

University of Warwick institutional repository: <http://go.warwick.ac.uk/wrap>

A Thesis Submitted for the Degree of PhD at the University of Warwick

<http://go.warwick.ac.uk/wrap/76588>

This thesis is made available online and is protected by original copyright.

Please scroll down to view the document itself.

Please refer to the repository record for this item for information to help you to cite it. Our policy information is available from the repository home page.

Psychological Type and Atheism:

Why Some People Are More Likely Than Others to Give Up God

by

Matthew James Baker

A thesis submitted in partial fulfilment of the requirements for the

degree of

Doctor of Philosophy in Education

University of Warwick, Centre for Education Studies

February 2015

TABLE OF CONTENTS

List of figures and tables.....	vi
Acknowledgements.....	ix
Abstract.....	x
Introduction.....	1
1. What is an atheist?.....	6
1.1. Atheist terminology.....	6
1.1.1. Basic definition of atheism.....	6
1.1.2. Positive versus negative atheism.....	9
1.1.3. Implicit versus explicit atheism.....	10
1.1.4. Agnosticism.....	12
1.1.5. A brief note on the term “theism”.....	15
1.2. Other terms related to atheism.....	16
1.2.1. Nonreligion.....	16
1.2.2. Secularism.....	17
1.2.3. Humanism.....	18
1.2.4. Freethought and rationalism.....	21
1.2.5. Skepticism.....	22
1.3. A brief history of atheism.....	24
1.3.1. Atheism in the ancient world.....	24
1.3.2. Atheism in the modern world.....	28
1.3.3. Contemporary issues: New atheism and the brights movement.....	32

1.3.4. Contemporary statistics on atheism.....	35
1.4. Conclusion.....	37
2. What do atheists believe?.....	39
2.1. What is a worldview?.....	40
2.1.1. A view from philosophy.....	40
2.1.2. A view from religion.....	42
2.1.3. A view from psychology.....	44
2.1.4. An interdisciplinary view.....	46
2.2. Worldview-level beliefs held by atheists.....	48
2.2.1. Ontological beliefs.....	49
2.2.2. Cosmological beliefs.....	51
2.2.3. Teleological beliefs.....	53
2.2.4. Axiological beliefs.....	55
2.2.5. Praxeological beliefs.....	56
2.2.6. Epistemological beliefs.....	57
2.3. Conclusion.....	59
3. Why do people become atheists?.....	61
3.1. Conservative Christian theories.....	61
3.1.1. Atheism and selfishness.....	61
3.1.2. Atheism and arrogance.....	66
3.1.3. Atheism and anger.....	67
3.1.4. Atheism and the father-child relationship.....	70
3.2. Academic Theories.....	72
3.2.1. Atheism and religious emphasis during childhood.....	72
3.2.2. Atheism and deliberation in the pursuit of truth.....	75

3.2.3. Atheism and intelligence.....	77
3.3. Conclusion.....	82
4. What is psychological type?.....	83
4.1. Basics of psychological type.....	83
4.1.1. History of psychological type theory.....	83
4.1.2. The four dichotomies of psychological type.....	90
4.1.3. How psychological type theory is used today.....	95
4.2. Assessing psychological type theory.....	98
4.2.1. Criticism of psychological type theory.....	98
4.2.2. The reliability and validity of psychological type theory.....	101
4.3. Theoretical applications of psychological type to religion.....	103
4.4. Conclusion.....	108
5. How does psychological type affect religious belief?.....	109
5.1. Empirical studies using psychological type theory.....	109
5.1.1. Psychological type profiles of clergy members.....	109
5.1.2. Psychological type profiles of religious groups.....	110
5.1.3. Psychological type and different ways of being religious.....	115
5.1.4. Psychological type and dissatisfaction with religion.....	118
5.1.5. Summary.....	119
5.2. Empirical studies using other models of personality.....	119
5.2.1. Hans and Sybil Eysenck's P-E-N model.....	119
5.2.2. Raymond Cattell's sixteen personality factors.....	122
5.2.3. The Big Five personality traits.....	124
5.2.4. Other relevant variables.....	129
5.3. Conclusion.....	130

6. General Methodology.....	132
6.1. Assumptions based on the literature review.....	132
6.2. Research questions.....	133
6.3. Procedure.....	135
6.4. Ethical considerations.....	137
6.5. Measures.....	137
6.6. Participants.....	141
6.6.1. Sample groups.....	141
6.6.2. Demographics.....	145
6.6.3. Additional information on the atheist participants.....	146
6.6.4. Additional information on the churchgoing participants.....	147
7. Analysis of psychological type.....	148
7.1. Predictions.....	148
7.2. Psychological type analysis of the continuing churchgoers.....	150
7.3. Psychological type analysis of the atheist church-leavers.....	154
7.4. Psychological type analysis of the theist church-leavers.....	160
7.5. Psychological type analysis of the Christian converts.....	165
7.6. Psychological type analysis of the unchurched atheists.....	168
7.7. Psychological type analysis of the unchurched theists.....	172
7.8. Conclusion.....	176
8. Analysis of other theories.....	177
8.1. Independent t-tests and chi-square tests.....	177
8.1.1. Analysis of selfishness.....	178
8.1.2. Analysis of arrogance.....	179
8.1.3. Analysis of anger.....	181

8.1.4. Analysis of father-child relationships.....	182
8.1.5. Analysis of religious emphasis in childhood.....	185
8.1.6. Analysis of deliberation.....	190
8.1.7. Analysis of intelligence.....	191
8.1.8. Conclusion.....	192
8.2. Binary Logistic Regression.....	192
9. Analysis of worldview-level beliefs.....	195
9.1. Worldview-level beliefs of atheists versus theists.....	196
9.2. Worldview-level beliefs of atheists by primary term.....	209
Conclusion.....	223
References.....	227
Appendix A (copy of research survey).....	247

LIST OF FIGURES AND TABLES

Figures:

Figure 1: Types of atheists.....	11
Figure 2: Belief versus knowledge with regard to the existence of God.....	14
Figure 3: The sixteen psychological types.....	90
Figure 4: Possible psychological type groupings.....	96
Figure 5: Statements about ontology (atheists versus theists).....	198
Figure 6: Statements about cosmology (atheists versus theists).....	200
Figure 7: Statements about teleology (atheists versus theists).....	202
Figure 8: Statements about axiology (atheists versus theists).....	204
Figure 9: Statements about praxeology (atheists versus theists).....	206
Figure 10: Statements about epistemology (atheists versus theists).....	208
Figure 11: Statements about ontology (atheists by primary term).....	211
Figure 12: Statements about cosmology (atheists by primary term).....	213
Figure 13: Statements about teleology (atheists by primary term).....	215
Figure 14: Statements about axiology (atheists by primary term).....	217
Figure 15: Statements about praxeology (atheists by primary term).....	219
Figure 16: Statements about epistemology (atheists by primary term).....	221

Tables:

Table 1: Percentage of atheists by country.....	36
Table 2: Wilhelm Dilthey's theory of worldview.....	41
Table 3: Six components of a worldview.....	47
Table 4: The original sixteen psychological types, based on Jung.....	87
Table 5: Raymond Cattell's 16 personality factors.....	123
Table 6: The Big Five Personality Traits.....	128
Table 7: Summary of the six samples.....	144
Table 8: Type distribution of continuing churchgoers (females).....	152
Table 9: Type distribution of continuing churchgoers (males).....	153
Table 10: Type distribution of atheist church-leavers (females).....	158
Table 11: Type distribution of atheist church-leavers (males).....	159
Table 12: Type distribution of theist church-leavers (females).....	163
Table 13: Type distribution of theist church-leavers (males).....	164
Table 14: Type distribution of Christian converts (females).....	166
Table 15: Type distribution of Christian converts (males).....	167
Table 16: Type distribution of unchurched atheists (females).....	170
Table 17: Type distribution of unchurched atheists (males).....	171
Table 18: Type distribution of unchurched theists (females).....	174
Table 19: Type distribution of unchurched theists (males).....	175
Table 20: Selfishness	179
Table 21: Arrogance.....	181
Table 22: Anger.....	182
Table 23: Parental Relationships.....	184
Table 24: Parental Death & Divorce.....	185

PSYCHOLOGICAL TYPE AND ATHEISM	viii
Table 25: Religious emphasis.....	187
Table 26: Church attendance.....	188
Table 27: Deliberation.....	191
Table 28: Intellect.....	192
Table 29: Binary logistic regression.....	193

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my two supervisors, The Reverend Canon Professor Leslie J. Francis and Dr Mandy Robbins. I would also like to thank Deidre d'Entremont, for being an early example in my life of someone with the courage to reject her childhood religious beliefs; Kyle Patmor, for inadvertently putting me on a path towards better critical thinking skills; Ryan Hee, for renewing my interest in psychological type theory; D. J. Grothe, for introducing me to the new atheism and for sharing my survey within the atheist community; and Cheratra Yaswen, my partner, for editing this paper, and for bringing much joy and hope into my life.

ABSTRACT

The purpose of this study was to determine whether or not psychological type plays a role in why some individuals are more likely than others to give up their childhood religious beliefs and become atheists. In order to do this, the psychological type profile of 10,515 atheist church-leavers (2,677 females and 7,838 males) was compared to the psychological type profile of 2,326 continuing churchgoers (1,137 females and 1,189 males). The results indicated that a preference for the thinking-perceiving (TP) combination was over-represented in the atheist sample by a factor of 2.14 for the females and 1.89 for the males. Both of these results were found to be statistically very highly significant ($p < .001$). A binary logistic regression analysis also found that a preference for the TP combination was a stronger predictor of atheism than intellect, years of church, church experience, and the father-child relationship. Finally, it was determined that individuals who use the term “atheist” as their primary self-descriptor have the same worldview-level beliefs as those who use the terms “humanist”, “freethinker”, and “skeptic”.

INTRODUCTION

As a field of study, the psychology of religion has existed for at least one hundred years, its starting point usually taken to be the publication of *The Varieties of Religious Experience* by William James in 1902 (Spilka, Hood, Hunsberger & Gorsuch, 2003). However, it has only been within the last ten years that a psychology of *nonreligion* has begun to emerge. Prior to 2005, there was very little psychological research available on topics such as atheism, agnosticism and secular humanism. In fact, when Hunsberger & Altemeyer (2006) wrote *Atheists: A groundbreaking study of America's nonbelievers*, they claimed to have published the “first scientific study of active atheists” (back cover). Things have changed. As Bullivant and Lee (2012) write, “it has become something of a cliché to begin social-scientific studies of non-religion, secularity, atheism, and related topics by bewailing the dearth of previous research... however, that is becoming – finally and increasingly – an inaccurate description of this field of research, certainly if one looks at its very recent history and contemporary activity” (p. 19). There are now two major centers of research focused exclusively on the study of nonreligion: the Institute for the Study of Secularism in Society and Culture (ISSSC) at Trinity College in Hartford, CT, established in 2005; and the Nonreligion and Secularity Research Network (NSRN) at Oxford and Cambridge in the United Kingdom, established in 2008. In 2012, the ISSSC and the NSRN launched the first peer-reviewed journal dedicated to the topic, *Secularism and Nonreligion*. Because of these initiatives and the work of independent psychologists at other institutions around the globe, there is now a sizeable and rapidly-growing body of research related to the psychological study of nonreligion.

The current academic interest in the subject of nonreligion has coincided with the rise of the “new atheism”. The “new atheism” is a contemporary movement that began mid-way through the previous decade with the publication of four books by four prominent atheists: *The End of Faith: Religion, Terror, and the Future of Reason* by American neuroscientist Sam Harris in 2004; *Breaking the Spell: Religion as a Natural Phenomenon* by American philosopher Daniel Dennet in 2006; *The God Delusion* by British biologist Richard Dawkins in 2006; and *God Is Not Great: How Religion Poisons Everything* by British journalist Christopher Hitchens in 2007. After the publication of these books, discussions about atheism became commonplace in popular media (e.g. - Berkowitz, 2007; Gottlieb, 2007). Although the number of atheists had been growing in English-speaking countries for decades, it was not until the birth of the new atheist movement that a major atheist subculture began to emerge. Atheist voices quickly moved from the sidelines to front and center on the public stage. It was this shift in the greater culture that led to the relatively sudden interest in atheism and nonreligion within academia.

At the same time that certain researchers within the field of the psychology of religion were building a body of research related to nonreligion, other researchers in the same field were building a different body of research – one that combined religious research with psychological type theory. Originating in the work of Swiss psychologist Carl Jung (1875-1961), psychological type theory is a model of human personality that is based on the assumption that certain personality preferences are innate. Over the last ten years, numerous empirical studies have focused on how differences in psychological type preferences may relate to differences in religious attitudes and behaviours. As of 2015, there is now a sizeable body of research on psychological type theory and religion. However, there has been no direct research on psychological type theory and *nonreligion*. It is thus the goal of the current project to

take two very recent streams of research within the field of the psychology of religion – the stream related to nonreligion and the stream related to psychological type theory – and combine them for the first time in order to explore the interplay between psychological type and atheism.

According to the 2008 American Religious Identification Survey (ARIS), most atheists in the United States were members of Christian churches as children and “deconverted” as adults (Kosmin & Keysar, 2009). This leads to the question: Why do some individuals leave church and become atheists upon reaching adulthood whereas others stay and remain theists? To date, explanations offered by conservative Christians have included selfishness (Stroebel, 1998), arrogance (D’Souza, 2007), anger at God (Novotni & Petersen, 2001), and poor father-child relationships (Vitz, 1999) while explanations from within academia have included low religious emphasis during childhood (Hunsberger & Brown, 1984), deliberation in the pursuit of truth (Altemeyer & Hunsberger, 1997), and higher intelligence (Nyborg, 2009). However, until recently, very little attention has been paid to whether or not innate personality differences might play a role and no attention has been paid to whether or not psychological type in particular might play a role.

The primary research question for this project will therefore be: Which psychological types are over-represented among atheist church-leavers, as compared to those who continue to attend church, and what might this reveal about why certain individuals are more likely than others to give up their childhood religious beliefs and become atheists? The answer to this question will contribute both to the growing body of research on the psychology of nonreligion as well as the growing body of research on how psychological type theory provides insight into religious differences.

In addition to testing the potential link between psychological type and atheism, the current project will also test existing theories related to the psychology of

atheism in general. The second research question will therefore be: Is there evidence to support any of the other major theories about why certain individuals are more likely than others to give up their childhood religious beliefs and to become atheists? The seven theories that will be tested will be those of selfishness, arrogance, anger at God, poor father-child relationships, lower religious emphasis during childhood, deliberation in the pursuit of truth, and higher intelligence.

A third and final area of research will also be incorporated into the current project. Since the psychology of nonreligion is such a new field, there is still some debate over terminology. This project will therefore test to see whether or not the term “atheist” can be used interchangeably with other terms such as “humanist”, “freethinker”, and “skeptic” when it comes to what a person believes. The third research question will thus be: Do atheists share a common worldview or do the different terms used by atheists for self-description reflect major differences in worldview-level beliefs?

This thesis will be divided into two sections. The first section (chapters one through five) will be a literature review. Chapter one will begin by reviewing the literature on what it means to be an atheist. Various ways of understanding the term “atheist” will be explored as well as other related terms such as “agnostic”, “secularist”, “humanist”, “freethinker” and “skeptic”. The chapter will conclude by providing a brief history of atheism as well as information on contemporary issues and statistics. Chapter two will seek to understand what atheists believe by introducing the topic of worldview. The concept of worldview will be explored from philosophical, religious, psychological, and interdisciplinary viewpoints and then the worldview-level beliefs of atheists will be surveyed. Chapter three will focus on the seven existing theories on why certain individuals become atheists. This will include four theories from conservative Christian sources (selfishness, arrogance, anger at

God and poor father-child relationships) and three theories from academic sources (lower religious emphasis during childhood, deliberation in the pursuit of truth, and higher intelligence). Chapter four will introduce the concept of psychological type and survey its history and applications. It will also address criticisms of the theory and issues related to reliability and validity. Chapter five, the final chapter in the literature review section, will review the numerous empirical studies that have used psychological type theory and other models of personality within the realm of religious research.

The second of the two sections will describe the new empirical study that was conducted in order to explore the three research questions. Chapter six will describe the research methodology and provide information on the procedure, ethical considerations, measures, and participants. Chapter seven will report the results related to psychological type. Chapter eight will report the results related to the seven theories discussed in chapter three, and finally, chapter nine will report the results related to worldview-level beliefs. Finally, the Conclusion will summarize the key outcomes of the project and give suggestions for future research.

1 WHAT IS AN ATHEIST?

The primary purpose of this research project is to explore the reasons why certain people who were raised in religious environments as children become atheists as adults, while others do not. The first task will be to carefully outline what is meant by the word atheist and therefore, in chapter one, the definition of atheism and other related terms such as agnosticism, secularism, humanism, freethought, and skepticism will be explored in depth. A brief history of atheism, as well as information on contemporary issues and statistics, will also be provided.

1.1 Atheist terminology

1.1.1 Basic definition of atheism

Etymologically, the word atheism is derived from ancient Greek and is comprised of three parts: the prefix “a” which means “without”, the root “theos” which means “god”, and the suffix “ism” which means “belief in”. Thus, atheism literally means “without a belief in a god.” This is noticeably different from the common everyday understanding of the word as “the belief that God does not exist” and many atheist writers have been quick to point this out. According to Dan Barker, co-president of the Freedom from Religion Foundation, “Basic atheism is not a belief. It is the lack of belief. There is a difference between believing there is no god and not believing there is a god—both are atheistic, though popular usage has ignored the latter” (1992, p. 99). Antony Flew, once one of Britain’s most prominent atheists, makes the same point in his widely-read essay “The Presumption of Atheism” where he writes:

Whereas nowadays the usual meaning of “atheist” in English is “someone who asserts there is no such being as God,” I want the word to be understood not positively but negatively. I want the originally Greek prefix “a” to be read in the same way in “atheist” as it customarily is read in such other Greco-English words as “amoral,” “atypical,” and “asymmetrical.” In this interpretation an atheist becomes: not someone who positively asserts the non-existence of God; but someone who is simply not a theist (1984, p. 14).

Similar arguments are made by George H. Smith and Michael Martin in two of the most important treatises on atheism in the late twentieth century. In *Atheism: The case against God*, Smith (1974) writes, “Atheism, in its basic form, is not a belief: it is the absence of belief. An atheist is not primarily a person who *believes* that a god does not exist; rather, he does *not believe* in the existence of a god” (p. 7, emphasis in original). Likewise, in *Atheism: A philosophical justification*, Martin (1990) writes:

If you look up “atheism” in a dictionary, you will probably find it defined as the belief that there is no God. Certainly, many people understand atheism this way. Yet many atheists do not, and this is not what the term means if one considers it from the point of view of its Greek roots. In Greek “a” means “without” or “not” and “theos” means “god.” From this standpoint an atheist would simply be someone without a belief in God, not necessarily someone who believes that God does not exist. According to its Greek roots, then, atheism is a negative view, characterized by the absence of belief in God (p. 463).

There are two reasons why the more technical definition of atheism advocated above is important. First, it recognizes and includes many different types of atheists.

As Smith (1974) writes:

There are many reasons why one may not believe in the existence of a god: one may never have encountered the concept of god before, or one may consider the idea of a supernatural being to be absurd, or one may think that there is no evidence to support the belief in a god. But regardless of the reason, if one does not believe in the existence of a god, one is an atheist (p. 8).

The second reason is that it does away with the possibility of any middle ground between theism and atheism. Smith (1974) explains, “In this context, theism and atheism exhaust all alternatives with regard to belief in a god: one is either theist or an atheist; there is no other choice. One either accepts the proposition ‘god exists’ as true, or one does not... there is no third option or middle ground” (p. 8). This second reason is particularly important when it comes to understanding agnosticism, which will be discussed in Section 1.1.4 below.

Thus, for the purposes of this paper, based on the etymological roots of the word atheism, and the arguments made by the writers quoted above, the basic definition of the term atheist will be taken as being, “one without a belief in a god.” This means that, at a basic level, atheism must not be understood as being a worldview. On this point, Smith (1974) warns, “to view atheism as a way of life, whether beneficial or harmful, is false and misleading” (p. 21). However, being that this basic definition is too broad for the specific research questions that will be addressed later, a more refined definition will be explored in the next two sections. In addition to this, in Chapter 2, it will be demonstrated that this more refined type of atheism, while not a worldview in its own right, is in fact strongly aligned with a particular set of worldview-level beliefs.

1.1.2 Positive versus negative atheism

The terms positive and negative atheism were first introduced by Antony Flew in “The Presumption of Atheism” (1984, p. 14) and then reused in Michael Martin’s *Atheism: A philosophical justification* (1990, p. 464). Flew (1984) introduced the terms in an effort to distinguish between the commonplace definition of an atheist as being “one who believes that God does not exist” and the more technical definition of “one without a belief in God.” He suggested that the former be called a “positive atheist” because such a person makes a positive assertion (by believing that God does not exist) and the latter be called a “negative atheist” because such a person is defined instead by his or her lack of belief.

According to this typology, all positive atheists would also be negative atheists. However, not all negative atheists would be positive atheists. Thus, as Martin (1990) writes, “positive atheism is a special case of negative atheism” (p. 464). Most individuals considered to be atheists under the commonplace definition of the word would fit under the umbrella of positive atheism. However, negative atheism would include a much more diverse set of beliefs. Those who have never heard of the concept of a god (including very young children), those who consider the concept to be absurd, as well as those who simply do not care to think about the question would all be considered negative atheists. In addition to such individuals, most agnostics would also fit under the umbrella of negative atheism (see Section 1.1.4 below for a more detailed discussion of agnosticism).

Other terms have been used to divide atheists into similar categories. These have included strong versus weak atheism, hard versus soft atheism, and theoretical versus pragmatic atheism. All make the exact same distinction and each set of terms can be considered to be synonymous with positive versus negative atheism.

Although the terms introduced by Flew (1984) and Martin (1990) are of benefit for distinguishing the common understanding of the word atheist from the more technical definition, they will not actually serve as useful concepts for the present project. As already mentioned, defining atheists as including all those who would fit under the technical definition (i.e. all negative atheists) would be too broad. On the other hand, defining atheists as including only those who could be considered positive atheists would be too narrow. Therefore, a different typology is required. For this, a slightly older set of terms will prove useful.

1.1.3 Implicit versus explicit atheism

Whereas the terms positive versus negative atheism focus on whether or not one's position is based on a belief or a lack of belief, the terms "implicit" versus "explicit" atheism focus instead on whether or not one's position is consciously held or unconsciously held. They were first introduced in G. H. Smith's *Atheism: The case against God* (1974) where implicit atheism is defined as, "the absence of theistic belief without a conscious rejection of it" (p. 13) and explicit atheism as, "the absence of theistic belief due to a conscious rejection of it" (p. 13). It is clear from Smith's use of the phrase, "the absence of theistic belief," that both implicit and explicit atheism are viewed from the standpoint of negative atheism.

Smith (1974) goes on to explain that, "an implicit atheist is a person who does not believe in a god but who has not explicitly rejected or denied the truth of theism" (p. 13-14). Implicit atheism therefore includes those who have never heard the concept of a god (referred to by Zuckerman (2010) as "anthropological atheists"), children who are not yet old enough to grasp the concept, those with learning difficulties, those who are truly undecided on the issue, and those who simply do not care (sometimes referred to as apatheists, based on the word apathy). On the other

hand, Smith writes that, “an explicit atheist is one who *rejects* belief in a god. This deliberate rejection of theism presupposes familiarity with theistic beliefs” (p. 17, emphasis in original). Hence, explicit atheism includes all positive atheists but it also includes many agnostics, particular those who have looked at the evidence for the existence of God and have made a conscious decision to reject belief in God even though they have not made a conscious decision to adopt positive atheism. Thus, explicit atheism is a broader concept than positive atheism yet also narrower than negative atheism (see Figure 1 below).

