated with lower level moral reasoning. Candee (1974) investigated the political reasoning of student leftists in a 1971 study at the University of Chicago. Political ideology and ego development were measured using interview questions. Findings indicated that lower stage participants evaluated politics in terms of its effect on them, while higher stage participants evaluated political events as complex, with universal implications for all people. He concluded that the results would be the same if specific moral stage questions had been asked, because internal and universal values form the foundation for higher principled moral reasoning.

The author of the Defining Issues Test (DIT), James Rest (1976), conducted research to find evidence of the association between the DIT and attitude measures. He expected that the DIT would correlate with certain value positions that required higher-level principled thinking. He looked at real-life behaviors in regard to value issues, such as taking a stance on an issue, voting in an election, or participation in a moral discussion. Findings indicated that the DIT correlated

negatively with a law-and-order attitude ( $r = -.59$ ), and positively with a libertarian, or democratic attitude ( $r = .62$ ).

In 1998, Raaijmakers et al. (1998) conducted a study with 1,968 Dutch adolescents, and young adults using Rest's Defining Issues Test (DIT). They analyzed conservative ideals into two dimensions economic and cultural. Findings indicated that moral reasoning correlated with the cultural dimension of political beliefs, but not with the economic dimension. They also found that the often cited liberal bias of moral measures seemed to be limited to only highly educated young adults, rather than adolescents. Their explanation was that the assumption of political bias of moral measures could simply be the effect of a sampling bias found when participants are highly educated students.

These findings cast doubt on cognitive-developmental theory, suggesting that the stages are not content free, but reflect a bias for liberal democratic norms (Gross, 1996). According to Emler (1983), the moral dilemmas used in these tests are typically composed of liberal values, such as civil rights, social issues such as abortion, the right to die, and the death penalty, as well as the conflict between individual conscience and authority. He wrote that if liberalism is in fact highly correlated with post-conventional, or higher principled thinking, then it makes sense that relationships will occur between the moral reasoning level of the individual and his or her political leanings.

Another reason studies found differences in moral reasoning between liberals and conservatives may have to do with the tests themselves. Although the moral reasoning measures used in these studies rest on Kohlberg's (1984) cognitive-developmental moral stage theory, they use different testing methods and scoring procedures. In the case of the MJJ, nine hypothetical moral dilemmas were presented by an interviewer to each participant. One of the best known of the dilemmas is about a husband named Heinz who decides to steal an overpriced drug to save his dying wife. Participants were asked if they agreed or disagreed with Heinz's decision to steal the drug. Stage was determined by analyzing the results of follow-up questions used to determine the basis for the participant's decisions regarding the dilemma (Krebs & Denton, 2005). This methodology is limited in both scope and content, because the production tasks are limited to the responses that participants actually make that may be influenced by numerous factors (Gross, 1996).

Quantitative measures such as Rest's (1975) DIT are easy and convenient to administer to large numbers of participants, but lacks cognitive complexity. Participants are asked to rate the importance of pre-established arguments in making their decisions about a particular moral dilemma. Using pre-established arguments gives little insight into the thought processes or participant ability to use these preferences consistently (Gross, 1996). In addition, the DIT has been criticized for being liberally biased, and for being more of a test of verbal ability than moral stage (Emler et al., 1983). In his study, Candee (1974) used a test of ego development instead of the commonly used MJJ or DIT. He made a determination that the results would be the same if moral questions were asked, but does not provide any empirical evidence to support the claim.

Emler et al. (1998) criticized the DIT as an adequate measure of moral stage because people avoid selecting responses that are inconsistent with their politics, or that look too simplistic. Liberals will avoid lower stage responses, whereas conservatives will not, providing further evidence that individuals have preferred styles of moral reasoning as products of their political ideology.

Gross (1996) conducted a study of 547 members of pro-life and pro-choice organizations in the U.S. and Israel using the Moral Judgment Test (Lind, 2002). Significant cognitive differences between liberals and conservatives were found among the U.S. and Israeli liberal participants who scored consistently higher on the moral measure. However, the differences disappeared when investigators controlled for levels of education and income confirming that no differences in moral development and no bias in cognitive theory existed.

Relationships between political attitudes and moral reasoning were also reported by Emler et al. (1983) in a study of 73 subjects at the University of Dundee. However, the investigators found differences in moral stage as measured by the DIT only when liberal and conservative students responded to the arguments according to their own preferences. When asked to respond (role play) to the arguments as a radical liberal, the right-wing, and moderate students significantly increased their moral stage scores. These results are in direct conflict with Kohlberg's cognitive-developmental theory in which it is impossible for people to understand or reproduce moral responses reflecting a stage higher than their own. Therefore, Emler et al. (1983) concluded that the stage distinctions proposed by Kohlberg are not developmental in nature, but simply a difference in ideological content. A limitation with this study was the possibility that when requesting individuals to role play a different perspective, they may have simply selected responses that were opposite to their own.

Similar results were found by Sparks and Durkin (1987) when they asked participants to indicate the extent to which they saw particular moral premises as relevant to their positions on political topics. Using this format, they avoided the role playing limitations found in the study by Emler et al. (1983). Their findings supported the notion of Emler et al. (1983) that specific moral reasons are more or less important depending upon the respondent's ideological stance in a particular case.

As a response to Emler, Sparks, and others who have criticized the DIT and the cognitive-developmental approach to moral development, Barnett, Evens, and Rest (1995) contend that participants asked to respond to the DIT as a radical liberal tend to select responses based upon how anti-authoritarian it sounds. Rather than lower stage individuals deciding to use higher order principled reasoning, they concluded that the results of Emler et al. were due to changes in instructions during the administration of the DIT. As a result, the authors of the DIT added anti-establishment (A) items to the test. When the study of Emler et al. (1983) was replicated using these items, the participants' A scores increased however, their P-score of moral reasoning stage decreased, providing evidence that item responses by those role playing a radical were anti-establishment arguments rather than moral stage related.



Results of studies utilizing the DIT-2 with the anti-establishment (A) items support the contention that moral development as measured by the DIT-2 is independent of political identification, and intellectual ability. Crowson, Thoma, and DeBacker (2005) conducted a study of 276 students in which each completed the DIT-2, the Human Rights/Civil Liberties scale, as well as the American College Test (ACT), and a support for President Bush index. They found moral judgment negatively associated with the endorsement of rights/liberties restrictions, while finding conservative political identification positively related to support for restrictions on rights/liberties. They also found that moral judgment scores were independent of self-identified political conservatism and intellectual ability when predicting post-9/11 (September 11, 2001 attack on the World Trade Towers and Pentagon) attitude measures. All three predictors (moral reasoning level, conservative political identification, and ACT scores) were statistically significant predictors of support for President Bush. The ACT scores correlated positively, and moral reasoning scores correlated negatively providing evidence for moral differences between liberals and conservatives.

#### Applying a Model of Hierarchical Complexity

With so much controversy surrounding the scores provided by commonly used moral reasoning measures, and regarding whether those scores accurately predict political affiliation, new ways of looking at moral measurement were sought. Commons and Miller (1998) proposed a quantitative behavior-analytic model of development, known as the Model of Hierarchical Complexity, which avoids the cognitive stage issues of Kohlberg's theory. It focuses on the dimensions of tasks because they claim dimensions determine developmental sequence. Simply put, for a task to be more hierarchically complex than another task, it must require lower tasks as prerequisites, it must organize two or more earlier actions in a chain, and the ordering must be nonarbitrary. Therefore, the hierarchical complexity of a task refers to the number of concatenation operations it contains.

Since the order of hierarchical complexity is based on a unidimensional linear (interval) scale and a system of natural numbers it can be shown that the separation between a less hierarchical task and a more hierarchical task is quantitative. In assessment, once the order of hierarchical complexity has been analytically determined, individuals are asked to solve all the tasks including the least hierarchically complex and the most hierarchically complex. Their responses are considered either right (fulfilling the task contingencies) or wrong (failure to fulfill that task's contingencies). The results can then be analyzed using a Rasch analysis, which determines the probability of each participant performing a given task in terms of task difficulty (delta or  $d$ ), and participant proclivity to respond correctly (beta or  $b$ ).

Commons and Miller (1998) demonstrate that participants from school-age to adulthood perform in six orders of hierarchical complexity which can be compared to the cognitive-developmental stages of Kohlberg (see Table 7). Further they argue that (a) the sequentiality of this order is perfect from low to high level of complexity; (b) no mixing of stage scores occurs; (c) gaps in difficulty of items exist between orders of hierarchical complexity; (d) the gaps are relatively equal, showing that a transition occurs from stage to stage and (e) people generally perform in a

consistent manner across items from the same task complexity. Therefore, they conclude that the Model of Hierarchical Complexity leads to a quantifiable notion of behavioral stage, and that stage sequence is invariable across domains because domain has been removed from the construction of task sequence. Their model supports Kohlberg's invariant developmental stage theory by eliminating the cognitive structures and using a mathematical model instead.

A scoring system for use with the hierarchical complexity model was developed by Commons and Rodriguez (1993) called the Hierarchical Complexity Scoring System (HCSS). It uses the order of hierarchical complexity as an analytical description of the developmental difficulty of a task. Essentially it involves developing tasks within a specific domain, coordinating these tasks to build more complex tasks, determining the category to which a response belongs (i.e., correct, incorrect, hit, miss), identifying the most complex task, and analyzing participant response with the criteria for that order. A response is successful or unsuccessful depending upon the degree of positivity or negativity of the conclusion. Rasch scoring is used on the responses to calculate an index of sensitivity, and to provide an estimate of difficulty and participant proclivity. Commons and Rodriguez (1993) report that using Rasch analysis with order of hierarchical complexity of a given task predicts stage of a performance with a correlation of  $r = .92$ .

According to Commons and Rodriguez (1993), the problem with other scoring systems, such as Kohlberg's Standard Issue Scoring System (Colby & Kohlberg, 1987) for the MJI, is that they are domain specific. Criterion judgments are matched to participant responses and they require a scorer to make fine distinctions between arguments. In addition, matches are ultimately based on a particular conceptual content of principles employed by the participant rather than upon the relations among these principles. They do not assess the extent to which the quality of a participant's performance on a task influences stage score independent of the content of the subject's responses. The HCSS does not quantify contextual variables during the scoring process as do other scoring manuals that measure stage in a particular domain and may give more weight to the overall score if particular issues are addressed by participants, regardless of how those references are made.

In several studies, Dawson (2003) compared the Standard Issue Scoring System (Colby & Kohlberg, 1987) to the Hierarchical Complexity Scoring System (Commons et al., 2002). She determined that scoring with hierarchical complexity is different from domain specific systems such as Kohlberg's because it does not match performances to examples in a scoring manual, but rather looks for the highest hierarchical order of abstraction evident, and then examines the structures coordinating those items. She concluded that Kohlberg's Standard Issue Scoring System is a less consistent measure of stage, particularly at the lower levels. She also found that the correlation between the Hierarchical Scoring System and the Standard Issue Scoring System was .88 comparable with standard issue interform and interrater correlations reported by Colby and Kohlberg (1987).

### Summary

Moral judgment is a psychological construct that has been linked to political attitudes and behaviors. The belief is that an individual's political attitudes and moral judgments are in large part influenced by their level of moral reasoning. Previous studies have demonstrated that political conservatives tend to operate at lower levels of moral reasoning, while liberals typically score at the higher principled levels of reasoning. However, most of the studies used to demonstrate these differences have used Kohlberg's Standard Issue Scoring System, or the Defining Issues test of moral reasoning instruments that are domain-specific and performance-based. Critics have charged that the cognitive-developmental stage theory and the instruments used to measure developmental stage are invalid, therefore questioning the results of these political studies. To counter such criticisms, this study utilized the Model of Hierarchical Complexity to investigate the relationship between moral reasoning levels and political affiliation. Using hierarchical complexity, which is based upon a mathematical model, it was possible to eliminate the issue of the subjective arbitrariness of other scoring systems.

## CHAPTER 3. METHODOLOGY

The major purpose of this study was to understand the relationship between moral reasoning and political affiliation using the Model of Hierarchical Complexity, a model based on the mathematical complexity of hierarchical organization of information rather than content, or subject matter. Studies utilizing performance-based approaches, such as Kohlberg's (1984) cognitive-developmental stage model, and Rest's (1976) cognitive-schema theory have consistently found that liberals tend to operate at higher principled stages of moral reasoning, whereas conservatives operate at lower conventional levels (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976). This study set out to determine if the results remain the same using a hierarchical complexity model, instead of the cognitive-developmental models.

Another important purpose of this study was to determine how items from moral reasoning tests correlate with one another. This may indicate that the items are all measuring the same underlying construct of moral reasoning stage, refuting the view of Emler et al. (1983) that tests of moral reasoning are invalid. This study utilized moral reasoning test items from multiple measures, including items from existing measures, but also from new tests developed using hierarchical complexity, including the PVP and the RBA (Commons & Robinett, 2006).

Further, this study examined other factors that may better predict political affiliation such as education-level, household income, level of religiosity, age, and gender. This approach may answer questions regarding the extent to which moral reasoning stage predicts political affiliation when compared to other known variable predictors, that is education-level (Emler & Frazer, 1999 and religiosity (Ji, 2004).

### Research Design

The quantitative methodology for this study utilized a correlational multivariate design. The advantage of using this design is twofold. First collecting several dependent measures and treating them as a correlated set may reveal relationships that might be missed in a univariate approach. Second, information may be collected to evaluate the importance of a predictor variable for explaining variability in the criterion variable, given the effects of other predictor variables.

Participants took six online surveys including items from moral reasoning instruments, including the Defining Issues Test-2, the Moral Judgment Test, the Politician-Voter Problem, the Death Penalty Instrument (DPI), and the Right to Bear Arms test. Data from the DPI were eliminated in the results of this study because analyses yielded error messages regarding multiple subsets, casting doubt on the overall validity of the participant data. This may have resulted from an inadvertent error in inputting participant responses in SPSS. A demographic questionnaire was completed that was designed to collect data regarding the independent and sample variables.

As indicated by Commons and Pekker (2005), tests of moral reasoning have been plagued by fundamental problems in measuring levels of difficulty because they are based on comparisons of performances that are content and context dependent. This has led to problems in comparing performances with high reliability and validity. Therefore, the Hierarchical Complexity Scoring System (HCSS) developed by Commons, Danaher, Miller, and Goodheart (2002) was used to score the all of the test items, including those that were not developed using order of hierarchical complexity. This was done in order to counter objections to the subjective arbitrariness of existing measures of moral stage. Each item was assigned an order of hierarchical complexity by examining the complexity of the tasks required. The procedure for assigning order of hierarchical complexity is discussed in the data analysis section of this chapter. The item order of hierarchical complexity regressed against the item Rasch scores to determine if the items were measuring the same underlying construct. Rasch scores or participant successful performance on an item of a given order of complexity represented their level of development. Participant Rasch scores are located in Appendix G. Essentially hierarchical complexity replaces performance-based measures of moral reasoning with task-based measures, allowing for an objective measure of moral reasoning to which performance can be related. Therefore, rather than measuring one's stage of development based on subjective criteria of test performance level of moral reasoning was determined objectively by scaling participant ability to complete moral tasks.

In this study the Rasch analyses' were performed using Winsteps, a Rasch model software package (Linacre, 2000). Participant raw scores for each item were input into Winsteps for evaluation. Winsteps provides reliability information for participants and items, as well as a unique scaled score for each individual and test item. The Rasch analysis like any quantitative analysis has its issues. Human cognitions and behaviors are extremely complex and can never really be satisfactorily expressed by one score on any test, or with any scoring system. However, the Rasch analysis provides key information regarding unidimensionality, construct validity, difficulty and ability estimation and error, and reliability. Construct validity information focuses on the idea that performances reflect a single underlying construct; in this case, moral stage. The Rasch item fit statistics are indicators of how well each item fits within the underlying construct. Linacre (2000) developed a criterion for rejecting items with infit errors larger than 2.00. He suggested that it is possible that items with an infit score greater than 2.00 have characteristics that are sensitive to issues not reflective of the scale and may not have fit because they are too extreme for the scale or because they lie on another dimension. In this study, those items that diverged significantly from the expected pattern as indicated by the infit and outfit statistics were removed from the data set. As no responses were removed from the defining issues items, the total number of responses was 163. Table 2 identifies how many item responses were removed from each data set, how many "no responses" occurred, and the total of participants remaining in each data set.

Table 2. Total Participant Responses

	Outliers Removed	No Response	Total Responses
Defining Issues	0	0	163
Politician-Voter	7	2	154
Moral Judgment	5	10	148
Right to Bear Arms	11	40	112

The person reliability index of the Rasch analysis indicates how well the ordering of persons would be replicated if this sample of people were given another set of items measuring the same construct. An item reliability index indicates how well the placement of items would be if the same items were given to another comparable sample of people (Trevor, & Bond, 2001). These statistics will be provided for participants and items in Chapter 4.

This study utilized Likert scale data as a basis for obtaining interval level estimates of participant responses. Standard dichotomous models for analyzing Likert data makes simple right and wrong distinctions for each response whereas the Rasch analysis is applied to polytomous data that establishes the relative difficulty of each item from the lowest to the highest levels of the items. Therefore, the Rasch model tests the hypothesis that each item reflects increasing levels of an attitude or trait, as intended (Trevor & Bond, 2001).

#### Target Population

The population consisted of a convenience sample of liberal and conservative voters. Participants were primarily college students at the College of the Desert in Palm Desert, California. The sample included 163 participants; enough to ensure a valid study. Two factors were considered in determining sample size: the amount of acceptable error and the expected magnitude of the population proportions. When dealing with a homogeneous population, Bordens and Abbott (1991) note that 100 to 200 participants may be sufficient for factor analysis. This study describes a set of characteristics in liberal and conservative voters and therefore can tolerate a margin of error of .05. Hair, Anderson, Tatham, and Black (1992) suggest 4 to 10 observations per predictor suggesting that in this case 32 to 80 participants would be sufficient.

Similar studies comparing measures of moral development stages have used between 35 and 375 participants. In a dissertation comparing the DIT and the MJT (Bell, 1998), 35 participants were tested from North Carolina University's Division of Undergraduate Studies. Fishkin et al.,

(1973), used a sample of 75 participants in their study of moral reasoning and political ideology. In a recent study by LaLlave (2005), 375 participants were used to investigate morality and the Iraq War. Therefore, it was determined that a sample size of approximately 150 participants was sufficient.

### Selection of Participants

Participants were primarily students from a local community college. The students were asked to volunteer for the study. Each participant received an email with a link to the demographic survey, along with the five tests of moral reasoning. Participants were cautioned that the test would take 1.5 to 2 hours and that it was important that they took breaks if they experienced test fatigue.

In addition to the student participants, other members of the community were asked to participate in the study. Several senior citizen centers in the Palm Desert, California area allowed the researcher to post information regarding the study, and a sign-up list on the center bulletin board. As well an announcement of the study was posted on adult development listservs. Participants volunteered for this study therefore, volunteer bias may have been a factor. It is possible those volunteers differed from nonvolunteers, and that the differences between volunteers and nonvolunteers may affect the external validity of the research (Bordens & Abbott, 1991). Variables relating to voluntary participation may cloud any causal inferences drawn about the relationship between the independent and dependent variables.

To ameliorate this situation, the researcher reduced bias inherent in the recruitment of volunteers by following the recommendations of Bordens and Abbott (1991). The request for participants was made appealing and interesting, as well as non-threatening. The importance of the research was discussed with potential participants. Student volunteers received extra credit points toward their grade for their participation. Requests for participation were made in person by the primary researcher, and all participants received assurance that the tasks were not psychologically or biologically stressful.

### Variables

The key variables investigated, included the dependent variables (DV1, DV2), the independent variable (IV1), and sample variables. The dependent variables for this quantitative study were political affiliation (DV2) and the Rasch scaled scores for test items (DV1) from the moral reasoning test items. The independent variable was the order of hierarchical complexity of each participant (IV1).

IV1 Order of hierarchical complexity

DV1 a Grouped Rasch scores for items from the DIT-2, MJT, PVP, and RBA  
 b Defining issues content area item Rasch scores  
 c Moral judgment content area item Rasch scores

- d Politician-voter item Rasch scores
- f Right to bear arms content area item Rasch scores

DV2 Political Affiliation

- SV1 Age
- SV2 Gender
- SV3 Education Level
- SV4 Religiosity
- SV5 Socioeconomic status (SES)
- SV6 Major or Field
- SV7 Candidate voted for in the 2004 Presidential election

## Measures

### *Defining Issues Items*

The standard DIT-2 presents hypothetical moral dilemmas followed by 12 issues for a subject to rank in terms of their importance in the decision-making process. By reading moral dilemmas and the DIT-2 issue statements, an individual's moral schemas (cognitive structures) are activated. These schemas include personal interest, maintaining norms, and *postconventional* schema, all of which measure developmental adequacy and concepts of social justice (Bebeau & Thoma, 2003). Further, according to Bebeau and Thoma (2003), the schemas closely link to Kohlberg's *preconventional*, *conventional*, and *postconventional* moral development levels.

Moral judgment is a psychological construct that has been defined as a process by which individuals establish that one course of action in a particular situation is morally right and another course of action is morally wrong. It involves defining what the issues are, how conflicts among parties are settled, and the rationale for deciding on a course of action (Rest, Thoma, & Edwards, 1997). However, research shows that other variables come into play when measuring moral judgment. Variables such as affect, education, religiosity, identity integration, political orientation, justice, and personality can influence results in tests of moral judgment; therefore, it is important to understand the validity of a construct when deciding upon an appropriate measurement instrument (Kohlberg & Hersh, 1977).