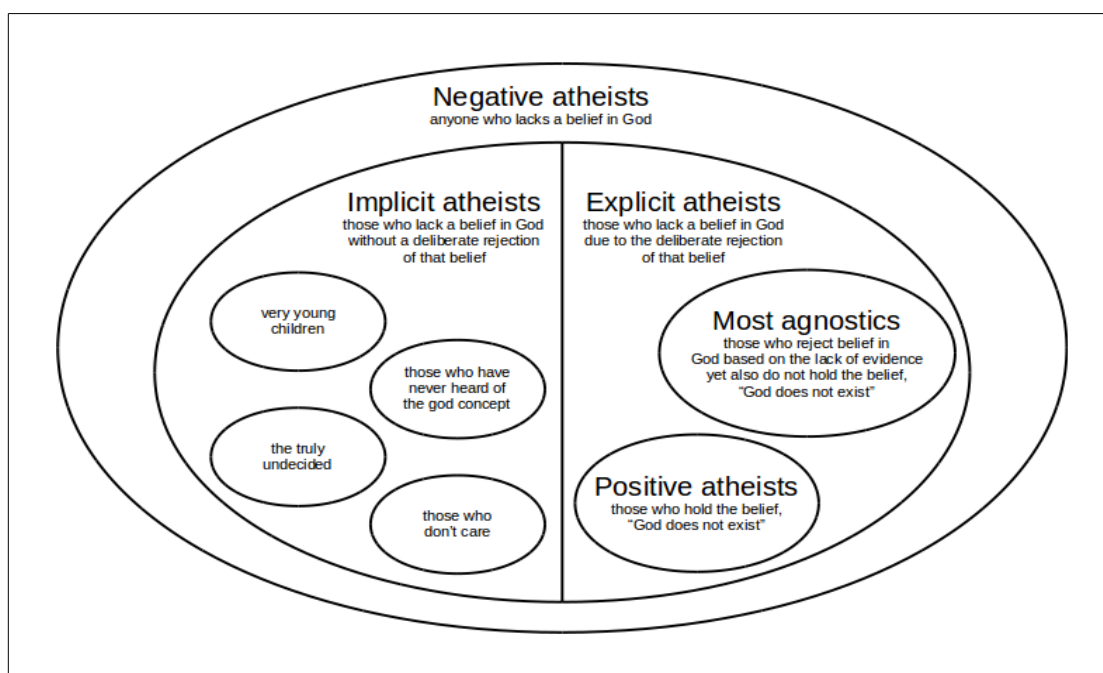


Figure 1: Types of atheists

Because the present project focuses on individuals who grew up in theistic environments but then at some point made a deliberate decision to reject theism (whether from the standpoint of negative atheism or positive atheism), the term explicit atheist will serve as an ideal concept for the type of atheist this project will focus on. However, because explicit atheists use a variety of different labels to

describe themselves beyond just “atheist”, it will be necessary to look at other related terms, the first and foremost of which is the term agnostic.

1.1.4 Agnosticism

In common use, the word agnostic is usually understood to mean a person who is neither a theist nor an atheist. In other words, an agnostic is someone who is either not sure whether or not God exists or someone who prefers not to commit to either side due to the fact that he or she feels that the question is unanswerable. However, as argued above, if atheism is understood in the more technical, “negative” sense, there can be no middle ground between theism and atheism. If someone lacks a belief in God, he or she is by default an atheist. Hence, all agnostics under the common understanding of the word would also be atheists.

In fact, the history of the term agnostic shows that the the word was never meant to be a statement of one’s position with regard to belief in God. According to Smith (1974), the term was coined by Thomas Huxley in 1869 when, as a member of the British-based Metaphysical Society, he felt unable to describe himself using any existing term (pp. 8-9). Twenty years later, he described for the first time in writing what he meant by the word:

Agnosticism, in fact, is not a creed, but a method, the essence of which lies in the rigorous application of a single principle... Positively the principle may be expressed: In matters of the intellect, follow your reason as far as it will take you, without regard to any other consideration. And negatively: In matters of the intellect, do not pretend that conclusions are certain which are not demonstrated or demonstrable (Huxley, 1889, online).

It is thus clear that in the original meaning of word, an agnostic is simply someone whose epistemology is based on science and reason rather than faith or

conjecture. In this sense, it is synonymous with the terms “freethinker” (see Section 1.2.4), “skeptic” (see Section 1.2.5), and “rationalist” (see Section 2.2.6) and need not be used in contrast with the word atheist.

Etymologically, the word comes from ancient Greek and literally means “one without knowledge” (the prefix “a” meaning “without” and the root “gnosis” meaning knowledge”). This is important because knowledge is a slightly different concept than belief. According to *The Stanford Encyclopedia of Philosophy*, belief is, “the attitude we have, roughly, whenever we take something to be the case or regard it as true” whereas knowledge is, “a species of belief—specifically, justified true belief” (Schwitzgebel, 2011, online). Therefore, it is possible to believe (or not believe) in something, independent of whether or not one claims to have certain knowledge about it. This means that there are four possible ways to combine atheism and theism with agnosticism and its counterpart gnosticism (not to be confused with the ancient religion Gnosticism), as demonstrated in Figure 2 below. For example, it is actually possible to be both an agnostic and a theist. Such a person would believe in God but not claim that his or her belief was based on certain, demonstrable knowledge.

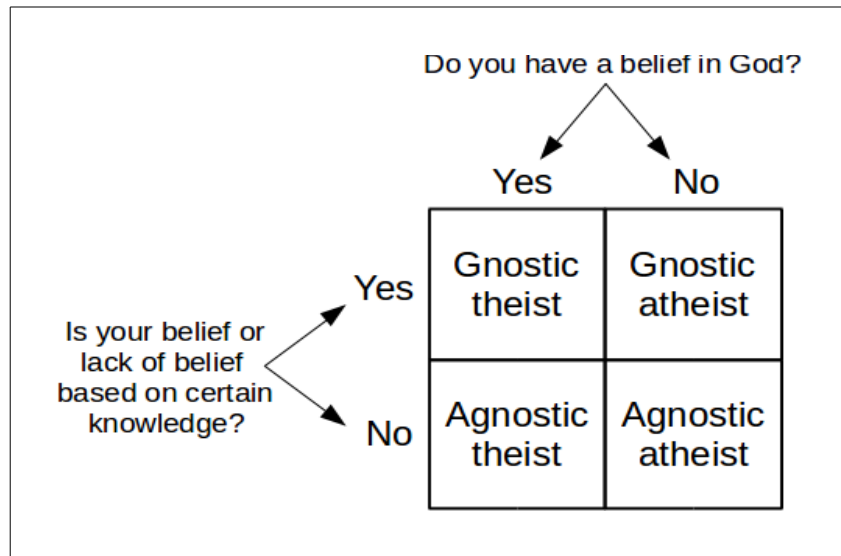


Figure 2: Belief versus knowledge with regard to the existence of God.

Richard Dawkins makes a similar point about the distinction between knowledge and belief in *The God Delusion* but places the possible positions on the following scale of 1-7 instead:

1. Strong theist. 100 per cent probability of God. In the words of C.G. Jung: “I do not believe, I know.”
2. *De facto* theist. Very high probability but short of 100 per cent. “I don't know for certain, but I strongly believe in God and live my life on the assumption that he is there.”
3. Leaning towards theism. Higher than 50 per cent but not very high. “I am very uncertain, but I am inclined to believe in God.”
4. Completely impartial. Exactly 50 per cent. “God's existence and non-existence are exactly equiprobable.”
5. Leaning towards Agnosticism. Lower than 50 per cent but not very low. “I do not know whether God exists but I'm inclined to be skeptical.”

6. *De facto* atheist. Very low probability, but short of zero. “I don’t know for certain but I think God is very improbable, and I live my life on the assumption that he is not there.”
7. Strong atheist. “I know there is no God, with the same conviction as Jung knows there is one.” (Dawkin, 2006, p. 50)

According to the above paradigm, only positions 1 and 7 could be considered gnostic with everything else being forms of agnosticism (2-3 being forms of agnostic theism, 5-6 being forms of agnostic atheism, and 4 being the truly non-committed position).

In the current project, based on the above discussion, agnostics will not be considered as inhabiting a middle ground between atheism and theism. Rather, it will be understood that if an individual has made a deliberate choice not to be a theist, he or she is by default an explicit atheist. Likewise, agnostics that still possess a belief in God, regardless of how tenuous that belief might be, will be considered to be theists.

1.1.5 A brief note on the term “theism”

It has been established that an atheist is any individual who is not a theist and that an explicit atheist is anyone who *deliberately* rejects theism (regardless of whether he or she is a positive atheist or an agnostic). Since the term atheism is inherently connected to its opposing term theism, it will be useful at this point to clarify what is meant by theism. Generally speaking, theism is a belief in the existence of a god (singular) or gods (plural). However, in a Western context, it is usually understood to mean the belief in *God* with a capital G, i.e. the personal, monotheistic God of the three Abrahamic faiths (Judaism, Christianity, and Islam) that created the universe and continues to intervene in its affairs. Since this project centers on those who grew up in Christian churches, it will be assumed from this point

forward that any reference to theism will be a reference to the specific type of theism common in the West, namely Abrahamic monotheism.

1.2 Other terms related to atheism

There are many individuals who fit under the umbrella of explicit atheism but use neither the term atheist nor the term agnostic to describe themselves. It is thus necessary to look at several more terms commonly used by explicit atheists in the current milieu.

1.2.1 Nonreligion

The term “nonreligious” is perhaps the most general term used by atheists and other individuals who do not associate themselves with religion and/or a belief in God. Lois Lee, founding director of the Nonreligion and Secularity Research Network, has recently suggested that it be used as the overarching master concept for the emerging field of study focused on atheism, humanism, and other related areas (Lee, 2012). Her argument is that it is a broader term than atheist, which is only useful in cultures where god-centered worldviews dominate, and that it carries a less negative connotation than the earlier term irreligious. In Lee (2012), she defines nonreligion as, “anything which is *primarily* defined by a relationship of difference to religion” (p. 131, emphasis in original). She contrasts this with the secular (see Section 1.2.2), which she defines as, “something for which religion is not the primary reference point” (p. 135).

Although the term “nonreligious” is indeed useful as a master concept for the emerging field of Nonreligion Studies (under which the present study certainly falls), it does not actually serve as a useful term when it comes to describing the type of individual that the present study is focusing on. Since the current project is centered

on those who grew up within the context of a god-centered worldview, the term atheist (and in particular explicit atheist) is, in this case, the better choice.

1.2.2 Secularism

The term “secularism” was coined by the prominent British atheist George Jacob Holyoake in the mid-nineteenth century (Holyoake, 1896/2011, ebook, Preface). He defined it as, “a code of duty pertaining to this life, founded on considerations purely human, and intended mainly for those who find theology indefinite or inadequate, unreliable or unbelievable” (Holyoake, 1896/2011, ebook, ch. 7). However, in the twenty-first century, it has come to represent the view that certain things—most importantly, the government—should be kept separate from the influence of religion (Grayling, 2007, p. 32). The adjective “secular” has thus come to describe anything that is not connected to religion. For example, a secular organization is understood to be any organization that is not directly controlled or operated by a religious body. Likewise, the United States federal government is said to be secular in that it rests on the notion of church/state separation.

It is important to note that, under the current definition of the word “secular,” it is possible for religious individuals to be secularists and to support the idea of secularism. It is for this reason that Lee (2012) advocates the use of the term “nonreligion” as the master concept when it comes to the study of atheism, humanism, and other related constructs, instead of the term secularism or “the secular”. She suggests that scholars move away from an understanding of secularism that derides, excludes, or marginalizes religion and instead rally around an understanding that is based on the secular being anything for which religion is not the primary reference point (p. 136).

Based on the above understanding, the term secular will not prove useful for the purpose of the present study. The one exception to this will be the use of the term together with humanism, which will be discussed in the next section.

1.2.3 Humanism

The English term “humanism” has its roots in the Italian word *umanista*, which according to Mann (1996), “was used in fifteenth century Italian academic jargon, to describe a teacher or student of classical literature and the arts associated with it, including that of rhetoric” (p. 1). Mann goes on to write that, “only in the nineteenth century, however, and probably for the first time in Germany in 1809, is the attribute transformed into a substantive: humanism, standing for the devotion to the literatures of ancient Greece and Rome, and the humane values that may be derived from them” (pp. 1-2). This original usage of the term is now referred to as Renaissance humanism and can be applied to anyone who, in the spirit of the Renaissance, believes in the importance of a broad-based, civic-minded education.

In the twenty-first century however, humanism has come to refer to a philosophy and movement that go beyond simply the revival of classical learning. It now represents a complete worldview or lifestance and is usually associated with explicit atheism. According to the American Humanist Association (2003), “humanism is a progressive philosophy of life that, without supernaturalism, affirms our ability and responsibility to lead ethical lives of personal fulfilment that aspire to the greater good of humanity” (online). The worldview of humanism will be covered in greater detail in Chapter 2 but here, it will be useful to briefly trace the origins of the movement as well as its evolution towards the now dominant secular version.

Modern humanism has its roots in the Ethical Culture movement, which in turn can be traced to the founding of the New York Society for Ethical Culture by

Felix Adler in 1876. Adler's goal was to initiate a new movement through which individuals could express their religious convictions through humane actions rather than mere church or synagogue attendance (New York Society for Ethical Culture, n.d., online). In the years to follow, similar "ethical societies" were formed in other American cities as well as in the United Kingdom. In 1896, the Union of Ethical Societies, the predecessor body of the British Humanist Association, was formed in London by Simon Coit, a former aide to Adler. Originally, these ethical societies often served as "church-like" organizations complete with a minister and weekly meetings. However, as time passed, these church-like elements were eventually phased out in favour of a more secular organizational model.

This transition from religious humanism to secular humanism can also be seen in the various manifestos published by the American Humanist Association, which had its origins in 1927 as the Humanist Fellowship at the University of Chicago. The original manifesto, now referred to as the Humanist Manifesto I, was published in 1933 and its signatories included a rabbi and numerous ministers, most of whom were Unitarians. The term "religious humanism" is used throughout and it is clear that the intent of the document is to redefine religion rather than replace it. For example, point seven of the manifesto reads, "Religion consists of those actions, purposes, and experiences which are humanly significant. Nothing human is alien to the religious. It includes labor, art, science, philosophy, love friendship, recreation—all that is in its degree expressive of intelligently satisfying human living. The distinction between the sacred and the secular can no longer be maintained" (American Humanist Association, 1973a, online). In contrast, the use of the adjective religious in front of humanism is dropped in the Humanist Manifesto II, published forty years later in 1973. The overall intent is also noticeably different, as evidence by the following paragraph: "Some humanists believe we should reinterpret traditional religions and

reinvest them with meanings appropriate to the current situation. Such redefinitions, however, often perpetuate old dependencies and escapisms; they easily become obscurantist, impeding the free use of the intellect. We need, instead, radically new human purposes and goals” (American Humanist Association, 1973b, online). Finally, it is worth noting that the current manifesto, the Humanist Manifesto III, published in 2003, does not include a single reference to religion and was signed primarily by nonreligious individuals.

Perhaps the most important figure when it comes to the secularization of the humanist movement is Paul Kurtz (1925-2012). Referred to by many as the “father of secular humanism,” he founded Prometheus Books (now the dominant atheist publishing house in the U.S.) in 1969, served as the editor of *The Humanist* (the flagship magazine of the American Humanist Association) from 1967-1978, and was one of the primary authors of the Humanist Manifesto II. During his time with the American Humanist Association, he helped move the organization towards being more sharply critical of religion but eventually ended up establishing his own more explicitly non-religious humanist organization, the Council for Secular Humanism in 1980 (Center for Inquiry, 2012, online). From 1986-1994, he was also co-chair of the International Humanist and Ethical Union, an umbrella organization for humanist associations and ethical societies from around the world.

When it comes to the current project, humanism is highly relevant, particularly in its now dominant secular form. Although not all atheists are comfortable with the label humanist and not all humanists are comfortable with the label atheist, the two groups share much in common and this will be explored in depth in Chapter 2.

1.2.4 Freethought and rationalism

Before the term humanist became popular among those who oppose traditional religion, the primary term used in English was “freethinker.” Although it is still used today (for example, by the US-based Freedom From Religion Foundation), it is no longer the dominant term due to the popularity of other terms like humanist and skeptic (see next section) and the decreased stigma attached to using the word atheist. The terms “freethought” and “freethinking” came into common use at the beginning of the eighteenth century, following the 1713 publication of *A discourse of freethinking, occasioned by the rise and growth of a sect called freethinkers* by English philosopher Anthony Collins. Whereas the term humanist focuses primarily on the foundation for one’s ethics, the term freethinker focuses instead on one’s epistemology. Those who refer to themselves as freethinkers emphasize that beliefs should be formed based on science and reason as opposed to church authority and tradition. According to the British philosopher Bertrand Russell:

What makes a freethinker is not his beliefs but the way in which he holds them. If he holds them because his elders told him they were true when he was young, or if he holds them because if he did not he would be unhappy, his thought is not free; but if he holds them because, after careful thought he finds a balance of evidence in their favor, then his thought is free, however odd his conclusions may seem (1957, p. 3).

The period between the end of the U.S. Civil War and the beginning of World War I is often referred to by American historians as the golden age of freethought. According to Jacoby (2013), it was, “an era when immigration, industrialization, and science, especially Charles Darwin’s theory of evolution by means of natural selection, were challenging both religious orthodoxy and the supposedly simpler values of the nation’s rural Anglo-Saxon past” (p. 2). According to Lundin (2007),

the three defining voices of that age were orator Robert Ingersoll (nicknamed as “the Great Agnostic”), poet Walt Whitman, and author Mark Twain (p. 170). All three men were freethinkers and were critical of organized religion and literal interpretations of the bible.

Another term related to freethinking is “rationalism.” Although rationalism usually refers to philosophical rationalism (ie. the epistemological position that is held in contrast to empiricism), it is also sometimes used as a synonym for freethinking. For example, one of the oldest freethought organizations in the U.K. goes by the name the Rationalist Association (formerly the Rationalist Press Association). The term is also used on many atheist websites together with the word freethinking to represent the idea of using science and reason to question religious dogma.

When it comes to the current project, it is expected that some atheists will choose to refer to themselves as freethinkers. In this case, it will be necessary to collect additional information from such individuals about their position in terms of their belief or nonbelief in God.

1.2.5 Skepticism

Unlike the term “freethinker,” the label “skeptic” has only recently become popular among atheists. Although not all skeptics are atheists, the three main skeptic organizations in the United States (the Committee for Skeptical Inquiry, the Skeptics Society, and the James Randi Educational Foundation) were all founded by atheists. Michael Shermer, founder of the Skeptics Society and one of the most well-known skeptics in the U.S., explains the term as follows:

Modern skepticism is embodied in the scientific method, that involves gathering data to formulate and test naturalistic explanations for natural phenomena. A claim becomes factual when it is confirmed to such an extent it

would be reasonable to offer temporary agreement. But all facts in science are provisional and subject to challenge, and therefore skepticism is a method leading to provisional conclusions. Some claims, such as water dowsing, ESP, and creationism, have been tested (and failed the tests) often enough that we can provisionally conclude that they are false. Other claims, such as hypnosis and chaos theory, have been tested but results are inconclusive so we must continue formulating and testing hypotheses and theories until we can reach a provisional conclusion. The key to skepticism is to continuously and vigorously apply the methods of science to navigate the treacherous straits between “know nothing” skepticism and “anything goes” credulity. (Shermer, 1997, p. 16)

It is clear from the above description that modern skepticism is very similar to freethought in that it emphasizes the use of science and reason when it comes to the exploration of truth claims. However, whereas freethinkers tend to focus on matters related to religious truth claims, skeptics usually focus on areas related to pseudoscience and the paranormal (e.g. - Bigfoot, ghosts, psychic powers, UFO's, etc.) It is also clear that modern skepticism is somewhat different from the philosophical skepticism rooted in ancient Greece. The two main types of ancient Greek skepticism (Pyrrhonian skepticism and academic skepticism) were based on the idea, “nothing can be known, not even this” and tended to lead more often to the suspension of belief than to science-based conclusions.

When it comes to the current project, it is expected that some atheists will choose to refer to themselves as skeptics. In this case, it will be necessary to collect additional information from such individuals about their position in terms of their belief or nonbelief in God.

1.3 A brief history of atheism

In the previous section, some of the more recent developments in the history of atheism were touched on while exploring the variety of terms used by atheists in the current milieu. However, the history of atheism goes back much further than the popularization of terms such as humanism and freethought over the last two hundred years. The next section will therefore look at the history of atheism in greater depth, starting with its roots in ancient history and even prehistory.

1.3.1 Atheism in the ancient world

Anthropologists generally agree that the contemporary study of tribal cultures, particularly those that still exist in near isolation, provides the best chance at understanding what human societies were like prior to the introduction of agriculture and permanent settlements. One of the things that it is most often assumed about such cultures is that they all share in common a belief in the supernatural. While it is generally true that most tribal religions do possess some sort of belief in spirit entities, souls or even a “Great Spirit”, there are exceptions. In his much-acclaimed work *The Story of Civilization*, Will Durant writes about what he calls “primitive atheism”:

Certain Pygmy tribes of Africa had no observable cult or rites; they had no totem, no fetishes, and no gods; they buried their dead without ceremony, and seem to have paid no further attention to them; they lacked even superstitions... the Veddahs of Ceylon went no further than to admit the possibility of gods and immortal souls; but they offered no prayers or sacrifices. Asked about God they answered, as puzzled as the latest philosopher: “Is he on a rock? On a white-ant hill? On a tree? I never saw a god!” (1935/2011, ebook, ch. IV, sect. IV)

In addition to these examples, Daniel Everett, a former missionary who spent many years with an Amazonian tribe known as the Pirahās, reported in Everett (2010) that that particular group had no concept of a supreme or creator god (p. 134) and that they had no interest in learning about Jesus once they found out that Everett had never actually met him in the flesh (p. 266). We therefore have examples from three different continents of tribal societies that could be labelled atheistic. It is thus clear that atheism is by no means just a modern phenomenon.

When it comes to ancient civilizations, the two regions where atheist ideas first arose in opposition to the dominant theism of the day were Greece and India. Atheist thought in ancient Greece has its roots in the pre-Socratic philosophers, the first of whom was Thales of Miletus in the sixth century BCE. Prior to the pre-Socratics, the Greeks relied solely on their stories about the Olympian gods to explain the world around them. Western philosophy and science are said to have begun when Thales abandoned this traditional method and instead sought new ways of explaining natural phenomenon. By the fifth century BCE, the sophist philosopher Protagoras felt bold enough to write, “Concerning the gods I am unable to discover whether they exist or not, or what they are like in form.” This statement later led to the public burning of his books (Bremmer, 2007, p. 12-13). Around the same time, Anaxagoras, who is usually credited with bringing philosophy to Athens, espoused the controversial idea that the sun was a “red-hot mass of metal” and the playwrights Euripedes, Critias and Aristophanes began to toy with atheist ideas in their plays. However, it is Diagoras of Melos that most scholars label “the first atheist” (Van der Horst, 2006, p. 248). According to Hecht (2004), “he revealed the secret rituals of the Eleusian mystery religion to everyone and ‘thus made them ordinary,’ that is, he purposefully demystified a cherished secret rite, apparently to provoke his contemporaries into thought” (ebook, ch. 1). The result: he was indicted for profanity

and had to flee the city for his life. But by then, the new ideas were taking hold. Among intellectuals, the Olympian gods faded into the background and the everyday world was understood in increasingly naturalist ways. By the time the Atomist School began to take hold, led by Democritus (460-370 BCE), several branches of philosophy were looking increasingly more like science.

Politically though, denying the gods in public was still a major taboo. The most famous example of this is the trial of Athens' greatest philosopher, Socrates, who was sentenced to drink hemlock for corrupting youth and refusing to recognize the state-sponsored gods. It was because of that trial that the word *atheos* (atheist) entered into the Greek language for the first time (Bremmer, 2007, p. 19). According to Hecht (2004), "Socrates was indicted for atheism, but the wording of the indictment suggests that even his accusers did not think him particularly atheistic, just disruptive and antitraditionalist" (ebook, ch. 1). Hecht goes on to explain why the label "atheist" was used in his case:

Socrates challenged every last conception of life as he knew it, even the idea of having a conception of it. Piety, materialism, hunger for power, and competition were particular targets because of how they distracted people from reality. One must devote oneself to figuring out that one must live for the good, for its own sake. It was a secular morality. Contemporaries did not know what to call a thing like that – he questioned their every faith, their every way of life – so they called it atheism" (p. 12).

From that point on, the term atheist became an increasingly derogatory one. According to Bremmer (2007), by the beginning of the common era, "atheism had mainly become a label to be used against philosophical opponents but not to be taken too seriously" (p. 20). In fact, in the early days of Christianity, the Christians were labelled atheists by the Romans and the Romans were labelled atheists by the

Christians (p. 21). But as Christianity grew in scope and influence, atheism all but disappeared in the West, even as a minority view, until the eighteenth century.

In the ancient world, atheist views also developed in India. Around the same time that Diagoras was getting people to question the existence of the gods in Greece, the Samkhya school of thought was starting to develop into a distinct philosophy in South Asia. Today, Samkhya is considered to be one of the six orthodox schools of Hinduism. But unlike the other orthodox schools, one of its main tenants is the denial of god (Larson, 1998) and it is therefore seen as being a blatantly atheistic form of Hinduism. Scholars sometimes also speak of Mimamsa, another one of the six orthodox schools, as being atheistic. However, Mimamsa is perhaps better classified as being agnostic in that it simply focuses on interpreting the Hindu scriptures, rather than on addressing questions relating to the existence of gods, which it believes are impossible to answer.

Several other religious movements that developed in Ancient India are considered either atheistic, or at least nontheistic. These include Jainism, Buddhism, and Carvaka, all three of which are considered by Hindus to be non-orthodox schools of philosophy. In Jainism, the universe is eternal and there are no gods, although all living things are believed to possess a non-physical soul. In Buddhism, questions related to the existence of gods are simply viewed as being unanswerable and therefore unimportant (like in Mimamsa) but there is still an emphasis on reincarnation and escaping its cycle. In Carvaka, there are no gods, no supernatural forces, no soul, no reincarnation, no afterlife, and no karma. It is a completely materialist philosophy and thus the most atheistic of the three. All of these movements have histories that go back at least 2000 years and therefore it is clear that atheist thought in India has deep roots in ancient times.

1.3.2 Atheism in the modern world

Although the Greeks planted the seeds of atheist thought in the West in the fifth century BCE, atheism all but disappeared in Europe during the Middle Ages due to the increasing dominance of Christianity. In the Near East, there were a few Muslim philosophers, such as Ibn al-Rawandi (827-911), whose criticism and skepticism of religion were considered atheistic by his contemporaries but even in such cases, it never amounted to any kind of movement or major stream of thought. It was not until the eighteenth century Enlightenment in Europe that atheism started to become relatively common in intellectual circles and this was most certainly due to the shift towards modernity that occurred in the previous two centuries.

According to Hyman (2007), atheism and modernity are “inextricably linked” (p. 28), with atheism being an inescapable “feature or symptom” of modernity (p. 27). Therefore, one must start with the father of modern philosophy, Rene Descartes (1596-1650), in order to understand the roots of modern atheism. Prior to Descartes, Western philosophy was dominated by the Scholasticism of St Thomas Aquinas (1225-1274) which emphasized the importance of divine revelation, as understood by church tradition, as the foundation for truth. But with the Protestant Reformation questioning the validity of church tradition, there was a need for new epistemological foundations that could be used by Protestants and Catholics alike (Hyman, 2007, p. 34). Descartes sought to establish these new foundations by questioning everything, even his own existence, and then starting from scratch using rational arguments alone. It was from this motivation that he developed his famous proposition *cogito ergo sum* (“I think therefore I am”). Although this statement was indeed an important one in that it offered a way to escape absolute skepticism, it was his use of logic and reason to get there that was most revolutionary. As Hymen (2010) writes, “For all its gloss of theological orthodoxy, Descartes’s method was marked, above all else, by its quest for

certainty on the basis of reason” (p. 19). This, in essence, is the defining aspect of modernity, which Hyman (2007) summarizes as the “desire for an all-encompassing mastery of reality by rational and/or scientific means” (p. 28). Without knowing it, Descartes had opened the door to new ways of understanding God and the world. He had shifted the starting point for all inquiry from God to the human ability to reason.

Although Descartes held on to a traditional concept of God at the same time as his modern epistemology, other seventeenth century philosophers did not. According to Hecht (2004), “the two great figures of atheism in the seventeenth century were Spinoza and Hobbes – although neither ever described himself as an atheist” (ebook, ch. 8). Due to their unconventional views, both were labelled atheists by their peers. On the one hand, Spinoza was what we would call today a pantheist. He believed that, “God and everything were the same. God’s thought did not make the world, God is his thought, and the God-thought is the world... God did not have purposes. Nature was self-causing and unfolded according to necessary law. There were no miracles” (Hecht, ebook, ch. 8, italics in original). On the other hand, Hobbes was a strict materialist. According to Hecht, “the truth about religion, as Hobbes explained it, is that it had been formed and sustained by people in power, to control their subjects... he argued against religion, and against any conception of God beyond the simplest statement that God exist, and many were unconvinced that he meant that” (ebook, ch. 8).

In the eighteenth century, we find the first self-described atheist philosopher, Denis Diderot (1713-1784), who was one of the chief editors of the French *Encyclopédie*. By the time of Diderot, the Enlightenment was at its height and intellectuals throughout Europe were emphasizing science and reason over church tradition and biblical inerrancy. Many contemporaries of Diderot, such as Voltaire and Jean-Jacques Rousseau in France and the founding fathers Benjamin Franklin,

Thomas Paine, and Thomas Jefferson in America, were deists and were content to simply relegate God to the position of a passive Creator. But Diderot went one step further. His strict rationalism left no room for God at all. According to Hymen (2010), Diderot:

reached his conclusions by further intensifying the insights of Descartes and [Sir Isaac] Newton – the very thinkers upon whom Christians depended as modern defenders of the faith. Descartes was thought to provide a defence of theism using the weapons of modern philosophy, while Newton was thought to do so using those of modern science. Diderot’s contribution in this respect was to show how clearly these weapons could turn out to be double-edged swords (p. 7).

In Diderot’s view, Descartes and Newton had the correct methodology but abandoned it whenever they turned from worldly matters toward theological matters. In contrast, Diderot scrutinized God in the same way that he would anything else and was eventually unable to believe in God at all.

The Scotsman David Hume (1711-1776) was another important figure in eighteenth century atheism, although like Hobbes and Spinoza, he never used the term to describe himself. More of an agnostic, Hume fleshed out what an epistemology based on pure empiricism really looked like. According to Hymen (2010), “he saw that if empiricism were adopted consistently, this would mean reasoning ‘merely from the known phenomena, and [dropping] every arbitrary supposition or conjecture’. The result was that one could have knowledge of nothing that was not derived from sense experience” (p. 32). Because one could not obtain knowledge about God through the five senses, Hume felt that it was thus impossible to have any knowledge about God at all. This was later addressed by Immanuel Kant (1724-1804), who famously differentiated between how a thing appears to us through our senses and the

inaccessible *ding an sich* (“thing in itself”) that can still be postulated through reason. Kant felt that the existence of God was one of those things that could not be postulated through empiricism but could still be postulated through reason. Thus, the influence of Hume’s agnosticism on eighteenth century philosophy was somewhat curbed and it would be many more decades before atheistic views took stronger root within Western philosophy.

The nineteenth century saw atheism move from simply being a minority philosophical position to having a more practical influence on the world stage. Inspired by atheist philosopher Ludwig Feuerbach’s (1804-1872) idea that religion teaches us more about humans than it does about God, Karl Marx (1818-1883) famously penned *The Communist Manifesto* in 1848 and set the stage for the world’s first atheistic form of government. Shortly thereafter, in 1859, the agnostic Charles Darwin (1809-1882) published his *On the Origin of Species*, which had a profound effect on humanity’s understanding of itself. By the end of the century, Sigmund Freud (1856-1939) was applying his atheistic views to psychology and Friedrich Nietzsche (1844-1900) had made his famous declaration, “God is dead.” Whether or not Nietzsche actually felt that God did not exist was not the point. The point was that, by the end of the nineteenth century, God no longer seemed relevant.

Of course, when it came to the beliefs of everyday folk, God was certainly still relevant at the beginning of the twentieth century, as is still the case today. However, when it came to philosophical and scientific circles, atheism indeed went from being a minority position to being the majority position somewhere around the turn of the century. Throughout the 1900’s, the analytic philosophy of Bertrand Russell (1872-1970) dominated in English-speaking countries while the atheistic existentialism of Jean-Paul Sartre (1905-1980) dominated in mainland Europe. On top of this, a 1914 study by James Leuba showed that about 60% of scientists in America had no belief

in God – a figure that remained steady throughout the twentieth century (Larson & Witham, 1997). But perhaps the most famous American atheist of the twentieth century was neither a philosopher, nor a scientist. Madalyn Murray O'Hair (1919-1995) rose to prominence in the public sphere due to her role in the U.S. Supreme Court's 1963 decision to no longer allow school-sponsored Bible reading in public schools. That same year she founded the organization American Atheists, which she led until her death. Her role in championing the rights of nonbelievers and in encouraging atheists to band together in more structured ways set the stage for the new atheist movement of today.

1.3.3 Contemporary issues: New atheism and the brights movement

Starting in late 2006, atheism entered the public spotlight in an unprecedented way due to the success of four books by four prominent atheists: *The End of Faith: Religion, Terror, and the Future of Reason* (2004), by American neuroscientist Sam Harris; *Breaking the Spell: Religion as a Natural Phenomenon* (2006), by American philosopher Daniel Dennet; *The God Delusion* (2006), by British biologist Richard Dawkin; and *God Is Not Great: How Religion Poisons Everything* (2007), by British journalist Christopher Hitchens. Dawkin's book was the most successful, selling over 2 million copies in English (richarddawkins.net). In November of 2006, the American magazine *Wired* ran a cover story by Gary Wolf using the phrase "the new atheism" and almost immediately, the terms "new atheist" and "new atheism" became buzzwords in the popular media. By 2007, Harris, Dennett, Dawkins, and Hitchens were widely referred to as the primary voices of twenty-first century atheism and had earned the nickname "the four horsemen of the new atheism."

What is new about the new atheism is not the notion of atheism itself or the various ideas connected to it but rather the way in which it is communicated to the general public. As Amarasingam (2010) explains:

although much of the new content of the new atheism may have past precedents, what *is* original is the new-found urgency in the message of atheism, as well as a kind of atheist social revival that their writings, lectures, and conferences have produced. In other words, the “new” atheism is not entirely about new ideas, but takes the form of a kind of evangelical revival and a repackaging of old ideas (p. 574, emphasis in original).

Three contemporary events played a role in causing the fervor of the new atheism. According to Geertz and Markusson (2010), the most important of these events was the September 11, 2001 terrorist attacks in New York City and Washington, D.C. Many atheist writers were quick to point out the role that religious belief played in the attacks and to use the tragedy as a warning for how dangerous such beliefs can be. Second, it is important to recall the increasing influence that the Christian right had on American politics during the presidency of George W. Bush. Finally, the mid-2000s was a time when Internet use was exploding and new media such as blogs, podcasts, and social networking sites were in their infancy. According to Cimino and Smith (2011), “in this context, the formation of an ‘atheist consciousness’ can be seen as a consequence of atheists’ heightened awareness of the increasing distance between their strongly held views and the views of the ‘majority,’ which is a product of diminishing distance due to increased access to the same experiential sphere” (p. 33).

Around the same time as the term “new atheism” entered popular usage, some atheists suggested that the word “bright” might be a good umbrella term for atheists, agnostics, humanists and others who do not hold a belief in the supernatural. The

idea, championed by both Dawkins and Dennett, was to start a movement similar to the gay rights movement and to use the term “bright” to replace “atheist” in the same way that the term “gay” replaced “homosexual” (Linneman & Clendenen, 2010, p.104). However, the term has yet to catch on for two reasons. Firstly, many theists find it insulting (e.g. - D’Souza, 2003): if atheists think they are “bright,” it follows that they must also think that theists are “dim.” Secondly, whereas the word “gay” was already associated with homosexuality before becoming a politicized term in the 1970’s, the word “bright” had no previous association with atheism (Linneman & Clendenen, 2010, p.105).

Although the term “bright” did not end up catching on in the same way that the term gay did, what has caught on is the idea of “coming out” as atheist. In the U.S. in particular, atheism still carries a major stigma, as evidenced by a study by Edgell, Gerteis and Hartmann (2006) which found that atheists ranked highest among minority groups that Americans found most suspicious. The result of this stigma is that many atheists remain “closeted,” reluctant to tell others about their lack of belief. Starting in 2007, Richard Dawkins’ “Out Campaign” (www.outcampaign.org) has encouraged atheists to “come out” by openly talking to friends and family members about their atheism without feeling intimidated.

What will come next in the history of atheism is uncertain. While many atheists are predicting (or at least hoping for) the eventual end of religion, some theists (e.g. - McGrath, 2006) are instead predicting the end of atheism, arguing that its recent surge in popularity is merely the “last hurrah” before its demise. Hyman (2007) suggests that neither may be the case. He writes:

There are some who argue that the eclipse of modernity means the eclipse of both modern theism and modern atheism... the way forward, they suggest, is not so much a return to premodern theism but, rather, to make innovative

attempts to think beyond or between theism and atheism... the future, it seems, is open; perhaps more open than has been the case for some time (p. 44).

1.3.4 Contemporary statistics on atheism

It is difficult to obtain reliable statistics related to belief and nonbelief in God.

As Zuckerman (2007) explains:

In totalitarian countries where atheism is governmentally promulgated and risks are present for citizens viewed as disloyal, individuals will be reluctant to admit that they do believe in God. Conversely, in societies where religion is enforced by the government and risks are present for citizens viewed as unbelievers, individuals will be reluctant to admit that they don't believe in Allah, regardless of whether anonymity is "guaranteed." Even in democratic societies without government coercion, individuals often feel that it is necessary to say that they are religious, simply because such a response is socially desirable or culturally appropriate (p. 47).

Also complicating things is the fact, already discussed in this chapter, that there are a variety of terms that can be used by nonbelievers to describe themselves. In surveys, freethinkers and humanists cannot necessarily be combined with atheists unless specific questions relating to belief in God are also asked. Even more difficult are those who simply describe themselves as "nonreligious." Such people, often referred to as "nones" in religious identification surveys, *could* be atheists but they also could be theists who do not regularly attend a place of worship. In citing statistics on atheism, it is thus important to focus only on surveys in which the word "atheist" is actually used or surveys in which there is a direct question relating to belief or nonbelief in God.

Table 1, based on numerous studies cited in Zuckerman (2007), lists the percentage of atheists in a select number of countries. Since different studies often produce different results, both the lowest reported figure as well as the highest reported figure have been included.

Table 1: Percentage of atheists by country

Country:	Lowest reported figure: %	Highest reported figure: %
Japan	64	65
Sweden	46	85
France	43	54
Germany	41	49
Netherlands	39	44
United Kingdom	31	44
South Korea	30	52
Russia	24	48
Australia	24	25
New Zealand	20	22
Canada	19	30
Argentina	4	4
USA	3	9
Mexico	2	7
Brazil	< 1	< 1
Most of Africa & the Middle East	< 1	< 1

According to the above figures, the rates for atheism are quite high (ranging from 1/3 to 2/3 of the population) in Western Europe and in the more developed countries of East Asia, like Japan and South Korea. In the British Commonwealth countries of Australia, Canada, and New Zealand, the rates are lower but atheists still make up a sizeable minority (around 20-30%). Conversely, atheism seems to be virtually non-existent in Latin America, Africa, and the Middle East, representing less than 1% of the population in those regions. There were no reliable statistics available for China.

What is most notable from the above statistics is the correlation between overall development and higher rates of atheism. As Zuckerman (2007) writes,

“nations marked by high levels of organic atheism – such as Sweden or the Netherlands – are among the healthiest, wealthiest, best educated, and freest societies on earth” (p. 57). However, he is also quick to point out that, “none of the above correlations demonstrate that high levels of organic atheism *cause* societal health... rather, societal health seems to cause widespread atheism” (p. 59, emphasis in original). The one country that does not follow this pattern is the United States. Whereas the percentage of atheists in every other highly developed country is no less than 19% (with most Western countries having a much higher percentage than that), the percentage of atheists in the United States is below 10%, and perhaps even as low as 3%. Norris and Inglehart (2004) argue that this may be due to the fact that the United States is, “one of the most unequal postindustrial societies” and as a result, many Americans face uncertainties such as the risk of unemployment, a lack of medical insurance, and a higher likelihood of being victims of crime (p. 108).

1.4 Conclusion

This chapter explored the definition and history of atheism and other related concepts. It was determined that, for the current project, the most appropriate categorization for those who were raised attending church but do not believe in God as adults is “explicit atheist.” An explicit atheist was defined as, “anyone who lacks a belief in God due to a conscious rejection of that belief.” By focusing on this conceptualization rather than on any one given term, both those who hold the “positive” position “God does not exist” as well as those who simply lack belief due to a deliberate agnosticism can be included in the same category. It also allows individuals who self-describe using a variety of other terms (such as freethinker, humanist, skeptic, etc.) to be categorized together with atheists and agnostics based on what they all share in common: a conscious rejection of belief in God. The next

chapter will explore the belief system of explicit atheism in greater detail by introducing the concept of worldview.

2 WHAT DO ATHEISTS BELIEVE?

Chapter one outlined the various terms related to atheism and provided a brief history of non-belief. Chapter two will turn its attention to the concept of worldview in an effort to outline in greater detail what atheists *believe*. Although it is important to note that atheism itself is not a worldview (see section 1.1.1), it will be argued that explicit atheists (hereafter referred to simply as atheists) often share much in common with each other when it comes to their worldview-level beliefs. Thus, it is not inaccurate to speak of an atheist worldview, so long as the phrase is understood to mean the worldview-level beliefs held by most atheists, rather than the worldview known as atheism. This is important because atheists often use a variety of terms to describe themselves (such as humanist, freethinker, skeptic, etc.) but in the current project, will be viewed as a single group in order to compare them to religious individuals.

In this chapter, the concept of worldview will be explored from four different perspectives—philosophical, religious, psychological, and interdisciplinary—with the interdisciplinary perspective selected as the paradigm from which the present project will operate. This perspective will then be used to analyze the worldview-level beliefs held by atheists and demonstrate that the atheist worldview tends to be strongly aligned with the worldview of secular humanism.

2.1 What is a worldview?

2.1.1 A view from philosophy

The term “worldview” comes from the German *Weltanschauung*, itself a portmanteau of the words *Welt* (world) and *Anschauung* (outlook or view). According to Naugle (2002), it was first used by Immanuel Kant in his 1790 work *Critique of Judgement* but only in passing and never as a fully-developed concept (p. 58). Instead, the first person to popularize the term and to develop a comprehensive theory of worldviews was the nineteenth century German philosopher Wilhelm Dilthey (Holmes, 1983; Hodges, 1998; Naugle, 2002). In addition to his work on worldviews, Dilthey is also known for highlighting the distinction between the natural sciences (physics, chemistry, etc.) and the “human” sciences (history, law, etc.) and for making significant contributions to the study of hermeneutics.

Dilthey's theory of worldviews is based on his understanding of the nature of the human psyche. He saw three main types of “mental acts” or “attitudes” appearing in human consciousness: cognitive, affective, and volitional (Hodges, 1998, p. 37). These can also be labelled thinking, feeling, and willing – or reason, emotion, and will – and were the three human faculties emphasized by eighteenth century psychology (Holmes, 1983). According to Hodges (1998), Dilthey also saw a worldview as having three main components, corresponding to the three mental acts: “The first is a belief about the nature and contents of the world of facts; the second, built on this foundation, is a system of likes and dislikes, expressed in value-judgments; and the third, resulting from the two preceding it, is a system of desires and aversions, ends, duties, practical rules and principles” (p. 92). In other words, according to Dilthey, a worldview includes an ontological component (based on reason), an axiological component (based on emotion), and a praxeological component (based on will).

Makkreel (1992) explains it this way: “a Weltanschauung (world-view), as Dilthey conceived it, is an overall perspective of life which encompasses the way a person *perceives* the world, *evaluates* and *responds* to it” (p. 346, emphasis added).

Not only did Dilthey use the idea of three primary mental acts to break down the definition of worldview into three main components, he also used them to develop a theory of worldview types. He felt that in each individual, one of the three attitudes (cognitive, affective, or volitional) tends to dominate and that this gives rise to one’s worldview “type.” Hodges (1998) writes, “The three basic attitudes can never reach a perfect balance in any mind... one must prevail and colour the Weltanschauung accordingly. This gives rise to three main types of outlook, which Dilthey calls naturalism, objective idealism, and the idealism of freedom” (p. 99). Thus, there are three main components of a worldview (ontological, axiological, and praxeological), as well as three main worldview types (naturalism, objective idealism, and the idealism of freedom). The connections between the three mental acts, the three worldview components, and the three worldview types are summarized in Table 2 below.

Table 2: Wilhelm Dilthey’s theory of worldview

Mental act or attitude:	Cognitive (thinking/reason)	Affective (feeling/emotion)	Volitional (willing/will)
Worldview component:	Ontological - a belief about the nature and contents of the world of facts (ie. how one <i>perceives</i> the world)	Axiological - likes and dislikes expressed in value-judgements (ie. how one <i>evaluates</i> the world)	Praxeological - a system of desires and aversions, ends, duties, practical rules and principles (ie. how one <i>responds</i> to the world)
Worldview type:	Naturalism	Objective idealism	Idealism of freedom

The naturalist type of worldview corresponds to the cognitive mental act and focuses on how humans are similar to the rest of nature. It rejects the other-worldliness of religion and sees the physical, material world, as experienced through sense perception, as being the prime (or only) reality. According to Hodges (1998), it is associated with Democritus, Protagoras, Epicurus, Hume, and Comte (p. 88). On the other hand, objective idealism corresponds to the affective side of human experience and sees reality as a living, divine whole—much more organic than mechanical. It focuses more on one's inner experience of the world and is associated with Hinduism, Spinoza and Hegel (Hodges, 1998, p. 89). Finally, the idealism of freedom corresponds to volition and emphasizes humanity's experience of free will and a morality which is not based on physical causation. It is the worldview of theistic religions such as Christianity but can also be found in the philosophies of Plato and Aristotle (Hodges, 1998, p. 88).

Over the years, other philosophers have come up with their own worldview definitions and typologies (e.g. - Pepper, 1970; Centore, 1979; Gellner, 1992). However, none have strayed far from Dilthey's original theory. Thus, Dilthey's definition based on three main components as well as his three main worldview types remain one of the simplest and most useful conceptualizations of worldview to this day.

2.1.2 A view from religion

In recent decades, several conservative Christian writers have utilized the worldview concept as a way to defend Christianity against other competing ideologies (Brown & Phillips, 1996; Cosgrove, 2006; Geisler & Watkins, 1989; Nash, 1992; Noebel, 1994; Walsh & Middleton, 1984). Most popular among these religious writers is James Sire, author of *The Universe Next Door*. He defines a worldview as,

“a commitment, a fundamental orientation of the heart, that can be expressed as a story or in a set of presuppositions (assumptions which may be true, partially true or entirely false) which we hold (consciously or subconsciously, consistently or inconsistently) about the basic constitution of reality, and that provides the foundation on which we live and move and have our being” (Sire, 2004, p. 17). He goes on to frame the basic elements of a worldview in the form of seven questions (p. 20-21):

1. What is prime reality – the really real?
2. What is the nature of external reality, that is the world around us?
3. What is a human being?
4. What happens to a person at death?
5. Why is it possible to know anything at all?
6. How do we know what is right and wrong?
7. What is the meaning of human history?

Sire’s definition, as well as his questions, share much in common with Dilthey’s original conceptualization. His “presuppositions about the basic constitution of reality” (upon which questions 1-4 are based) match Dilthey’s cognitive domain in that they are primarily concerned with ontological issues. The affective domain, with its concern for value-judgements, is covered by question six and the volitional domain, with its concern for practical ends, is covered by question seven. The one question in Sire’s list that does not come up directly in Dilthey’s conceptualization is question five: Why is it possible to know anything at all? This question deals with epistemology, a possible fourth component of a worldview.

In terms of a worldview typology, Sire offers a list that is much longer than Dilthey’s. Sire (2004) discusses eight worldviews: Christian theism, deism, naturalism, nihilism, existentialism, eastern pantheism, new age, and postmodernism. Other Christian writers offer typologies ranging from two to seven worldviews.

Interestingly though, all of these various lists can be easily re-categorized according to Dilthey's original three worldview types. For example, Sire's naturalism, deism, nihilism, and existentialism are all varieties of Dilthey's naturalist type. Sire's eastern pantheism and new age are both varieties of Dilthey's objective idealism, and Sire's Christian theism is a variety of Dilthey's idealism of freedom. The only one of Sire's worldviews that doesn't fit within Dilthey's original framework is postmodernism.

Regardless of what one thinks of Sire's claim that his particular worldview (ie. Christian theism) is superior to all others, it is clear that his conceptualization and typology of worldview has strong philosophical roots and has not strayed far from Dilthey. Most important however, is the fact that he includes epistemology as an additional component of a worldview, a component that is also included in the psychological and interdisciplinary perspectives considered below.

2.1.3 A view from psychology

The worldview concept has been discussed within the realm of psychology, going back at least as far as Sigmund Freud. In his lecture "The Question of a Weltanschauung", Freud defines a worldview as, "an intellectual construction which gives a unified solution of all the problems of our existence in virtue of a comprehensive hypothesis, a construction, therefore, in which no question is left open and in which everything in which we are interested finds a place" (Freud, 1933/1990). He goes on to mention four worldviews — science, religion, art, and philosophy (and later, a fifth: Marxism) — but does not delineate the components of each. Rather, most of the lecture is based on defending his view that the scientific worldview (upon which he claims psycho-analysis is based) is superior to both the religious and Marxist worldviews.