The validity of a test pertains to what a test measures and how well it does so. It also determines what can be inferred from test scores (Anastasi, 1988). Any test of moral judgment must have strong construct validity in order for the test results to mean anything. Cronbach and Meehl (1955) indicate that construct validation must be involved whenever a test measures a construct or attribute that is not operationally defined. It must be investigated when no criterion has been accepted to define adequately the quality to be measured. Such is the case with moral judgment, which is a construct that is not operationally defined. Demonstrating construct validity requires evidence that a test correlates highly with variables with which it should theoretically correlate,



and also show that it does not correlate significantly with variables with which it should differ. Construct validation may employ various methods and procedures (Cronbach & Meehl, 1955). In addition, Cronbach and Meehl (1955) provide a list of validation procedures including: (a) testing for group differences; (b) correlation matrices and factor analysis; (c) studies of internal structure and homogeneity within the test; (d) studies of change over occasions and test score stability; and (e) studies of an individual's process of performance. Since moral judgment is a psychological construct purported to represent different organizations of thinking, the validity of a moral judgment measure is not established simply by correlating the measure with some external behavior. The purpose of a moral judgment test is not to collect verbal statements in order to predict behavior, but to use verbal information as indicators of inner thought processes. Validating a measure of moral judgment therefore is a multifaceted procedure and a matter of determining the degree to which a measure produces data trends conforming to a set of theoretical expectations (Rest 1976).

The validation process adopted by Rest et al. (1997) focused on two aspects of the Kohlberg model and included validation procedures recommended by Cronbach and Meehl (1955). Perhaps most importantly, the developers of the DIT-2 determined that their measure had to describe a phenomenon that was both cognitive and developmental (Thoma, 2002). Rest et al. (1997) proposed criteria for defining construct validity for the DIT. These included: (a) the differentiation of naturally occurring groups in terms of presumed expertise in moral judgment; (b) correlations of moral judgment with moral comprehension; (c) longitudinal change as a function of age and of enriching experiences; (d) sensitivity to moral education interventions; and (e) links of moral judgment with behavior and attitudes.

Estimates of subject and item reliability based upon the results of this study were made using Winsteps. A commonly used threshold value for acceptable reliability scores is .70, according to Hair, Anderson, Tatham, and Black (1992). The defining issues items produced high reliability scores for both participants (.81) and items (.95). These reliability scores are in the same general range, or even above scores reported by the authors of the DIT-2. Bebeau and Thoma (2003) report Cronbach alpha and test-retest reliabilities in the upper .70s to low .80s.

The infit and outfit statistics determine how well any set of empirical data meet the requirements of the model. The infit statistic gives relatively more weight to the performances of persons closer to the item value. The argument is that persons whose ability is close to the item's difficulty level should give a more sensitive insight into the item's performance. The outfit statistic is not weighted, and therefore is more sensitive to the influence of outlying scores (Bond & Fox, 2001).

Infit and outfit scores are reported as mean squares in the form of chi-square statistics divided by their degrees of freedom, so they have a ratio scale form with an expected value of positive one, and a range from zero to positive infinity (Bond & Fox, 2001). For example, in the case of the defining issues items, the infit mean square of 1.0 indicates zero (100\*0) percent variation between the observed and the model-predicted response patterns than would be expected if the data and the model were perfectly compatible. The item outfit of 1.0 and participant infit of 1.01,

and the outfit of 1.0 of the defining issues items are the same, meaning that both the items and participants fit the model perfectly. Results are presented in Table 3.

Table 3. Defining Issues Item Rasch Score Reliability

Participants	Score	Count	Measure	Error	Infit	Outfit
Mean	224.50	59.9	.08	.09	1.01	1.00
S.D.	30.60	1.2	.20	.01	.39	.38
Reliability	.81					
Items						
Mean	609.90	162.6	.00	.05	1.00	1.00
S.D.	91.00	.6	.24	.01	.19	.19
Reliability	.95					

Typically the Defining Issues Test-2 is given to participants in paper-and-pencil format, and scored at the Center for the study of Ethical Development at the University of Minnesota, in Minneapolis, Minnesota. The data is scanned directly from the answer sheets, and entered into SPSS statistical software program. Reports are generated including a case processing summary followed by an individual participant output for the four developmental indices (Personal Interests, Maintaining Norms, Postconventional Score, or P-score, and the N2 score); a case summary followed by individual participant output for developmental profile and phase indices (e.g., Type indicator, Utilizer score); a case summary and individual participant output for reliability checks; and individual participant demographic data.

In this case, instead of the standard scoring as described above, the hierarchical complexity model was applied to many test items in the DIT-2 (from now on referred to as the defining issues), and then a Rasch analysis was run on the individual participants, and the test items. The defining issues items are divided into 5 different stories. The first story presents a dilemma in which a poor man is faced with a decision to steal food from a wealthy man in his village during a famine. There are 12 arguments that each participant rates on a six-point Likert scale. The ratings indicate the degree to which each argument was a deciding factor in the participant's agreement or disagreement with the lead character. Each of the arguments was rated with an

order of hierarchical complexity. The other four stories were treated in the same manner. Story two is about a reporter who is faced with a dilemma to report a minor offense that happened 20 years earlier by a candidate running for office. The school board story deals with open community meetings where some of the citizens threatened violence. In the cancer story, a terminally ill woman asks her doctor to provide her with enough pain-killer medication to end her life, and in the student demonstration story, students take over a university office to protest U.S. military action in a foreign country.

Only 60 rated items from the six DIT-2 stories were included. This was done to make the format compatible across all measurement devices, and to enable the application of hierarchical complexity across just the test items. In addition, the answer sheet was revised in order to match the Likert scales of the other test items. The 5-point rating scale of 1=Great to 5=No was changed to a 6-point scale where 1=No, and 6=Great. This change was made to the online items prior to the delivery of the instruments. Also it is important to note that since the DIT-2 was not delivered as a complete moral reasoning test, the results of this study should not be construed as a reflection on the DIT-2 as a test instrument.

### *Moral Judgment Items*

Moral judgment competence is defined by Lind (2002) as the “ability of a subject to accept or reject arguments on a particular moral issue consistently in regard to their moral quality even though they oppose the subject’s stance on that issue” (p. 31). The cognitive score or the C-score of the MJT reflects the degree to which a participant accepts or rejects arguments in a discussion on moral issues. The C-score can range from 1 to 100. The C-score is categorized as very low when it reflects a participant score of 1-9; low (10-19), medium (20-29), high (30-39), very high (40-49), and extraordinary high (above 50) (Lind, 2002). The C-score was not calculated for this study however, it is recommended that future studies report both Rasch scores and C-scores for comparison purposes.

The MJT was not submitted to traditional item analysis, so there were no items selected to increase the correlation of the C-index with other criteria such as age, political attitudes, or education. According to Lind (2002), this guarantees that the MJT is not biased in favor of, or against predictors such as age-correlations, rank orders, or invariant sequence. The MJT assesses moral judgment competence by looking at how an individual deals with counter-arguments, which are a central feature of the MJT. The design of the MJT ensures that all relevant aspects of a moral task are present in the test, and that these aspects are uncorrelated and clearly identified. Two types of validity are of primary concern according to Lind (2002). One of these is theoretical validity (often referred to as construct validity), or the degree to which a test measures what the theory posits, and the other is communicative validity, or the degree to which participants understand the test.

Based upon the validation criteria and other studies, Lind (2004) concluded that the standard German versions of the MJT and all 27 translations of the MJT are valid measures of moral

judgment competence and moral attitude. He points to the test design and the five empirical criteria derived from his dual-aspect theory of moral behavior as proof of validation. However, Lind points out that because the MJT's main index is a competency measure (C-score) conventional criteria of test analysis (test reliability, test consistency) do not apply, yet in a recent study by Lerkiatbundit, Utaipan, Laohawiriyanon, and Teo (2006) reported a test-retest correlation of  $r = .90$  in study with 247 Thai students in grade nine through twelve.

Estimates of subject and item reliability based upon the results of this study were made using Winsteps. A commonly used threshold value for acceptable reliability scores is .70, according to Hair, et al. (1992). The moral judgment items reliability score was quite high (.95) however, the reliability for participants was just below the threshold level (.66). Hair, et al. (1992), proposes that in cases where the research is exploratory in nature, reliability values below .70 may be considered acceptable. Although the MJT has been used as a test of moral judgment and competence for many years, it has never been subject to the exploratory use of hierarchical complexity, or the Rasch analysis.

In the case of the moral judgment items, the infit mean square of 1.0 indicates zero (100\*0) percent variation between the observed and the model-predicted response patterns than would be expected if the data and the model were perfectly compatible. The item outfit (1.0), and participant infit (1.0) and outfit (1.0) of the moral judgment items are the same, meaning that both item and participants fit the model perfectly. Results are presented in Table 4.

Table 4. Moral Judgment Item Rasch Analysis Reliability

Participants	Score	Count	Measure	Error	Infit	Outfit
Mean	81.30	24.0	-.07	.16	1.00	1.00
S.D.	12.50	.1	.28	.02	.46	.45
Reliability	.66					
Items						
Mean	501.5	148.0	.00	.06	1.00	1.00
S.D.	77.70	.2	.27	.00	.16	.16
Reliability	.95					

The moral judgment items were from two dilemmas; one dealing with workers that break into administrative offices at their company to take tapes that prove allegations that management has been eavesdropping on their conversations, and the other has to do with a doctor that complies with the wishes of his terminally ill patient to provide enough morphine to end her life. Each dilemma consists of six favorable arguments, and six unfavorable arguments. Participants rate the arguments on a 6-pt. Likert scale. Lind (2004) recommends a nine step scoring procedure to obtain the C-index for the Moral Judgment Test. The C-index is defined as  $100 \times \frac{SS_{\text{Stage}}}{SS_{\text{Dev}}}$  where  $SS_{\text{Dev}}$  is the sum of squares total – the sum of squares mean

For the purposes of this study, it is important to note that only 24 rated items from the two MJT stories were included. These items are located in Appendix C. This was done to make the format compatible across all measurement devices, and to enable the application of hierarchical complexity across all test items. Therefore, the results should not be construed as a reflection on the MJT as a test instrument. These items will be hereafter referred to as the moral judgment items. In addition, the MJT answer sheet was revised in order to match the Likert scale of the other test items. This change was made when the items were input into an online format. The nine-point rating scale of -4 = Strongly Reject, to +4 = Strongly Accept was changed to a six-point scale where 1 = Strongly Reject, and 6 = Strongly Accept.

#### *Politician-Voter Problem Items*

The Politician-Voter Problem (Commons and Robinett, 2006) is a recent alternative measure of moral reasoning in which the items were developed specifically for five orders of hierarchical complexity. There are five arguments made by five politicians in which the politician is informing constituents about plans to solve community problems. The PVP was developed systematically with each vignette to be of known order of hierarchical complexity, meaning that each item was written to reflect a specific order of hierarchical complexity: concrete (level 8), abstract (level 9), formal (level 10), systematic (level 11), and metasystematic (level 12). These orders of hierarchical complexity are described and compared to Kohlberg's stages in Table 7.

The PVP is about five politicians that are using a variety of methods to inform their constituents about plans to solve a community problem. Participants are asked to rate each of the politician's methods of informing their voters; the degree to which the politicians informed their voters; and how likely they would be to vote for each of the politicians on a 6-pt. Likert scale. Responses were scored from a 6-point scale ranging from 1=Extremely disagree to 6=Extremely agree. The vignettes, and test items for the Politician-Voter Problem are located in Appendix F.

The descriptive data and reliability information on the Politician-Voter Problem test items as estimated by the Rasch analysis are presented in Table x. The infit and outfit scores for the participants and the test items were within acceptable margins; between 2 and -2 (Bond & Fox, 2001). Actually the participant's infit score of .99 and outfit score of 1.01 is near perfect, and so are the infit (1.02) and outfit (1.02) scores of the items. The item scores for participant reliability is .74, and item reliability is .97 indicating an acceptable to high level of reliability according to Hair, et al. (1992). Results are presented in Table 5.

Table 5. Politician-Voter Rasch Analysis Reliability

Participants	Score	Count	Measure	Error	Infit	Outfit
Mean	106.20	28.5	.11	.16	.99	1.01
S.D.	18.90	3.2	.31	.02	.42	.44
Reliability	.74					
<hr/>						
Items						
Mean	363.60	97.5	.00	.08	1.02	1.02
S.D.	93.40	9.0	.48	.01	.18	.19
Reliability	.97					

*Right to Bear Arms Items*

The Right to Bear Arms Test (Commons and Robinett, 2006) is a recent alternative measure of moral development stage using a variety of arguments concerning the constitutional right to bear arms issue. The vignettes include arguments both in favor of the right to bear arms, and against the right to bear arms. A group of citizens are making the arguments. Again, this test of moral reasoning includes items that were written to specific levels of hierarchical complexity, from Concrete (8) to Metasystematic (12). Responses were scored using a 6-point scale ranging from 1=Extremely disagree to 6=Extremely agree.

The descriptive data and reliability information on the Right to Bear Arms test items as estimated by the Rasch analysis are presented in Table 6. The infit and outfit scores for the participants and the test items are within the acceptable range of between 2 and -2 according to Bond and Fox (2001). Participant reliability was .67, and item reliability was .47 indicating less than desirable reliability.

Table 6. RBA Rasch Analysis Reliability

Participants	Score	Count	Measure	Error	Infit	Outfit
Mean	91.30	27.1	-.10	.15	.99	.99

S.D.	23.10	6.0	.27	.04	.52	.52
Reliability	.67					
<hr/>						
Items						
<hr/>						
Mean	170.40	50.5	.00	.12	.96	.95
S.D.	86.1	25.4	.18	.05	.22	.21
Reliability	.47					
<hr/>						

### *Demographic Survey*

The demographic survey provides nominal and ordinal data regarding each independent and sample variable. The survey includes self-report data on age, gender, SES, political affiliation and identification, religiosity, candidate voted for in the 2004 presidential election, and education-level. The demographic survey is located in Appendix B.

### Procedures

The researcher recruited volunteer participants at the College of the Desert, and other local organizations, in Palm Desert, CA. Each participant provided their email address to the researcher when they signed up for the study. Then an email was generated that introduced the study, and provided a randomly generated identification number, and link to the online survey. Each of the self-report measures was entered into Survey Monkey, an online survey tool by SurveyMonkey.com Corporation, and located at [www.surveymonkey.com](http://www.surveymonkey.com). Participants were given several weeks in which to complete the entire battery of tests that took between 1.5 and 2 hours. They were cautioned to take breaks when experiencing test fatigue, or if any of the items caused them any psychological discomfort.

### Null Hypotheses

The hypotheses and null hypotheses for this study include the following:

Hypothesis 1: Political liberals and conservatives differ in their levels of moral reasoning as measured by the HCSS.

Null Hypothesis 1: Political liberals and conservatives do not differ in their levels of moral reasoning as measured by the HCSS.

Hypothesis 2: Moral reasoning scores as measured by items from the DIT-2, MJT, PVP, and the RBA closely correspond with each other.

Null Hypothesis 2: Moral reasoning scores as measured by items from the DIT-2, MJT, PVP, and the RBA do not closely correspond with each other.

Hypothesis 3: The order of hierarchical complexity in moral reasoning scores explain the greater portion of variance in political affiliation, not better accounted for by education-level, household income, or religiosity.

Null Hypothesis3: The order of hierarchical complexity in moral reasoning scores does not explain the greater portion of variance in political affiliation, not better accounted for by education-level, household income, or religiosity.

### Data Collection and Analyses

Data was collected using Survey Monkey ([www.surveymonkey.com](http://www.surveymonkey.com)), an online survey tool. Prior to completing the battery of tests, each participant read and indicated their informed consent on the first page of the website. The second page of the website was the demographic survey. Each participant then had access to the moral reasoning test items. Data was entered into the Statistical Package for the Social Sciences 12.0 (SPSS), which is a software package used for conducting statistical analyses, manipulating data, and generating tables and graphs that summarize data. Statistical analyses such as descriptive statistics, regression models, and factor analysis were done on the data using SPSS. The same data was then downloaded into Winsteps 3.5, a Rasch Model Analysis computer program (Linacre & Wright, 2000). The Rasch analysis produced an objective, additive scale that is independent of the particular items used and the particular participants tested (Trudeau & Adams, 2006).

Next, the Hierarchical Complexity Scoring System (HCSS) was applied to the items to separate stage from content. The HCSS presents a framework for scoring reasoning stages based on the mathematical complexity of hierarchical organization of information. The scores indicated reasoning levels achieved by the participant as indicated by their ability to successfully meet task demands of varying degrees of complexity. For items that were not developed using hierarchical complexity, the researcher determined the complexity involved in each of the item tasks, and assigned an order of hierarchical complexity from lower level concrete tasks to higher level metasystematic tasks. These levels are described in Table 7.

In this study, the order of hierarchical complexity was used to determine level of moral reasoning, rather than traditional cognitive, performance-based measures. Research by Commons and Richards (2002) has shown that stage and order of hierarchical complexity are comparable. Table 7 describes only the orders of hierarchical complexity (primary through metasystematic) that are typically used by adults (Commons et al., 2002), and compares these orders to Kohlberg's (1984) cognitive-developmental moral stages (stages two through five).



Table 7. Comparison of Stage Models

Order	Description	Kohlberg Moral Stage
6 Preoperational	Coordinates symbolic systems or the concepts of the previous stage. The logical structure identifies one aspect of a single representation as in “Joe wants to go to camp” where Joe’s desire to go to camp is an aspect of camp.	Stage 1 – Obedience and punishment orientation with egocentric deference to superior power, or trouble-avoiding.
7 Primary	Coordinates representational sets of the previous stage. The logical structure coordinates one aspect of two of more representations, for example, “if Joe’s dad says he can’t go to camp he will have to stay home”. Dad’s authority coordinates going to camp versus staying at home.	Stage 2 - A naively egoistic orientation where ‘right action’ satisfies the self needs & occasionally others. Orientation to exchange & reciprocity.
8 Concrete	Coordinates multiple aspects of two or more representations, as in “if he said he will never hit you again, he has to never hit you again or you won’t believe him. The consequences of keeping a promise are coordinated to the notion of trust.	Stage 2 to 3 Transition
9 Abstract	Coordinates concrete systems that identifies one aspect of a single abstraction, as in “if you keep promises, your friends will trust you”, in which keeping promises is an aspect of trust.	Stage 3 – Orientation to approval and pleasing others. Conformity to stereotypical images of majority or natural role behavior by intentions.
10 Formal	Coordinates one aspect of two or more abstractions such as “if people are going to get along, they have to trust each other, so it’s important to keep promises”. Getting along is a consequence of maintaining trust through keeping promises.	Stage 3 to 4 Transition
11 Systematic	Coordinates multiple aspects of two or more abstractions, as in “relationships are built on trust, and though we can’t always keep them, keeping promises is one way to build trust”. The importance of trust to relationships, building trust, and the possibility that promises can be broken, are all taken into account while formulating the conclusion that promises are desirable.	Stage 4 – Orientation toward respecting authority and maintaining social order for its own sake. Regard for earned expectations of others.
12 Metasystematic	Coordinates one aspect of a principle that coordinates several systems, as in “contracts and promises are articulations of a unique human quality, mutual trust, which coordinates human relations”. Contracts and promises are seen as the instantiation of a broader principle coordinating human interactions.	Stage 5 – Contractual legalistic orientation in regards to duty. General avoidance of violation of the will or rights of others, and regard for the majority will & welfare.

In order to assign order of hierarchical complexity to the test items, each item was deconstructed into the representations that one must assimilate in order to comprehend, or select that item. For example, item three in the doctor's dilemma about a patient's right to die, reasons that it is acceptable for a doctor to comply with a patient's request to die "because the doctor only did what the woman talked him into doing therefore, he need not worry about unpleasant consequences", is considered a concrete (order nine) item. This item coordinates multiple aspects of two or more representations, as in "she talked him into it therefore, the doctor does not have to worry about unpleasant consequences". The representation of a patient's request to die coordinates the notion of consequences in this item. In other words, a participant who rates this item as an acceptable argument for a patient's right to die is coordinating elements of the preoperational (symbolic representation of patient's desire), and primary (representation of consequences) sets. There is no abstraction required in this argument, therefore, it cannot be considered at level nine. Lower level items, such as the concrete level, should be easily understandable to all participants, but the higher-level items are designed to elicit responses only by those who are capable of higher principled thought.

#### Expected Findings

This study was designed to answer several questions about political affiliation and level of moral reasoning in liberal and conservative voters. It is expected that the results will support differences in level of moral reasoning between liberal and conservative voters, and that order of hierarchical complexity will predict one's political affiliation. It is also expected that moral reasoning scores as measured by items from the DIT-2, MJT, PVP, and the RBA will highly correlate with each other in this population of liberal and conservative voters, indicating that these items do measure moral stage. The expectation is that moral stage will account for more of the variance between political affiliation/identity, than will the other sample variables, like education-level, household income, and level of religiosity.

## CHAPTER 4. DATA COLLECTION AND ANALYSIS

The major purpose of this study was to understand the relationship between moral reasoning and political affiliation using the Model of Hierarchical Complexity, which is based on the mathematical complexity of hierarchical organization of information rather than content, or subject matter. Studies utilizing performance-based approaches, such as Kohlberg's (1984) cognitive-developmental stage model, and Rest's (1976) cognitive-schema theory have consistently found that liberals tend to operate at higher principled stages of moral reasoning, whereas conservatives operate at lower conventional levels (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976). This study set out to determine if the results remain the same using a mathematical model such as hierarchical complexity.

### Description of Participants

A website link to the online survey and reasoning instruments was sent to over 250 individuals who had agreed to participate in the research. A total of 163 participants completed the moral reasoning test items, and the demographic survey. There were 29 field test respondents, and 14 others who did not complete all of the instruments, but their data was retained for the current study so as to maximize the sample size. The field test respondents took all measures with the exception of the Right to Bear Arms test that was added to the battery of tests after the field test was completed. Respondents who did not complete at least three of the five moral measures were eliminated entirely from the study.