A more comprehensive as well as more recent theory of worldview from a psychological perspective has been developed by Mark Koltko-Rivera. In his far-reaching summary of the worldview concept, Koltko-Rivera (2004) reviews eleven different worldview theories and then uses them to develop forty-two possible dimensions related to the concept. Although his end result is likely too complex a conceptualization for the purposes of the present project, he also offers a very detailed definition of the term “worldview” that, like Sire’s, does not stray far from Dilthey’s original: “A given worldview is a set of beliefs that includes limiting statements and assumptions regarding what exists and what does not (either in actuality, or in principle), what objects or experiences are good or bad, and what objectives, behaviors, and relationships are desirable or undesirable. A worldview defines what can be known or done in the world, and how it can be known or done” (p. 3). Once again we have a cognitive component based on ontology (“what exists and what does not”), an affective component based on axiology (“what objects or experiences are good or bad”), and a volitional component based on praxeology (“what objectives, behaviors, and relationships are desirable or undesirable”). However, like Sire, Koltko-Rivera adds a fourth component based on epistemology: “what can be known or done in the world, and how it can be known or done”.

Although Koltko-Rivera does not offer a typology of worldview like Dilthey and Sire do, the fact that he breaks down the concept of worldview into similar components is significant. Taken together, the views discussed here from three separate fields — philosophy, religion, and psychology — offer a definition of worldview that can be broken down into four major components: ontology, axiology, praxeology, and epistemology. A final, interdisciplinary perspective builds on these four components even further and offers one of the most clear and concise conceptualizations of worldview to date.

2.1.4 An interdisciplinary view

The Centre Leo Apostel for Interdisciplinary Studies (CLEA) is located at the Free University of Brussels and is named after the Belgian philosopher Leo Apostel. Unlike Dilthey, who highlighted the distinction between the natural sciences and the humanities, Apostel was known for his attempts to bring the two back together again. One of the primary objectives of CLEA is to build upon the work of Apostel by studying worldviews. According to CLEA's manifesto (Aerts, Apostel, De Moor, Hellemans, Maex, Van Belle & Van der Veken, 2007), a worldview seeks to answer the following seven questions:

1. What is the nature of our world? How is it structured and how does it function?
2. Why is our world the way it is, and not different? Why are we the way we are, and not different? What kind of global explanatory principles can we put forward?
3. What future is open to us and our species in this world? By what criteria are we to select these possible futures?
4. Why do we feel the way we feel in this world, and how do we assess global reality, and the role of our species in it?
5. How are we to act and to create in this world? How, in what different ways, can we influence the world and transform it? What are the general principles by which we should organise our actions?
6. How are we to construct our image of this world in such a way that we can come up with answers to (1), (2), and (3)?
7. What are some of the partial answers that we can propose to these questions?

(p. 13)

Another publication from CLEA (Videl, 2008) simplifies the above questions in the form of a table, reproduced below as Table 3. (Note that in Videl's table, the seventh question is left out, because it is considered to be a meta-question):

Table 3: Six components of a worldview

Question:	Philosophical Discipline:	
1. What is?	Ontology	(model of reality as a whole)
2. Where does it all come from?	Explanation	(model of the past)
3. Where are we going?	Prediction	(model of the future)
4. What is good and what is evil?	Axiology	(theory of values)
5. How should we act?	Praxeology	(theory of actions)
6. What is true and what is false?	Epistemology	(theory of knowledge)

Here again, we find Dilthey's original three components in questions 1, 4, and 5. We also have Sire and Koltko-Rivera's additional component, epistemology, in question 6. But we also have two new components, covered by questions 2 and 3. These are based on one's beliefs about the past as well as one's beliefs about the future and are labelled by Videl as explanation and prediction. Both explanation and prediction are dependent on one's ontology but also serve important roles as additional components in their own right. Explanation deals with the origin of the world and henceforth will be referred to as the "cosmological" component. Prediction deals with the direction and purpose of the world and henceforth will be referred to as the "teleological" component. With the addition of these two new elements, CLEA's definition of worldview has a total of six main components: ontology, cosmology, teleology, axiology, praxeology, and epistemology.

As the most comprehensive yet also the most clear and concise conceptualization of worldview, this final, interdisciplinary approach offered by

CLEA will be the one used in the next section to explore the worldview-level beliefs held by atheists.

2.2 Worldview-level beliefs held by atheists

It has been established in the previous section that a worldview is something that can be broken down into various components. The model offered by The Centre Leo Apostel for Interdisciplinary Studies (CLEA), which is based on six main components, is the framework from which this section will explore the atheist worldview. It is worth repeating that, based on the definition of an atheist in section 1.1.1, atheism itself is not a worldview. Rather, the atheist worldview is the worldview-level beliefs held by most atheists. Although many have argued against trying to link atheism to a specific set of beliefs (e.g. - Smith, 1974), it will be demonstrated here that this warning applies more to political views or to specific schools of philosophy than it does to most of the basic components of a worldview as defined by CLEA.

This section will look at each of the six worldview components separately and attempt to determine what atheists are likely to believe about each. It will be argued that atheists do in fact have much in common with each other in terms of worldview-level beliefs and, for the most part, can be said to be in agreement with the secular humanist worldview (Note: in the following sections, the terms “humanist” and “secular humanist” will be used interchangeably; see section 1.2.3 for more information.) Unlike atheism, secular humanism is considered to be a fully-fledged worldview and several humanist organizations have issued manifestos outlining what that worldview entails. These include *A Secular Humanist Declaration* (1980) by the Council for Secular Humanism, *The Amsterdam Declaration* (2002) by the International Humanist and Ethical Union, and *The Humanist Manifesto III* (2003) by

the American Humanist Association. Statements from these manifestos and other humanist writings will be compared to statements made by atheist writers to demonstrate the strong connection between secular humanism and atheism.

2.2.1 Ontological beliefs

The first component of a worldview is the ontological component. Koltko-Rivera (2004) describes it as one's beliefs about "what exists and what does not" (p. 3) and Sire (2004) describes it as "presuppositions which we hold about the basic constitution of reality" (p. 17). In terms of ontology, virtually all atheists are naturalists. In his book *Atheism: A very short introduction*, Baggini (2003), defines naturalism as, "a belief that there is only the natural world and not any supernatural one" (p. 4) and goes on to state that, "naturalism lies at the core of atheism" (p. 5) and "atheism is essentially a form of naturalism" (p. 16). Draper (2007) offers a slightly more detailed definition. He writes that naturalism is, "the hypothesis that the natural world is a closed system, which means that nothing that is not a part of the natural world affects it... naturalism implies that there are no supernatural entities, or at least none that actually exercises its power to affect the natural world" (para. 3). American Atheists founder Madalyn Murray O'Hair also associates atheism with naturalism. She writes that atheism is based on a philosophy that, "holds that nothing exists but natural phenomena. There are no supernatural forces or entities, nor can there be any. Nature simply exists" (quoted in Harding, 2008).

According to Martin (1990), naturalism and atheism are so closely aligned that it is nearly impossible to be a naturalist without also being an atheist (p. 469). The only way one could be a naturalist but not an atheist would be to define God as a being that can be explained entirely by scientific methods. According to Martin, this position is extremely rare today (p. 469). He also discusses the possibility of being an

atheist but not a naturalist but states that this anomaly would apply primarily to eastern religions such as Jainism (p. 470). Since the current project focuses on non-religious atheists, particularly those living in Western countries with Christian background, it is fair to conclude that when it comes to ontology, atheists overwhelmingly side with naturalism.

Secular humanists also associate themselves with naturalism. In his book *The philosophy of humanism*, Lamont (1965) writes, “humanism believes in a naturalistic metaphysics or attitude toward the universe that considers all forms of supernaturalism as myth; and that regards Nature as the totality of being and as a constantly changing system of matter and energy which exists independently of any mind or consciousness” (pp. 12-13). *The Humanist Manifesto III* (American Humanist Association, 2003) confirms this belief by stating that humanism is a philosophy of life “without supernaturalism” (p. 13). *A Secular Humanist Declaration* (1980) takes a slightly more cautious approach, stating in Section 6 that, “As secular humanists, we are generally skeptical about supernatural claims. We recognize the importance of religious experience: that experience that redirects and gives meaning to the lives of human beings. We deny, however, that such experiences have anything to do with the supernatural” (www.secularhumanism.org). In the same section, the declaration goes on to conclude that, “We consider the universe to be a dynamic scene of natural forces” (www.secularhumanism.org).

In contrast to secular humanism, the naturalist position is rarely found within religious or spiritual worldviews. All three Western monotheistic faiths (Judaism, Christianity, and Islam) traditionally hold that God is a being who exists outside of nature yet also acts within it. Most Eastern religions are also opposed to naturalism. Both Hinduism and Buddhism traditionally portray the natural world as being an illusion, pointing to the unseen world of the soul or mind as being the true reality.

New Age spirituality, also referred to as the holistic milieu (Heelas & Woodhead, 2005), has been heavily influenced by Eastern thought and thus also rejects naturalism. According to Hammer (2004), followers of this alternative spirituality believe that “the basic ‘stuff’ of the cosmos is non-material, ‘energy’” (p. 76) – a view that is incompatible with naturalism.

Religious worldviews also differ from secular humanism and the atheist worldview in their answer to Sire’s ontological question, “What happens to a person at death?” (2004, p. 20). Traditionally, both Western and Eastern religions teach that humans possess some sort of non-material soul or mind that lives on after death, with Western religions teaching that the soul will face a one-time judgement after death and Eastern religions teaching that the soul will be repeatedly reincarnated until it is able to break free from the cycle. On the other hand, naturalism leaves no room for a belief in an immaterial soul and thus most secular humanists and atheists believe that at death, life simply ends (Baggini, 2003, p. 17).

When it comes to their ontological beliefs, it is thus fair to say that most atheists, like secular humanists (but unlike most religious or spiritual individuals), hold to a naturalist worldview. They believe that the natural world is all that really exists and that there is no such thing as supernatural beings or immaterial souls. Chapter nine of this paper will outline how the present project tested and found results for the ontological views of atheists.

2.2.2 Cosmological beliefs

The second component of a worldview, according to the CLEA paradigm, is the cosmological component. It is concerned with *origins* and seeks to explain how our world came to be (Videl, 2008). Since atheism is strongly aligned with naturalism, it follows that there is no room for any sort of supernatural Creator in an

atheist worldview. Atheists therefore do not appeal to any kind of force outside of nature, God or otherwise, as an explanation for how the universe came to exist. Instead, they believe that the universe is either uncaused (ie. that it has always existed in one form or another) or that it is self-caused (i.e. that its origins can be explained in strictly naturalistic terms). Smith (2008) reflects this belief in his summary of the atheistic cosmological argument, saying that, “the universe, be it infinitely old or finitely old, causes itself” (online). It is also reflected in *The Humanist Manifesto III*, which states, “humanists recognize nature as self-existing” (American Humanist Association, 2003, online).

Since atheists tend to rely on science as their primary source of knowledge (see section 2.2.6 below) and since science currently does not have a firm understanding about how the universe could be self-existing, atheists are content to remain agnostic on this issue. However, one theory that is popular among atheists is that of the multiverse (Carr, 2012, p. 168). The multiverse theory holds that there exists a possibly infinite number of universes (Carr, 2009, p. 34) and that our universe, which is known to have had a beginning at the Big Bang approximately 13.7 billion years ago, might somehow have been born out of another universe (Bjorken, 2009, p. 189). The theory thus eliminates the need for a Creator by allowing for an eternal multiverse from which our non-eternal universe arose.

The multiverse theory is actually compatible with Western monotheism but the idea of a self-existing multiverse is not. Judaism, Christianity, and Islam all traditionally teach that the world was created by a supernatural Creator and hence in a theistic worldview, the multiverse would have been created by God. The theory is also compatible with Hinduism, in which there is an eternal cycle where the universe is born, dies, and then is born again. However, in most forms of Hinduism, the

universe has its ground of being in some sort of divine reality and thus cannot be said to be wholly naturalistic or self-existing.

When it comes to their cosmological beliefs, we can thus say that most atheists, like secular humanists (but unlike most religious individuals) hold to a worldview that does not involve a Creator or divine ground of being. Instead, they believe that the universe (or multiverse) is self-existing and can be explained in strictly naturalistic terms. Chapter nine of this paper will outline how the present project tested and found results for the cosmological views of atheists.

2.2.3 Teleological beliefs

The third component of a worldview, according to the CLEA paradigm, is the teleological component. It is concerned with the future rather than the past and seeks to answer questions relating to the direction our world is heading and the purpose behind it (Videl, 2008). Because atheism, by definition, requires a cosmology that does not involve a supernatural Creator, it also follows that atheism requires a teleology that does not include a divine purpose behind the universe. The only grand purposes that atheists see in the universe as a whole are the simple workings of physical laws and, in the case of life, the additional workings of Darwinian forces. Rosenberg (2011) expresses this view in his book *The atheist's guide to reality: Enjoying life without illusions* where he writes, "Newton expunged purpose from the physical world 350 years ago. Darwin did it for the biological realm 150 years ago. By now you'd think the message had gotten out. What is the purpose of the universe? There is none. What purposes are at work in the universe? Same answer: none" (ebook, chapter 3). Therefore, for an atheist, the universe is not heading in any particular direction beyond that which is determined by simple physics and biology.

However, the belief that the universe has no overall purpose does not necessarily lead to the belief that our individual lives are therefore purposeless and devoid of meaning. According to Nielsen (1990), “if there is neither God nor Logos, there is no purpose to life, no plan for the universe or providential ordering of things in accordance with which we must live our lives. Yet from the fact, if it is a fact, that there is no purpose to life or no purposes for which we are made, it does not follow that there are no purposes in life that are worth achieving, doing, or having” (online). For an atheist, purpose is something that is created by the individual, not handed down from above or found externally. In his book *The good atheist: Living a purpose-filled life without God*, Dan Barker (2011) explains:

Although there is no purpose of life—and it is wonderful that there isn’t—you can still have a purpose-filled life. To say there is no purpose *of* life does not mean there is no purpose *in* life... Purpose is not something you search for. It is not something you find. It is not endowed by a creator or handed to you by your parents or government. It is something *you* choose to create (p. 32-33, emphasis in the original).

Secular humanists are in agreement with atheists on this point. In Section 6, *A Secular Humanist Declaration* (1980) states, “Secular humanists may be agnostics, atheists, rationalists, or skeptics, but they find insufficient evidence for the claim that some divine purpose exists for the universe.... They believe that men and women are free and are responsible for their own destinies” (online). Lamont (1965) puts it this way: “Humanism, in opposition to all theories of universal determinism, fatalism, or predestination, believes that human beings, while conditioned by the past, possess genuine freedom of creative choice and action, and are, within certain objective limits, masters of their own destiny” (p. 13).

In contrast, religious and spiritual worldviews hold that the universe does in fact have an overall purpose and that human beings ought to align themselves with that purpose. For example, according to Christian theism, history is linear and is heading toward an end preordained by God (Sire, 2004, p. 42). Christians are therefore encouraged to seek God's will for their lives and to give up any practices that are incompatible with God's purposes. Those with a more New Age outlook also see history heading in a particular direction and tend to describe the future in optimistic and utopian terms (Heelas, 1996, p. 28). Even Eastern religions, which view history in a more cyclical way, teach that the purpose of every life is the same — to work towards freeing oneself from the cycle of reincarnation.

When it comes to their teleological beliefs, we can thus say that most atheists, like secular humanists (but unlike most religious and spiritual individuals), hold to a worldview that does not involve an overall purpose to the universe. Instead, they believe that humans must create their own individual meaning and purpose. Chapter nine of this paper will outline how the present project tested and found results for the teleological views of atheists.

2.2.4 Axiological beliefs

The fourth component of a worldview, according to the CLEA paradigm, is the axiological component. Dilthey defines it as, “a system of likes and dislikes, expressed in value-judgments” (Hodges, 1998, p. 92) and Koltko-Rivera (2004) defines it on as the basis on which we decide, “what objects or experiences are good or bad” (p. 3). In other words, one's axiology provides the foundation for one's aesthetics and morality.

When it comes to this particular aspect of a worldview, atheists cannot be clearly distinguished from religious individuals in any discernible way. With regards

to aesthetics, what one thinks of as beautiful will be a matter of individual taste and with regards to morality, current research indicates that there is no obvious correlation between belief in God and one's moral behaviour (see section 3.1.1). In fact, atheists have gone to great lengths to communicate that their general morals and values are no different than those of theists. The two groups would probably disagree in terms of where human morality comes from (see Harris, 2006) but both groups would certainly agree that murder and rape are bad and that helping the victims of a natural disaster is good.

When it comes to their axiological beliefs, and in particular their beliefs about morality, we can thus say that atheists do not differ as a group from religious individuals. Chapter nine of this paper will outline how the present project present project tested and found results for the axiological views of atheists.

2.2.5 Praxeological beliefs

The fifth component of a worldview, according to the CLEA paradigm, is the praxeological component. Dilthey defines it as, "a system of desires and aversions, ends, duties, practical rules and principles" (Hodges, 1998, p. 92) and Koltko-Rivera (2004) defines it as the basis on which we decide, "what objectives, behaviors, and relationships are desirable or undesirable" (p. 3). Aerts et al. (2007) describes it as the answers to the questions, "How are we to act and to create in this world? How, in what different ways, can we influence the world and transform it? What are the general principles by which we should organize our actions?" (p. 13).

Like axiology, when it comes to this particular aspect of a worldview, atheists cannot be clearly distinguished from religious individuals in any discernible way. For example, atheists may or may not agree with the following statement from *The Humanist Manifesto III*:

Working to benefit society maximizes individual happiness. Progressive cultures have worked to free humanity from the brutalities of mere survival and to reduce suffering, improve society, and develop global community. We seek to minimize the inequities of circumstance and ability, and we support a just distribution of nature's resources and the fruits of human effort so that as many as possible can enjoy a good life (American Humanist Association, 2003).

Likewise, religious individuals may or may not agree. Instead, one's priorities on such matters are probably based more on one's political views than on whether or not one believes in God.

When it comes to their praxeological beliefs, we can thus say that atheists do not differ as a group from religious individuals. Chapter nine of this paper will outline how the present project tested and found results for the praxeological views of atheists.

2.2.6 Epistemological beliefs

The sixth and final component of a worldview is the epistemological component. Epistemology is concerned with knowledge and is described by Koltko-Rivera (2004) as one's beliefs about "what can be known or done in the world, and how it can be known or done" (p. 3) and by Sire (2004) as the answer to the question, "Why is it possible to know anything at all?" (p. 20). Here, atheists once again differ from religious individuals. When it comes to epistemology, virtually all atheists are rationalists. Martin (1990) states that the term rationalist, in the popular sense, refers to someone who relies on science and verifiable facts to arrive at conclusions as opposed to relying on revelation from God or appeals to church authority (p. 468). According to Baggini (2003), "a rational account is broadly one

which confines itself to reasons, evidence and arguments that are open to scrutiny, assessment, acceptance or rejection, on the basis of principles and facts which are available to all” (p. 76). Baggini traces the roots of rationalism and scientific thinking to ancient Greece and then proceeds to argue for a direct link between rationalism, naturalism, and atheism:

The naturalism which lies at the heart and root of atheism is itself rooted in the broader commitment to rationalism. (This kind of rationalism-with-a-small-r is not to be confused with the 17th century Rationalism-with-a-capital-R, which is more specific and ambitious in the claims it makes for the power of rationality.) Naturalism follows from rationalism, and so it is rationalism, rather than naturalism, which is fundamental to the origins of atheism (p. 77).

Secular humanists also associate themselves with rationalism. *The Humanist Manifesto III* (2003) states that, “knowledge of the world is derived by observation, experimentation, and rational analysis” (online) and *A Secular Humanist Declaration* (1980) states that, “we are committed to the use of the rational methods of inquiry, logic, and evidence in developing knowledge and testing claims to truth... we believe the scientific method, though imperfect, is still the most reliable way of understanding the world” (online).

In contrast to atheism and secular humanism, religious individuals tend to rely heavily on divine revelation, in addition to science and reason, when it comes to epistemology. In other words, although most theists are not opposed to science and reason, their worldview generally holds that there are certain truths that cannot be accessed by science and reason alone. For example, according to Sire (2004), “human beings can know both the world around them and God himself because God has built into them the capacity to do so and because he takes an active role in communicating with them... in theological terms, this initiative is called revelation” (pp. 34-35).

Christians traditionally look outward to the Bible for this revelation whereas Muslims turn to the Qur'an and Jews to the Torah. Others, particular those associated with New Age beliefs or Eastern religions, look inward to "the experience of the Self" (Heelas, 1996, p29). The only non-atheists who would adhere strictly to the principles of rationalism would be deists (those who believe in a non-interfering God) – a relatively rare position in the twenty-first century.

When it comes to their epistemological beliefs, it is thus fair to say that most atheists, like secular humanists (but unlike most religious or spiritual individuals), hold to a rationalist worldview. They believe that knowledge of the world is best derived from science and reason alone. They do not believe in any sort of divine revelation. Chapter nine of this paper will outline how the present project tested and found results for the epistemological views of atheists.

2.3 Conclusion

According to Baggini (2003), "atheists subscribe to a certain world view that includes numerous beliefs about the world and what is in it" (p. 8-9). He also writes that, "atheism can be understood not simply as a denial of religion, but as a self-contained belief system" (p. 74). Chapter two aimed to defend these notions by first defining what a worldview is and then by carefully outlining the worldview-level beliefs held by most atheists. It was determined that, out of six major worldview components, atheists differ significantly from religious and spiritual individuals on four: ontology, cosmology, teleology, and epistemology. Most notably, it was determined that atheists are strongly aligned with naturalism (an ontological position) and rationalism (an epistemological position). The only two worldview components on which atheists did not differ significantly from religious individuals were axiology and praxeology.

It was also determined that atheists share much in common with secular humanists when it comes to worldview. In the conclusion to his book *Atheism: A very short introduction*, Baggini (2003) writes, “in the broad sense of the term, humanists are simply atheists who believe in living purposeful and moral lives... [thus] the terms positive atheist and humanist (with a small h) are coterminous” (p. 109-110). The worldview analysis done in this chapter confirms this view.

Having established that atheism has strong ties to several very specific worldview-level beliefs, the next chapter will go on to examine why certain individuals who were raised in religious environments end up abandoning their childhood worldviews and replacing it with an atheist “belief system.”

3 WHY DO PEOPLE BECOME ATHEISTS?

In chapter one, the terminology and history of atheism as well as several other related constructs was discussed. Chapter two introduced the concept of worldview and then proceeded to outline the worldview-level beliefs held by atheists, which were argued to be closely related to secular humanism. The current chapter will now turn its attention towards the various theories on why certain individuals who grow up in religious environments end up becoming atheists and adopting an atheist worldview. These theories have been divided into two categories based on their general point of view. Four of the theories come from conservative Christian sources and three from academic sources. The conservative Christian theories are motivated by the desire to reclaim individuals who have become atheists and bring them back to the fold and/or to prevent people from becoming atheists in the first place. They have been included due to the frequency in which atheists end up dialoguing with them. They include theories based on selfishness, arrogance, anger, and poor father-child relationships. On the other hand, the three academic theories simply seek to understand the phenomenon from a sociological and psychological viewpoint. They include theories based on lower religious emphasis during childhood, deliberation in the pursuit of truth, and higher intelligence.

3.1 Conservative Christian theories

3.1.1 Atheism and selfishness

Probably the most extreme of the four Christian-based theories is the idea that atheists are simply selfish and have succumbed to their desire to live an immoral life.

For example, Lee Stroebel, author of the bestselling book *The Case for Christ* (Stroebel, 1998), claims that he was an atheist before becoming a Christian and that what held him back from becoming a Christian for many years was the, “self-serving and immoral lifestyle that I would be compelled to abandon if I were ever to change my views and become a follower of Jesus” (p. 13). Another Christian author (Vitz, 2008) writes, “through reflection on my own experience it is now clear to me that my reasons for becoming and for remaining an atheist-skeptic from about age 18 to 38 were superficial, irrational, and largely without intellectual or moral integrity” (p. 35). He goes on to say,

The fact is that it is quite inconvenient to be a serious believer in today’s powerful secular and neo-pagan world. I would have had to give up many pleasures and a good deal of time. Without going into details it is not hard to imagine the sexual pleasures that would have to be rejected if I became a serious believer. And then I also knew it would cost me time and some money. There would be church services, church groups, time for prayer and scripture reading, time spent helping others. I was already too busy. Obviously, becoming religious would be a real inconvenience (p. 36).

Comments like these have led many Christians to assume that most atheists become or remain so simply because they want the freedom to do whatever they want without having to answer to God.

Other conservative Christian authors use even stronger language. Spiegel (2010) writes, “Atheism is not at all a consequence of intellectual doubts. Such doubts are mere symptoms of the root cause—moral rebellion. For the atheist, the missing ingredient is not evidence but obedience” (p. 11). He even goes as far as to say that atheism, “does not arise from the careful application of reason but from willful rebellion. Atheism is the suppression of truth by wickedness, the cognitive

consequence of immorality” (p. 18). R. C. Sproul uses similar arguments in his 1974 book *The Psychology of Atheism*. He writes, “the problem is not that there is insufficient evidence to convince rational beings that there is a God, but that rational beings have a natural antipathy toward the being of God” (pp. 56-57). He concludes that the “problem” with the atheist is, “not a lack of knowledge or a lack of cognitive equipment but is a moral deficiency” (p. 62). Later in the book he goes on to describe God as the “unviewed viewer” who sees our every thought and deed, thus making us feel rather uncomfortable and exposed—a feeling that some people just can’t handle and thus become atheists to avoid.

The association between atheism and selfish immorality has a long history, going back at least as far as the psalmist who writes, “Fools say in their hearts, ‘There is no God.’ They are corrupt, they do abominable deeds; there is no one who does good” (Psalm 14:1, NRSV). In fact, the American Heritage dictionary still includes immorality as part of its definition for atheism (American Heritage dictionary, 2009, online). The connection is also often associated with Fyodor Dostoevsky and his novel *The Brothers Karamazov* (Dostoevsky, 1984). Although the oft-quoted phrase, “Without God, all is permitted” does not actually appear in the English translation of the novel, the general idea certainly does come up in the book several times (Beit-Hallahmi, 2010, pp. 114-115). It echoes the idea from the early modern period that a belief in God is necessary in order to maintain social order. The philosopher John Locke writes that, “promises, covenants, and oaths, which are the bonds of human society, can have no hold upon an atheist” (Locke, 1689/1983, p. 51) and Voltaire writes, “I want my attorney, my tailor, my servants, even my wife to believe in God; and I think I shall then be robbed and cuckolded less often” (quoted in Beit-Hallahmi, 2010, p. 114). According to Horwitz (1986), even George Washington

made it a point in his farewell address to remind citizens that morality cannot exist without religion.

These sentiments still linger among the general population today. According to Edgell, Gerteis and Hartmann (2006), atheists are still one of the least trusted minority groups in America. They found that atheists ranked even lower than Muslims and homosexuals when it came to groups Americans said share their vision of American society. They also found that atheists ranked lowest in terms of presidential candidates people would vote for and individuals that they would approve of their children marrying. The authors concluded that the main reason for this mistrust was the association in most people's minds of religious belief with morality, and hence non-belief with immorality.

Atheists, of course, argue that the connection between atheism and immorality is unfounded. They reply that morality can exist apart from God, and in fact, that morality does not come from religion at all. In his article, "10 myths—and 10 truths—about atheism," Sam Harris writes, "We do not get our morality from religion. We decide what is good in our good books by recourse to moral intuitions that are (at some level) hard-wired in us and that have been refined by thousands of years of thinking about the causes and possibilities of human happiness" (2006, online). Michael Shermer (2004) expounds this idea in his book *The Science of Good and Evil*, where he writes:

Religion evolved as a social structure to enforce the rules of human interactions before there were such institutions as the state or such concepts as laws and rights... the religious foundation of human virtues and vices, saints and sinners, in fact, is a codification of an informal psychology of moral and immoral behaviour. Humans are a hierarchical social primate specific, and as such we need rules and morals and a social structure to enforce them (p. 7).

The relationship between religious belief and morality, and thus atheism and immortality, is a particularly hard one for researchers to measure empirically since there are differing opinions about what is moral and what is not. For example, The Barna Group (2008) found that young atheists and agnostics were more likely than young evangelical Christians to engage in behaviours such as the use of profanity, viewing pornography, or getting drunk. However, this is not at all surprising considering that most evangelical Christians view these activities as immoral whereas many atheists and agnostics do not.

Studies that have taken a fairer approach have been divided in their results, thus demonstrating that the relationship between religiosity and morality is complex. For example, on one hand, religious individuals have been found to cheat less on their taxes and to give more to charity, but on the other hand, non-religious individuals have been found to be more tolerant and kind (Beit-Hallahmi, 2010). However, according to Beit-Hallahmi and Argyle (1997), no connection was found between religiosity and the likelihood of an individual cheating on a test or helping a person in need.

One explanation for these varied results is that morality has less to do with religiosity and more to do with being a member of a group. Bibby (2007) measured values that both atheists and theists agree on as being an important part of their morality, such as honesty, kindness, and patience. He found that theists did tend to score higher on most values but reasoned that this had more to do with the fact that people tend to get their values from groups and that theists are much more likely than atheists to be part of a value-instilling group. He concluded that, “people who don't believe in God can be good. But people who believe in God are more likely to value being good, enhancing the chances that they will be good” (p. 1). Manning (2010) agrees that the correlation between religiosity and morality has more to do with being

a part of a group than with belief or non-belief in God. In reference to the moral benefits gained from religion, she writes, “a close look at all of these benefits, however, shows they are tied to the organizational aspects of religion, the fact that church or synagogue is a community of caring adults that guides children and provides support for a shared moral order. This suggests that those benefits could also be had from affiliation with a secular organization” (p. 25).

Another way to approach the issue is to look at a national level, as opposed to an individual level. Paul (2005) did just that and found that a lack of belief in God might actually lead to a better society. He compared the level of belief in God in developed countries with overall societal health. One of the things he concluded was that, “higher rates of belief in and worship of a creator correlate with higher rates of homicide, juvenile and early adult mortality, STD infection rates, teen pregnancy, and abortion in the prosperous democracies” (p. 7). The U.S. stood out as being highly exceptional in this study, both in terms of belief in God and lower societal health so it is hard to know whether the results were actually related to belief of God or some other aspect in U.S. society.

The above summary demonstrates that the connection between atheism and selfishness/immorality remains controversial and unclear. Section 8.1.1 of this paper will outline how the present project further tested the possible connection and the results.

3.1.2 Atheism and arrogance

Another common notion among some conservative Christians is that atheists are arrogant and enjoy looking down on others. They hold that atheists put too much “faith” in science and that it is presumptuous for anyone to claim to know that God does not exist. For example, in his 2007 book *What’s so great about Christianity*,

Dinesh D'Souza writes that atheists, “presume that their rational, scientific approach gives them full access to external reality. It is this presumption that gives atheism its characteristic arrogance” (p. 168). He goes on to claim that whereas atheists are, “dogmatic and arrogant,” religious believers are, “modest and reasonable” (p. 178). Other Christian writers have referred to atheists as being smug (Markham, 2011, p. 33), smarter-than-thou (Stokes, 2012, p. x), and pompous (Hart, 2009, p. 220).

Catholic priest John Pasquini (2009) takes the idea of atheist arrogance to the extreme. He claims that atheists suffer from “atheist personality disorder” and posits that atheists have an unhealthy desire for attention and recognition as a result of their low self-esteem. He points to several famous atheists throughout history as examples, with Nietzsche being, for him, the perfect archetype. He writes, “Nietzsche’s pride and his arrogance are widely acknowledged. Indeed, his philosophy is a celebration of pride and arrogance. His obsession with power, with being a superman, with killing God exemplifies this innate need for recognition” (p. 103).

Atheists, of course, disagree with this assessment and refer to the idea of atheists being arrogant as a myth (Harris, 2006; Blackford, 2013). They often point out that they do not actually claim to know with absolute certainty that God does not exist (see section 1.1.1) and that it is the Christian who is arrogant in claiming that the Christian religion is the correct one. To date, no empirical research has been done on the possible connection between atheism and arrogance or religiosity and arrogance. Section 8.1.2 of this paper will therefore outline how the present project tested the possible connection and the results.

3.1.3 Atheism and anger

Another common notion found in some Christian circles is the idea that many atheists actually still believe in God, at least at a subconscious level, but have ended

up repressing their belief due to anger. Novotni and Petersen (2001) coined the phrase “emotional atheism” and argue, based on their clinical experience, that some people become atheists because of a multi-step process related to anger over bad things that happened to them or others. They suggest that some people react to difficult situations by blaming God but then realize that it is “wrong” to do so. According to the authors, this leads them to repress their feelings and distance themselves emotionally from God, often resulting in the eventual denial of his existence.

There is some quantitative evidence that could be used to back up this claim. In a study of active versus inactive Mormons, Albrecht and Cornwall (1989) found that incidences of illness or injury, divorce, or the death of a loved one were more common among the inactive members than the active members. They concluded that, “the experience of positive events contributes to increased faith while the experience of negative events seems to be faith challenging” (p. 34). In a study of 168 undergraduates, Exline, Yali and Lobel (1999) compared measures of negative emotion with measures of religion and forgiveness. They concluded that people can become angry at God for events that seem cruel or unfair and that when people have difficulty letting go of this anger by “forgiving God”, this can lead to negative emotions such as increased anxiety or a depressed mood. They write that, “Our results suggest that difficulty forgiving God is an important spiritual and psychological issue—one that, for some individuals, may ultimately lead to a rejection of belief in the Divine” (p. 376).

In Exline (2004) and Exline and Martin (2005), a follow-up study is mentioned in which the unbelievers were divided into two groups: simple unbelievers (those who never believed in God) and conflicted unbelievers (those with a past history of belief). Compared to the current believers, conflicted unbelievers reported

having had greater anger towards God over negative life events in the past than believers, suggesting that negative feelings toward God might have played a role in why they lost faith (Exline, 2004, p. 5). Exline and Martin (2005) list several predictors of anger toward God, including undeserved suffering, the severity and intentionality of the harm done, and an inflated sense of entitlement (p. 74-75).

Although the above mentioned research seems to lend credence to the idea that there is indeed a connection between anger at God and atheism, several qualitative studies suggest that this is not the case. Based on 87 interviews with atheist apostates, Zuckerman (2011) concluded that anger was not a general or overriding disposition among such individuals (p. 137). He writes, “The notion that apostates are riddled with hostility, the claim that secular people are nothing but angry curmudgeons... these widely touted assertions are simply untrue” (p. 137-138). With regard to negative life events, he points out that:

Despite the fact that many individuals whom I interviewed cited instances of personal misfortune as a catalyst for their eventual rejection of religion, it is essential to recognize that widespread misfortune definitely does not cause secularization at the macro, societal level. In fact, it is exactly within those countries rife with misfortune, disease, poverty, and death that religion is the strongest” (p. 54).

In another study based on interviews with atheist apostates, Alidoosti (2009) found that anger was indeed a common emotion among atheists but that their anger was definitely not directed at God. Instead, those he interviewed spoke of anger toward themselves (for not having “seen the light” earlier) or towards parents and church leaders for having misled them (p. 37). Zuckerman (2011) uses the word “shock” rather than “anger” to describe the emotion that many apostates feel towards church leaders. He writes, “one of the main reasons many apostates cite as to why

they eventually rejected their religion was that someone within their religious circle—often a clergyman—was hypocritical, unkind, or immoral. And this behavior came as such a shock that it spawned their eventual apostasy” (p. 90).

The above summary demonstrates that the connection between atheism and anger is still unclear. Section 8.1.3 of this paper will outline how the present project further tested the possible connection and the results.

3.1.4 Atheism and the father-child relationship

The last of the four Christian-based theories is built on the notion that children develop their ideas about “God the Father” based on their relationship with their “worldly father”. According to this theory, individuals who have loving fathers develop positive ideas about God whereas individuals with cold, distant, or absent fathers develop negative ideas, which might then lead them to reject the God-concept altogether and become atheists. One of the main contemporary proponents of this view is Paul Vitz. In his 1999 book *Faith of the Fatherless: The Psychology of Atheism*, Vitz suggests that a weak or absent father was the primary reason why the majority of the most influential nonbelievers throughout history were unable to believe in God. He lists Nietzsche, Hume, Russell and Sartre among those with dead fathers and Hobbes, Voltaire, Feuerbach and Freud among those with weak or abusive fathers. By way of contrast, he describes the positive relationship that many key theist thinkers from the same time periods had with their fathers such as Pascal, Kierkegaard, Chesterton and Barth.

Vitz’s theory is a play on the well-known projection theory suggested by Feuerbach and popularized by Freud. In the original theory, designed to show why people believe in God, it is said that God is simply a projection of our human desires—a wish fulfillment coming from our childhood need for protection and security

(Vitz, 1999, p. 6). Vitz writes, “Freud is quite right to consider that a belief might be an illusion because it derives from powerful wishes or unconscious, childish needs. The irony is that he inadvertently provides a powerful new way to understand an illusion as the psychological basis for rejecting God—that is, a projection theory of atheism” (p. 9). In other words, some individuals might wish to get rid of their fathers and therefore get rid of God instead. Vitz also relates his theory to Freud’s famous Oedipus complex. He writes, “in the Freudian framework, atheism is an illusion caused by the Oedipal desire to kill the father (God) and replace him with oneself” (p. 13).

Tucker (2002) mentions Vitz’s theory and offers the stories of Charles Templeton and Billy Graham as further evidence in support of the defective father hypothesis. Templeton and Graham were life-long friends and, at one time, were both well-known evangelists. Graham, of course, is still a well-known evangelist. Templeton, on the other hand, lost faith and became an agnostic (the story of which he published in his 1996 book *Farewell to God: My reasons for rejecting the Christian faith*). Tucker points out that Graham had a very positive relationship with his father, whereas Templeton’s father abandoned his family when Charles was very young.

There doesn’t seem to be any recent empirical data that could be used to either validate or invalidate Vitz’s theory. However, in one older study of atheists (Vetter & Green, 1932), it was found that half of those who had become nonbelievers before the age of twenty had lost one or both of their parents. The authors claim that this at least twice the expected mortality rate and state that this was one of the most interesting findings to come out of their study (p. 187).

Although there is a lack of empirical evidence for the weak or absent father theory, there is some evidence in the research literature of a correlation between the abandonment of one’s religious beliefs and poor parental relationships in general

(Caplovitz & Sherrow, 1977; Hunsberger, 1983; Hunsberger & Brown, 1984). One might therefore assume that poor parental relationships could indeed be a factor in why some people become atheists. However, as Hunsberger (1983) points out, it's hard to know whether or not the poor relationships led to the apostasy, or the apostasy led to the poor relationships (p. 32). Hunsberger and Brown (1984) lean toward the latter explanation and state that, "there is no reason to conclude that poor parental relations themselves caused apostasy" (p. 250).

Other research indicates that a major disruption in the family, such as a divorce, might play a role in why some people give up religion. Lawton and Bures (2001) found that children whose parents had divorced were more likely than others to abandon their religious beliefs. Hadaway and Roof (1988) state that "high levels of apostasy among the children of divorced parents indicate that family disruption is closely related to apostasy" (p. 38).

The above summary demonstrates that the connection between atheism and parental relationship is still unclear. Section 8.1.4 of this paper will outline how the present project further tested the possible connection, particularly with regard to the father-child relationship, and the results.

3.2 Academic Theories

3.2.1 Atheism and religious emphasis during childhood

Probably the simplest and most common sense explanation for why some people continue to be religious as adults whereas others do not is that it depends primarily on the degree to which religion was emphasized in the home during childhood. One would assume that those who grew up in homes where church attendance and religious beliefs were emphasized strongly would be more likely to be

religious later in life than those who grew up in homes where religion was emphasized less or where at least one parent did not attend church. Generally speaking, this is exactly what researchers have found (Hunsberger, 1980; Hunsberger, 1983; Hunsberger & Brown, 1984; Hadaway & Roof, 1988). However, the situation appears to be more complicated. Hadaway and Roof (1988) write, “Clearly, religious background is important, but we might have expected a stronger association” (p. 41).

The first step to understanding the relationship between religious emphasis during childhood and religiosity later in life is to recognize that not all church leavers are the same. Brinkerhoff and Burke (1980) provide a useful model in this regard. They break down religiosity into two main parts: believing and belonging. There are thus four groups of people to consider:

1. Those who both believe and belong (fervent followers)
2. Those who believe but do not belong (outsiders)
3. Those who belong but do not believe (ritualists)
4. Those who neither believe nor belong (apostates)

It is important to consider the possibility that the correlation between religious emphasis during childhood and religiosity later in life might apply more to outsiders than it does to apostates. In other words, a low religious emphasis during childhood might lead to a lack of church attendance as an adult but have no bearing on whether or not someone still believes in God.

A unique study by Altemeyer and Hunsberger (1997) provides some evidence for this hypothesis. Puzzled by why some people did not follow the basic rule of “religious people come from religious homes and nonreligious people come from nonreligious homes”, they decided to study the anomalous cases in depth. Their study focused on “amazing apostates” (those who grew up in highly religious environments yet became nonbelievers) and “amazing believers” (those who grew up in mostly

nonreligious environments yet became believers). What they found was that all of the amazing apostates abandoned their former religious beliefs for the exact same reason—they simply found it impossible to believe in them anymore (p. 118). The ironic thing is that it is very likely that their strong religious upbringing was the very thing that caused them to be unable to believe. The authors explain:

For all their lives the [amazing apostates] were told their religion was the true religion, and they had to live according to its teachings. Were they not then being implicitly told that truth was a more basic good than even their religious beliefs, that the beliefs were to be celebrated because they were the truth?

Furthermore, all the training in avoiding sin and being a good person “on the outside” would have promoted integrity... if this teaching succeeded, it would produce someone who deeply valued truth and had deep-down integrity. The religion would therefore create the basis for its own downfall, if it came up short in these departments. It may further have added to its vulnerability by insisting that all of its teachings were the absolute truth. When the first teaching failed, in the mind of the devout believer, that put the whole system of beliefs at risk (p. 120).

As for the amazing believers, Altemeyer and Hunsberger found that the majority were dealing with serious personal problems at the time of their conversions and therefore perhaps used religion as a way to stabilize their lives (p. 194).

Altemeyer and Hunsberger’s study demonstrates that, although there is a general correlation between low religious emphasis during childhood and low religiosity during adulthood, there are a significant number of individuals for which the opposite is true. The exact connection between atheism and religious emphasis during childhood is therefore still unclear. Section 8.1.5 of this paper will outline how the present project further tested this connection, and the results.

3.2.2 Atheism and deliberation in the pursuit of truth

The well-known Christian apologist C. S. Lewis once wrote, “if you examined a hundred people who had lost their faith in Christianity, I wonder how many of them would turn out to have been reasoned out of it by honest argument? Do not most people simply drift away?” (Lewis, 1952, p. 124). Based on current research, it appears that this assumption is incorrect. It turns out that, for many people, honest argument (or at least what they sincerely believe is honest argument) is exactly what leads them to lose their faith.

As mentioned in the previous section, Altemeyer and Hunsberger (1997) concluded that the primary reason why certain people who grow up in very religious environments still end up abandoning their faith is that such people have a strong commitment to pursuing the truth—ironically, a trait which was probably strengthened by their religious upbringing. Several other writers agree that it is indeed possible to swing from being very religious to being very nonreligious due to a passion for the truth and a keen interest in examining the arguments.

In Bell (2002), the author coins the term “pendular atheist.” He uses it primarily to describe the main character in Goethe’s famous play *Faust* but also calls it a “common Enlightenment type” (p. 74). He traces the idea’s origin to Robert Burton’s 1621 work *The Anatomy of Melancholy* in which Burton speaks of the two extremes of religious melancholy: overzealousness toward God and the outright rejection of God (p. 76). Bell writes that, “enthusiasm breeds atheism, because it encourages wildly optimistic expectations about the providential ordering of the universe and our own moral perfectibility, which, once disappointed as they inevitably must be, send us swinging to the opposite pole, absolute pessimism and/or atheism” (p. 74).

Tucker (2002) mentions a similar dynamic. She talks about those who are so devoted to the search for God that they, “dig so deep or reach so high only to come to a place where they find emptiness and darkness” (p. 67). She concludes that, “there is often a very close relationship between seeking God and losing faith—though not necessarily losing faith altogether” (p. 68).

McKnight and Ondrey (2008) agree that intense deliberation in the pursuit of truth is what actually leads many people to lose their faith. Such people want a belief system that makes sense to them and when it no longer does so, they replace it with one that does. They write, “in essence, those who leave the faith discover a profound, deep-seated and existentially unnerving intellectual incoherence to the Christian faith. The faith that once held their lives together, gave it meaning, and provided direction simply no longer makes sense. For such persons, the whole of life has to be constructed from the bottom up” (p. 15).

In his 1992 book *Losing faith in faith: From preacher to atheist*, former Christian evangelist Dan Barker describes his journey to atheism. He writes, “the motivation that drove me into ministry is the same that drove me out. I have always wanted to know. Even as a child I fervently pursued the truth. I was rarely content to accept things without examination, and my examinations were intense” (p. 53). “Testimonies” from other atheists tend to be similar (see Babinski, 1995). They all contain a common thread related to a very deliberate pursuit of truth and the abandonment of former beliefs when they fail to hold up under intellectual scrutiny.

It is important to note that the sources quoted in this section should not lead one to conclude that everyone who passionately pursues the truth will end up ceasing to believe in God. They merely serve to show that atheists are often just as serious about the truth as theists are—they just differ in their conclusions. It is therefore hasty to assume that atheists simply do not care or haven’t bothered to think through

religious arguments carefully enough. Aldridge (2000) makes a similar comment about those who switch their religious affiliation or give it up altogether. He writes, “moving from one religious affiliation to another is not necessarily to be interpreted as a sign of the shallow nature of religious commitment. We need to view such movements case by case and in their societal context. People who are hammering out a genuine commitment may well shift their affiliation. Instead of betraying superficiality it may show exactly the opposite” (pp. 13-14).

McKnight and Ondrey (2008) stress the fact that when someone loses his or her faith, they are actually also gaining something in return. They write, “it has become popular today to call this process of leaving the Christian faith ‘deconversion’. Others can use terms they prefer, but calling such a process ‘deconversion’ captures only part of what happens even if it clearly shows that the focus is often on what one is leaving. Deconversion tells the story of ‘from’ instead of the story of ‘to’” (p. 47). In other words, it is important to remember that every apostasy is also a conversion (p. 7). Therefore, it might be useful to see atheism, not simply as giving up God, but also as embracing a new worldview (as discussed in chapter two)—a worldview that is chosen based on serious deliberation.

The above summary demonstrates that the connection between atheism and deliberation in the pursuit of truth is one that merits further research. Section 8.1.6 of this paper will outline how the present project further tested the possible connection, and the results.

3.2.3 Atheism and intelligence

The last of the three academic theories is the idea that atheists have a higher than average intelligence (perhaps due to a better education) and that this leads them to give up their belief in the supernatural. This explanation is, for obvious reasons,

one that is more likely to be given by atheists themselves than by theists. In recent years, several empirical studies have focused on this issue and have produced some seemingly clear, yet also controversial, results.

For example, a recent study of white adolescents in America (Nyborg, 2009) found that atheists in this group had an average general IQ of 111, agnostics 109, members of liberal denominations 107, and members of conservative (or “dogmatic”) denominations 105. This study used representative data from the National Longitudinal Study of Youth and was therefore based on a large sample size ($n = 3,742$). Another recent study (Lynn, Harvey & Nyborg, 2009) compared the data on national IQ from Lynn and Vanhanen (2006) with the levels of atheism in 137 countries from Zuckerman (2007) and found a .60 correlation between national IQ and disbelief in God. The authors suggested that as civilizations develop, they are more likely to rely on science as a means to explain and control nature, than “unprovable religious dogmas” (p. 14).

In discussions of atheism and intelligence, a meta study by Paul Bell of Mensa is often cited. In this article, Bell (2002, quoted in Dawkins, 2006, p. 103) is said to have concluded, “Of 43 studies carried out since 1927 on the relationship between religious belief and one’s intelligence and/or educational level, all but four found an inverse connection. That is, the higher one’s intelligence or education level, the less one is likely to be religious or hold ‘beliefs’ of any kind.”

Another line of reasoning used to build the case for the relationship between atheism and intelligence is the prevalence of non-belief among scientists, who are generally accepted to be among the most intelligent and educated members of society. In a study modelled on a survey done by James Leuba in 1914, Larson and Witham (1997) found that only 39.3% of American scientists believe in God, compared to over 90% of the general population (a percentage that had changed very little from the

41.8% reported back in 1914). In a follow-up study (Larson & Witham, 1998), the authors focused only on “greater” scientists—those who were members of the prestigious National Academy of Sciences. In the second study, they found that only 7.0% believed in God, with 72.2% describing themselves as atheists and 20.8% describing themselves as agnostic. Similar studies have found that belief in God is also relatively rare among Nobel laureates (Beit-Hallahmi & Argyle, 1997, p. 180).

Two other recent studies (Kanazawa, 2010) suggest that atheism, along with liberalism and male sexual exclusivity, are evolutionarily novel preferences and that this is why they are more likely to be found among those with higher intelligence. The first study, based on the National Longitudinal Study of Adolescent Health, found that young adults who identified as “not at all religious” had an average IQ of 103, whereas those who identified as “very religious” had an average IQ of 97. The second study, based on the General Social Surveys, found a significant correlation between IQ and atheism in adults as well.