Table 8 presents participant demographic information regarding gender, age, education-level, religiosity, household income, Presidential candidate voted for in 2004, voter registration, and ethnicity. Males comprised 32.1% of the sample, with females comprising 67.9%. Due to the fact that the participants were primarily college students, a majority (57.4%) of the respondents were between 18 and 24 years of age. Of the remaining participants, 39% fell into the category of young adults (25-29), and 30% fell into the category of middle to late adulthood (30-70+).

Ninety percent of the participants indicated that they were citizens of the United States, with 66% indicating they were also registered voters. The largest percentage (51%) of the participants reported White for ethnicity, and the second largest percentage (28.6%) reported Hispanic. Of the categories that remained, the percentages were less than 10% each.

Education-level has been found to be highly correlated with moral reasoning stages in previous studies (King & Mayhew, 2002; Emler & Frazer, 1998; Pratt, Diessner, Hunsberger, Pancer, & Savoy, 1991). In this study, the highest education-level achieved among the participants was distributed as follows: 74.3% had some college education, another 14.2% had an associate or other 2-yr. degree, 6.8% held a bachelors degree, 1.9% held graduate degrees, and 2.5% held a

postdoctorate or professional degree. As expected in a community college sample, the majority of participants had some college education.

Level of religiosity is a variable that has frequently been associated with political affiliation and identity (e.g., Ji, 2004; Clouse, 1985). In this study, out of the total of 163 participants, 3.7% identified as atheist, 7.5% as agnostic, 36% as spiritual, but not religious, 32.3% somewhat religious, 15.5% very religious, and 2.5% extremely religious. Almost 70% of the participants indicated at least some level of spirituality or religiosity.

Table 8. Participant Demographics

	N	n	%
Gender	162		
		Female	110 67.9
		Male	52 32.1
Age	162		
		18-19	48 29.6
		20-24	45 27.8
		25-29	22 13.6
		30-39	17 10.5
		40-49	19 11.8
		50-69	9 5.6
		70+	2 1.2
U.S. Citizen	160		
		Yes	144 90.0
		No	16 10.0
Registered Voter	162		
		Yes	107 66.0
		No	55 34.0
Ethnicity	161		
		White	81 50.3
		Native American	1 .6
		African American	7 4.3
		Asian/Pacific Islander	14 8.7
		Hispanic/Latino	46 28.6
		Other	12 7.5
Education-Level	160		
		Some college	119 74.3
		Associate or 2-yr degree	23 14.2
		Bachelors degree	11 6.8
		Graduate degree	3 1.9
		Doctorate/Prof degree	4 2.5
Household Income	162		
		Under \$10,000	22 13.6
		\$10,000 - \$29,999	40 24.7
		\$30,000 - \$49,999	28 17.3

	\$50,000 - \$74,999	40	24.7
	\$75,000 - \$99,999	8	4.9
	\$100,000 – 149,999	15	9.3
	\$150+	9	5.6
Level of Religiosity	161		
	Atheist	6	3.7
	Agnostic	12	7.5
	Spiritual, but not religious	58	36.0
	Somewhat religious	52	32.3
	Very religious	25	15.5
	Extremely religious	4	2.5

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Of the total sample, 58% of the participants indicated that they voted in the 2004 Presidential election, and 42% indicated that they did not vote. Participants who voted were asked to indicate which candidate they voted for, as well as their political party affiliation, and identity. Thirty four percent of the respondents indicated that they voted for Senator John Kerry, the Democratic candidate in the 2004 U.S. Presidential election. Twenty nine respondents (17.9%) voted for George W. Bush, the Republican candidate.

In addition, each participant indicated their level of political party affiliation (Democrat, Republican), and their level of political identity (liberal, conservative) on a six-point Likert scale. In a forced-choice question format, 69.8% (n = 113) of the respondents selected Democrat as their political party affiliation, while 30.2% (n = 49) selected Republican. Political identity was also a forced-choice question, with 66.9% of the respondents selecting liberal, while 33.1% indicated a conservative political identity. Results are shown in Table 9.

Table 9. Political Affiliation and Identity

	N	N	%
Candidate	162		
		Kerry	55 34.0
		Bush	29 17.9
		Badnarik	2 1.2
		Hagelin	1 .6
		Other	7 4.3
Voted in the 2004 Presidential Election	162		
		Yes	94 58.0
		No	68 42.0
Political Affiliation	162		
		Democrat	113 69.8
		Republican	49 30.2
Level of Political Affiliation	162		
		Extremely Democrat	30 18.5
		2	38 23.5
		3	40 24.7
		4	29 17.9
		5	18 11.1
		Extremely Republican	7 4.3
Political Identity	133		
		Liberal	89 66.9
		Conservative	44 33.1
Level of Political Identity	133		
		Extremely Liberal	19 14.3
		2	43 32.3
		3	29 21.8
		4	27 20.3
		5	9 6.8
		Extremely Conservative	6 4.5

### Data Analysis

The Rasch Model (Rasch, 1960) was selected for this study in order to answer some important questions: a) where on a linear scale does each test item fall, b) what is the spacing of scaled values of the items of differing orders of complexity, and c) to what extent do the scaled stage values of these items fit on the same scale, and d) how well does hierarchical complexity predict Rasch scaled scores? The Rasch is a mathematical formula that specifies the form of the relationship between persons and the items that define one trait. Specifically, the likelihood of higher scores increases as people have more of the trait, and decreases as they have less of that trait. The item responses are governed by a person's position on the underlying trait and item difficulty, rather than the sum of total responses. (Green & Frantom, 2002).

One aspect that is of importance for a Rasch model is the number of correct responses on each of the items within the subgroups of persons that all have a particular sum score. These numbers are compared to the numbers that are expected under the Rasch model (these expected numbers can be calculated). Then, the probability is calculated of observing deviations from these expected numbers that are larger than the deviations that are actually observed. If this probability is less than 0.05 or 0.01, then the Rasch Model is rejected as a likely explanation of the structure in the data. This procedure looks like other statistical tests, such as the T-test for the difference between two means and the Pearson chi-square test for independence in a table of frequencies. In these statistical tests, one also calculates the probability of observing deviations from expected values that are larger than the deviations that are actually observed. If this probability is larger than any certain level of significance (0.05 or 0.01), the model (hypothesis) is rejected (Commons, Danaher, Miller, & Goodheart, 2002).

Once data was entered into SPSS raw scores for each test item and each participant was captured in a fixed-ASCII file. This procedure creates the specific files needed to run the Rasch analysis in Winsteps (Linacre & Wright, 2000). Participant responses were run against each test item in order to determine the Rasch measure and fit statistics. Fit statistics are necessary in order to determine the fit of the data to the model, which also helps determine the effectiveness of the measure. According to Green and Frantom (2002), these statistics are calculated by differencing each pair of observed and model-expected responses, squaring the differences, summing over all pairs, averaging, and standardizing to approximate a unit normal ( $z$ ) distribution. If the data fits the model, one would expect the mean square and standardized fit indices to be 1.0 and 0.0 respectively. By weighing the distance between the person position and item difficulty, fit is expressed as infit and unweighted measures that are more sensitive to the influence of outlying scores as outfit. The infit statistic gives relatively more weight to the performances of persons closer to the item value. Scores with either an infit, or outfit above +2 or below -2, were eliminated from the data set in this study in order to enhance the validity of the items. The specific number of items that were eliminated from each grouping of test items is detailed in Table 2.

Regression analyses were run on the Rasch scores following the correlational analysis to obtain a better idea of what these relationships, if any, are like. The regression equation was used to make predictions about one variable from information that is known about the other variable. It was also used to test hypotheses pertaining to group differences.

## Results

This chapter summarizes the results of responses made by participants on all measures of moral reasoning. The chapter is organized into five sections. In the first section the pilot test results will be discussed. The second section presents the descriptive statistics for each of the measures and the analysis of item order of hierarchical complexity versus Rasch scores. The remaining three sections detail the results for each of the three hypotheses. Each test will be analyzed as a group of items first, and then the individual content areas of each test will be extracted so that they can be analyzed separately.

### *Pilot Test Results*

The pilot test was conducted using 29 student participants from the College of the Desert in Palm Desert, California. Each participant completed the entire survey except the Right to Bear Arms (RBA) test that was not completed in time for the pilot. Seventy-two percent of the respondents were female, and twenty-eight percent male. The overwhelming majority of the participants (72%) were under 25 years of age. Sixty five percent reported a Democratic political affiliation, and thirty five percent Republican. Sixty percent indicated that they were somewhat religious or very religious, and all participants had some college education.

The results were very similar to what was found in the final study analysis. Political affiliation was moderately correlated with education-level ( $r = -.196, p \leq .05$ ), and household income ( $r = .234, p \leq .05$ ), while political identity was correlated with level of religiosity ( $r = .257, \leq .05$ ). There were no other significant correlations found for political affiliation or identity.

Using a threshold of .70 as a cut-off estimate of reliability (as discussed in the next section), the reliability of the defining issues grouped test items was found to be acceptable with subject reliability of .88, and item reliability of .80. Similarly the moral judgment items had a reliability estimate of .81, and .78 for the subject reliability. The politician-voter had acceptable item reliability of .84, and subject reliability of .85. Although the grouped items were found to be reliable, there were no significant correlations found between them.

The overall results of the pilot test indicated that the instruments and the participant measures were reliable enough for use in the final study. The fact that no correlations were found between the grouped item measures may have been due to the limited sample size ( $n=29$ ).

### *Descriptive Summary of Moral Reasoning Measures*

For the purposes of this study, all measures of moral reasoning were scored based upon the item's hierarchical complexity. A linear scale was generated that distributed the item scores and individuals on a scale from the highest scores to the lowest. This essentially ranks each item from the positive to the negative based on the raw six-point Likert scores.

Winsteps provides both person, and item reliability information. According to Linacre (2000), person reliability is equivalent to the traditional test reliability. Low values indicate a narrow range of person measures, or a small number of items. Item reliability has no traditional equivalent. Low values indicate a narrow range of item measures, or a small sample. A commonly used threshold value for acceptable reliability scores is .70, according to Hair, Anderson, Tatham, and Black (1992). It is not an absolute standard however, especially in the case of exploratory research where values below .70 have been considered acceptable.

Test reliability is the person variance divided by the observed person variance for the sample of test items. Traditional Cronbach Alpha approximates true person variance with an analysis of variance. Winsteps approximates it using the measure of standard errors. Reliability is separation



reliability, so that the person or the item reliability provided by Winsteps is equivalent to KR-20, Cronbach Alpha, and the Generalizability Coefficient (Linacre, 2000).

The descriptive statistics regarding overall Rasch scores for each of the moral reasoning items are presented in Table 10. The mean, standard deviation, skewness, and kurtosis statistics are provided for each group of items. Skewness is a measure of the symmetry of a distribution. A distribution that contains relatively few large values is positively skewed, and distributions that have relatively few small values are negatively skewed. Kurtosis is the measure of peakedness or flatness of a distribution when compared to a normal distribution. A positive kurtosis value indicates a relatively peaked distribution, and a negative value indicates a relatively flat distribution (Hair et al., 1992).

A review of the moral reasoning test grouped items revealed that all of the groups were within normal limits of skewness (scores are between -1 and +1), and all show relatively peaked distributions (scores are all positive). In addition all of the groups had means that centered about zero that is considered the midpoint in a Rasch distribution.

Table 10. Descriptive Statistics of Grouped Test Items

Rasch Scores of Grouped Test Items	N	Mean	SD	Skew	Kurtosis
Politician-Voter	154	.11	.31	.15	2.13
Right to Bear Arms	112	-.09	.27	-.83	8.20
Moral Judgment Items	148	-.07	.28	.25	.76
Defining Issues Items	163	.07	.20	-.46	1.97

The same descriptive statistics were also run for the individual content areas of each test. The results are presented in Table 11. In this case, the pro-right to arms items (1.07), were slightly skewed to the negative end of the distribution. All of the content areas had positive kurtosis scores indicating that the distributions are peaked rather than flat, with the exception of the defining issues cancer story that had a -.45 kurtosis rating.

Table 11. Descriptive Statistics of Moral Reasoning Test Items by Content Area

Moral Reasoning Item Rasch Scores	N	Mean	SD	Skew	Kurtosis
Politician-Voter	154	.11	.31	.15	2.13
Pro-Right to Arms	105	-.13	.77	1.07	3.99
Anti-Right to Arms	98	-.01	.57	-.57	2.19
Moral Judgment Pro-Worker	133	.10	1.16	-.18	1.75
Moral Judgment Anti-Worker	139	.17	.89	.51	1.80
Moral Judgment Pro-Right to Die	130	-.37	1.18	-.60	.47
Moral Judgment Anti-Right to Die	132	-.20	1.23	.65	.98
Defining Issues Right to Die	162	.04	.25	.11	-.45
Defining Issues Reporter	158	.12	.29	-.15	.30
Defining Issues Student Demonstration	154	.15	.33	.80	3.92
Defining Issues Famine	156	-.03	.36	-.40	4.12
Defining Issues School Board	155	.14	.36	.23	.92

In order to make inferences about the order of hierarchical complexity and item Rasch scores, it was necessary to examine the analysis of variance between these scores, as well as to run regression analyses. This data is presented in Table 12 for each grouping of test items in the order of increasing correlations. Significant results were found for all grouped items. The order of hierarchical complexity of the right to bear arms items were a small but significant predictors

of Rasch scores,  $r(58) = .286$ ,  $F(1,58) = 5.174$ ,  $p \leq .027$ ,  $r^2 = .082$ ). The order of hierarchical complexity of the defining issues items predicted somewhat their Rasch scaled scores ( $r(58) = .372$ ,  $F(1,58) = 9.333$ ,  $p \leq .003$ ,  $r^2 = .139$ ). The moral judgment items order of hierarchical complexity strongly predicted item Rasch scores ( $r(22) = .557$ ,  $F(1,22) = 9.912$ ,  $p \leq .005$ ,  $r^2 = .311$ ), and the politician-voter items' hierarchical complexity very strongly predicted the Rasch scores, ( $r(43) = .767$ ,  $F(1,43) = 61.331$ ,  $p \leq .000$ ,  $r^2 = .588$ ).

According to Bond and Fox (2001), significant results provide an indicator of a single underlying construct. These results are not as high as expected based upon previous research on the relationship of order of hierarchical complexity and Rasch scores by Commons et al. (2006). They found correlations of  $r=.879$ , and  $r=.957$  between the order of hierarchical complexity of a counselor's method of providing informed consent to patients and their Rasch scores. One of the reasons why this study did not find correlations that high can be found in the sample itself. As depicted in Figures 1-4, the sample used in this study was constricted in the range of Rasch scores of participant responses for the items with greater orders of hierarchical complexity. The negative end of the scale (higher level responses) is compressed. There is almost no differentiation among the top three orders of hierarchical complexity items. This means that for each moral stage instrument, the stage attained was mostly concrete, abstract, and formal, with only a few if any systematic or metacognitive scoring participants. Rasch analysis requires a complete range of responses in order to generate a proper scale of the items (Bond & Fox, 2001). Individual item Rasch scores and their order of hierarchical complexity are located in Appendix F.

Table 12. ANOVA Results Item Rasch Scores on Order of Hierarchical Complexity

Model	R		Sum of Squares	df	Mean Square	F	Sig.
Right to Bear Arms	.286	Regression	9.828	1	9.828	5.174	.027
		Residual	110.172	58	1.900		
		Total	120.000	59			
Defining Issues	.372	Regression	20.411	1	20.411	9.333	.003
		Residual	126.839	58	2.187		
		Total	147.250	59			
Moral Judgment	.557	Regression	16.967	1	16.967	9.912	.005
		Residual	37.658	22	1.712		
		Total	54.625	23			

Politician-Voter	.767	Regression	54.553	1	54.553	61.331	.000
		Residual	38.247	43		.889	
		Total	92.800				

a Predictors: (Constant), Defining Issues Rasch Scores  
 b Dependent Variable: Defining Issues Order of Hierarchical Complexity

Scattergrams (Figures 1 to Figure 4) depicting the regression analyses of grouped item order of hierarchical complexity versus their Rasch scores are found on the following pages. The higher a participant rated an item on the six-point Likert scale, the lower the order of hierarchical complexity. The scattergram for the right to bear arms items in Figure 1 was quite flat with no apparent high to low Rasch pattern, or low to high order of hierarchical complexity emerging. There are a number of possible explanations for these results. The first may be the inadequate range of scores due to the limited sample. It is also important to remember that the rights to bear arms items were only completed by 112 participants that also constricted the scale. The person reliability was .67, indicating low test reliability.

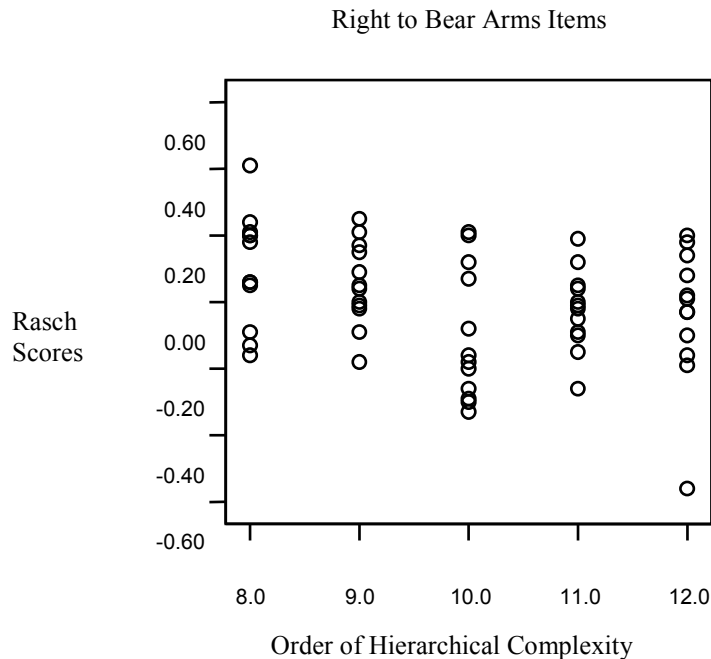


Figure 1. Regression of order of hierarchical complexity versus right to bear arms item Rasch scores ( $r(58) = .286$ ,  $F(1,58) = 5.174$ ,  $p = .027$ ,  $r^2 = .082$ ).

For example, in the defining issues scattergram in Figure 2 participants who rated concrete items high on the Likert scale, clustered around .40, where participants who rated metasystematic items high on the scale tended to cluster around -10. Notice the truncation of responses for higher order responses. The concrete level has a range of .10 to .60, whereas the metasystematic (12) order has a constricted range of -.10 to -.20. The items received a subject reliability of .81, and item reliability of .95, indicating good test and item reliability.

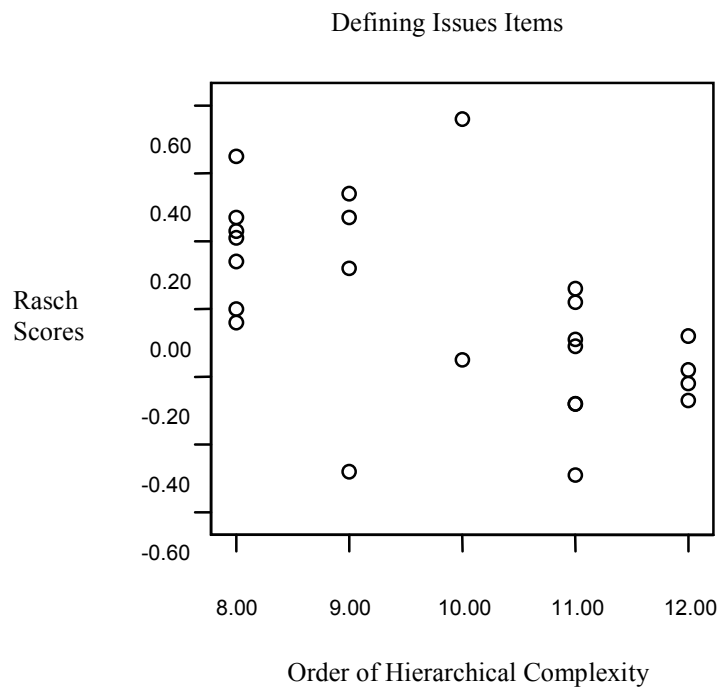


Figure 2. Regression of order of hierarchical complexity versus Defining Issues Rasch scores ( $r(58) = .372$ ,  $F(1,58) = 9.333$ ,  $p \leq .003$ ,  $r^2 = .139$ )

Figure 3 depicts the scattergram results of the moral judgment items. Once again concrete responses cluster around -.30, with a range of .10 to .60, whereas the clustering of metasystematic items are around .10, with a very limited range from 0 to -.20. However, a pattern emerges indicating a clustering of scores from high to low; concrete to metasystematic. The moral judgment items received a person reliability index of .66, and an item reliability of .95, indicating low test reliability, but high item reliability.