Although not all apostates are atheists, studies on apostasy are nevertheless also important to consider with regard to the issue of atheism and intelligence. Several apostasy-related studies have shown a connection between the rejection of one’s childhood religion and an intellectual orientation (Caplovitz & Sherrow, 1977; Hunsberger & Brown, 1984). Hadaway and Roof (1988) also report a positive correlation between apostasy and higher education.

Although the connection between atheism and intelligence appears to be quite clear, there are some who think the issue is more complex. For instance, Beit-Hallahmi and Argyle (1997) point out that the correlation might have more to do with class differences and access to education than with religious belief (p. 183). It is already known that wealthier people are less likely to hold strong religious views than poorer poorer people (Zuckerman, 2011, p. 105) This hypothesis seems to be backed

up by a recent study done by Theos, a public theology think-tank in the U.K. (Spencer, 2009). The study found that although life-long atheists do tend to be better educated and come from higher classes, converts to atheism (those who believed in God at some point but abandoned that belief at some point), when compared to converts to theism, tended to have less education and come from lower social grades. Spencer believes that this is the result of atheism shifting from being a minority movement among the higher social classes to being a more mass phenomenon. He writes, “The data suggests that the effect of vocal atheism over the last decade has been to reach successfully into previously uncharted demographic territory... if this happening, we might expect to atheism to become increasingly ‘religious’ in its composition, if not its size” (para. 12-13).

Others have noted the shift as well. Lee and Bullivant (2010) cite that an analysis of the 2008 *British Social Attitudes Survey* found that among white British males aged 25-34, religious people were more likely to have a degree (40%) than non-religious people (25%). They also reported results from the *World Values Survey* which found that there are slightly less non-believers among those with university degrees (14.8%) than among those whose highest attainment was secondary level (17.2%). In the U.S., at least one study (Lee, 2002) also found that higher education strengthens faith more often than it weakens it. The study, based on 5,426 college students surveyed during their freshman year and then again four years later, found that 37.9% reported that their faith had increased during their college years whereas only 13.7% reported that it had decreased.

It has long been noted that women tend to be more religious than men and that men are more likely to become apostates (Hadaway & Roof, 1988). But this is changing as well, almost certainly due to greater gender equality in education and

women's increasing role in the workforce. In describing the faith journeys of two women (Zuckerman, 2011) writes:

both of these women lost their faith when they were feeling—perhaps for the first time—in control of their own destinies. The fact that Rita and Nancy both rejected religion at a period in their lives when they were working for the first time—making money and supporting themselves—suggests the possibility that there may be a connection at the broader, societal level to women's participation in the workforce and secularization (p. 114).

Finally, there is some evidence that being exposed to a variety of different cultures and ideas, which can be seen as a type of informal education, plays an important role in why many people end up abandoning their religious beliefs.

Zuckerman (2011) explains that for many non-believers it is:

moving to a new country and being exposed to new ways of life that makes them question their beliefs. For others, it is experiencing or becoming acquainted with other religions. For still others, it is simply taking a class in which they learn about other religions, other cultures. But the underlying dynamic is always the same: experiencing, witnessing, or learning about other people who do things differently, believe different things, and/or hold different outlooks on life can stir up a process of critical self-reflection that can be potentially corrosive to one's long-held religious convictions (p. 156).

The above summary demonstrates that the connection between atheism and intelligence is still somewhat unclear. Section 8.1.7 of this paper will outline how the present project further tested the possible connection and the results.

3.3 Conclusion

Chapter three reviewed seven existing theories on why certain individuals who grow up in religious environments end up becoming atheists: immorality, arrogance, anger, poor father-child relationships, lower religious emphasis during childhood, deliberation in the pursuit of truth, and higher intelligence. It was demonstrated that the research literature related to each theory is inconclusive and that further investigation into each area is merited. The present project will thus incorporate measures related to each of these seven existing theories alongside measures related to the central thesis of the project.

Aside from the theory of higher intelligence, the existing theories all have one thing in common: they are all based on subjective, emotional, or social reasons rather than some sort of objective or innate quality in the person. However, there is reason to believe that innate qualities may play a role as well. After discussing many of the theories covered in this chapter, Zuckerman (2011) concluded, based on his numerous interviews with atheist apostates:

One of the most common metaphors people employed in describing their apostasy was that it was akin to “coming out” as a homosexual. Such people said that they had tried their hardest to be religious—and they had even convinced themselves for a spell that they did have faith—but in the end, they just couldn’t deny their internal irreligiosity any longer, and they had to simply admit and embrace the atheism or agnosticism that seemed to be at the core of their being.

The next chapter will introduce one model of individual differences that may prove useful in determining which innate qualities may play a role in why some people become atheists and others do not.

4 WHAT IS PSYCHOLOGICAL TYPE?

The previous chapter examined seven existing theories on why some individuals who grow up in religious environments become atheists as adults. Most of these theories are based on people's experiences and/or people's reactions to those experiences and are thus explanations based on "nurture." This chapter will turn its attention to the "nature" side of the debate by looking at the possible role of innate qualities instead. The model of individual differences that will be used to examine the possible role of innate qualities is that of psychological type. This chapter will examine the development of psychological type theory and outline how it has been theorized to relate to the realm of religion and spirituality. This will lay the necessary foundation for assessing its potential for the current project and other future projects relating to atheism and nonbelief.

4.1 Basics of psychological type

4.1.1 History of psychological type theory

Psychological type theory has its origins in the work of Swiss psychologist Carl Gustav Jung (1875-1961). Originally a close colleague of Sigmund Freud, Jung eventually parted company with the father of psychoanalysis and developed his own school of psychology, known as "analytical psychology." One of Jung's greatest contributions to the field of psychology was his concept of extraversion versus introversion. For Jung, whether a person was an extravert or an introvert represented the most basic difference between human personalities and was a division based on

biology rather than on deliberate choice or upbringing. Referring to extraverts and introverts as two distinct “attitude-types,” he explains:

It is a fundamental contrast, sometimes quite clear, sometimes obscured, but always apparent when one is dealing with individuals whose personality is in any way pronounced. Such people are found not merely among the educated, but in all ranks of society... sex makes no difference either... such a widespread distribution could hardly have come about if it were merely a question of a conscious and deliberate choice or attitude... [Therefore, it] must be due to some unconscious, instinctive cause. As a general psychological phenomenon, therefore, the type-antithesis must have some kind of biological foundation (Jung, 1971a, pp. 179-180).

For Jung, the primary difference between an extravert and an introvert is his or her attitude towards the outside world of people and things (which he refers to as “the object”) and how this effects their psychological energy (which he refers to as “libido”). As he explains,

The introvert’s attitude is an abstracting one; at bottom, he is always intent on withdrawing libido from the object, as though he had to prevent the object from gaining power over him. The extravert, on the contrary, has a positive relation to the object. He affirms its importance to such an extent that his subjective attitude is constantly related to and oriented by the object (Jung, 1971a, p. 179).

He goes on to describe introverts as “reserved, inscrutable, rather shy people” and extroverts as “the open, sociable, jovial, or at least friendly and approachable characters who are on good terms with everybody, or quarrel with everybody, but always relate to them in some way and in turn are affected by them” (p. 179). Jung makes it clear that neither type is better than the other and that the two attitudes

simply evolved as equally successful ways of adapting to one's environment. He writes, "the one [attitude] consists of a high rate of fertility, with low powers of defence and short duration of life for the individual; the other consists in equipping the individual with numerous means of self preservation plus a low fertility rate" (Jung, 1971a, p. 180). Recent studies have confirmed Jung's view by demonstrating that the extraversion-introversion distinction can be found throughout the animal kingdom. It has been found in mammals such as chimpanzees, cats, dogs, and pigs, and even in guppies and octopi (Gosling & John, 1999).

Jung broke down the psychological typing of humans further by combining his view of extraversion and introversion with his view of how the psyche is structured. According to Jung (1971b), human consciousness has four main functions: sensing (the perception of physical reality), intuition (the perception of possibilities), thinking (the recognition of our perceptions), and feeling (the evaluation of our perceptions). The first two, he labelled "perceiving functions" and the last two, he labelled "judging functions".

Although every person uses all four functions, Jung felt that each person naturally prefers to use one of the four the most and thus becomes more adept at using that particular function than the other three. Thus, an individual's preference of dominant function, combined with their general attitude of extraversion or introversion, results in eight possible psychological types: Extraverted Sensing, Extraverted Intuition, Extraverted Thinking, Extraverted Feeling, Introverted Sensing, Introverted Intuition, Introverted Thinking, and Introverted Feeling. Jung offered general descriptions of each type in his writings (see Jung, 1971a, pp. 182-266) but did not develop the theory any further than that. For instance, he never moved from the theoretical to practical applications, nor did he ever attempt to develop a method for determining an individual's psychological type.

The task of developing Jung's theory further was taken up by the mother-daughter team of Katharine Briggs (1875-1968) and Isabel Myers (1897-1980). Katharine Briggs was the wife of Lyman Briggs, director of the National Bureau of Standards and a key person in the early stages of the Manhattan Project (the research group that produced the first atomic bombs). While Lyman Briggs was engaged in the war effort at the national level, Katharine Briggs and her daughter were engaged on a more grassroots level. As Isabel Myers' son Peter Myers explains,

[The two women] had been interested in Jung's theory for about 16 years when the Second World War took many men from the industrial workforce into the services and brought many women out of their normal activities to replace them. Since, for the majority of these women, the heavy industrial workplace was strange new territory, my mother and grandmother thought that a knowledge of one's personality preferences in terms of Jungian type theory might be a valuable aid to identifying the kind of job for the war effort in which someone without previous relevant experience could be most comfortable and effective. They searched in vain for a test or some indicator of a person's Jungian preference and finally decided to create one of their own (Myers, 1980, p. xiii).

The result was the *Myers-Briggs Type Indicator*® or MBTI® – a psychometric instrument that is now taken by millions of individuals each year, in postsecondary institutions, workplaces, the military, and even churches.

Psychological type theory as developed by Briggs and Myers differs somewhat from Jung's original theory. The most notable difference is that the Briggs/Myers theory includes sixteen distinct psychological types, whereas Jung's theory included only eight. As discussed earlier, Jung based his types on what he called the dominant function – the one function out of four that an individual preferred the most. However,

he also mentioned the possibility of an auxiliary, or secondary function. After describing the eight main psychological types, he writes that, “closer investigation shows with great regularity that, besides the most differentiated function, another, less differentiated function of secondary importance is invariably present in consciousness and exerts a co-determining influence” (Jung, 1971a, p. 266). He theorized that this secondary function would never be of the same category as the first. For example, if the dominant function was sensing (a *perceiving* function), then the secondary function would be one of the two *judging* functions (thinking or feeling). This means that each of the eight main psychological types would have two subtypes. Although Jung never listed them or described them, Briggs and Myers picked up on the fact that Jung’s theory allowed for the following sixteen combinations (Table 4):

Table 4: The original sixteen psychological types, based on Jung

1a	Extravert	with	Sensing	(dominant)	+	Thinking	(secondary)
1b	Extravert	with	Sensing	(dominant)	+	Feeling	(secondary)
2a	Extravert	with	Intuition	(dominant)	+	Thinking	(secondary)
2b	Extravert	with	Intuition	(dominant)	+	Feeling	(secondary)
3a	Extravert	with	Thinking	(dominant)	+	Sensing	(secondary)
3b	Extravert	with	Thinking	(dominant)	+	Intuition	(secondary)
4a	Extravert	with	Feeling	(dominant)	+	Sensing	(secondary)
4b	Extravert	with	Feeling	(dominant)	+	Intuition	(secondary)
5a	Introvert	with	Sensing	(dominant)	+	Thinking	(secondary)
5b	Introvert	with	Sensing	(dominant)	+	Feeling	(secondary)
6a	Introvert	with	Intuition	(dominant)	+	Thinking	(secondary)
6b	Introvert	with	Intuition	(dominant)	+	Feeling	(secondary)
7a	Introvert	with	Thinking	(dominant)	+	Sensing	(secondary)
7b	Introvert	with	Thinking	(dominant)	+	Intuition	(secondary)
8a	Introvert	with	Feeling	(dominant)	+	Sensing	(secondary)
8b	Introvert	with	Feeling	(dominant)	+	Intuition	(secondary)

In addition to focusing on the sixteen types instead of the core eight, Briggs and Myers introduced new ideas about the dominant and secondary functions. They

theorized that if a person were an extravert, he or she would use the dominant function primarily to interact with the outside world and the secondary function primarily to interact with their inner world. For an introvert, the opposite would be true. The dominant function would be used primarily to interact with the inner world and the secondary function would be used primarily to interact with the outer world.

Myers (1980) explains it this way:

A good way to visualize the difference is to think of the dominant process as the General and the auxiliary process as his Aide. In the case of the extravert, the General is always out in the open. Other people meet him immediately and do their business directly with him. They can get the official viewpoint on anything at any time. The Aide stands respectfully in the background or disappears inside the tent. The introvert's General is inside the tent, working on matters of top priority. The Aide is outside fending off interruptions, or, if he is inside helping the General, he comes out to see what is wanted. It is the Aide whom others meet and with whom they do their business. Only when the business is very important (or the friendship is very close) do others get in to see the General himself (p. 13).

However, in order to help individuals understand psychological type theory in a more simple way, Briggs and Myers opted not to explain the theory in terms of dominant and secondary functions. Instead, they chose to explain it in terms of four dichotomous preferences, each represented by a choice between two letters:

1. Is the person an extravert (E) or and introvert (I)?
2. Which *perceiving* function does the person use most: sensing (S) or intuition (N)? Note: the letter "N" was chosen to represent intuition because "I" was already being used to represent introversion.
3. Which *judging* function does the person use most: thinking (T) or feeling (F)?

4. Which function does the person present to the outside world, your judging function (J) or your perceiving function (P)?

Thus, in order to determine psychological type, one must determine one's preference in each of these four areas. The *Myers-Briggs Type Indicator*® is designed to do this and does so by asking sets of forced-choice questions related to the four areas. The result is a four-letter code that represents one of the sixteen psychological types (see Figure 3 below). These map perfectly onto the sixteen types from Jung's theory even though the method used to arrive at them, as well as the notation, is different.

Although one's dominant function is not immediately apparent in the notation used by Briggs and Myers, it can still be determined by using the four letters. For extraverts, the process is straight-forward. If an extravert is a J, his or her judging function (T or F) will be the dominant one, whereas if an extravert is a P, his or her perceiving function (S or N) will be the dominant one. Because introverts present their secondary function to the outside world, the opposite will be true. If an introvert is a J, his or her perceiving function (S or N) will be the dominant one. If an introvert is a P, his or her judging function (T or F) will be the dominant one.

ISTJ 5a	ISFJ 5b	INFJ 6b	INTJ 6a
ISTP 7a	ISFP 8a	INFP 8b	INTP 7b
ESTP 1a	ESFP 1b	ENFP 2b	ENTP 2a
ESTJ 3a	ESFJ 4a	ENFJ 4b	ENTJ 3b

Figure 3: The sixteen psychological types according to Briggs and Myers. Note: the numbers below each type indicate the corresponding Jungian type as listed in Table 4.

Although the *Myers-Briggs Type Indicator*® is a proprietary product, currently owned by CPP, Inc. of Mountainview, California, the actual *theory* of psychological type as developed by Briggs and Myers, including their notation system, is within the public domain. It is thus important to note that, whereas the term “Myers-Briggs type” refers exclusively to one’s psychological type as determined by the *Myers-Briggs Type Indicator*®, the terms “psychological type” or “Jungian type” are more generic and refer to one’s type as determined by the *Myers-Briggs Type Indicator*®, or by some other means, of which there are now many. For example, the current project will use the Francis Psychological Type Scales (FPTS) to determine psychological type. This instrument will be described in more detail in Part II.

4.1.2 The four dichotomies of psychological type

The previous section outlined how Briggs and Myers took Jung’s original theory of psychological type and developed it further. This section will look at the

current theory of psychological type in more detail by focusing on the four dichotomies that Briggs and Myers introduced in order to make the theory more accessible to the general public.

It is important to note at the outset that psychological type theory, which is based on the concept of *types*, is very different from other theories of personality, most of which are based on the concept of *traits*. Trait theories seek to place individuals on *continuums* with regard to the different aspects of their personality. On the other hand, type theories seek to place individuals in mutually exclusive *categories*. For example, in a trait theory, extraversion is presented on a scale with positions ranging from 1 to 100. Individuals scoring 17 and 32 on such a scale would both be considered to display “low extraversion” (and hence introversion) but the individual scoring 17 would be considered to be “more introverted” than the individual who scored 32. On the other hand, in a type theory, an individual is either an extravert or introvert and nothing more can be said beyond that. In other words, in a type theory, no introvert is ever considered to be “more introverted” than any other introvert.

It is also important to note that psychological type theory is based on the idea of *preference*. For example, just because an individual *prefers* to use his or her thinking function more often than his or her feeling function (and could thus be labelled a “thinker”), it does not mean that that person is incapable of using his or feeling function or that that person never does so. As Goldsmith (1997) explains:

[Psychological type theory suggests] that our behaviour (the combination of ways of taking in information, processing it, and developing responses and actions in the world) is not random but follows certain patterns. These patterns are not determined so that they take away our personal responsibility. Instead, we remain free to choose how we behave, but we are more likely to act in

certain ways because of the preferences which we have developed. I am more likely to choose a tape or CD of Bach than of the Beatles. That is not to say that I won't ever choose one, but it is far more likely that I will opt for Bach because that is my preference (p. 24).

One of the benefits of psychological type theory's focus on preference is that the two sides of each dichotomy are seen as being neutral in terms of "emotional health, intellectual functioning, and psychological adaptation" (Myers, McCaulley, Quenk & Hammer, 2003, p. 5). Thus, psychological type theory is less value-laden than most trait-based theories. With this in mind, the four dichotomies will now be examined in detail.

The first dichotomy in psychological type theory is that of extraversion versus introversion. Following Jung's original definitions, this dichotomy is primarily concerned with where an individual focuses his or her psychological energy. According to the current MBTI® manual, "Extraverts are oriented primarily toward the outer world; thus they tend to focus their energy on people and objects. Introverts are orientated toward the inner world; thus they tend to focus their energy on concepts, ideas, and internal experience" (Myers, McCaulley, Quenk & Hammer, 2003, p. 6). The result of this difference is that extraverts tend to be more sociable, energetic, and bold whereas introverts tend to be more quiet, subdued and likely to let others take the lead. Also, extraverts tend to have many friendships and many interests, whereas introverts tend to have fewer, but deeper, friendships and fewer, but more refined, interests. However, regardless of behaviour, the key point about extraversion and introversion in psychological type theory is that the difference is based on where a person focuses their psychological energy. An introvert might be very talkative and sociable on occasion, having learned to do so out of necessity, but acting in such a manner is likely to drain their psychological energy more than it

would for an extrovert. For example, after attending a party and meeting a lot of new people, an introvert is likely to desire some quiet time alone to reflect and “refuel”, whereas an extrovert will likely leave such a gathering feeling more energized, not less. This focus on the deeper issue of energy orientation sets psychological type theory apart from other personality measures that focus more on outward behaviour only.

The second dichotomy in psychological type theory is that of sensing versus intuition. According to Jung, sensing and intuition are the two perceiving functions existing within the human psyche. They represent two different ways of seeing the world and gathering information about it. Those individuals who prefer to use their sensing function tend to focus on the present and on what is real, concrete, and practical, whereas those who prefer to use their intuition function tend to focus on the future and on what is possible, abstract and theoretical. Myers, McCaulley, Quenk and Hammer (2003) explain it this way: “a person may rely primarily upon the process of Sensing (S), which attends to observable facts or happenings through one or more of the five senses, or a person may rely more upon the less obvious process of Intuition (N), which attends to meanings, relationships, and/or possibilities that have been worked out beyond the reach of the conscious mind” (p. 6). Another key difference relating to this dichotomy is that individuals who prefer sensing tend to focus on the details of a situation whereas individuals who prefer intuition tend to focus on the “big picture” (i.e. the broader context and resulting implications).

The third dichotomy in psychological type theory is that of thinking versus feeling. According to Jung, thinking and feeling are the two judging functions existing within the human psyche. They represent two different ways of processing and responding to the information given by the perceiving function. From the outset, Myers, McCaulley, Quenk and Hammer (2003) make it clear that, “in Jung’s and

Myers' approaches, the term Thinking does not imply intelligence or competence, and the term Feeling is not to be confused with emotional. Intelligence and emotional expression are independent of psychological type" (p. 6). Instead, they explain that a person who prefers thinking simply prefers to make decisions based on "logic and consequences" whereas a person who prefers feeling prefers to make decisions based on "personal or social values" (p. 6). The result is that thinkers tend to be impersonal, impartial, and willing to offer criticism when necessary, whereas feelers tend to be more sympathetic, diplomatic, and focused on maintaining harmony within groups. The third dichotomy is the only one of the four known to be influenced by gender with males, on average, tending more towards Thinking and females, on average, tending more towards Feeling.

The fourth and final dichotomy in psychological type theory is that of judging versus perceiving. It is important to note that the term judging is in no way related to being judgemental, and perceiving is in no way related to being perceptive. Instead, the two terms refer to the two categories of mental functions in Jung's original theory. According to Briggs and Myers, individuals on the judging side prefer to use their judging function (thinking or feeling) when dealing with the outside world whereas individuals on the perceiving side prefer to use their perceiving function (sensing or intuition). The result is that judgers tend to like firm decisions and detailed plans (so that they can feel that a thing is "settled"), whereas perceivers tend to like flexibility and tentative plans (so that they can feel open to integrate new information along the way). Because of this, judgers usually appear more organized and structured whereas perceivers appear more casual and relaxed. A judger's greatest strength is his or her ability to keep to schedules and stay on task whereas a perceiver's greatest strength is his or her ability to adapt well when situations suddenly change.

Two final pieces of information should be noted about the four dimensions of psychological type. The first is that, for most of the dichotomies, the general population is split approximately 50-50 when it comes to the two possible preferences. For example, there are approximately the same number of introverts in the general population as there are extroverts. The one exception to this rule is the S/N dichotomy. According to a representative sample reported in Myers, McCaulley, Quenk and Hammer (2003), a preference for sensing (S) occurs in about 75% of the general population, whereas a preference for intuition (N) occurs only in about 25% (p. 298). Second, for most of the dichotomies, gender does not play a role. For example, the percentage of introverts among females in the general population is about the same as the percentage of introverts among males. The one exception to this rule is the T/F dichotomy. Surveys usually find females tend towards feeling at higher percentages than thinking, whereas males tend towards thinking at higher percentages than feeling. According to Myers, McCaulley, Quenk and Hammer (2003), this difference is most likely due to socially-influenced ideas about gender rather than by innate differences between females and males (p. 122).

4.1.3 How psychological type theory is used today

One of the greatest benefits of psychological type theory as it exists today is that it allows for more than one way to explore personality differences. First, one can simply look at the four dichotomies separately, as discussed above. This allows for direct comparisons to be made with many trait-based theories. For example, Costa and McCrae (1989) found that individuals who prefer Feeling in the Myers-Briggs model tend to score higher, on average, than those who prefer Thinking on the trait known as Agreeableness in the Big 5 model (see Section 5.2.3). Second, one can explore “whole type” by looking at each of the sixteen psychological types separately

and delving into the detailed descriptions of each type given by Briggs and Myers as well as numerous other researchers. Third, one can explore “type dynamics” by focusing primarily on the Jungian notions of dominant and secondary functions. Fourth, one can look at the different ways in which the various parts of a person’s personality combine and work together. For example, by focusing on the first and fourth dimensions of psychological type, one comes up with four possible combinations: IJ, IP, EJ, and EP. The types ISTJ, ISFJ, INFJ, and INTJ would all fall into the larger category of “IJ” and would share certain things in common in contrast to those in the IP, EJ, or EP categories. Figure 4 outlines the six ways in which the psychological type table (shown in Figure 4) can be divided for further analysis.