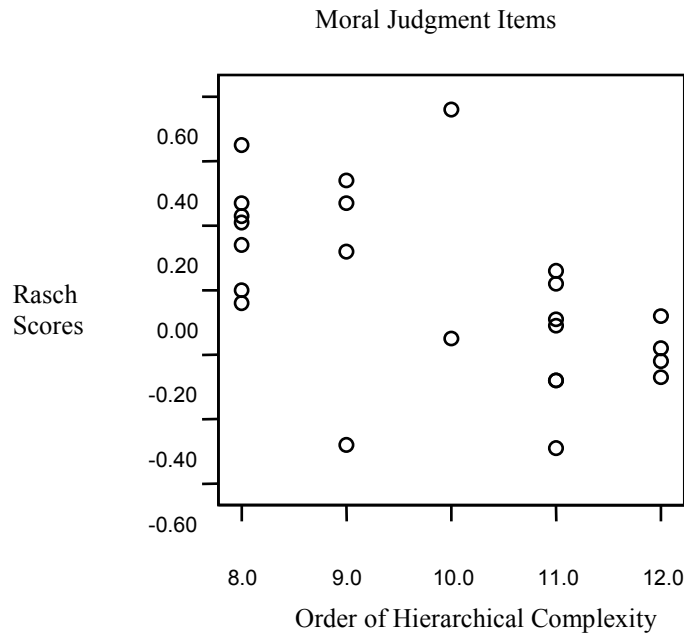


Figure 3. Regression of order of hierarchical complexity versus moral judgment Rasch scores ( $r(22) = .557$ ,  $F(1,22) = 9.912$ ,  $p \leq .005$ ,  $r^2 = .311$ ).

Figure 4 depicts scattergram results for the politician-voter items. Here we see a bit more of a response range. Concrete responses clustered around .75, abstract and formal tended to cluster around .25, and the metasystematic clustering around -.25. The higher range is still somewhat constricted however, there does appear to be a distinct pattern of Rasch scores from high to low, and order of hierarchical complexity low to high. The items of the Politician-Voter Problem scenarios rated a .74 person reliability score, and a .97 item reliability score, indicating good overall test reliability.

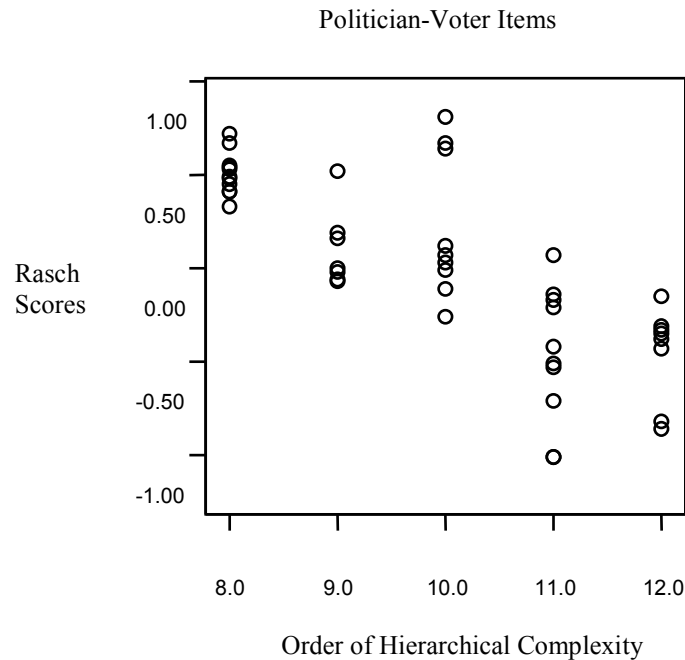


Figure 4. Regression of order of hierarchical complexity versus politician-voter item Rasch scores ( $r(43) = .767$ ,  $F(1,43) = 61.331$ ,  $p \leq .000$ ,  $r^2 = .588$ ).

The following figures (Figure 5 to Figure 8) are the Rasch variable maps depicting how items and participants calibrated in the Winsteps analysis. The right hand side of the map represents the order of hierarchical complexity of each item. The left side represents the number of participants (“#”= 2) who calibrated at that level. The items are shown located at their calibrations, along with the person distribution. An M marker represents the location of the mean measure. S markers are placed one sample standard deviation away from the mean. T markers are placed two sample standard deviations away. The variables are laid out vertically with the most able persons, and most difficult items at the bottom. The item orders of hierarchical complexity in Figures 5 to 8 are shown as: C8 (Concrete), A9 (Abstract), F10 (Formal), S11 (Systematic), and M12 (Metasystematic).

Figure 5 indicates that the majority (73%) of the participants who completed the defining issues items calibrated between zero and one, again demonstrating the constricted range of responses, with responses skewed to the lower end of the scale. One would expect that most of the primary, concrete, and abstract items would calibrate between one and two standard deviations above the mean, and that the formal, systematic, and metasystematic items would calibrate between one and two standard deviations below the mean (Commons et al., 2002). However, it is apparent that there are a considerable number of items that are outside of these expectations which reflects the fact that some of the items are not a perfect match to the model.

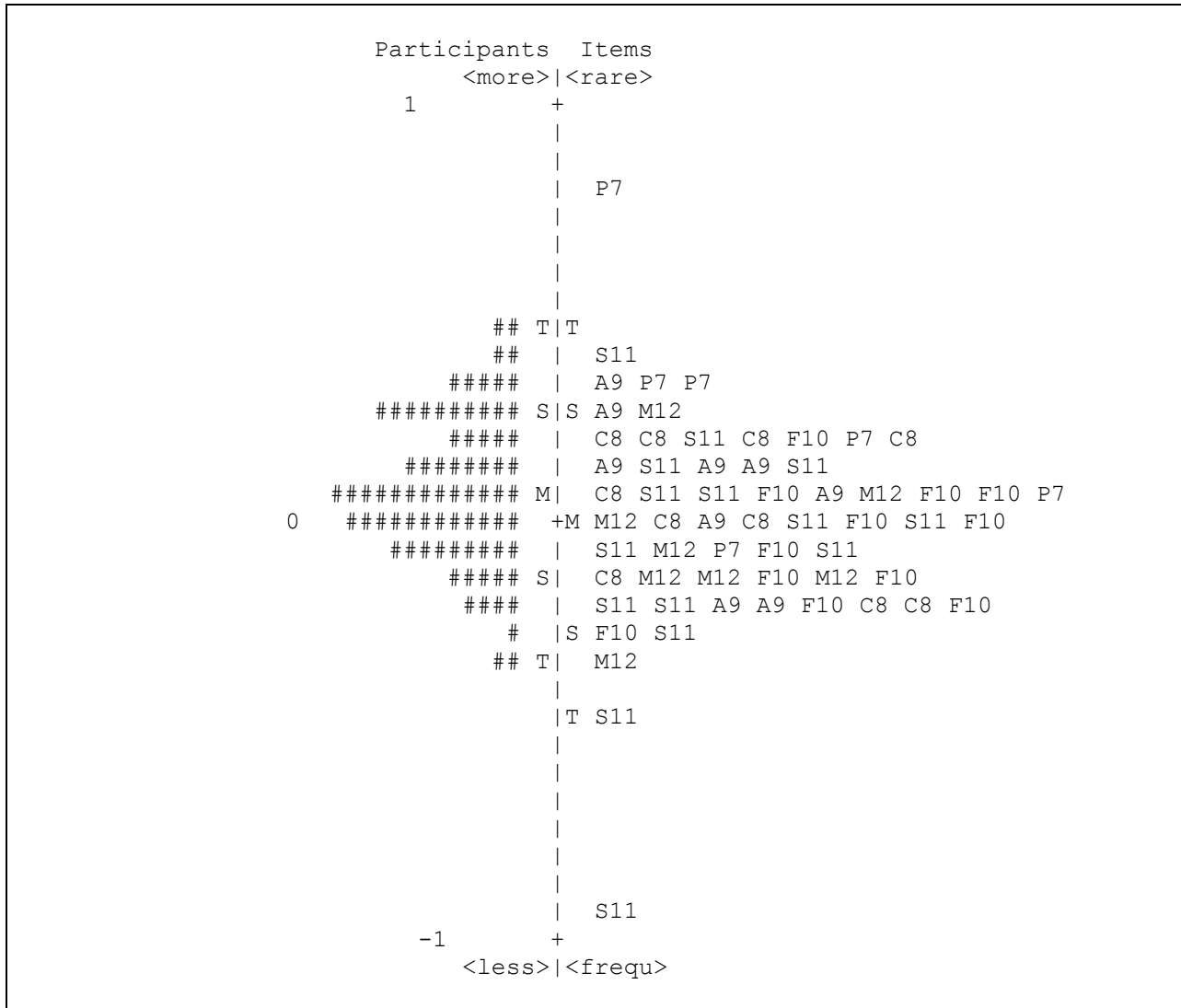


Figure 5. Rasch Variable Map of Defining Issues Items  
 Each '#' is the equivalent of 2 participants

Figure 6 shows the variable map for the moral judgment items. In this case we see a much better fit of the items to the model with just a few exceptions where several systematic and formal items ending up in the lower level. A majority of the participants (67%) calibrated between one and two standard deviations below the mean indicating that the responses skewed toward the higher orders of hierarchical complexity.



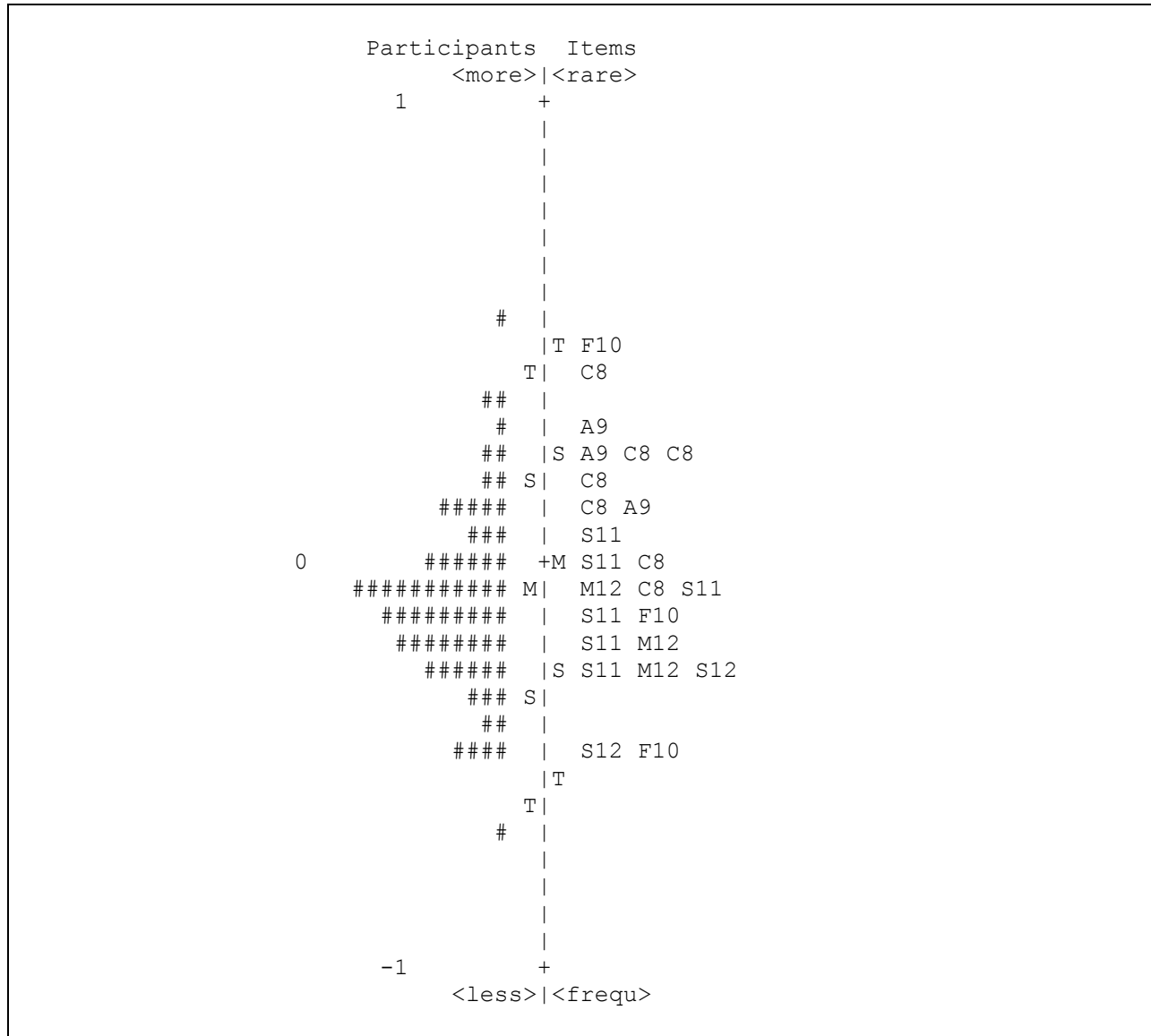


Figure 6. Rasch Variable Map of Moral Judgment Items  
 Each '#' is the equivalent of 2 participants

Figure 7 depicts the variable map for the politician voter items. There is a decided alignment among the items, with a majority of the higher level items calibrating between one and two standard deviations below the mean, and lower level items calibrating between one and two standard deviations above the mean, indicating that the items were a good fit to the model. Once again, the truncation of higher order responses is evident, with only 41% responding between one and two standard deviations below the mean.

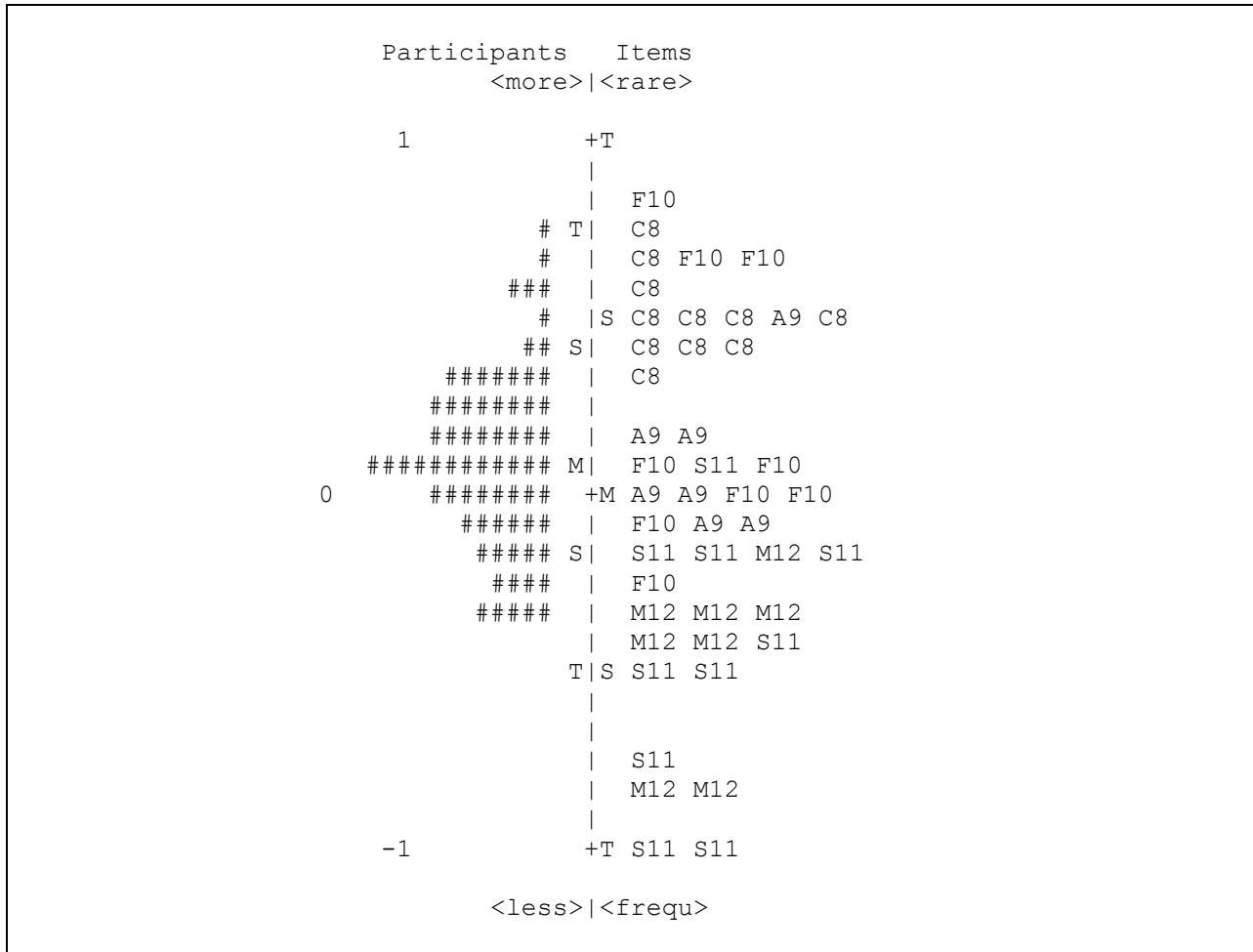


Figure 7. Rasch Variable Map of Politician-Voter Items  
 Each '#' is the equivalent of 2 participants

Figure 8 depicts the variable map for the right to bear arms items. The items are dispersed randomly throughout the scale with no clear delineation of higher order, or lower order items. Participant responses tended to skew below the mean indicating that the majority were higher order responses.

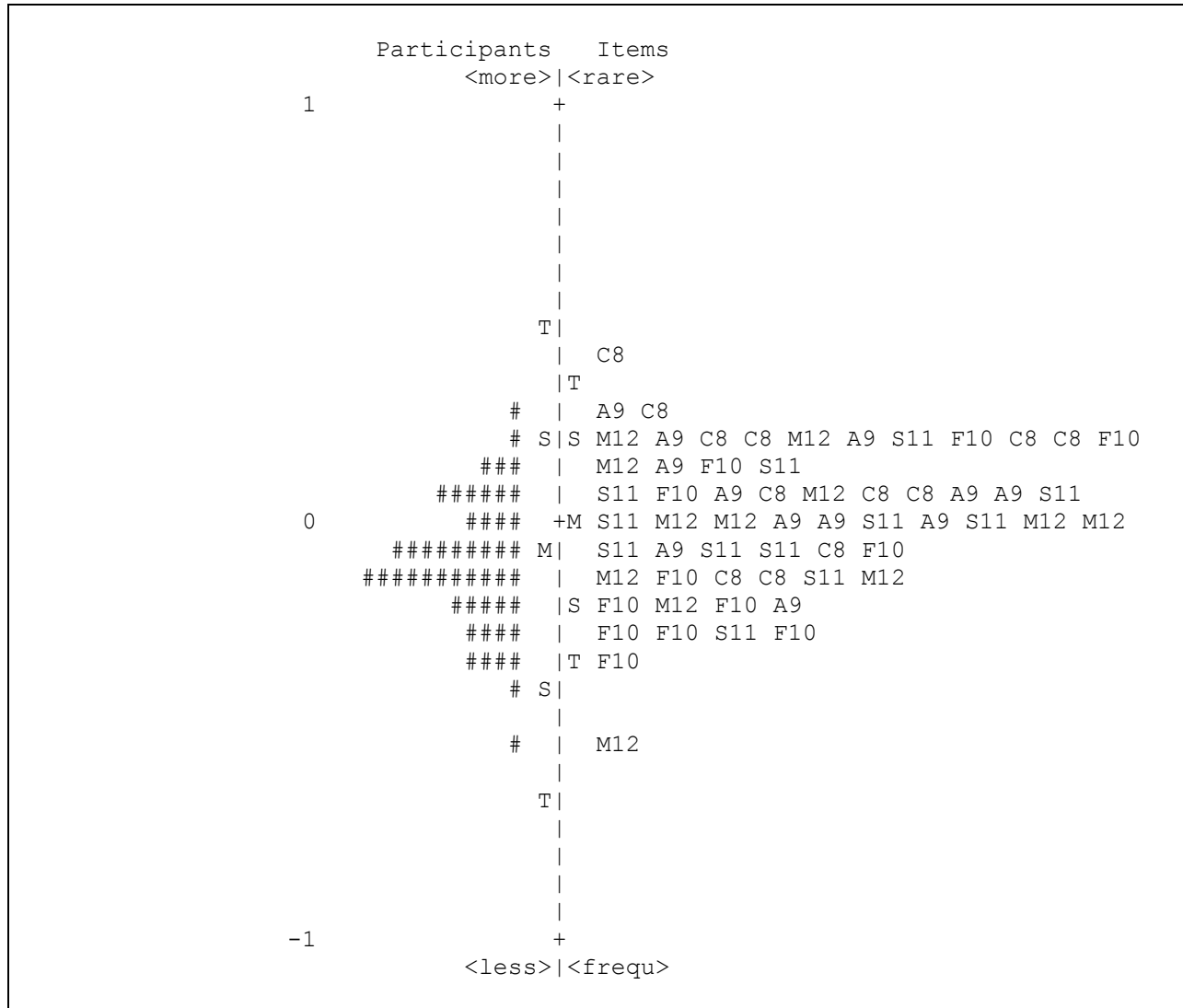


Figure 8. Rasch Variable Map of Right to Bear Arms Items  
 Each '#' is the equivalent of 2 participants

Most of the moral reasoning test items utilized in this study were found to be reliable, with the exception of the right to bear arms items. All of the regression analyses, and analyses of variance were significant, indicating that the scores on the items were significant predictors of order of hierarchical complexity.

As expected, the order of hierarchical complexity of the moral reasoning items predicted the Rasch-scaled responses quite well. This empirically confirmed that the items accurately reflected the order of hierarchical complexity for which they were designed. In other words, participants

found it increasingly difficult to differentiate item content quality as the order of hierarchical complexity increased.

*Hypothesis 1: Liberal and Conservative Moral Reasoning*

The first research hypothesis attempted to answer the fundamental question regarding political liberals and conservatives. Does level of moral reasoning, as measured by moral reasoning test items predict political party affiliation, or an individual's political identity? Previous research has shown that conservatives tend to operate at the conventional (stage 3-4, abstract through systematic) moral development stages, while liberals operate at the principled (stage 5, metasystematic) moral development stage (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976) Overall Rasch scores were calculated for each of the moral reasoning item groups. A correlational analysis was conducted on these Rasch scores to determine if there was a relationship between the moral reasoning items, and political affiliation or identity.