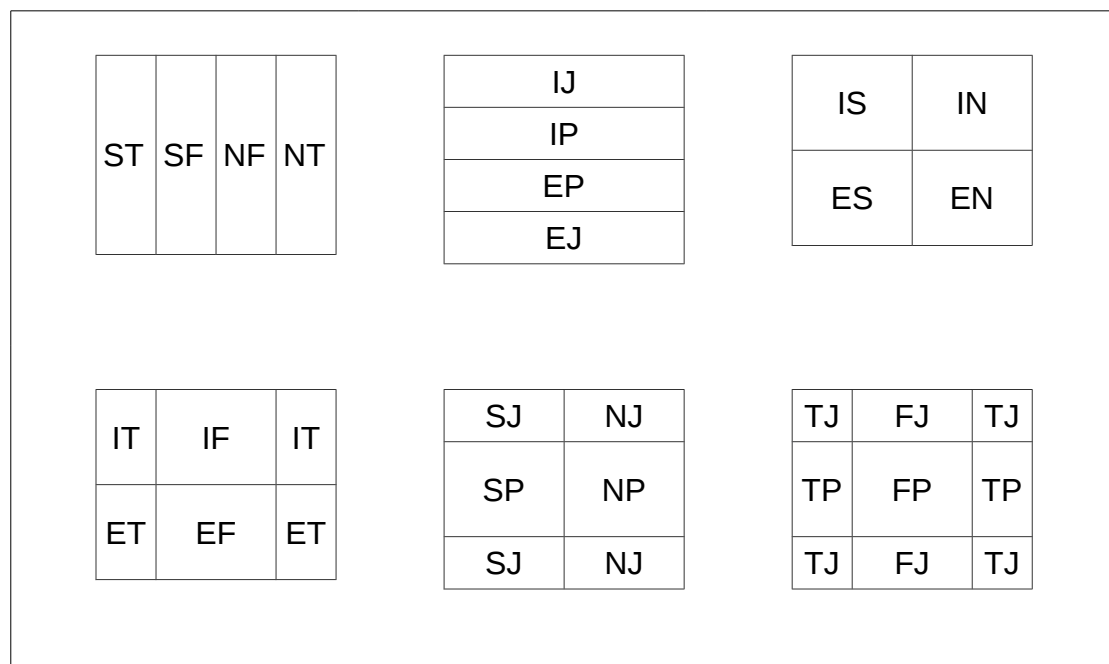


Figure 4: Possible psychological type groupings

A fifth and final way to explore psychological type is to focus on temperament. This particular method was made popular by American psychologist David Keirsey (1921-2013) in his 1984 book *Please Understand Me*. According to Keirsey, one can divide the psychological table in such a way that the resulting four

groups correspond roughly to the four ancient temperaments, or humours, spoken of by the second century Greek physician Galen. Keirsey did this by first dividing the table into S versus N and then dividing the S side into SJ versus SP and dividing the N side into NF versus NT. However, instead of using Galen's labels for the four temperaments (Melancholic, Sanguine, Choleric, and Phlegmatic), he renamed the four groups Guardians, Artisans, Idealists, and Rationalists.

According to Keirsey, Guardians (SJs) are practical and well-organized individuals who value security and stability. They like to belong to some sort of institution and are usually responsible, loyal and hard-working, being careful to uphold and live by the established rules, structures and traditions of those institutions. On the other hand, Artisans (SPs) are more adventurous and adaptable. Although they like to be busy with practical, hands-on jobs, they need more freedom and flexibility than their SJ counterparts. They are often good at sports, artistic expression or activities which require special skills. They can be excellent problem solvers in times of crisis but are also known for sometimes breaking the rules. On the intuitive side, Idealists (NFs) are mostly concerned with developing human potential, both in themselves and others. They want their lives to be meaningful and like to feel needed by others. They have strong values and good communication skills and are therefore usually the ones who maintain harmony in groups. In contrast, Rationalists (NTs) value knowledge and competence above all else. They want to make sense of the world so that they can help improve it but are generally not interested in taking care of the details. Although they are good at connecting ideas and recognizing patterns, they often do things their own way and can be somewhat serious or absent-minded.

As mentioned earlier, psychological type theory is widely used in educational, business, government, and religious settings. This is true not only of the proprietary *Myers-Briggs Type Indicator*® but of psychological type theory in general, including

the four Keirsey types and the other applications mentioned above. The fact that it is so widely used and widely known, combined with the fact that it uses value neutral terminology, makes it an ideal model for the current project. However, before looking at how psychological type has been used within the field of the Psychology of Religion, the various criticisms levelled at the theory must first be addressed.

4.2 Assessing psychological type theory

4.2.1 Criticism of psychological type theory

Bayne (1995) outlines ten criticisms of psychological type theory (p. 77-93). The first and most common criticism is that the theory is an insult to individuality and that it “puts people in boxes.” This criticism is one that is likely to be levelled at any model of individual differences. However, as Kluckhohn and Murray (1953) put it: “Every man [sic] is, in certain respects: [1] like all other men, [2] like some other men, and [3] like no other man.” Psychological type theory, like all personality theories, simply focuses on the second truth and in no way denies the first and third. As Francis (2005) writes, “type theory does not try to capture individuality, but rather provides a broad framework which helps move toward appreciating individuality” (p. 88). Although type theory does carry the risk of stereotyping individuals, this risk can be minimized by being aware of this danger and by understanding that the theory does not claim to be an exact science. As Baynes writes, “the preferences and types are reference points, not pigeon-holes” (p. 77).

The second criticism is that people behave differently in different situations and thus innate personality preferences do not exist. While it is true that human behaviour does vary and that it is impossible to predict how a person will act in any given situation, decades of social psychology research have demonstrated that over

time, human behaviours do show a high level of consistency. For example, an introvert might, from time-to-time, behave in a very extroverted way. But on average, he or she is likely to tend towards more introverted behaviours. Thus, even though knowledge of personality preferences cannot predict what will happen in every situation, it can still be used to make broader, larger-scale predictions.

The third and fourth criticisms are that the results are skewed by the Forer effect (also known as the Barnum effect) because the type descriptions are too vague and too positive. The Forer effect is the tendency for people to think that certain descriptions of their personality and/or life are very specific and accurate when really they are vague and general enough to apply to most people. The best example of the Forer effect is the way in which some people take newspaper horoscopes seriously and believe that they accurately describe their lives. If psychological type theory were subject to the Forer effect, the instruments used to measure type would demonstrate very low reliability. However, this is not the case when it comes to the *Myers-Briggs Type Indicator*® and the Francis Psychological Type Scales (see Section 4.1.5 below). In one particular study of the *MBTI*®'s reliability, Carskadon (1982) administered the questionnaire and then one week later gave each participant five different results in a random order, including their actual result and the opposite of their result, and then instructed them to choose the one that described them most accurately. He found that 66% chose either their actual result or a type very close to their actual result (one in which their lowest scoring preference was reversed), whereas only 4% chose the exact opposite of their result.

The fifth and sixth criticisms are that psychological type theory as it exists today has departed from various aspects of Jung's original theory. This observation is, in fact, true but is actually a point in the current theory's favour. As Francis (2005) writes, "it has also to be recognized that some aspects of Jung's theory are themselves

highly contentious and that it may be a serious error to take a fundamentalist attitude toward Jung's own writings. Currently, there is much better empirical support for the model of personality assessment promoted by some of the type indicators than from basic Jungian views" (p. 89).

The seventh criticism is that self-report questionnaires cannot be trusted because they are too easy to fake. According to Costa and McCrae (1992b), there actually exists substantial evidence to the contrary; i.e. self-report questionnaires are in fact trustworthy, both in terms of indicating what a person is really like, as well as his or her self-concept. In fact, according to Bayne (1995), "even in situations where faking would be rewarded, people tend not to fake" (p. 90). The validity of psychological type instruments has been found to be strong and this will be discussed further in Section 4.1.5.

The eighth criticism is that the numerical results given by the *MBTI*® are confusing. As mentioned earlier, type theories differ significantly from trait theories. In psychological type theory, the numerical results represent clarity of preference, not the degree to which an individual possesses a trait. A high score simply indicates that the result is likely to be correct, whereas a low score indicates that the result may change in a future assessment. If this distinction is adequately explained by those administering the assessment, confusion can be reduced.

The ninth criticism is that psychological type theory is "just a racket for making money" (Bayne, 1995, p. 92). Although it is true that the *MBTI*® is a proprietary instrument and that taking the official inventory can be expensive, it can be argued that designing and maintaining a quality psychometric instrument requires adequate funds and that properly controlling and licensing its use greatly improves its reliability and validity. On the other hand, there are many other public domain measures of psychological type that have been shown to be reliable and valid as well.

Many of these, such as the Francis Psychological Type Scales, have been used exclusively for research purposes and not for making money.

The tenth and final criticism is that psychological type theory is just like astrology. However, as mentioned above, the Forer effect plays a major role in astrology, whereas it plays a much smaller role in type theory. In addition to this, astrology tends to be prescriptive in nature, whereas type theory is descriptive and based on an individual's self-report.

4.2.2 The reliability and validity of psychological type theory

Two important concepts when it comes to assessing the value of a psychometric instrument are reliability and validity. Reliability refers to how consistent the instrument is, whereas validity refers to how accurate it is. Although the two concepts are related, they are not identical. For example, an archer could be consistent but not accurate by missing the target ten times in a row but hitting the same spot every time. On the other hand, the archer could be accurate but not consistent by hitting spots close to the target but hitting a different spot each time.

The two main types of reliability are internal consistency reliability and test-retest reliability. Internal consistency is determined by dividing the item pool in half and testing to see if each half produces a similar result. A statistical analysis of all possible item correlations results in a number between zero and one, known as the alpha coefficient. This number should be at least .7 if the instrument is to be considered very reliable, although alphas above .6 are also considered acceptable (DeVellis, 2003). According to the current *MBTI*® manual (Myers, McCaulley, Quenk & Hammer, 2003), the *MBTI*® achieved the following alpha coefficients on each of its four scales: .91 for the E-I scale, .92 for the S-N scale, .91 for the T-F scale, and .92 for the J-P scale.. According to Francis, Craig, and Hall (2008), the

Francis Psychological Types Scales achieved the following alpha coefficients: .83 for the E-I scale, .76 for the S-N scale, .73 for the T-F scale, and .79 for the J-P scale. Thus, the two instruments can be considered to be internally consistent. The other type of reliability, test-retest reliability, is determined by giving the same participant the same instrument at a point in the future and testing to see if a similar result is produced. According to the current *MBTI*® manual (Myers, McCaulley, Quenk & Hammer, 2003), a combined analysis of several studies measuring the test-retest reliability of the *MBTI*® found that 65% of participants (n = 424) got the exact same result one month later and 93% got either the same result or just one letter different (p. 163). It also found that higher clarity scores resulted in fewer changes in the retests. In other words, when a letter was changed, this was most often due to the fact that the participant achieved a low clarity score for that particular scale. These findings point to good test-retest reliability.

Tests of validity focus on whether or not an instrument is in fact measuring what it is supposed to be measuring. Two methods used to test validity are factor analysis and comparison to similar scales. Factor analysis is a statistical test in which correlations between items are measured to determine how many independent factors or scales the instrument is measuring. In the case of the *MBTI*®, there should be four independent scales. According to the current *MBTI*® manual (Myers, McCaulley, Quenk & Hammer, 2003), several factor analysis studies of the *MBTI*® have confirmed that the instrument is indeed measuring the four scales it purports to be measuring (p. 172). In studies in which the *MBTI*® was taken alongside other personality instruments, each of the four *MBTI*® scales were found to be strongly correlated with other similar scales. For example, the E-I scale correlated with liveliness and social boldness on the 16PF and with sociability and social presence on the California Psychological Inventory (Myers, McCaulley, Quenk & Hammer, 2003,

pp. 173-184). Most notably, Costa and McCrae (1989) found that the *MBTI*® correlates strongly with the Big Five personality traits, with the E-I scale correlating with Extraversion, the S-N scale correlating with Openness, the T-F scale correlating with Agreeableness, and the J-P scale correlating with Conscientiousness. The connection between psychological type theory and the Big Five model of personality will be explored in greater detail in Chapter Five (Section 5.2.3).

This section demonstrated that psychological type theory stands up well to criticism and is both reliable and valid. The next section will focus on how the theory has been used within the realm of the Psychology of Religion.

4.3 Theoretical applications of psychological type to religion

Psychological type theory has been applied to the realm of religion and spirituality both theoretically and empirically. This section will look at the numerous books that have been written on the subject from a theoretical perspective. This will set the stage for chapter five, which will turn its attention to the many empirical studies that have used the theory.

Although the *MBTI*® was first developed in the 1940s, it was not until the 1980s that psychological type theory started to be applied within the realm of religion and spirituality. During that decade, several books were published on the subject, the first of which was *From image to likeness: A Jungian path in the gospel journey* by Grant, Thompson, and Clarke (1983). This book looks at the four Jungian functions – Sensing, Intuition, Thinking and Feeling – and seeks to view the Christian gospel from each. According to the authors, the Sensing function reminds Christians of God’s simplicity and presence in their lives. They encourage readers to use the Sensing function to focus on the physical aspects of gathering together as a community to worship God. On the other hand, the authors see the Intuitive function

as important when it comes to wrestling with the more abstract, future implications of the Christian gospel. They point to how symbols have been used extensively within the Christian church to express the unknown and to how these are the product of the intuitive function. As for the two judging functions, the authors see Thinking as useful for understanding theological issues related to God's justice and for organizing the church into an institution with a structured liturgy, whereas they see Feeling as useful for acting out the compassion and healing aspects of the gospel.

In their book, *Personality and spiritual freedom* (subtitled *Growing in the Christian life through understanding personality type and the Myers-Briggs Type Indicator*), Robert and Carol Faucett (1987) took a slightly different approach, focusing instead on how individuals with different psychological type preferences will express their spirituality in different ways. For example, they write, "the introvert will naturally be drawn to more reflective forms of prayer and the inner journey, that is prayer forms that are more inward and quiet... the extrovert, on the other hand... may want to be more involved and act out their relationship with God as leaders, in service, and will tend to be more social- and action-oriented" (p. 110-111). Likewise, they write that the sensor will be more apt to enjoy the presence of God in the here and now, whereas intuitives will be more apt to enjoy using symbolism and their imagination to understand and experience the divine. Finally, they point out that thinkers will be more drawn to bible study and to structured church services whereas feelers will be more interested in the relational aspects of congregational life.

Charles Keating's book *Who we are is how we pray: Matching personality and spirituality* (1987) goes one step further by looking at how each of the sixteen psychological types experience spirituality differently. For example, he writes that an ISTJ will enjoy a private spirituality with scheduled prayer, whereas an ENFP (the opposite type) will enjoy a people-orientated spirituality but need time for deep

reflection (pp. 50-51). He also discusses how introverts will differ from extroverts, how sensors will differ from intuitives, how thinkers will differ from feelers, and how judgers will differ from perceivers.

Personality type and religious leadership, by Roy Oswald and Otto Kroeger (1988) was the first book to focus primarily on those in religious leadership – clergymen, clergywomen, pastors, and ministers – and on how psychological type impacts the ways in which they do their jobs, from preaching to parish administration. The authors make use of the four Keirsey temperaments and present four major pastoral types: the serving SJ pastor who excels at administrative duties and at maintaining traditions; the action-oriented SP pastor who excels at youth work and in mission-based congregations; the relationship-oriented NF pastor who excels at inspiring others to reach their full potential; and the intellectual NT pastor who excels at executive leadership and academics. They also draw parallels between the four pastoral types and the four gospels: SJ with Matthew, SP with Mark, NF with Luke, and NT with John.

Since the 1980s, many more books have been written on the subject of psychological type and spirituality. In *Prayer and Temperament: Different prayer forms for different personality*, Michael and Norrisey (1991) use the four Keirsey temperaments and connect them to four different types of spirituality named after four famous Catholic saints. According to the authors, the SJ temperament is connected with Ignatian spirituality, named after Jesuit founder St Ignatius of Loyola (1491-1556), and focused on worship that is structured, orderly and well-planned. The SP temperament is connected with Franciscan spirituality, named after the nature-loving St Francis of Assisi (1181-1226), and focused on worship that is spontaneous and open to the Spirit. The NF temperament is connected with Augustinian spirituality, named after the early Christian philosopher St Augustine of Hippo (354-430), and

focused on worship that is rich in symbolism and hidden meanings. The NT temperament is connected with Thomistic spirituality, named after medieval philosopher St Thomas Aquinas (1225-1274), and focused on worship that stems from theological insight.

In a like manner, *Four Spiritualities: Expressions of self, expressions of spirit* by Peter Richardson (1996) connects the four psychological type function pairs (ST, SF, NF, NT) with the four yoga practices of Hinduism. He connects the ST types to karma yoga, which is the path of good works. He connects the SF types to bhakti yoga, which is the path of devotion to a particular God. He connects the NF types to raja yoga, which is the path of meditation. Finally, he connects the NT types to jnana yoga, which is the path of knowledge. He also lists two spiritual mentors for each group: Moses and Confucius for the ST types, Mohammed and St Francis of Assisi for the SF types, Jesus and Rabindranath Tagore for the NF types, and Socrates and the Buddha for the NT types.

In his book, *Your personality and the spiritual life*, Reginald Johnson (1999) connects each of the eight original Jungian types to characters from the Bible. First, he labels Jung's extroverted sensing type (ESTP and ESFP) "the energizers" and uses David as a case study. Second, he labels Jung's introverted sensing type (ISTJ and ISFJ) "the stabilizers" and uses Mark as a case study. Third, he labels Jung's extroverted intuitive type (ENFP and ENTP) "the crusaders" and uses Joshua as a case study. Fourth, he labels Jung's introverted intuitive type (INFJ and INTJ) "the renewers" and uses John a case study. Fifth, he labels Jung's extroverted thinking type (ESTJ and ENTJ) "the organizers" and uses Solomon as a case study. Sixth, he labels Jung's introverted thinking type (ISTP and INTP) "the analyzers" and uses Matthew as a case study. Seventh, he labels Jung's extroverted feeling type (ESFJ and ENFJ) "the encouragers" and uses Ruth as a case study. Finally, he labels Jung's

introverted feeling type (ISFP and INFP) “the enhancers” and uses Luke as a case study.

Lynne Baab takes a more practical approach in her book *Personality type in congregations: how to work with others more effectively* (1998). She explores how Christians can use psychological type theory for various applications: finding out where best to serve within a congregation; discovering one’s spiritual gifts; improving one’s prayer and bible study; growing spiritually; engaging in congregational activities; becoming a leader; and, serving in a pastoral role.

The most comprehensive book about psychological type and spirituality to date is most likely *SoulTypes: Matching your personality and spiritual path* by Hirsh and Kise (2006). In this book, the authors take each of the sixteen types in turn and offer suggestions about prayer, worship, service, and spiritual growth. They also list each type’s greatest gifts and best roles in community and give advice on what might push each type away from their spiritual path. This last aspect is particularly important to the present project. For example, the authors note that ISTJs have a tendency to notice hypocrisy, that ENTJs have a tendency to make spiritual growth a low priority, and that INTJs have a tendency to be at odds with the idea of a higher power.

Although the above mentioned books are of interest when it comes to exploring the connection between psychological type theory and religious belief, they all rely on theory alone and thus cannot be used to make any scientific claims about the matter. However, over the last decade or so, numerous empirical studies have been performed using psychological type theory within the realm of religion and spirituality. Chapter five will look at these studies in detail and the results that they produced.

4.4 Conclusion

This chapter examined the development of psychological type theory and assessed its strength as a measure of personality. It also outlined how the model has been theorized to relate to the realm of religion and spirituality. Psychological type theory was found to be a model of personality that holds up well to criticism, and has been demonstrated to be strong in terms of both reliability and validity. It also has the added advantages of being widely known and of using terms that are neutral as opposed to value-laden. The next chapter will turn its attention toward the numerous empirical studies that have used psychological type theory within the realm of religion and spirituality in order to further assess its usefulness for the current project and to build a framework for predictions.

5 HOW DOES PSYCHOLOGICAL TYPE AFFECT RELIGIOUS BELIEF?

The previous chapter introduced psychological type theory and began to look at how it has been applied within the realm of religion and spirituality. This chapter will move from the theoretical to the empirical by reviewing the many quantitative studies that have used psychological type theory to explore questions related to religion and spirituality. These studies have been divided into four major strands: those that have profiled members of the clergy, those that have profiled religious groups, those that have explored different ways of being religious, and those that have explored dissatisfaction with religion. A final section in this chapter will introduce three other models of personality – Hans Eysenck’s PEN model, Raymond Cattell’s sixteen personality factors model, and Lewis Golderg’s Big Five model. – and outline how studies using these models relate to the studies that use the psychological type model.

5.1 Empirical studies using psychological type theory

5.1.1 Psychological type profiles of clergy members

One area that has been explored in great detail when it comes to psychological type theory and religion is the profiling of Christian clergy members. Researchers have profiled Bible College students (Francis, Penson & Jones, 2001), interdenominational church leaders (Craig, Francis & Robbins, 2004), missionary personnel (Craig, Hotsfall & Francis, 2005), Roman Catholic priests (Craig, Duncan & Francis, 2006), Anglican clergy (Francis, Craig, Whinney, Tilley & Slater, 2007), youth ministers (Francis, Nash, Nash & Craig, 2007), and seminarians (Francis, Craig

& Butler, 2007). Taken together, this body of research, all of which was done in the United Kingdom, indicates that Christian clergy tend towards introversion over extraversion, sensing over intuition, feeling over thinking, and judging over perceiving (i.e., ISFJ). Francis, Robbins, Kaldor and Castle (2009) confirmed this tendency in their study of 3,715 clergymen and clergywomen from a variety of denominations in Australia, England, and New Zealand. They also noted that clergy members with a preference for introversion and thinking report lower work-related psychological health than other types. This finding may relate to the types most likely to be dissatisfied with religion in general; this topic is discussed below in Section 5.1.4.

5.1.2 Psychological type profiles of religious groups

Another area that has been explored in great detail is the profiling of religious groups in general. This area is of greater interest to the current project since it focuses on the overall membership of religious groups, and not just the leadership of those groups. The knowledge of which psychological types are most likely to be found in religious groups is useful because it can be used to predict which psychological types might be the most common among non-religious individuals.

The earliest study to provide a psychological type profile of a religious group is Gerhart (1983). This study focused on members of a Unitarian Universalist congregation in the U.S. and found that most of the members preferred introversion over extraversion, intuition over sensing, and judging over perceiving. The number of thinking versus feeling individuals was close to equal. In the 1990's, three Canadian-based studies provided profiles of other groups. First, Delis-Bulhoes (1990) surveyed 48 Roman Catholics as well as 154 Evangelical Protestants and found an overall preference for introversion, sensing, and judging in both groups. The main difference

between the two groups was that the Catholics, on average, preferred feeling, whereas the Protestants, on average, preferred thinking. Second, Ross (1993) surveyed 116 Anglicans and found an overall preference for introversion, intuition, feeling, and judging. Third, Ross (1995) surveyed 175 Roman Catholics and found an overall preference for introversion, intuition, feeling, and judging among women and introversion, thinking, and judging among men (the number of sensing versus intuition individuals was close to equal among men).

In the 2000's, data from the United Kingdom started to be collected as well, all based on members of Anglican congregations. In three initial studies, an overall preference for introversion, sensing, and judging was found among 101 members of Welsh congregations (Craig, Francis, Bailey & Robbins, 2003), among 327 members of English congregations (Francis, Duncan, Craig & Luffman, 2004), and among 158 members of English congregations (Francis, Butler, Jones & Craig, 2007). In the Welsh study, an overall preference for feeling was also found and in the two English studies, an overall preference for feeling was found among females with the thinking versus feeling dimension being close to equal among men.

Although the above mentioned studies are useful in comparing type differences between various religious groups, the results are unable to address the larger question of how religious individuals as a whole compare to the general population. This is because the sixteen psychological types do not occur equally in the general population (Myers, McCaulley, Quenk & Hammer, 2003). So, for example, if a study finds that a certain religious group has more ISFJs than ENFPs, this might not actually be significant because it could be that there are simply more ISFJs than ENFPs in the general population. In order to address this weakness in the data, a series of recent studies have begun to compare the percentages of the sixteen psychological types in religious groups with the percentages found in the general

population. The *Myers-Briggs Type Indicator: Step 1 manual supplement* (Kendall, 1998) gives percentages for the general U.K. population and these figures have been used in four new studies of churchgoers in Wales and England.