Correlational and regression analyses did not find a significant relationship between a participants's Rasch score and their political affiliation or identity. In terms of political affiliation the results indicated  $r(160) = .112$ ,  $F(1,160) = 2.019$ ,  $p \leq .157$ ,  $r^2 = .012$ , and for political identity  $r(131) = .052$ ,  $F(1,131) = .362$ ,  $p \leq .549$ ,  $r^2 = .003$ . The reliability of these results was very high as reported by Winsteps. The reliability measure for participants was .84, and .90 for the moral reasoning items. Therefore the null hypothesis must be accepted. From this data it does not appear as though there is a difference between liberals and conservatives and their Rasch scores. Rasch scores for all of the participants, along with their self-reported political affiliations, and political identities are located in Appendix G. The table is sorted in descending order, going from the higher ordered Rasch scores to the lower orders.

Table 13 presents the correlations among the five grouped item measures of moral reasoning. Although there was a significant correlation between political affiliation, and political identity ( $r = .425$ ,  $p \leq .01$ ), there were no significant correlations between the moral reasoning measures, and political affiliation. This is not consistent with previous studies, and does not support a relationship between moral reasoning stage, and political affiliation.

Likewise, there were no significant relationships between political identity and the moral measures with the exception of one moderately significant correlation between the grouped moral judgment items and political identity ( $r = .211$ ,  $p \leq .05$ ).

Table 13. Correlations between Political Affiliation, Identification, and Grouped Moral Reasoning Test Items

	Political Affiliation	Political Identity	Politician-Voter	Moral Judgment	Defining Issues	Right to Bear Arms
Political Affiliation	1	.425**	-.097	-.064	-.083	.039
Political Identity		1	-.016	.211*	-.020	-.008

\* $p \leq .05$ , \*\* $p \leq .01$

To determine if order of hierarchical complexity, based on grouped moral judgment items, was in fact a predictor of political identity, additional analyses were run. A regression analysis and analysis of variance confirmed that the order of hierarchical complexity of moral judgment grouped test items were a predictor of political identity ( $r(116) = .359$ ,  $F(1,116) = 5.384$ ,  $p \leq .022$ ,  $r^2 = .044$ ).

Different results were yielded by separating out content areas of the moral reasoning instruments. Table 14 presents the correlational data between political affiliation and identity, and each of the content areas of the moral reasoning instruments. Now political affiliation is correlated with the pro-right to bear arms ( $r = .198$ ,  $p \leq .05$ ). Political identity is correlated with the moral judgment anti-right to die items ( $r = .277$ ,  $p \leq .01$ ).

Table 14. Correlations between Political Affiliation, Identity, and Moral Reasoning Test Items by Content Area

	Political Affiliation	Political Identity
Politician-Voter Problem	-.970	-.016
Moral Judgment Pro-Worker	-.091	.125
Moral Judgment Anti-Worker	.009	.122
Moral Judgment Pro-Right to Die	-.109	-.107
Moral Judgment Anti-Right to Die	.018	.277**
Defining Issues Right to Die	.026	.022

Defining Issues Reporter	-.091	-.049
Defining Issues Student Demonstration	-.020	.037
Defining Issues Famine	-.134	-.027
Defining Issues School Board	-.056	-.093
Pro-Right to Bear Arms	.198*	-.057
Anti-Right to Bear Arms	-.186	-.148

\* $p \leq .05$ , \*\* $p \leq .01$

A regression analysis was conducted to determine if the order of hierarchical complexity of these two variables would predict either political affiliation or identity. The results are presented in Table 15. As a predictor of political affiliation, items from the pro-right to bear arms test were moderately significant ( $r(102) = .118$ ,  $F(1,102) = 4.182$ ,  $p \leq .043$ ). Test items from the moral judgment anti-right to die dilemma were found to be significant predictors of political identity with  $r(103) = .106$ ,  $F(1,103) = 8.540$ ,  $p \leq .004$ .

Table 15. Summary of Pro-Right to Bear Arms, Moral Judgment Anti-Right to Die Test Items Political Affiliation\Identity

	R	Sum of Squares	df	Mean Square	F	Sig
Political Affiliation <sup>a</sup>	.198*					
Regression		.861	1	.861	4.182	.043
Residual		21.005	102	.206		
Total		21.866	103			
Political Identity <sup>b</sup>	.277*					
Regression		1.776	1	1.776	8.540	.004
Residual		21.422	103	.208		
Total		23.198	104			

\* $p \leq .05$ , \*\* $p \leq .01$  a. Predictors: (Constant), Pro-Right to Bear Arms

b. Predictors: (Constant), Moral Judgment Anti-Right to Die

Similarly a regression analysis was conducted with all of the grouped test items, and the dependent variables. However, the analysis of variance in Table 16 indicates that when the Rasch analysis was conducted on items grouped as individual tests there were no significant findings.

Table 16. Summary of Political Affiliation/Identity and Grouped Moral Reasoning Test Items

	R	Sum of Squares	df	Mean Square	F	Sig.
Political Affiliation <sup>a</sup>	.167					
Regression		.641	4	.160	.747	.562
Residual		22.287	104	.214		
Total		22.928	108			
Political Identity <sup>b</sup>	.274					
Regression		1.807	4	.452	2.108	.085
Residual		22.283	104	.214		
Total		24.090	108			

Predictors (Constant), Moral Judgment, Defining Issues, Politician-Voter, Right to Bear Arms  
 Dependent variables: a. Political Affiliation and b. Political Identity

Another regression analysis was conducted on the specific content areas of each moral reasoning test to determine if order of hierarchical complexity predicted political affiliation or identity. The results are shown in Table 17. The individual content areas proved to be insignificant predictors of political affiliation. The individual content areas and political identity were also deemed insignificant.

Table 17. Summary Political Affiliation/Identity and Moral Reasoning Test Item Content Areas

	R	Sum of Squares	df	Mean Square	F	Sig.
Political Affiliation <sup>a</sup>	.385					
Regression		2.646	12	.220	1.045	.419
Residual		15.187	72	.211		
Total		17.833	84			
Political Identity <sup>b</sup>	.425					
Regression		3.382	12	.282	1.321	.226
Residual		15.355	72	.213		
Total		18.737	84			

Predictors: (Constant), School, Anti-Arms, ProWkr, Anti-Right to Die, Pro-Arms, Demo, PVP, Famine, Right to Die, Pro-Right to Die, Reporter, AntiWkr

The overall results examining political affiliation, political identity, and the grouped moral reasoning test items were insignificant. However, when separating out the content areas of each group, some significant items emerged. As a predictor of political affiliation, items from the pro-right to bear arms test were moderately significant ( $r(102) = .118$ ,  $F(1,102) = 4.182$ ,  $p \leq .043$ ). Test items from the moral judgment anti-right to die dilemma were found to be significant predictors of political identity with  $r(103) = .106$ ,  $F(1,103) = 8.540$ ,  $p \leq .004$ . This may indicate that the items from these test instruments are measuring different constructs.

### *Hypothesis 2: Correlation of Moral Reasoning Test Items*

Do moral development reasoning scores as measured by items from the DIT-2, MJT, PVP, and the RBA correspond with each other in this population? The development of moral reasoning, as defined by Kohlberg (1964) has been widely studied, with the most common form of measurement being the DIT-2. Will the results hold using a variety of measures?

A correlation analysis was done on overall Rasch scores for all of the moral reasoning tests. All grouped test items correlated at the .01 level with the exception of the grouped Defining Issues items and the Politician-Voter items ( $r = .108$ ). The results are presented in Table 18. This indicates that with one exception, there was a strong relationship between the overall grouped measures.

Table 18. Correlations among Grouped Items of the Measures of Moral Reasoning

	Politician-Voter	Moral Judgment	Defining Issues	Right to Bear Arms
Politician-Voter	1	.451**	.108	.393**
Moral Judgment		1	.268**	.499**
Defining Issues			1	.279**
Right to Bear Arms				1

\* $p \leq .05$ , \*\* $p \leq .01$

A similar analysis was done on the content areas of the moral reasoning instruments. The correlations among these content areas are described in Appendix H. From these results it is apparent that while many of the content areas of the tests are significantly correlated, many are not. The defining issues items correlated significantly with one another in all content areas,



yet not with the anti-right to bear arms items, the moral judgment pro-worker items, moral judgment pro-doctor items, and the Politician-Voter items. The moral judgment pro-worker dilemma, which includes arguments in favor of workers that broke into administrative offices to take tape transcripts that would prove allegations of eavesdropping on the part of management, also did not correlate significantly, except with the moral judgment anti-worker ( $r = -.367$ ,  $p \leq .01$ ).

A factor analysis was performed on all four measures of moral reasoning to analyze the interrelationships among the test variables and to explain these variables in terms of their common underlying dimensions, or factors. Factor scores represent the degree to which each individual scores high on the group of items that load high on a factor. Thus a participant responding to the moral reasoning test items, and scores high on the several variables that have heavy loadings for a component surely will obtain a high factor score on that component (Hair, et al., 1992).

In interpreting factors, a decision must be made regarding which factor loadings are worth considering. A rule of thumb is often used as a means of making a preliminary examination of the factor matrix. Factor loadings greater than  $+ .30$  are considered significant; loadings of  $+ .40$  are considered more important; and if the loadings are  $+ .50$  or greater, they are considered very significant (Hair, et al., 1992).

The component extraction model was used to summarize the variance into a minimum number of factors for prediction purposes. A useful factor must account for more than 1.0 unit of variance, or have an eigenvalue greater than one. Therefore, eigenvalues over one were extracted from the data that resulted in one component. Based upon the guidelines above, all of the moral reasoning grouped items loaded significantly on component one (moral judgment  $.816$ , right to bear arms  $.793$ , politician-voter  $.706$ , and defining issues  $.497$ ). Due to the fact that these items were developed to measure moral reasoning levels, it is likely that component one is the moral reasoning factor. These results are presented in Table 19.

Table 19. Total Variance of Grouped Test Items

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.038	50.962	50.962	2.038	50.962	50.962
2	.906	22.659	73.621			
3	.567	14.174	87.795			
4	.488	12.205	100.000			

Extraction Method: Principal Component Analysis.

In addition, a Bartlett's test of sphericity was done to calculate the determinant of the matrix of the sums of products and cross-products from which the intercorrelation matrix was derived. The determinant of the matrix was then converted to a chi-square statistic and tested for significance. The chi-square ( $\chi^2(6) = 70.972$ ,  $p = 0.000$ ) was significant, indicating that the test items do not come from a population that is noncollinear. The results of these analyses are presented in Table 20.

The Kaiser, Meyer, and Olkin (KMO) test was conducted to determine whether or not the test items are measuring a common factor. The KMO value for the grouped items was .693 which according to Friel (2006) is a mediocre, to middling degree of common variance, indicating that when a factor analysis is conducted, the factors extracted will account for a fair amount of variance, but not a substantial amount.

Table 20. KMO and Bartlett's Test for Grouped Test Items

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.693
Bartlett's Test of Sphericity	Approx. Chi-Square	70.972
	df	6
	Sig.	.000

A factor analysis was also performed on the specific content areas of each of the moral reasoning measures. Eigenvalues over one were extracted from the data that resulted in five components. Although five components were produced in the principal component analysis, components four and five only accounted for about 18% of the total variance (each component accounted for approximately 9% of the variance). Therefore, the analysis was run again with just the top three components.

Assuming that component one is representative of moral reasoning levels, it was apparent that the defining issues items, and the moral judgment anti-doctor, and anti-worker items loaded significantly on that dimension. The politician-voter (.690), and the moral judgment pro-doctor (.851) items loaded most significantly on component two. The anti-right to bear arms (.646), moral judgment pro-worker (.598), and pro-right to bear arms (-.486) items loaded most significantly on component three, along with the moral judgment anti-worker items (.609). These results indicate that some of the content area items are measuring something other than moral reasoning stage. These results are presented in Table 21.

Table 21. Factor Analysis of Moral Measure Content Areas

	Component		
	1	2	3
Defining Issues Reporter	.784	-.021	.120
Defining Issues School	.751	.071	.047
Defining Issues Right to Die	.734	-.123	-.102
Defining Issues Demonstration	.729	-.151	.152
Defining Issues Famine	.711	.067	.140
Anti-Right to Die	.420	-.340	-.182
Pro-Right to Die	-.060	.851	.042
Politician-Voter	.235	.690	-.212
Anti-Right to Arms	.177	-.057	.646
Pro-Worker	.120	.484	.598
Pro-Right to Arms	.248	.445	-.486
Anti-Worker	.441	-.025	-.460

Extraction Method: Principal Component Analysis.  
3 components extracted

The twelve test item content areas were reduced to three factors. These three factors account for about 54% of the covariance among the variables. Component one appears to measure moral reasoning level, with the defining issues content areas correlating highly on that factor. The moral judgment anti-doctor, and anti-worker items also moderately correlate with component one. Based on the fact that some of the liberally oriented items, for example the anti-right to bear arms items, and the pro-worker items correlated positively with component three, while the pro-right to bear arms, and the anti-worker items correlated negatively with component three may indicate that factor three is measuring liberal attitudes. Component two is a little more ambiguous. The pro-doctor (or pro-right to die) items factored highly on component two, and so did the politician-voter items. The right to die also tends to be a liberal factor however the politician-voter problem does not take either a liberal or conservative stand. These results are presented in Table 22.

Table 22. Total Variance of Test Item Content Areas

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.290	27.419	27.419	3.290	27.419	27.419
2	1.800	14.998	42.417	1.800	14.998	42.417
3	1.371	11.429	53.845	1.371	11.429	53.845
4	1.099	9.155	63.000			
5	1.080	8.999	71.999			

Extraction Method: Principal Component Analysis.

Again, the Kaiser, Meyer, and Olkin (KMO) test was conducted to determine if the test items were measuring a common factor. The KMO value for the test item content areas was .693 which according to Friel (2006) is a mediocre to middling degree of common variance. The chi-square ( $\chi^2 [66] = 260.516, p = .000$ ) was significant indicating that the test items do not come from a population that is noncollinear. The results are shown in Table 23.

Table 23. KMO and Bartlett's Test for Test Item Content Areas

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.636
Bartlett's Test of Sphericity	Approx. Chi-Square	260.516
	df	66
	Sig.	.000

When the interpretation of factors is ambiguous, sometimes the pattern can be clarified by rotating the factors in F-dimensional space. A VARIMAX rotation was conducted on the test item content areas to determine if the pattern of factor loading would become clearer. The VARIMAX criterion centers on simplifying columns in the factor matrix that maximizes the sum

of variances of required loadings. Interpretations are easiest when the variable-factor correlations are close to either +1 or -1, thus indicating clear possible or negative association between the variable and the factor, or close to 0, indicating no association. The VARIMAX method has proved very successful as an approach to obtaining orthogonal rotation of factors (Hair et al., 1992)

The only major differences in the rotated matrix is that the anti-doctor now loads significantly on component one rather than two, and the pro-right to bear arms correlates significantly with component two, rather than three. The interpretation of these results indicates that there is not much of a change, and that the rotated pattern is not a substantial improvement over the unrotated pattern. The results are presented in Table 24.

Table 24. VARIAMAX Rotated Component Matrix

	Component		
	1	2	3
Defining Issues Reporter	.786	.057	.091
Defining Issues Demonstration	.750	-.083	.094
Defining Issues School	.738	.158	.042
Defining Issues Right to Die	.737	.002	-.146
Defining Issues Famine	.704	.128	.134
Moral Judgment Anti-Right to Die	.448	-.231	-.266
Moral Judgment Pro-Right to Die	-.162	.804	.240
Politician-Voter	.136	.745	-.052
Pro-Right to Arms	.163	.572	-.376
Moral Judgment Pro-Worker	.092	.348	.691
Anti-Right to Arms	.219	-.177	.610
Moral Judgment Anti-Worker	.414	.139	-.464

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 5 iterations.

It is clear from these results that when the test items are grouped they are highly correlated, and all appear to measure moral reasoning level, with the exception of the grouped defining issues items and the politician-voter. These two grouped test items correlated with component one, however, the politician-voter (.706) had a much larger factor score than the defining issues items (.497).

When the item content areas are examined separately, a different picture emerges. The goodness-of-fit measures for the individual content areas are mediocre to middling. The percent of variance accounted for in both the rotated and unrotated solutions was 53.85%. The factor patterns were fairly clear for components one and three, however, ambiguous for factor two. The individual defining issues content areas all loaded on component one, while the politician-voter loaded on a completely different component explaining why there was no significant correlation found between the grouped items, or the individual content areas. It appears that these grouped and nongrouped items are measuring different factors.

### *Hypothesis 3: Political Affiliation and Sample Variables*

Does the order of hierarchical complexity in moral reasoning scores explain the greater portion of variance in political affiliation, not better accounted for by age, gender, household income, education-level, candidate voted for in the 2004 presidential election, or level of religiosity?

Table 25 shows the demographic variables in relation to party affiliation, political identity, and candidate voted for in the 2004 Presidential election. Within the age group categories, a majority of the participants under 24 years of age, indicated a Democratic Party affiliation, and liberal identity, however, a majority of the Under 20's did not vote (77.1%). A majority of participants between 25 and 39 years of age voted for Kerry, and indicated a Democratic Party affiliation, and liberal identity. The majority of 40-44 year olds selected a Republican affiliation, however, they also identified more as liberals than conservatives. The majority of this age group voted for Bush (75%). Age groups between 45 and 70+ tended to be Democrats, with a liberal political identity. The majority of respondents in these age categories voted for Kerry.

In terms of ethnicity, the majority of all categories denoted a Democrat affiliation, and liberal identity, however, 35.8% of Whites, 100% of Native Americans, 42.9% of African Americans, 50% of Asian/Pacific Islanders, and 47.8% of Hispanics did not vote in the 2004 U.S. Presidential election. A majority of males and females of all ethnic groups indicated a liberal identity, and Democratic affiliation, however, 38.2% of females, and 50% of males did not vote. Of those who voted, 36.4% of females voted for Kerry, and 18.2% for Bush. Males voted for Kerry (28.8%), and Bush (17.3%).

The majority of those who were high school graduates indicated a liberal identity, and Democratic political affiliation, however 63.6% did not vote. Participants who had at least some college education tended to identify as liberal Democrats. Forty-three percent of those with some college did not vote. Respondents with higher education, Associate degree through Doctorates also indicated a liberal identity, and Democratic political affiliation, with the majority of all

categories voting in the Presidential election. Participants in these education categories also voted for Kerry (n = 24) in larger numbers than Bush (n = 6).

With the exception of those with income levels from \$100,000-\$149,999, the majority of participants indicated a liberal political identity, and Democratic Party affiliation. A majority of those who had income levels lower than \$29,999 did not vote. Of those who did vote, the majority voted for Kerry. A majority of those with income levels from \$30,000-49,999 voted for Kerry. A majority of respondents in the \$50,000 to \$74,999 category did not vote (40%), while income levels of \$75,000 were closely divided between voting for Kerry (n = 11), Bush (n = 9), and not voting (n = 12).

In terms of level of religiosity, the majority of atheists, agnostics, spiritual, and somewhat religious individuals selected a liberal political identity, and Democratic political affiliation. They also voted for Kerry in greater numbers (Kerry n = 51; Bush n = 17). Those indicating that they were very religious indicated a conservative political identification, but a Democratic affiliation. Although 36% of this group voted for Bush, 40% did not vote at all. The extremely religious selected a Democratic political affiliation, a liberal identity, but voted in greater numbers for Bush (n = 2). Fifty percent of this group did not vote in the Presidential election.

Table 25. Political Affiliation/Identity/Demographic Covariant Matrix

	Democrat	Republican	Liberal	Conservative	Kerry	Bush	No Vote
<b>Age</b>							
Under 20	60.4	39.6	60.0	40.0	8.3	10.4	77.1
20-29	84.4	15.6	78.4	21.6	37.8	16.4	35.8
30-39	63.6	36.4	56.3	43.8	40.9	11.7	23.5
40-49	66.7	33.3	50.0	50.0	50.0	42.1	15.7
50-59	81.6	18.2	63.6	36.4	54.5	33.3	0.0
60-69	25.0	75.0	100.0	0.0	25.0	33.3	0.0
70-89	66.7	33.3	60.0	40.0	46.7	0.0	0.0
<b>Ethnicity</b>							
White	66.7	33.3	64.3	35.7	39.5	19.8	35.8
Native American	100.0	0.0	100.0	0.0	0.0	0.0	100.0
African American	85.7	14.3	100.0	0.0	57.1	0.0	42.9
Asian/Pacific Islander	71.4	28.6	77.8	22.2	14.3	21.4	50.0
Hispanic/Latino	78.3	21.7	62.2	37.8	32.6	13.0	47.8

	Democrat	Republican	Liberal	Conservative	Kerry	Bush	No Vote
Gender							
Female	69.1	30.9	65.2	34.8	36.4	18.2	38.2
Male	71.2	28.8	70.5	29.5	28.8	17.3	50.0
Education							
Some college	66.7	33.3	66.3	33.7	26.9	21.2	48.7
Associate/2-yr	82.6	17.4	77.8	22.2	43.5	13.0	34.8
Bachelor	63.6	36.4	54.5	45.5	72.7	27.3	0.0
Graduate	100.0	0.0	100.0	0.0	100.0	0.0	0.0
Post-Graduate	100.0	0.0	75.0	25.0	75.0	0.0	25.0
Income							
Under 10,000	86.4	13.6	89.5	10.5	27.3	9.1	54.5
\$10-29999	75.0	25.0	60.6	39.4	30.0	15.0	45.0
\$30-49999	82.1	17.9	75.0	25.0	46.4	7.1	35.7
\$50-74999	60.0	40.0	69.7	30.3	32.5	25.0	40.0
\$75-99999	50.0	50.0	42.9	57.1	37.5	25.0	37.5
100-149999	46.7	53.3	35.7	64.3	33.3	33.3	33.3
150+	66.7	33.3	85.7	14.3	33.3	22.2	44.4
Religiosity							
Atheist	83.3	16.7	100.0	0.0	33.3	0.0	33.3
Agnostic	83.3	16.7	91.7	8.3	66.7	8.3	25.0
Spiritual, but not	70.7	29.3	77.1	22.9	39.7	12.1	46.6
Somewhat religious	71.2	28.8	61.0	39.0	34.6	17.3	42.3
Very religious	56.0	44.0	31.6	68.4	12.0	36.0	40.0
Extremely religious	75.0	25.0	66.7	33.3	0.0	50.0	50.0

Correlations between the demographic data, including age, gender, ethnicity, education-level, household income, level of religiosity, and candidate voted for in the 2004 election, are presented in Table 26. There is a significant correlation between political affiliation and political identity ( $r = .425, p \leq .01$ ); household income ( $r = .223, p \leq .01$ ); and education-level ( $r = -.158, p \leq .05$ ). A significant correlation also exists between political identity and level of religiosity ( $r = .336, p \leq .01$ ).



Ethnicity is positively correlated with household income ( $p = -.162, p \leq .05$ ), and level of religiosity ( $r = .267, p \leq .01$ ), and candidate voted for in the 2004 election ( $r = .168, p \leq .05$ ). There was only one significant correlation found between gender and any of the other demographic responses. Gender and household income showed a correlation of .157, significant at the .05 level. A positive correlation was found between education-level and age ( $r = .533, p \leq .01$ ), and household income ( $r = .222, p \leq .01$ ), however, it was negatively correlated with candidate voted for in the 2004 election ( $r = -.305, p \leq .01$ ). Candidate voted for in the 2004 election was negatively correlated with age ( $r = -.461, p \leq .01$ ), ethnicity ( $r = .168, p \leq .05$ ), and education-level ( $r = -.305, p \leq .01$ ).

These correlations suggest that political affiliation and identity may better be explained by household income, education-level, and level of religiosity than by moral reasoning stage. Expected significant correlations were found between age and education ( $r = .533, p \leq .01$ ), age and income ( $r = .262, p \leq .01$ ), and education-level and household income ( $r = .222, p \leq .01$ ).

Table 26. Correlations between Political Affiliation/Identity and Sample Independent

	Affiliation	Identity	Age	Ethnicity	Gender	Education-Level	Income	Level of Religiosity	Candidate
Political Affiliation	1	.425**	-.002	-.039	-.021	-.158*	.223**	.098	.069
Political Identity		1	-.046	-.014	-.053	-.078	.156	.336**	.075
Age			1	-.169*	-.004	.533**	.262**	-.054	-.461**
Ethnicity				1	-.008	-.107	-.162*	.267**	.168*
Gender					1	.045	.157*	-.094	.088
Education-Level						1	.222**	-.044	-.305**
Income							1	-.058	-.135
Level of Religiosity								1	.128
Candidate									1

\* $p \leq .05$ , \*\* $p \leq .01$

Regression analyses were run on education level, income to determine the extent to which they predicted political affiliation. Education-level was found to be a moderate predictor of political affiliation with  $r(160) = .158, F(1,106) = 4.106, p \leq .044$ , and household income a strong

predictor with  $r(160) = .223$ ,  $F(1,160) = 8.346$ ,  $p \leq .004$ . The strongest predictor of political identity was level of religiosity  $r(131) = .336$ ,  $F(1,131) = 16.696$ ,  $p \leq .000$ .

#### Summary of Data Analysis and Results

Results indicated that household income and education-level may be better predictors of an individual's affiliation as a Democrat or a Republican than their level of moral reasoning as measured by hierarchical complexity. Similarly, a person's identification as a liberal or a conservative appears to have more to do with their level of religiosity, than moral reasoning level. These results are in keeping with Kohlberg's notion that moral stage is not about content of judgment, but the structure of the cognitive process. The results also indicated that the grouped test items used to measure moral reasoning in this study were significantly correlated, with factor loadings on the same underlying dimension of moral stage. The conclusions regarding these findings will be discussed in Chapter 5.

## CHAPTER 5. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

An analysis of Gallup's last 2004 election poll suggested several insights into the voting behavior of the American public. Voters who believed conservative moral values were a major issue tended to vote for George W. Bush. Yet for many liberals the actions taken by the Bush administration, ie., leading the U.S. into a war with Iraq, attempts to restrict human rights, creating a huge national deficit, and the torturing of Iraqi prisoners, were certainly not moral. There appeared to be a major discrepancy between what conservatives saw as moral, and what liberals viewed as moral.

Some researchers have looked into the possibility that conservatives and liberals reason about moral values at different levels or stages (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976). Most of these studies, used Kohlberg's Moral Judgment Interview (MJI), or Rest's Defining Issues Test (DIT), to determine participant moral stage which was then compared to their political orientation. Results indicated that conservatives tend to reason at lower developmental stages and liberals at the higher, more principled stages. Critics such as Emler et al. (1983) questioned the developmental stage model, as well as the tests that measure these stages.

This study took a different approach to moral developmental stage models. The Model of Hierarchical Complexity was used to score traditional test items and to design new items because as a mathematical model it could conceivably eliminate criticisms of more subjective stage model theories, and to refute the critics who believed tests of moral reasoning were invalid. Rasch analyses were the primary analysis tool in which test results are attributed importance in proportion to the position they hold on a measurement continuum (Bond & Fox, 2001). The idea was that persons, who are highly morally developed, will have a greater likelihood of preferring and selecting higher order test items in response to moral issues than will those at lower levels. Lower level items should be easily understandable by all participants, but the higher level items are designed to elicit responses only by those who are capable of higher principled thought.

Overall results indicated that with a few specific exceptions, order of hierarchical complexity did not predict political affiliation however; findings did support the notion that the test items were measuring moral reasoning levels providing support for Kohlberg's stage theory. Education-level, and household income were found to be significant predictors of political affiliation supporting the findings of Emler et al. (1998, 1983); while level of religiosity was correlated with and found to be a significant predictor of one's identification as a liberal or a conservative as also found by Clouse (1985), and Ji, (2004).

### Discussion of Results

The detailed results and conclusions of this study are presented in four different sections. The first three sections discuss the overall findings regarding each of the hypotheses of this study.

The fourth section includes recommendations based upon the findings of this study, as well as recommendations for future research.

### *Hypothesis 1: Liberal and Conservative Moral Reasoning*

The hypothesis that political liberals and conservatives differ in their levels of moral reasoning as measured by hierarchical complexity was not supported by this study. Correlational and regression analyses found that the relationship between participant scaled Rasch scores and political affiliation/identification were insignificant. Likewise, there were no significant relationships between the grouped moral measurement items and political affiliation. Although there was a correlation found between the moral judgment grouped items and political identification, it was quite moderate ( $r = .211, p \leq .05$ ). These findings are in direct opposition to the results found by other researchers such as Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; and Rest, 1976 who found significant differences between moral stages in liberals and conservatives. To further analyze the moderate correlation found between the grouped moral judgment items and political identity, all content areas of the moral reasoning measures were singled out and tested separately. Because the items were associated with very different content, for example, pro-right to die, anti-right to die, pro-arms, and anti-arms, was it possible that some of the content areas would correlate significantly with moral level?

Results of these analyses showed that specific items related to issue positions, such as anti-right to die, and pro-right to bear arms were significantly correlated. Further it was demonstrated that the right to bear arms content did moderately predict political affiliation ( $r(102) = .118, F(1,102) = 4.182, p \leq .043$ ), and the anti-right to die items were found to be significant predictors of political identity ( $r(103) = .106, F(1,103) = 8.540, p \leq .004$ ). Therefore, if the items grouped together can be shown to be measuring the same underlying construct, like moral stage, we can safely assume that the tests themselves may not be biased however, some content areas may be measuring attitudes regarding specific social issues.

Major reasons for the differences in results between this study and previous studies are twofold. First, this study did not use the traditional moral reasoning tests, or scoring procedures that were used in previous studies. Rather than participants completing the standard DIT-2 and then sending the raw data to Minneapolis for scoring, specific story items were extracted from the DIT-2, and assigned an order of hierarchical complexity from concrete level 8 to metasystematic level 12. Then the raw data was transformed into a linear Rasch scale utilizing Winsteps software. Using Rasch scores, standard correlational, regression, and factor analyses were then performed. Using hierarchical complexity to base decisions regarding participant performance made the scoring procedure more objective. Previous studies based results of a participant's performance using subjective scoring criteria, whereas hierarchical complexity is based on mathematical principles. The downside to using a non-standard scoring system was the issue of reliability and validity, which could not simply be assumed, or provided by the test authors. However, the end result is hopefully a more objective approach to the study of moral reasoning.

Secondly, by using the Rasch Model for data analysis, results were not determined by analyzing raw data, or counts, but by constructing objective, additive scales. According to Bond and Fox (2001), the only way objectively to construct scales that are separable from the distribution and the attributes they measure is to use the Rasch Model that has become popular in the social sciences. It allows one objectively to examine the processes underlying why people and items behave in a particular way rather than simply how a person performed on a particular item. This is of primary importance in the measurement of moral reasoning because it eliminates the possibility of biased and subjective scoring of participant responses to particular test items.

Certainly other variables may have played a part on these results. Both item and participant reliability and validity were generally good however, some items demonstrated unacceptable levels of reliability. These issues are discussed in the section on the moral reasoning measures. It was also discovered that the participant sample was constricted in response ranges. Rasch models need a wide range of responses from low to high in order to construct a proper scale (Bond & Fox, 2001). This sample did not provide enough responses at the systematic and metasystematic levels therefore, the scales were slightly skewed toward the lower ordered Rasch scores.

These results are not entirely surprising from a Kohlbergian point of view. The core of Kohlberg's cognitive-developmental position was that cognitive stages are qualitative differences in modes of thinking that form an invariant sequence, and that each of these sequential modes of thought form a structured whole. Therefore, a given stage-response on a task does not just represent a specific response determined by knowledge of that task, but actually represents an underlying organization of thought (Kohlberg, 1984). Previous studies have relied upon the identification of particular conceptual content, via moral measures such as the DIT, rather than the direct identification of the underlying thought structures. Therefore, the relationship between stage and content may be confounded so that stage is defined in terms of that content rather than the structures that form the basis of cognitive developmental theory (Dawson, 2000).

As Gross (1996), pointed out, due to fact that Kohlberg's theory focuses on the structure rather than the content of moral reasoning, one would not expect that the reasoning of liberals and conservatives would necessarily be different. Results to the contrary cast doubt on the structural integrity of cognitive development theory, suggesting that moral stages reflect a bias in liberal democratic norms. The idea that individual differences in adult moral reasoning were actually a reflection of politico-moral ideology was also the position of Emler et al. (1983). Their claim was that moral and political attitudes are overlapping domains, and stage differences between liberals and conservatives are merely that of ideological content rather than structural complexity.

Results of this study found no significant differences between an individual's order of hierarchical complexity that can be compared to stage (see Table 7) and their self-reported political affiliation or identity. These results suggest that there is no liberal bias in cognitive developmental theory, or even in the sets of grouped items that make up the moral reasoning

measures, but rather there may be bias in the scoring systems that are currently used to determine moral stage, thus finding differences that do not really exist.

This may also be the reason why so many researchers charge that there is religious bias in the psychometric evaluation of moral stage (e.g., Clouse, 1985; Ji, 2004; Richards & Davison (1992). Kohlberg (1984) believed that religious orientation was independent of moral development, and reported that no differences in moral development due to religious belief had been found. However, studies such as those by Clouse (1985), and Ji (2004) have reported significantly lower stage scores in religious conservatives than in non-religious, liberal populations. Richards and Davison (1992) contend that these low principled moral reasoning scores are due to the cultural and religious bias of Kohlberg's theory, and specifically in the DIT as a measure of moral stage. They charge that because there is theological content in some of the DIT test items, these items introduce a bias that penalizes those with conservative religious belief systems.

Jost (2006) related in a recent article, that following World War Two the concept of political ideology was dismissed by many social scientists. It was argued that ordinary American citizens did not differ significantly in their political attitudes and therefore, ideological constructs such as liberalism and conservatism had lost their potency and significance. If this were true it may account for the lack of significant findings between liberal and conservative voters in this study. However, Jost (2006) points to recent research that indicates that there are substantial differences in the beliefs and values of liberals and conservatives. He makes reference to the work of Altemeyer (2004), Kerlinger (1984), and Lakoff (2002) whose findings indicated that conservatives held more traditional cultural values, including religious forms of morality. Jost (2006) concluded that "although ordinary people by no means pass the strictest tests imaginable for ideological sophistication, most of them do think, feel, and behave in ideologically meaningful and interpretable ways" (p. 667).

If in fact differences in the ideology of liberals and conservatives exist and, if moral reasoning is not the motivation behind political affiliation or identity, then what is? One can view these results in terms of other variables that influence one's political affiliation and identity. Jost, Glaser, Kruglanski, and Sulloway (2003) conducted a meta-analysis examining the role of social cognition and psychological factors that predict political conservatism. Their results indicated that several psychological variables predict political conservatism including: death anxiety; system instability; dogmatism-intolerance of ambiguity; openness to experience; uncertainty tolerance; need for order, structure, and closure; integrative complexity; fear of threat and loss; and self-esteem. The idea is that people adopt conservative ideologies in order to satisfy social-cognitive motives. Their view is that by treating conservatism solely as an individual difference variable, one neglects situational factors that influence the experience and expression of political affiliations. Findings point to the hypothesis that people may identify as a conservative in order to reduce fear, anxiety, and uncertainty; to avoid change, disruption, and ambiguity; and to explain, order, and justify inequality among groups and individuals. This is in opposition to the common assumption by liberals that conservatives are stuck in conventional stages of moral reasoning.

In this sense, a person's orientation toward liberalism or conservatism is deduced from a set of premises that are principled, in that they are related logically or psychologically to other observations, values, beliefs, and premises (Jost et al., 2003). This may also explain why observers of voting results in 2004, assumed that conservatives did not vote in their own best self-interest. Jost et al. (2003) posits that it may be more important for the disadvantaged to reduce fear, anxiety, dissonance, uncertainty, or instability by embracing right-wing ideology than embracing it for reasons of self-interest, or social dominance.

Other studies have looked at test the distinction between conservative ideology and right-wing authoritarianism (RWA). According to Jost et al. (2003), RWA is characterized by (a) submission to perceived authority figures; (b) aggressiveness towards those who are not sanctioned by the establishment; (c) adherence to social conventions. In the political arena, a common assumption is that politically conservative individuals also hold authoritarian attitudes. Studies by Altemeyer (2004) have found RWA to be reliably correlated with political party affiliation, as well as punishment of deviants, racial prejudice, homophobia, and acceptance of covert government activities. Peterson, Smirles, and Wentworth, 1997 also reported correlated evidence linking authoritarianism to so-called conservative attitudes such as opposition to social programs, homosexuality, environmentalism, abortion rights, and diversity. These results portray conservatives as prejudiced, capitalistic, intolerant, authoritarians. However, in a study by Crowson, Thoma, and Hestevold (2005), 410 students enrolled in a human development course at a mid-sized Southeastern university completed scales of RWA, liberalism/conservatism, and the DIT. The different patterns of correlations exhibited by RWA and mainstream conservative attitudes, and the moral reasoning variables indicated that the variables were related, but measured different constructs. Overall, their results showed that RWA was not synonymous with mainstream conservative attitudes and conservative political identification; that moral reasoning development significantly predicted RWA; and that RWA partially mediated the effects of cognitive rigidity on mainstream conservative attitudes and self-identified political conservatism.

Cognitive styles (Tetlock, 1983), in-group, out-group memberships (Budesheim, Houston, & DePaolo, 1996), social identification (Greene, 2004), and social dominance orientation (Pratto, Sidanius, Stallworth, & Malle, 1994) have also been studied as potential predictors of political affiliation. Tetlock (1983) found that conservative U.S. senators presented issues in significantly less integrated complex ways than their liberal counterparts. He concluded that persons on the socio-political right rely on simple distinctions of good and bad to evaluate policy issues. However, he cautions that the results are not to be construed to mean that conservatives are unintelligent or uninformed about the issues.

Rather than simply reflecting different ideologies, political parties can also be viewed as groups to which members feel a sense of identity. Being a part of the group (in-group) often fosters a sense of elitism about the group and a tendency to exclude others (out-group). Therefore, those that are considered to be members of the out-group are typically considered unintelligent and wrong. Budesheim et al. (1996) found that the way people evaluate political messages depends in large part on whether the message comes from their in-group, or the out-group. They concluded that out-group messages are processed in a less stringent, more heuristic manner and therefore

not critically examined or evaluated. This certainly could be the reason why those who voted for George W. Bush failed to respond to liberal arguments concerning the implications of the Iraq war, and other social issues.

Greene (2004) also examined political affiliation from a group standpoint. He examined the question of the psychological investment one has as a member of a political party. Results of his study of 302 Ohio residents indicated that levels of partisan social identity proved to be significant predictors of political party ideology and party affiliation. He concluded that social identity is a fundamental aspect of partisanship, which can lead to better prediction, and understanding of political attitudes.

Social dominance theory has long been considered to be associated with conservatism. It emphasizes evolutionary and societal factors as determinants of politically conservative orientations (Jost et al., 2003). Social dominance as defined by Pratto et al. (1994) is the “preference for unequal relationships among categories of people” (p. 743). The idea is that society strives to minimize conflict by developing belief systems that justify the hegemony of some groups over others. Pratto et al. (1994) have found significant correlations between political conservatism, membership in the Republican Party, and social dominance orientation. They conclude that political-economic conservatism is an ideology that separates people into groups, with some groups being accorded more social value than others.

An important conclusion drawn from this analysis is that one’s political affiliation is more likely a complex interaction between various psychological and social motivations rather than simply due to the individual’s level of moral reasoning. Hopefully, future research will shed light on the nature of these interactions.

### *Hypothesis 2: Correlation of Moral Reasoning Scores*

The second hypothesis of this study posited that moral reasoning scores as measured by items from the DIT-2, MJT, PVP, and the RBA would closely correspond with one another indicating that they are all measuring the same underlying construct. It was anticipated that since the items within these groupings were all developed to measure moral reasoning, they would be highly correlated.

A correlational analysis was done on the Rasch scores of the moral reasoning grouped items. Significant correlations were found among all of the grouped items except the defining issues items and the politician-voter items ( $r = .108$ ). These were the only items that did not require a participant to rate pro- or con- arguments for moral dilemmas. Correlations were also analyzed from the different content areas of the moral reasoning measures. Once again there were no significant correlations between the defining issues content areas, and the politician-voter items however there were significant correlations between each of the five defining issues content areas. This may indicate that the defining issues items and politician voter items are measuring different constructs.



Interestingly none of the defining issues content areas correlated with the anti- arms items, the pro-worker, or the pro-right to die items. These content areas would typically be considered politically liberal. There was however a significant positive correlation between the defining issues and the anti-worker, and anti-right to die content areas. Both of these content areas (anti-worker, and anti-right to die) would typically be categorized as conservative political positions. This means that when participants rated an anti-worker, or anti-right to die argument as low on the Likert scale (1=no) their Rasch score increased (toward the negative end of the scale), and vice versa. This could be evidence that some defining issues content areas are biased toward liberal responses.

The pro-right to die, and the anti-right to die items were negatively correlated as expected ( $r = -.340, p \leq .01$ ). The pro-worker and anti-worker items were moderately negatively correlated ( $r = -.217, p \leq .05$ ) however, the pro-arms and anti-arms were not correlated. Due to the pro- and con-relationship of these content areas a significant negative correlation would have been expected. This may be the result of low reliability and constricted sample response ranges of the right to bear arms items as previously discussed.

A factor analysis was performed on all four grouped moral reasoning items to examine the interrelationships among the variables and to explain these variables in terms of their common underlying dimensions. As expected, all of the grouped items loaded significantly on the first component, or the moral reasoning factor. A Kaiser, Meyer, and Olkin (KMO) test was conducted to determine if the items were measuring a common factor as suggested. The KMO value was .693 indicating that moral reasoning accounts for a fair amount of variance, but not a substantial amount.

Another factor analysis was performed on the specific content areas of each of the moral reasoning measures. The defining issues content areas, the anti-right to die, and anti-worker content areas loaded significantly on the moral reasoning factor. The politician-voter, and the pro-right to die items loaded significantly on component two, and the pro- and anti-right to bear arms, the pro-worker, and the anti-worker all loaded significantly on component three. Certainly these results make it clear that the defining issues items and the politician-voter are measuring very different constructs. Although the pro-worker and pro-right to arms loaded on component three they also were significantly correlated with component two. The anti-worker content area was not only correlated with component three, but also with the moral reasoning factor.

Based upon these results it appears that when the moral reasoning items are grouped as separate measures, they are all measuring the same underlying construct that is theorized to be moral reasoning level. However, taken apart, the specific content areas do not measure the same construct. This is not surprising as many of the items contain political content, or issues that typically define liberal versus conservative attitudes such as the right to die, and the right to bear arms. Therefore, it is possible that the other two components in the factor analysis represent various liberal or conservative constructs. For example, the anti-right to bear arms, and the pro-worker items positively loaded on the third component. These positive correlations are indicative of typical liberal attitudes. In addition, pro-right to bear arms and anti-worker sentiments were

negatively correlated with component three that also reflects liberal attitudes. It therefore stands to reason that component three measures some sort of liberal construct. Interestingly, although the DIT has been criticized for being liberally biased, it did not load significantly on this factor at all.

It is not clear what the second component is measuring. The politician-voter, and the moral judgment pro-right to die items loaded significantly on it, but the items do not appear to have much in common. Even when rotated, both the politician-voter and pro-right to die load significantly on component two. The pro-right to die items typically represent a liberal attitude and therefore might be expected to load on component three but did not do so. The politician-voter problem is a hierarchically complex design concerning how well politicians inform their constituency about a proposed method for resolving a community issue. It does not appear to have either liberal or conservative attitudinal content. It is possible that component three measures some other psychological or social value that is not readily apparent.

### *Hypothesis 3: Political Affiliation and Sample Variables*

The third hypothesis of this study concerned other sample variables that have been found to be related to political affiliation and political identity. Researchers such as Gross (1996) conclude that political affiliation is not a function of different levels of moral development, but rather any differences found between liberal and conservative groups reflect the role that socioeconomic status and education plays in the development of sophisticated moral reasoning. In his view education encourages mutual respect among people, and discourages stereotyping and vulnerability to external political influence. Emler and Frazer (1999) contend that “people who have had more education take a more active role in politics, and have more clearly defined political identities” (p. 251).

Results of this study did produce significant correlations between political affiliation and education-level ( $r = -.158, p \leq .05$ ), and household income ( $r = .223, p \leq .01$ ). These results indicated that participants with higher levels of education tended to identify as Democrats, rather than Republicans, and those who reported a higher level of household income tended to identify as Republican versus Democrat. None of the other variables including religiosity, age, ethnicity, gender, or candidate voted for in the 2004 U.S. Presidential election were correlated with political affiliation. Similarly there was only one variable that correlated with political identity. One’s level of religiosity appeared to be linked significant to political identity ( $r = .336, p \leq .01$ ), indicating that the more religious one is, the more likely they are to identify as a conservative.

Regression analysis showed that education-level was a moderate predictor of political affiliation with  $r(160) = .158, F(1,106) = 4.106, p \leq .044$ , and household income a strong predictor of affiliation with  $r(160) = .223, F(1,160) = 8.346, p \leq .004$ . The strongest predictor of political identity was level of religiosity  $r(131) = .336, F(1,131) = 16.696, p \leq .000$ . These results suggest that apart from potential psychological motivations, one’s political affiliation and identity may be better explained by household income, education-level, and level of religiosity than by their moral reasoning level.

### General Recommendations

This research provides valuable information regarding predictors of political affiliation and political identity, but also about how moral reasoning can be objectively measured and validated. It is recommended that

The next step in the evolution of this research is to replicate the study after the following changes have been made:

1. Revise the test items of those measures (RBA and DPI) that did not provide acceptable levels of reliability and validity.
2. Score and compare the defining issues items and the moral judgment items using both hierarchical complexity, and the scoring systems recommended by the authors.
3. Add an additional item to the RBA, and DPI asking participants to indicate their position on the death penalty and the right to bear arms social issues.
4. Develop different versions of the test protocol so that an equal number of participants respond to every item. For example, in the current online version of the protocol, the Right to Bear Arms items were located at the end of the survey therefore, many participants did not complete them. Versions must be developed that would change the order of the protocols allowing more people to complete each section.
5. Obtain a larger, more diverse sample of participants from different parts of the country, different age groups, various educational backgrounds, etc. Additional student participants have already been recruited from Salem State College in Salem, Massachusetts, and plans are in place to recruit additional participants from community organizations, as well as faculty from various educational institutions.

### Recommendations for Future Research

One of the important conclusions drawn from this analysis is that one's political affiliation is most likely a complex interaction between various psychological and social motivations rather than simply a matter of moral reasoning. A plethora of studies has been published associated with political attitudes and moral reasoning (e.g., Alker & Poppen, 1973; Emler et al., 1983; Fishkin et al., 1973; Hoagland, 1984; Raaijmakers et al., 1998; Rest, 1976) however, moral stage has always been measured using traditional testing and scoring methods such as the DIT. Future research is needed to compare the results of traditional methods (i.e., the DIT) with the hierarchical methodology used in this study. In addition, although this study provided empirical support validating the use of hierarchical complexity as a measure of moral reasoning, it was also the first of its kind therefore; future research is needed to replicate these findings.

It would also be beneficial to use hierarchical complexity and Rasch analysis in other areas of psychological and political research to see if similar results are found. For example, research has

been conducted on psychological predictors of political affiliation (Jost et al., 2003), but again the testing and scoring methods rely upon a participant's subjective performance on a particular test or inventory. Would similar results on these variables be found using hierarchical complexity, and Rasch analysis?

There are other areas of important research that were outside of the scope of this study, but which may prove to be valuable in predicting political affiliation or identity. Work has already begun by Commons and Robinett (2006) on a hierarchically designed instrument to measure Lakoff's (2002) theory of political worldview. The premise is that one's metaphorical view of the world predicts their identity as either a conservative or a liberal.

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## APPENDIX A

### INFORMED CONSENT FORM

This study involves research concerning moral reasoning in liberal and conservative voters. The study is being conducted by Terri Robinett, faculty at the College of the Desert, as partial fulfillment of her PhD in Psychology from Capella University. No deception is involved, and the study involves no more than minimal risk to participants (i.e., the level of risk encountered in daily life).

Participation in the study typically takes no more than two hours and is strictly anonymous. Participation is totally voluntary. Participants may stop at any time. Participants will complete a demographic survey and take four moral reasoning tests.

All responses are treated as confidential, and in no case will responses from individual participants be identified. Identity and personal history will not be divulged in any discussion, student report, lecture, address, or publication derived from this project. All data will be pooled and published in aggregate form only.

Many individuals find participation in this study enjoyable, with no adverse reactions reported. Psychology students at the College of the Desert will receive extra credit for taking part in the study. Others are welcome to participate in this study although they will receive no credit or monetary compensation. Refusal to participate in the study, withdrawal from the study involves no penalty or loss of benefits to which participants are otherwise entitled.

If participants have further questions about this study, their rights, or if they wish to lodge a complaint or concern, they may contact the principal investigator, Terri Robinett; Dr. Diane Ramirez, Vice President Student Services at the College of the Desert; or Dr. Kenneth Bausch, Faculty Mentor at Capella University.

If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, please acknowledge your consent by signing below.

I, the undersigned, give my informed consent to participate in this study.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Full Name

\_\_\_\_\_  
Identification Code

APPENDIX B  
DEMOGRAPHIC SURVEY

1. Age

- Under 20     45-49  
 20-24     50-59  
 25-29     60-69  
 30-34     70+  
 35-39  
 40-44

2. Ethnicity

- White  
 Native American  
 African American  
 Asian/Pacific Islander  
 Hispanic/Latino  
 Other

3. Gender

- Male       Female

4. Are you a citizen of the U.S.?  Yes     No

5. Are you a registered voter?  Yes  No

6. Education Level (please indicate the highest level of education you have)

- Some high school  
 High school graduate  
 Some college  
 Associates Degree, or 2-yr. Vocational/Technical School  
 Bachelors Degree  
 Graduate Degree  
 Doctorate, or Professional Degree

7. What is your household income before taxes?

- Under \$10,000                       \$75,000 - \$99,999  
 \$10,000 - \$29,999                 \$100,000 – 149,999  
 \$30,000 - \$49,999                 \$150+  
 \$50,000 - \$74,999

8. Which of the following categories best describes your major or area of expertise?

- |                                      |  |   |                                     |
|--------------------------------------|--|---|-------------------------------------|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Hotel or Food Service | <input type="checkbox"/> Marketing, Sales | <input type="checkbox"/> Childcare  |
| <input type="checkbox"/> Homemaker   | <input type="checkbox"/> Information Services  | <input type="checkbox"/> Finance          | <input type="checkbox"/> Music      |
| <input type="checkbox"/> Education   | <input type="checkbox"/> Arts, Entertainment   | <input type="checkbox"/> Scientific       | <input type="checkbox"/> Legal      |
| <input type="checkbox"/> Health Care | <input type="checkbox"/> Social Sciences       | <input type="checkbox"/> Human Services   | <input type="checkbox"/> Journalism |
| <input type="checkbox"/> Recreation  | <input type="checkbox"/> Foreign Language      | <input type="checkbox"/> Government       | <input type="checkbox"/> Military   |

9. Which of the following categories best describes your level of religiosity?

- Atheist                                       Extremely religious (my life revolves around the church)  
 Spiritual, but not religious  
 Somewhat religious (attend church occasionally)  
 Very religious (attend church regularly)

10. Who did you vote for in the 2004 Presidential Election?

- Senator John Kerry (Dem)    George W. Bush (Rep)    Ralph Nader (Ind)  
 Michael Peroutka (Cons)    David Cobb (Green)    John Hagelin (Natural)  
 Michael Badnarik (Lib)    Walt Brown (Socialist)    Other

11. If you had to select just one term to describe your political affiliation which one of the following would you chose?

- Democrat    Republican

12. Please rate your level of political affiliation by selecting a number on the scale below.

Democrat 5 \_\_\_\_\_ 4 \_\_\_\_\_ 3 \_\_\_\_\_ 2 \_\_\_\_\_ 1 Republican

13. 11. If you had to select just one term to describe your political identity which one of the following would you chose?

- Liberal    Conservative

14. Please rate your level of political identity by selecting a number on the scale below.

Liberal 5 \_\_\_\_\_ 4 \_\_\_\_\_ 3 \_\_\_\_\_ 2 \_\_\_\_\_ 1 Conservative

## APPENDIX C

### MORAL JUDGMENT ITEMS

#### Workers' Dilemma

Due to some seemingly unfounded dismissals, some factory workers suspect the managers of eavesdropping on their employees through an intercom and using this information against them. The managers officially and emphatically deny this accusation. The union declares that it will only take steps against the company when proof has been found that confirms these suspicions. Two workers then break into the administrative offices and take tape transcripts that prove the allegation of eavesdropping.

Do you accept or reject the following arguments *in favor* of the two workers' behavior? Suppose someone argued they were right . .

1. because they didn't cause much damage to the company.
2. because due to the company's disregard for the law, the means used by the two workers were permissible to restore law and order.
3. because most of the workers would approve of their deed and many of them would be happy about it.
4. because trust between people and individual dignity count more than the firm's internal regulations.
5. because since the company had committed an injustice first, the two workers were justified in breaking into the offices.
6. 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 workers behavior? Suppose someone argued they were *wrong*...

7. because we would endanger law & order in society if everyone acted as the two workers did.
8. 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.
9. because risking dismissal from the company on behalf of other people is unwise.
10. because the two should have run through the legal channels at their disposal and not committed a serious violation of the law.
11. because one doesn't steal and commit burglary if one wants to be considered a decent and honest person.
12. 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 weakened that a large dose of a painkiller 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 endure the pain and would be dead in a few weeks anyway. The doctor complied with her wish.

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

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

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

7. because he acted contrary to his colleagues' convictions. If they are against mercy-killing the doctor shouldn't do it.
8. 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.
9. because the protection of life is everyone's highest moral obligation. We have no clear moral criteria for distinguishing between mercy-killing and murder.
10. because the doctor could get himself into trouble. They have already punished others for doing the same thing.
11. because he could have had it much easier if he had waited and not interfered with the woman's dying.
12. because the doctor broke the law. If one thinks that mercy-killing is illegal, then one should refuse such requests.

## APPENDIX D

### POLITICIAN-VOTER PROBLEM ITEMS

Instructions: Please answer all parts of this questionnaire. Read each section and answer the questions in the order given. Do not go to the following section before you have finished the previous section. Remember this is not a test of your ability as an individual. Rather, we wish to know how adults, in general, reason about the issues presented here. The order of answering is essential to this study about adult reasoning.

The following 5 stories are set in another country. Each story is about a different Politician there who represents a different district. Each politician has voters with a similar set of problems. Their problems are serious. It is now time to vote for a plan to improve the situation. All the politicians care for the voters equally. All the politicians highly recommend and provide the same basic plans. But, politicians arrive at their choice of how to help their voters in different ways. In every case, the district problems worsen and voters suffer. During a general review of these bad results, each politician's *method* of choosing a plan was looked at. Below are accurate accounts of the politicians' usual discussion with voters. Read all 5 accounts carefully and then answer the questions that follow.

#### The Politicians' Methods

C<sub>1</sub>-Politician Brown offers the voters a plan preferred by his/her colleagues. Brown says that his friends recommend this plan. A colleague is called in to tell the voters about the plan. With great concern, Brown asks if the voters would like to hear a third person explain the plan. The voters are told that all of the people in favor of this plan have had good results. Brown instructs the voters to support the plan. Brown's voters think seriously about what Brown has said. Feeling that Brown knows best, the voters prepare to vote for the plan.

C<sub>2</sub>-Politician Green offers a very good plan. Green believes this plan works well and that voters will approve of it. Associates using this plan have also had good results. They are very satisfied with the plan at this time. Green tells this to the voters because it is important. Green asks the voters to explain what they have just been told. Green thinks the voters have heard enough facts to understand how well the plan works. The voters think that Green's plan will produce good results. Feeling that Green knows best, the voters prepare to vote for the plan.

C<sub>3</sub>-Politician Jones offers a carefully thought out plan based on personal experience. The voters are told that the plan has worked before with other voters, especially the last ten. Then, Jones says that experts whom Jones knows well choose this plan. To make sure the voter understands, Jones gives the voter an easy multiple-choice test. After the voter passes the test, Jones urges the voter to agree to the plan. Jones' voter thinks carefully about what Jones has said. Feeling that Jones knows best, Jones' voter prepares to vote for the plan.

A<sub>1</sub>- Politician Kents recently completed training on a plan that was designed to resolve the voters problem. Kents says that the best politicians regularly recommend this plan. Kents explains the plan and tells the voters that it will probably work for them as well. Kents also tells the voters about other plans that may work. The voters are asked if they have any questions. The voters do not have questions, so

Kents asks the voters to accept the recommended plan. Feeling that Kents knows best, the voters prepare to vote for the plan.

A<sub>2</sub>- Politician Corey offers a plan which is highly regarded by many politicians and is accepted by the community at large. Corey fully explains the plan to the voter by describing the benefits and potential risks involved. Corey adds that many voters in this situation like the proposed plan and that they have been happy with the results. Corey asks what the voters are feeling about the plan. Corey encourages the voters to think about what they have heard and to pursue this plan. The voters think about the situation. Feeling that Corey knows best, the voters prepare to vote for the plan.

A<sub>3</sub>- Politician Moore meets with the voters to discuss a plan for the voters problem. Moore presents a commonly used plan, highlighting its risks and benefits. Moore also presents studies confirming the positive results of this plan. After alternative plans are presented, along with their consequences, Moore discusses using this plan instead of developing a new plan. Moore asks if the voters understand what was just discussed, and if anything needs to be further clarified. The voters have no questions. Feeling that Moore knows best, the voters prepare to vote for the plan.

F<sub>1</sub>-Politician Bower offers a plan that has been studied and is shown to work well. Bower tells the voters that not everyone has had a positive outcome with this plan. Bower then reads a description of the plan and its risks out of a colleague's book. Bower points out that any plan will have risks. Bower asks if the voters understand the plan and its risks. After thinking carefully, the voters decide they are comfortable with Bower as a capable politician. Feeling that Bower knows best, the voters prepare to vote for the plan.

F<sub>2</sub>- Politician Riley offers an effective plan that many reports and research papers have found works well. Riley explains the method and how it works for the voters. Riley also explains the benefits and risks of the proposed plan. Riley states that there are other possible plans, but that they would not work as well. Riley does not feel they need to be discussed. Riley asks if the voters feel comfortable implementing this plan. The voters think about what Riley has said. Feeling that Riley knows best, the voters prepare to vote for plan.

F<sub>3</sub>- Politician Spire offers a new, and effective plan that has been researched with excellent results, and published in different political reports. Spire explains the details of the plan to the voters along with the benefits and risks. Spire then states there are other options that could be looked at, including the possibility of doing nothing. Spire reviews the other plans with the voters, but feels they would not be as effective as the newer plan. Spires asks the voters if they feel secure with this plan. Feeling Spire knows best, the voters prepare to vote for the plan.

S<sub>1</sub>- Politician Flynn offers an effective plan that is comparable to other plans for this problem. Flynn explains the benefits of every plan. Flynn describes all the risks of these plans. Flynn asks the voters to relate back to that explanation. Flynn says it is up to the voters to support one of the plans. Flynn asks if the voters support the suggested plan. The voters think about what Flynn has said. Feeling that Flynn knows best, the voters prepare to vote for the plan.

S<sub>2</sub> -Politician Young offers a plan that best suits the needs of the voter. Young explains all aspects of the plan and fully describes the pros and cons of each alternative, including doing nothing. Young knows it



is important to understand the voter's needs and concerns and asks many questions to better understand their perspective. Young does not push the voters to accept any plan, but rather encourages the voters to make a choice that they feel comfortable with. The voters consider this. Feeling that Young knows best, the voters decide to vote for the plan.

S<sub>3</sub>-Politician Woods suggests one particular plan because of its proven effectiveness. Woods presents this plan and other options to the voters, telling the voters the benefits and risks of all of the plans, including doing nothing. The voter is encouraged to ask questions concerning any unclear points. Woods asks the voters to review this information until Woods thinks that the voters understand. Woods suggests that the voter take some time to reflect before deciding on whether or not to vote for the proposed plan. The voters think seriously and ask Woods which plan he considers to be the best. Feeling that Woods knows best, the voters prepare to vote for the plan.

M<sub>1</sub>- Politician Allen speaks with the voters to assess the problem. During the conversation, Allen offers a plan that seems to be the most effective in addressing this problem. Allen presents other plans as well, and discusses the benefits and risks of each, including doing nothing. Allen, seeking to understand the voter's needs and concerns, asks and answers many questions. Allen also watches to see if the voters body language matches his statements. Allen asks if the voters are ready to make a choice *based on their previous discussion*. Feeling Allen knows best, the voters decide to vote for the plan.

M<sub>2</sub>-Politician Smith meets with the voters to discuss plans that would help to solve their problem. Benefits and risks of Smith's preferred plan are discussed. They also discuss other plans related to the voter's situation, including doing nothing, along with the benefits and risks of each. Smith feels the voters competently understand the plans based on their questions and body language. Smith asks the voters whether they now feel ready to make a decision, or if they need more time to consider the information and options *as they were discussed*. Feeling Smith knows best, the voters decide to vote for the plan.

M<sub>3</sub>- Politician Price offers a plan that usually works very well for the problem at hand. Price gives the voter information about other plans that could be used. Price explains the benefits and risks of the preferred plan and of the possible alternatives, including doing nothing. Price asks the voter questions and further discusses the information to ensure understanding. Price asks if the voter feels comfortable making a decision at this point *given their earlier discussion*, or if the voter needs more time or information. The voter thinks carefully about the discussion and, feeling that Price knows best, prepares to vote for the plan.

Rate (circle) the Politicians' methods. A rating of 1 means you think that Politician has the worst method. A rating of 6 means you think that Politician has the best method. Not all the ratings need to be used and a particular rate may be given to more than one Politician.

		RATINGS					
		Worst					Best
		Method					Method
M1. Politician	___	1	2	3	4	5	6
M2. Politician	___	1	2	3	4	5	6
M3. Politician	___	1	2	3	4	5	6

Rate the degree to which the Politicians informed their Voters.

		Extremely					Extremely
		Poor					Well
M1. Politician	___	1	2	3	4	5	6
M2. Politician	___	1	2	3	4	5	6
M3. Politician	___	1	2	3	4	5	6

## APPENDIX E

### RIGHT TO BEAR ARMS ITEMS

A group of citizens have been asked to discuss their thoughts about the Second Amendment right to bear arms. Please rate your level of agreement, and/or disagreement with the following arguments regarding the right to bear arms.

#### *Arguments in favor of the right to bear arms*

Allen (M): Yes, I am in favor of a citizens' right to bear arms. The second amendment guarantees that right. Even if it raises the danger of killing someone accidentally, people can be responsible; using guns to protect themselves, their families, and their freedoms. We also have the duty to make sure that other people have this right as well. When an accident does occur, it is tragic, but it is the price we pay for our freedoms.

Clark (S): Yes, I am in favor of a citizens' right to bear arms. When our forefathers wrote the Bill of Rights, they guaranteed all citizens this right. Yes, sometimes people will be killed with guns accidentally, or by criminals. However, that is the price we pay as a free society. We have the right to bear arms. We also should protect this right for all Americans.

Bower (F): Yes, I am in favor of a citizens' right to bear arms. This is a right we have according to law. It cannot be taken away from anyone. Guns are necessary in order to protect ourselves, our families, and our freedom. Even though some will use guns to commit crimes or to murder people, it is still wrong to try to take this right away from all citizens.

Brown (A): Yes, I am in favor of a citizens' right to bear arms. Owning guns shows others that we want to protect ourselves and our families from harm and from criminals. We need to have the right to own guns to keep our neighborhoods peaceful. Criminals already have lots of guns, including very big ones. This would not be fair to the good citizens of the country. We are good citizens. We have this right. We must not let anyone take it away.

Moore (C): Yes, I am in favor of a citizens' right to bear arms. Without this right, what would we do when a criminal wants to steal from my family, or kill us? We have to have guns to protect ourselves and our families. When a criminal knows you have guns, they will not take a chance and bother you. We must not lose our right to arms, or we will be at the mercy of those who might want to do something bad to us.

#### *Arguments against the right to bear arms*

Jones (M): No, I am not in favor of a citizens' right to bear arms. Although the Bill of Rights states that people have the right to bear arms, it can be interpreted in many different ways. One way is that it is a state's militias, not an individual's right. Arming people with guns can cause

accidental deaths, increased violence, and murder. Citizens may think they have the right to guns. But everyone also has a duty to protect the innocent from anyone who would want to have a gun.

Price (S): No, I am not in favor of the right to bear arms. Just because our forefathers gave citizens this right in the second amendment, times have changed. The need for guns is outdated. Society is better off. We have highly developed police forces to protect us. It is far safer if people do not have, or carry guns. Senseless deaths and violence could be avoided by accidentally use of guns and criminal use. As citizens we have a duty to protect, and to make people as safe as possible. Taking away guns is a good first step.

Webb (F): No, I am not in favor of the right to bear arms. Many studies have shown that countries that allow guns also have higher crime, and murder rates. There are far too many people who abuse the right to bear arms, putting others at risk. If no one had guns, then society would be safer. Not allowing guns is a good way to prevent violence, and senseless deaths. It might upset a few that want to take the law into their own hands, but only in the most dangerous countries do private people have guns

Bonds (A): No, I am not in favor of the right to bear arms. People have a right to life. People who have guns seem to be weak and tend to be mean. Guns kill people, good people as well as bad. Many state laws already prohibit certain types of guns. I know of people who have lost friends or family members because of gun accidents. Guns are too dangerous. Accidents do happen. Criminals that have guns sometimes use them against people.

Riley (C): No, I am not in favor of the right to bear arms. Too many people I know and have heard of have died senseless deaths because of guns. The criminals I have heard of that had guns, used them against other people who I know. Most of the people I know do not like guns and think they should be outlawed. We would all be safer without guns. Children sometimes die by playing with guns. No one is around and they show themselves, their friends, brothers or sisters. Guns should not be allowed.

## APPENDIX F

### ITEM RASCH SCORES AND ORDER OF HIERARCHICAL COMPLEXITY

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
Defining Issues					
.09	.05	.95	.94	Famine 1	8 Concrete
-.50	.06	1.11	1.10	Famine 2	11 Systematic
-.02	.05	.93	.95	Famine 3	10 Formal
.78	.06	1.06	1.04	Famine 4	7 Primary
-.04	.05	1.31	1.32	Famine 5	11 Systematic
-.15	.05	.92	.91	Famine 6	10 Formal
-.04	.05	.73	.75	Famine 7	12 Metasystematic
-.05	.05	.84	.83	Famine 8	NA
.12	.05	1.07	1.06	Famine 9	9 Abstract
.39	.05	.88	.87	Famine 10	11 Systematic
.23	.05	.96	.96	Famine 11	12 Metasystematic
.06	.05	.90	.91	Famine 12	11 Systematic
-.02	.05	1.33	1.34	Reporter 1	11 Systematic
.06	.05	.88	.90	Reporter 2	9 Abstract
.04	.05	.82	.82	Reporter 3	10 Formal
.20	.05	1.43	1.42	Reporter 4	8 Concrete
-.94	.09	.91	.89	Reporter 5	11 Systematic
-.11	.05	.89	.89	Reporter 6	12 Metasystematic
.20	.05	.82	.81	Reporter 7	8 Concrete

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
.25	.05	1.02	1.02	Reporter 8	9 Abstract
.34	.05	.89	.88	Reporter 9	NA
.00	.05	.95	.95	Reporter 10	12 Metasystematic
-.23	.05	1.0	.98	Reporter 11	10 Formal
-.01	.05	1.04	1.04	Reporter 12	8 Concrete
.17	.05	1.24	1.23	School Board 1	8 Concrete
-.01	.05	.93	.93	School Board 2	9 Abstract
-.21	.05	.91	.92	School Board 3	10 Formal
.18	.05	.84	.84	School Board 4	NA
-.26	.05	.96	.93	School Board 5	10 Formal
.18	.05	1.00	.99	School Board 6	8 Concrete
-.02	.05	.83	.83	School Board 7	11 Systematic
-.12	.05	.88	.88	School Board 8	10 Formal
.11	.06	.81	.81	School Board 9	11 Systematic
-.35	.05	.63	.64	School Board 10	12 Metasystematic
-.03	.05	.65	.67	School Board 11	11 Systematic
-.11	.05	1.03	1.06	School Board 12	12 Metasystematic
-.22	.05	1.32	1.33	Right to Die 1	8 Concrete
.36	.05	1.16	1.14	Right to Die 2	9 Abstract
-.09	.05	1.20	1.18	Right to Die 3	10 Formal
.19	.05	1.02	1.03	Right to Die 4	11 Systematic

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
.34	.05	.79	.77	Right to Die 5	NA
.05	.05	1.49	1.51	Right to Die 6	12 Metasystematic
-.18	.05	1.12	1.11	Right to Die 7	11 Systematic
.13	.05	1.02	1.05	Right to Die 8	9 Abstract
-.01	.05	1.01	1.02	Right to Die 9	8 Concrete
.05	.05	1.50	1.53	Right to Die 10	10 Formal
.07	.05	1.07	1.07	Right to Die 11	11 Systematic
-.29	.05	.91	.89	Right to Die 12	11 Systematic
.18	.05	1.44	1.44	Demonstration 1	10 Formal
-.20	.05	1.00	.99	Demonstration 2	9 Abstract
-.22	.05	1.08	1.11	Demonstration 3	8 Concrete
-.10	.05	.87	.86	Demonstration 4	11 Systematic
.14	.05	.84	.84	Demonstration 5	9 Abstract
.04	.05	.93	.94	Demonstration 6	NA
.06	.05	1.10	1.12	Demonstration 7	10 Formal
-.14	.05	.93	.94	Demonstration 8	12 Metasystematic
-.17	.05	1.01	.99	Demonstration 9	11 Systematic
-.10	.05	.80	.79	Demonstration 10	8 Concrete
.13	.05	1.01	1.01	Demonstration 11	11 Systematic
-.19	.05	1.14	1.16	Demonstration 12	9 Abstract
Moral Judgment					
.24	.05	.78	.79	Pro-Worker 1	8 Concrete

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
-.04	.05	.79	.78	Pro-Worker 2	10 Formal
.16	.05	.75	.76	Pro-Worker 3	9 Abstract
-.13	.05	.74	.74	Pro-Worker 4	12 Metasystematic
.07	.05	.90	.90	Pro-Worker 5	8 Concrete
-.15	.05	.86	.86	Pro-Worker 6	11 Systematic
-.13	.05	.81	.81	Anti-Worker 1	11 Systematic
-.08	.05	.60	.60	Anti-Worker 2	12 Metasystematic
.20	.05	.67	.66	Anti-Worker 3	8 Concrete
-.29	.06	.88	.87	Anti-Worker 4	11 Systematic
-.27	.05	.91	.91	Anti-Worker 5	9 Abstract
.31	.05	.89	.89	Anti-Worker 6	8 Concrete
-.07	.05	1.08	1.07	Pro- Right to Die 1	12 Metasystematic
.00	.05	1.00	.99	Pro- Right to Die 2	11 Systematic
.44	.06	1.05	1.09	Pro- Right to Die 3	8 Concrete
.33	.05	.91	.92	Pro- Right to Die 4	9 Abstract
.12	.05	1.04	1.04	Pro- Right to Die 5	11 Systematic
.53	.06	.92	.93	Pro-Right to Die 6	10 Formal
.31	.05	1.00	.99	Anti-Right to Die 1	9 Abstract
.11	.05	.92	.92	Anti-Right to Die 2	11 Systematic
.03	.05	.94	.94	Anti-Right to Die 3	12 Metasystematic
.05	.05	.94	.94	Anti-Right to Die 4	8 Concrete
.27	.05	.92	.91	Anti-Right to Die 5	9 Abstract
.01	.05	1.06	1.05	Anti-Right to Die 6	11 Systematic



Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
Politician-Voter					
.33	.07	.83	.82	Kents Method	9 Abstract
-.64	.08	1.18	1.20	Allen Method	12 Metasystematic
-.17	.06	.72	.72	Flynn Method	11 Systematic
.32	.07	.74	.72	Brown Method	8 Concrete
-.14	.06	.92	.94	Bower Method	10 Formal
-.45	.07	.94	.91	Woods Method	11 Systematic
-.06	.06	.61	.61	Moore Method	9 Abstract
-.29	.07	.69	.70	Price Method	12 Metasystematic
-.04	.06	.85	.84	Spire Method	10 Formal
.32	.06	1.01	1.00	Jones Method	8 Concrete
-.28	.06	.90	.94	Smith Method	12 Metasystematic
-.11	.06	.59	.59	Corey Method	9 Abstract
-.78	.09	.96	1.03	Young Method	11 Systematic
.44	.07	.91	.95	Riley Method	10 Formal
.21	.07	.94	.95	Green Method	8 Concrete
.30	.06	.89	.89	Kents Inform	9 Abstract
-.66	.08	1.08	1.10	Allen Inform	12 Metasystematic
-.20	.07	.75	.74	Flynn Inform	11 Systematic
.17	.06	.65	.66	Brown Inform	8 Concrete
-.24	.10	.80	.82	Bower Inform	10 Formal
-.42	.07	.95	.95	Woods Inform	11 Systematic
-.07	.06	.73	.73	Moore Inform	9 Abstract
-.30	.07	.71	.70	Price Inform	12 Metasystematic

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
-.06	.06	.77	.78	Spire Inform	10 Formal
.27	.06	.92	.90	Jones Inform	8 Concrete
-.27	.06	.95	.97	Smith Inform	12 Metasystematic
-.11	.06	.62	.61	Corey Inform	9 Abstract
-.78	.09	.94	1.02	Young Inform	11 Systematic
.46	.07	.87	.89	Riley Inform	10 Formal
.21	.07	.96	.96	Green Inform	8 Concrete
.47	.07	.84	.83	Kents Vote	9 Abstract
-.35	.07	1.20	1.24	Allen Vote	12 Metasystematic
.01	.06	.90	.90	Flynn Vote	11 Systematic
.32	.07	.84	.83	Brown Vote	8 Concrete
-.02	.06	1.13	1.13	Bower Vote	10 Formal
-.37	.07	1.17	1.18	Woods Vote	11 Systematic
.06	.06	.99	.98	Moore Vote	9 Abstract
-.16	.06	.77	.79	Price Vote	12 Metasystematic
.03	.06	1.04	1.04	Spire Vote	10 Formal
.40	.07	1.08	1.07	Jones Vote	8 Concrete
-.11	.06	.88	.89	Smith Vote	12 Metasystematic
.09	.06	.67	.67	Corey Vote	9 Abstract
-.57	.07	.79	.81	Young Vote	11 Systematic
.56	.08	.76	.79	Riley Vote	10 Formal
.23	.07	1.08	1.07	Green Vote	8 Concrete
-.06	.09	.79	.78	Wells Pro-Arms	12 Metasystematic
.00	.09	.92	.92	Alcott Pro-Arms	11 Systematic

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
-.20	.10	.90	.90	Ralph Pro-Arms	10 Formal
.06	.09	.46	.46	Nevins Pro-Arms	9 Abstract
.27	.10	.83	.83	Burne Pro-Arms	8 Concrete
.11	.07	.83	.84	Allen Pro-Arms	12 Metasystematic
.03	.07	.90	.89	Clark Pro-Arms	11 Systematic
-.01	.07	.87	.87	Bower Pro-Arms	10 Formal
.11	.07	.95	.95	Brown Pro-Arms	9 Abstract
-.01	.07	.91	.91	Moore Pro-Arms	8 Concrete
-.37	.20	.49	.55	Birch Anti-Arms	12 Metasystematic
-.12	.18	.54	.54	Stowe Anti-Arms	11 Systematic
-.06	.18	.90	.89	Smart Anti-Arms	10 Formal
-.06	.18	.74	.75	Speer Anti-Arms	9 Abstract
.24	.17	.72	.71	Green Anti-Arms	8 Concrete
-.09	.07	.68	.68	Jones Anti-Arms	12 Metasystematic
-.04	.07	.75	.75	Price Anti-Arms	11 Systematic
-.17	.07	.98	.97	Webb Anti-Arms	10 Formal
.23	.07	1.16	1.15	Bonds Anti-Arms	9 Abstract
.21	.07	.74	.72	Riley Anti-Arms	8 Concrete
.05	.09	1.12	1.11	Wells Pro-Vote	12 Metasystematic
.07	.09	.91	.90	Alcott Pro- Vote	11 Systematic
-.14	.10	.95	.95	Ralph Pro- Vote	10 Formal
.22	.09	.71	.70	Nevins Pro- Vote	9 Abstract
.42	.10	1.00	.97	Burne Pro- Vote	8 Concrete
.08	.07	.98	.99	Allen Pro- Vote	12 Metasystematic

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
.07	.07	1.06	1.06	Clark Pro- Vote	11 Systematic
-.04	.07	1.03	1.03	Bower Pro- Vote	10 Formal
.14	.07	1.19	1.18	Brown Pro- Vote	9 Abstract
-.04	.07	1.18	1.18	Moore Pro- Vote	8 Concrete
.24	.17	1.03	1.03	Birch Anti- Vote	12 Metasystematic
.18	.17	.84	.84	Stowe Anti- Vote	11 Systematic
.18	.17	1.13	1.12	Smart Anti- Vote	10 Formal
.15	.17	.64	.64	Speer Anti- Vote	9 Abstract
.12	.17	.72	.71	Green Anti- Vote	8 Concrete
.18	.07	.93	.92	Jones Anti- Vote	12 Metasystematic
.20	.07	1.02	1.01	Price Anti- Vote	11 Systematic
.21	.07	.99	.98	Webb Anti- Vote	10 Formal
.03	.07	1.15	1.15	Bonds Anti- Vote	9 Abstract
.09	.07	1.00	1.00	Riley Anti- Vote	8 Concrete
.04	.09	.95	.94	Wells Anti-Vote	12 Metasystematic
.06	.09	.85	.85	Alcott Anti-Vote	11 Systematic
.20	.09	1.15	1.15	Ralph Anti-Vote	10 Formal
.15	.09	.93	.92	Nevins Anti-Vote	9 Abstract
-.11	.09	.98	.99	Burne Anti-Vote	8 Concrete
.21	.07	1.04	1.05	Allen Anti-Vote	12 Metasystematic
.09	.07	1.14	1.14	Clark Anti-Vote	11 Systematic
.16	.07	1.21	1.22	Bower Anti-Vote	10 Formal
.04	.07	1.18	1.18	Brown Anti-Vote	9 Abstract
.16	.07	1.16	1.18	Moore Anti-Vote	8 Concrete

Rasch Score	Error	Infit MNSQ	Outfit MNSQ	Item	Order of Hierarchical Complexity
.00	.17	1.16	1.17	Birch Anti-Vote	12 Metasystematic
.12	.17	.99	.99	Stowe Anti-Vote	11 Systematic
-.15	.18	1.33	1.31	Smart Anti-Vote	10 Formal
.12	.17	.93	.93	Speer Anti-Vote	9 Abstract
.24	.17	.91	.91	Green Anti-Vote	8 Concrete
.13	.07	1.07	1.07	Jones Anti-Vote	12 Metasystematic
.07	.07	1.00	1.00	Price Anti-Vote	11 Systematic
.00	.07	1.05	1.05	Webb Anti-Vote	10 Formal
.27	.07	1.20	1.21	Bonds Anti-Vote	9 Abstract
.23	.07	1.02	1.01	Riley Anti-Vote	8 Concrete

## APPENDIX G.

### PARTICIPANT RASCH SCORES AND POLITICAL AFFILIATION/IDENTITY

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Participant	Participant Rasch Scores	Political Affiliation	Political Identity
1	-0.38	Democrat	Liberal
2	-0.35	Republican	.
3	-0.35	Democrat	Liberal
4	-0.34	Democrat	Liberal
5	-0.32	Republican	Conservative
6	-0.31	Republican	.
7	-0.24	Democrat	Conservative
8	-0.23	Democrat	.
9	-0.23	Democrat	Liberal
10	-0.23	Democrat	Liberal
11	-0.21	Democrat	Liberal
12	-0.20	Democrat	Liberal
13	-0.19	Republican	Conservative
14	-0.19	Republican	Conservative
15	-0.18	Democrat	Liberal
16	-0.17	Democrat	.

Participant	Participant Rasch Scores	Political Affiliation	Political Identity
17	-0.17	Republican	Liberal
18	-0.17	Democrat	Liberal
19	-0.17	Democrat	Liberal
20	-0.16	Republican	.
21	-0.16	Republican	Conservative
22	-0.13	Republican	Liberal
23	-0.13	Democrat	Liberal
24	-0.13	Republican	Conservative
25	-0.12	Democrat	.
26	-0.12	Democrat	Liberal
27	-0.12	Democrat	Liberal
28	-0.12	Democrat	Liberal
29	-0.12	Democrat	Liberal
30	-0.11	Republican	Liberal
31	-0.11	Republican	Conservative
32	-0.10	Democrat	Conservative
33	-0.10	Democrat	Liberal
34	-0.10	Democrat	Liberal
35	-0.09	Democrat	Liberal

Participant	Participant Rasch Scores	Political Affiliation	Political Identity
36	-0.09	Republican	Conservative
37	-0.08	Democrat	Liberal
38	-0.08	Democrat	Liberal
39	-0.08	Republican	Liberal
40	-0.07	Democrat	Liberal
41	-0.07	Republican	Liberal
42	-0.07	Republican	Conservative
43	-0.07	Democrat	Liberal
44	-0.07	Democrat	Conservative
45	-0.06	Democrat	Liberal
46	-0.06	Democrat	Liberal
47	-0.06	Republican	Liberal
48	-0.06	Republican	Conservative
49	-0.05	Democrat	.
50	-0.05	Democrat	Liberal
51	-0.05	Democrat	Liberal
52	-0.05	Democrat	Liberal
53	-0.04	Democrat	.
54	-0.04	Democrat	Liberal



Participant	Participant Rasch Scores	Political Affiliation	Political Identity
55	-0.04	Democrat	Conservative
56	-0.04	Democrat	Liberal
57	-0.04	Democrat	Liberal
58	-0.04	Republican	Conservative
59	-0.03	Democrat	Liberal
60	-0.02	Democrat	Liberal
61	-0.02	Republican	Conservative
62	-0.02	Democrat	Liberal
63	-0.02	Republican	Conservative
64	-0.02	Democrat	Conservative
65	-0.01	Democrat	.
66	-0.01	Democrat	Liberal
67	-0.01	Democrat	Liberal
68	-0.01	Democrat	Liberal
69	-0.01	Republican	Conservative
70	-0.01	Democrat	Liberal
71	-0.01	Democrat	Liberal
72	0.00	Republican	Liberal
73	0.00	Democrat	Liberal

Participant	Participant Rasch Scores	Political Affiliation	Political Identity
74	0.00	Republican	Conservative
75	0.00	Democrat	Conservative
76	0.00	Democrat	Conservative
77	0.01	Democrat	.
78	0.01	Democrat	Conservative
79	0.01	Democrat	Liberal
80	0.01	Democrat	Liberal
81	0.01	Republican	Conservative
82	0.01	Democrat	Liberal
83	0.02	Republican	.
84	0.02	Democrat	Liberal
85	0.02	Democrat	Liberal
86	0.03	Democrat	Liberal
87	0.03	Democrat	Conservative
88	0.03	Democrat	Conservative
89	0.03	Republican	Conservative
90	0.04	Democrat	.
91	0.04	Republican	.
92	0.04	Democrat	Liberal

Participant	Participant Rasch Scores	Political Affiliation	Political Identity
93	0.04	Democrat	Liberal
94	0.04	Republican	Conservative
95	0.05	Republican	.
96	0.05	Democrat	Conservative
97	0.05	Democrat	Liberal
98	0.05	Republican	Liberal
99	0.05	Democrat	Liberal
100	0.05	Republican	Conservative
101	0.06	Democrat	Conservative
102	0.06	Democrat	Conservative
103	0.06	Democrat	Liberal
104	0.06	Democrat	Liberal
105	0.06	Republican	Conservative
106	0.06	Republican	Liberal
107	0.06	Republican	Liberal
108	0.07	Republican	.
109	0.07	Democrat	Liberal
110	0.07	Republican	Conservative
111	0.07	Democrat	Liberal

Participant	Participant Rasch Scores	Political Affiliation	Political Identity
112	0.07	Republican	Liberal
113	0.07	Democrat	Liberal
114	0.08	Republican	.
115	0.08	Democrat	.
116	0.08	Democrat	Liberal
117	0.09	Democrat	Liberal
118	0.10	Republican	Liberal
119	0.10	Democrat	Liberal
120	0.10	Republican	Conservative
121	0.10	Democrat	Conservative
122	0.10	Democrat	Liberal
123	0.10	Democrat	Liberal
124	0.11	Democrat	.
125	0.11	Republican	Liberal
126	0.12	Democrat	.
127	0.13	Republican	.
128	0.13	Democrat	.
129	0.13	Democrat	.
130	0.13	Democrat	Liberal

Participant	Participant Rasch Scores	Political Affiliation	Political Identity
131	0.13	Republican	Conservative
132	0.13	Democrat	Liberal
133	0.13	Democrat	Liberal
134	0.14	Democrat	.
135	0.14	Republican	.
136	0.16	Democrat	.
137	0.16	Democrat	Liberal
138	0.17	Republican	Conservative
139	0.17	Democrat	Liberal
140	0.17	Democrat	Liberal
141	0.18	Democrat	Conservative
142	0.19	Democrat	.
143	0.19	Republican	Conservative
144	0.20	Democrat	Liberal
145	0.21	Republican	.
146	0.21	Democrat	Conservative
147	0.22	Democrat	.
148	0.22	Democrat	Liberal
149	0.22	Democrat	Liberal

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Participant	Participant Rasch Scores	Political Affiliation	Political Identity
150	0.24	Democrat	Liberal
151	0.24	Democrat	Liberal
152	0.24	Democrat	Conservative
153	0.27	Democrat	Liberal
154	0.28	Republican	Liberal
155	0.29	Democrat	Liberal
156	0.29	Republican	Conservative
157	0.31	Democrat	Liberal
158	0.34	Democrat	Liberal
159	0.36	Democrat	.
160	0.38	Democrat	Conservative
161	0.40	Democrat	Liberal
162	0.44	Democrat	Conservative
163	0.47	Democrat	.

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