In the first study, Francis, Robbins, Williams and Williams (2007) compared 185 Anglican churchgoers with the U.K. population norms from Kendall (1998) and found an over-representation of ISFJ and ESFJ in both male and female churchgoers. Among females, these two types accounted for 64% of the churchgoers, whereas the expected figure based on population norms is only 36%. Among males, the two types accounted for 46% of the churchgoers, whereas the expected figure based on population norms is only 13%. In the second study, Craig, Francis and Barwick (2010) compared 626 Anglican churchgoers to the population norms and found an over-representation of introversion, intuition, and judging among the churchgoing women and an over-representation of intuition and judging among the churchgoing men. The feeling versus thinking percentages were close to the norm for the women and the extraversion versus introversion percentages as well as the feeling versus thinking percentages were close to the norm for the men. The most under-represented types among the female churchgoers were ESTJ, ESFP and ISTP and the most under-represented types among the male churchgoers were ISTP, ESFP and ISFP. In the third study, Francis, Robbins and Craig (2011) compared 3,304 Anglican churchgoers to the population norms and found an over-representation of introversion and judging among the churchgoing women and an over-representation of introversion, sensing, feeling and judging among the churchgoing men. The sensing versus intuition percentages as well as the feeling versus thinking percentages were close to the norm among the women. The most under-represented types among the female churchgoers were ENTP, ISTP and ESTP and the most under-represented types among the male churchgoers were INTP, ESTP and ISTP. In the fourth study, Village, Baker and

Howat (2012) compared 1,156 churchgoers from a variety of Christian denominations in the U.K. to the population norms and found an over-representation of introversion, intuition, and judging among the churchgoing women and an over-representation of introversion, intuition, feeling and judging among the churchgoing men. The feeling versus thinking percentages were close to the norm among the women. The most under-represented types among the female churchgoers were ESFP, ENTP and ESTP and the most under-represented types among the male churchgoers were ISTP, ENTP and ESTP.

In addition to the four U.K. studies mentioned above, Robbins and Francis (2011) did a study in Australia based on 1,527 churchgoers from 18 different denominations. In this case, the population norms for Australia were those given in Ball (2008) from the archive of the Psychological Type Research Unit at Deakin University. This study found an over-representation of sensing, feeling, and judging among the churchgoing women and an over-representation of introversion, sensing, feeling, and judging among the churchgoing men. The extraversion versus introversion percentages were close to the norm among the women. The most under-represented types among the female churchgoers were INTP, INFP and ENTP and the most under-represented types among the male churchgoers were ISTP, INTP and ENTP.

Although the various studies cited in this section took place in different settings and produced different results each time, when taken together, they do reveal a somewhat uniform pattern. The most consistent result pertains to the judging versus perceiving dimension of psychological type theory. In every study, both male and female churchgoers had an overall preference for judging over perceiving and, in the cases where the results were compared to population norms, this overall preference for judging was always greater than what would be expected to occur in the general

population. The next most consistent result pertains to the extraversion versus introversion, and the thinking versus feeling dimensions. Although over-representations were not always found on these dimensions, when they did occur, they were always in the directions of introversion and feeling. This is particularly true of male churchgoers. The one dimension they did not produce a consistent result was the sensing versus intuition dimension. Francis, Robbins, Williams and Williams (2007), Francis, Robbins and Craig (2011) and Robbins and Francis (2011) demonstrated an over-representation of sensing types among churchgoers whereas Craig, Francis and Barwick (2010) and Village, Baker and Howat (2012) found an over-representation of intuitive types. The conclusion based on this review is that religious groups tend towards I_FJ. This matches closely to what we know of clergy as well (as discussed in the previous section). If one assumes that non-religious individuals are the opposite of religious individuals in terms of psychological type, one could then hypothesize that non-religious individuals would tend towards E_TP. When looking at which types are the most under-represented in religious groups, it is interesting that the four TP types (ISTP, ESTP, INTP and ENTP) appear most often.

It should be noted that all of the religious groups discussed thus far in this section have been Christian groups. This is due to the fact that there is very little data available for other religious groups. Researchers have only recently begun to collect data on the psychological type profiles of non-Christian groups. For example, Francis and Dato (2012) profiled 48 Muslims, Silver, Ross and Francis (2012) profiled 31 Buddhists, and Williams, Francis, Billington and Robbins (2012) profiled 75 Druids. The sample sizes from these studies are all too small to draw any real conclusions. However, considering the fact that the current project is focused on individuals who grew up attending Christian churches, this lack of data from non-Christian groups is not a concern.

5.1.3 Psychological type and different ways of being religious

Another way in which psychological type theory has been used to explore issues related to religion and spirituality is comparing different ways of being religious. Within this category, there have been four major streams of research. The first has looked at psychological type and mysticism; the second has looked at psychological type and intrinsic versus extrinsic versus quest orientations; the third has looked at psychological type and conservative forms of religion; and the fourth has looked at psychological type and doubt.

Five studies have explored the possible connection between psychological type theory and a mystical orientation. All base their definition of mysticism on the work of Frederick Crossfield Happold, who, in Happold (1963), lists seven defining characteristics of mysticism: ineffability, noesis, transience, passivity, consciousness of the oneness of everything, a sense of tirelessness, and true ego. One of the studies (Francis, 2002) found no connection between psychological type theory and a mystical orientation. However, the other four (Francis & Loudon, 2000; Francis, Village, Robbins & Ineson, 2007; Francis, Robbins & Cargas, 2012; and Francis, Littler & Robbins, 2012) all found a strong correlation between a preference for intuition and higher scores on mysticism.

Two studies have explored the possible connection between psychological type theory and the three major religious orientations: intrinsic, extrinsic, and quest. The idea of intrinsic versus extrinsic orientations originated in the work of pioneering personality psychologist Gordon Allport in his 1966 article "Religious context of prejudice." According to Allport, those with an intrinsic religious orientation sincerely believe what their religion teaches and seek to live their lives accordingly, whereas those with an extrinsic religious orientation attend a place of worship primarily for the social benefits gained from doing so. Daniel Batson later added a third possible

orientation to the theory, which he labelled the quest orientation and described in Batson (1976) as including those who see religion as a search for truth that will never be fully completed. In the first study to explore the connection between psychological type theory and the three orientations, Francis, Robbins and Murray (2010) found a correlation between extroversion and the extrinsic orientation and introversion and the intrinsic orientation among 65 churchgoers. However, in a larger sample (n = 481), Ross and Francis (2010) did not find this correlation. Instead, they found a correlation between a preference for intuition and the quest orientation.

Eight studies have explored the possible connection between psychological type theory and more conservative, traditional expressions of religion. In the first study, Francis and Ross (1997) concluded that, “sensors give higher value than intuitives to the traditional aspects of Christian spirituality, like church attendance and personal prayer, while intuitives give higher value than sensors to the experiential aspects of spirituality, like a fine sunset and a star filled sky” (p. 99). In the second study, Francis and Jones (1997) found that churchgoers who preferred thinking over feeling scored higher on measures of charismatic experience such as being born-again and speaking in tongues (both of which are associated with conservative forms of religion). In the third study, Francis and Jones (1998) found that churchgoers who preferred sensing and thinking were more likely to hold traditional beliefs than churchgoers who preferred intuition and feeling. In the fourth study, Jones, Francis and Craig (2005) found a higher percentage of extroverts, thinkers, and perceivers among charismatic Christians. In the fifth study, Ross, Francis and Craig (2005) found a strong correlation between young people that preferred sensing and dogmatic religious beliefs. In the sixth study, Francis, Craig and Hall (2008) found that churchgoers who preferred sensing, thinking, and judging were least likely to be interested in non-traditional, Celtic expressions of Christianity. In the seventh study,

Village, Francis and Craig (2009) found that conservative, evangelical Christians tend more towards sensing, whereas Anglo-Catholics tend more towards intuition. Finally, in the eighth study, Village (2012) found a correlation between a preference for sensing and a belief in biblical literalism among recently ordained clergy. Taken together, this body of research demonstrates that there is a strong connection between a preference for sensing and more conservative expressions of religion. To a lesser extent, there also appears to be a connection between a preference for thinking and conservative expressions.

Two studies have explored the possible connection between psychological type theory and comfort with religious doubt and uncertainty. In the first study, Ross, Weiss and Jackson (1996) found that religious individuals who preferred intuition were more open to doubt and change than their sensing counterparts. This was confirmed in a second study, in which Francis, Jones and Craig (2004) reached the same conclusion.

Section 5.2 established that religious individuals tend towards I_FJ preferences with no clear preference between sensing and intuition. This indicates that there are at least two different ways of being religious that parallel psychological type theory – one based on sensing and one based on intuition. The studies surveyed in this section provide evidence for this difference. Taken together, they demonstrate quite consistently that religious individuals who prefer sensing tend more towards conservative, traditional, evangelical/charismatic, and literal expressions of religion, whereas religious individuals who prefer intuition tend more towards liberal, non-traditional, mystical, and quest-orientated expressions of religion. Those who prefer intuition are also more open to doubt, uncertainty and change.

5.1.4 Psychological type and dissatisfaction with religion

A final way in which psychological type theory has been applied to issues related to religion and spirituality is measuring levels of satisfaction with religion. This area is of most interest to the present project since one can assume that those with lower levels of satisfaction are the most likely to stop attending church and to stop believing in God. A series of four studies looked at psychological type and attitude towards Christianity and a fifth looked at psychological type and congregational satisfaction.

All four of the studies that looked at psychological type and attitude towards Christianity were based on post-secondary students and used the Francis Scale of Attitude toward Christianity. Two of the studies (Jones & Francis, 1999 and Francis, Robbins, Boxer, Lewis, McGuckin & McDaid, 2003), with sample sizes of 82 and 149 respectively, found a correlation between a preference for feeling and a more positive attitude towards Christianity. The other two (Fearn, Francis & Wilcox, 2001 and Francis, Jones and Craig, 2004), with samples size of 367 and 552 respectively, found a correlation between a preference for judging and a more positive attitude towards Christianity. Fearn, Francis and Wilcox (2001) also found a correlation between sensing and a more positive attitude towards Christianity. That both feeling and judging stood out as being related to a more positive attitude towards Christianity fits with the findings from Section 5.3 that religious individuals as a whole tend more towards these preferences as well. The largest of the four studies, Francis, Jones and Craig (2004) also ranked all sixteen types by their average score on the Francis Scale of Attitude toward Christianity. The types with the least positive attitude towards Christianity were INTP, ENTP and ISTP – all of which share in common a preference for thinking and perceiving (the opposite of feeling and judging).

In a large (n = 1,867) study of Anglican churchgoers in England, Francis and Robbins (2012) measured both psychological type and congregational satisfaction. Those with *lower* satisfaction tended towards introversion, intuition, thinking, and perceiving. The three types that scored lowest on congregational satisfaction were INTJ, INTP and ENTP. Again, thinking and perceiving stand out as being the most common preferences related to a more negative attitude towards Christianity.

5.1.5 Summary

As outlined in the first part of this chapter, psychological type theory has been used extensively within the realm of religion and spirituality and researchers have been able to produce a large body of empirical data on what psychological types are the most common among religious individuals. The two preferences that appear the most often among religious individuals and among those who are the most satisfied with religion are feeling and judging. Likewise, the two preferences that appear the least are the corresponding preferences of thinking and perceiving. Thus, it is not hard to imagine that individuals with preferences for thinking and perceiving might feel more uncomfortable in religious settings than individuals with preferences for feeling and judging and therefore might also be more likely to look seriously at other worldviews, such as atheistic worldviews. By providing new data on the psychological type preferences of atheist church-leavers, the current project will address this hypothesis directly.

5.2 Empirical studies using other models of personality

5.2.1 Hans and Sybil Eysenck's P-E-N model

Hans Eysenck (1916-1997) was born in Germany but spent the entirety of his professional career in the United Kingdom (having left Germany during World War II

due to his opposition to Hitler). According to Haggbloom et al. (2002), he ranks number 13 on the list of the 100 most eminent psychologists of the twentieth century and is the third most frequently cited author in professional journals of psychology. One of his primary contributions to the field of psychology was his and his wife's P-E-N (or "Big Three") model of personality, which was a forerunner of the current Big Five model (discussed in the next section). Initially, Eysenck focused on only two main personality traits: extraversion and neuroticism (Eysenck, 1947) but later, in collaboration with his wife Sybil, he added a third: psychoticism (Eysenck & Eysenck, 1976). The result was a three-trait model of personality, sometimes referred to as the P-E-N model (a mnemonic for psychoticism, extraversion and neuroticism). In the 1970s, the Eysencks also developed the Eysenck Personality Questionnaire (EPQ) to measure the three traits. Francis, Jones and Craig (2004) summarize the Eysenck model as follows:

The high scorer on the extraversion scale is characterised... as a sociable individual, who likes parties, has many friends, needs to have people to talk to, and prefers meeting people to reading or studying alone. The high scorer on the neuroticism scale is characterised as an anxious, worrying individual who is moody and frequently depressed, likely to sleep badly and to suffer from various psychosomatic disorders. The high scorer on the psychoticism scale is characterised as being cold, impersonal, hostile, lacking in sympathy, unfriendly, untrustful, odd, unemotional, unhelpful, lacking in insight, strange, with paranoid ideas that people were against him or her. (p. 18)

There are four important things to note about the Eysenck model. First, the Eysencks believed that each of the three traits operate orthogonally, i.e. that each exists independently without interfering or overlapping with the other two. This is important because older models of personality saw neuroticism and psychoticism as

being the opposite poles of a single trait. Second, he believed that there is a biological basis to each of the three traits. He felt that extraversion is related to differences in the brain's cortical arousal, neuroticism is related to differences in the brain's limbic system, and psychoticism is related to differences in testosterone levels. Third, he believed that there is a direct connection between two of the personality traits, neuroticism and psychoticism, and pathology. He felt that every individual fits somewhere along a continuum for each of the traits and that these continuums stretched from an average, healthy range to an abnormal, unhealthy range. In other words, neurotics and psychotics are simply individuals who obtain extremely high scores on measures of neuroticism and psychoticism. Fourth, there may exist some correlation between the Eysenck model and psychological type theory. For example, Furnham, Jackson, Forde and Cotter (2001) found that the Eysencks' extraversion and neuroticism correlate strongly with the E-I dimension of psychological type theory (high extraversion matching a preference for extraversion, as expected, and high neuroticism matching a preference for introversion) and that the Eysencks' psychoticism correlates strongly with the J-P dimension (high psychoticism matching a preference for perceiving). Correlations with the S-N and T-F dimensions were much weaker.

Several studies have used the Francis Scale of Attitude toward Christianity alongside a revised, abbreviated version of the Eysenck Personality Questionnaire among adults and university students in the United Kingdom (Francis, 1991; Francis, 1993, Francis, Lewis, Brown, Philipchalk and Lester, 1995; Francis, 1999). The results of these studies have been very consistent. Each study found a correlation between low psychoticism and a more positive attitude towards Christianity (and hence, between high psychoticism and a more negative attitude towards Christianity). No correlation was found between neuroticism or extraversion and attitude towards

Christianity. This is significant because, if high psychoticism parallels a preference for perceiving, as suggested by Furnham, Jackson, Forde and Cotter (2001), this is further evidence that a preference for perceiving might be more common among those who are dissatisfied with religion.

The explanation given for the connection between high psychoticism and low religiosity has to do with social conformity and conditioning. According to Francis and Jones (2004), a major component of Eysenck's psychoticism trait is impulsivity, and individuals who score high on impulsivity are less likely to conform to social norms and are less likely to be easily conditioned. On the other hand, those who score low on psychoticism (and thus low on impulsivity) conform and condition more readily.

The major weakness in applying Eysenck's model to the issue of churchleaving is that the language it employs is extremely value-laden. As mentioned above, high psychoticism is associated with words such as "cold", "unfriendly" and "odd" and low psychoticism is associated with being easily conditioned. It is no great leap to imagine people taking issue with being placed on either side of such a continuum. On the other hand, the language used to describe judging versus perceiving in the psychological type model are much more neutral.

5.2.2 Raymond Cattell's sixteen personality factors

The Eysencks' main rival when it came to competing personality theories was his contemporary Raymond Cattell (1905-1998). According to Haggblom et al. (2002), he ranks number 16 on the list of the 100 most eminent psychologists of the twentieth century and is the seventh most frequently cited author in professional journals of psychology. Born in the United Kingdom but spending most of his professional career in the United States, Cattell took a very different approach from the Eysencks' to understanding personality. Whereas Eysenck focused on broad,

independent traits (and thus ended up with only three), Cattell focused on more narrow, interrelated traits (and thus ended up with sixteen). Also, whereas Eysenck built his model on his belief that each trait had a biological basis, Cattell based his model on lexical studies. Cattell started with a large database of English words used to describe personality and behaviour and then used a statistical tool called factor analysis to find out which groups of words tended to occur together most often based on self-report questionnaires. Using this method, Cattell (1973) narrowed things down to sixteen personality factors, as outlined in Table 5 below. He also developed a psychometric instrument to measure the sixteen personality factors, called the 16PF, and an adolescent version of the instrument to measure fourteen of the factors, called the HSPQ (high school personality questionnaire).

Table 5: Raymond Cattell's 16 personality factors

Factor Label	High Score Description	Low Score Description
A	Outgoing	Reserved
B	More intelligent	Less intelligent
C	Calm	Easily upset
E	Assertive	Submissive
F	Spontaneous	Restrained
G	Rule-conscious	Non-conforming
H	Socially bold	Shy
I	Sensitive	Tough
L	Skeptical	Trusting
M	Imaginative	Conventional
N	Private	Forthright
O	Insecure	Confident
Q1	Open to change	Traditional
Q2	Self-reliant	Group-oriented
Q3	Perfectionist	Flexible
Q4	Tense	Relaxed

Two studies have looked at religious attitudes within the context of Cattell's model. Francis and Bourke (2003) and Bourke, Francis and Robbins (2007) used the Francis Scale of Attitude toward Christianity alongside the HSPQ and found the same result both times: Those with a more positive attitude toward Christianity scored higher on Factors G, I and Q3 and lower on Factors E and F. This indicates that religious adolescents are more rule-conscious, sensitive, perfectionist, submissive and restrained, while non-religious adolescents are more non-conforming, tough, flexible, assertive, and spontaneous. According to Myers, McCaulley, Quenk and Hammer (2003), high scores on Factors G and Q3 correlate strongly with a preference for judging; a low score on Factor E and a high score on Factor I correlates strongly with a preference for feeling; and a low score on Factor F correlates strongly with a preference for introversion. This provides further evidence for an overall preference towards I_FJ among religious individuals and therefore for E_TP among non-religious individuals.

5.2.3 The Big Five personality traits

Over the last few decades, a new model of personality, known as “the Big Five” or the “Five-Factor Model” (FFM), has emerged as the dominant model used by personality psychologists. In many ways, it is a compromise between the Eysencks' model, which is seen by many researchers to be comprised of too *few* traits, and Cattell's model, which is seen by many researchers to be comprised of too *many* traits. Although the Big Five traits were not widely known or widely used until the 1990's, they were actually first “discovered” in the 1950's by U.S. Air Force researchers Ernest Tupes and Raymond Christal. Through a group of studies that looked for correlations between Cattell's personality traits, Tupes and Christal concluded that the traits could actually be reduced to just five, which they labelled surgency,

agreeableness, dependability, emotional stability, and culture. They reported their findings in a 1961 government report, which remained largely unknown to other personality researchers until it was re-published much later in the *Journal of Personality* (Tupes & Christal, 1992), after the Big Five had been discovered independently.

The “re-discovery” of the Big Five traits is generally credited to Lewis Goldberg of the University of Oregon and the recent popularization of the model is generally credited to Paul Costa and Robert McCrae of the U.S. National Institutes of Health. Like Cattell, Goldberg searched for personality traits using lexical studies but unlike previous researchers, he started from scratch with new sets of descriptive words. The result was a five-factor solution very similar to the one found by Tupes and Christal (Goldberg, 1990). He coined the term “the Big Five” and used the same labels as Tupes and Christal with the exception of the label dependability, which he renamed conscientiousness. He then shared his work with the team of Costa and McCrae, developers of the NEO personality inventory. Costa and McCrae’s model of personality was originally based on only three traits (neuroticism, extraversion and openness – hence the acronym “NEO”) but was later expanded to include agreeableness and conscientiousness, thus matching the Big Five (neuroticism being the reverse of emotional stability and openness being similar to culture). The Revised NEO Personality Inventory, or NEO PI-R (Costa & McCrae, 1992a), was developed to include the additional two traits and to this day remains the primary psychometric instrument for measuring the Big Five personality traits.

In the current Big Five model, extraversion (originally called surgency) is characterized by a tendency to be energetic, assertive, and sociable; neuroticism is characterized by a tendency to be anxious, irritable, and depressed; openness (originally called culture) is characterized by a tendency to be intellectual curious,

appreciative of art, and interested in novelty; agreeableness is characterized by a tendency to be trusting, cooperative, and compassionate; and conscientiousness is characterized by a tendency to be organized, dependable, and self-disciplined.

There are six major benefits of the Big Five model. The first is that it corresponds well to both the Eysencks' model and Cattell's model and in a sense, combines them (see Table 6 below). It carries forward the traits of extraversion and neuroticism from Eysenck and splits psychoticism into agreeableness and conscientiousness. The only real addition is openness (which Hans Eysenck argued is simply a rough measure of intelligence). On the other hand, the model is based on lexical studies, like Cattell's model. Further research into Cattell's sixteen personality factors has demonstrated, as Tupes and Christal suggested, that there do indeed exist five "higher order" traits alongside the primary sixteen. Cattell and his wife Heather (who carried on his work after his death) ended up referring to these as the "five global factors" or "supertraits". Roughly speaking, factors A, F, H, N and Q2 correspond to extraversion; factors C, O and Q4 correspond to neuroticism (labelled "anxiety" by the Cattells); factors E and L correspond to agreeableness (the reverse of which was labelled "independence" by the Cattells); factors I, M and Q1 correspond to openness (labelled "receptivity" by the Cattells); and factors G and Q3 correspond to conscientiousness (labelled "self control" by the Cattells). The only factor that does not correspond to any of the Big Five is factor B.

The second benefit of the Big Five model is that it is demonstrably very robust. It has been applied in other languages and cultures and has been found to exist in every part of the world. According to Gosling and John (1999), differences in the Big Five traits have even been found to exist in several non-human animals, including chimpanzees (all five traits), dogs (all except openness), and octopi (extraversion and neuroticism only).

The third benefit of the Big Five model is that it has been expanded by Costa and McCrae to include subordinate dimensions, called “facets”. Each of the Big Five traits is associated with six facets, resulting in a total of 30 facets (see Table 6). This allows the theory to be applied to more specific behaviours. Several of these facets will be used in the current project to operationalize concepts addressed in chapter three, namely immorality, arrogance, anger, deliberation and intelligence.

The fourth benefit of the Big Five model is that a public domain version of the NEO PI-R has been developed by Lewis Goldberg and his colleagues. Known as the IPIP-NEO, the instrument measures both the Big Five traits and Costa and McCrae’s 30 facets. As explained in chapter eight, the current project will make use of this instrument to measure several of the facets thought to relate to atheism.

The fifth benefit of the Big Five model is that four of the Big Five personality traits have been demonstrated to correlate strongly with the four dimensions of psychological type theory (Costa & McCrae, 1989). As summarized in Table 6 below, a preference for extraversion (E) correlates with high scores on Big Five extraversion, and a preference for introversion (I) correlates with low scores on Big Five extraversion. A preference for sensing (S) correlates with low scores on openness, and a preference for intuition (N) correlates with high scores on openness. A preference for thinking (T) correlates with low scores on agreeableness, and a preference for feeling (F) correlates with high scores on agreeableness. A preference for judging (J) correlates with high scores on conscientiousness, and a preference for perceiving (P) correlates with low scores on conscientiousness. These correlations allow researchers to make direct comparisons between studies that have used psychological type theory and studies that have used the Big Five model.

Table 6: The Big Five Personality Traits

	E	N	O	A	C
Tupes & Christal (1961)	Surgency	Emotional Stability*	Culture	Agreeableness	Dependability
Eysenck (1976)	Extraversion	Neuroticism		Psychoticism	
Cattell (Supertraits shown in paranthesis)	A, F, H, N*, Q2* (Extraversion)	C*, O, Q4 (Anxiety)	I, M, Q1 (Receptivity)	E, L (Independence*)	G, Q3 Self Control
Goldberg (1990)	Surgency	Emotional Stability*	Culture	Agreeableness	Conscientiousness
Costa & McCrae (1992)	Extraversion	Neuroticism	Openness	Agreeableness	Conscientiousness
Costa & McCrae's facets	Warmth	Anxiety	Imagination	Trust	Competence
	Gregariousness	Anger	Aesthetics	Morality	Orderliness
	Assertiveness	Depression	Emotionality	Altruism	Dutifulness
	Activity	Self-consciousness	Adventurousness	Cooperation	Achievement-striving
	Excitement-seeking	Impulsivness	Intellect	Modesty	Self-discipline
	Cheerfulness	Vulnerability	Liberalism	Sympathy	Deliberation
Psychological Type Theory	E versus I*		S* versus N	T* versus F	J versus P*

* Reverse trait label

The sixth benefit of the Big Five model is that it has been used in many studies related to personality and religion. Saroglou (2010) did a meta-analysis of these studies comprised of 71 different samples from 19 countries (n = 21,715), and found that two of the Big Five traits – agreeableness and conscientiousness – correlate consistently with measures of religiousness. This finding was consistent across age, gender, nationality, religious measure used, and Big Five instrument used. This finding confirms both the connection between the Eysencks' psychoticism and religiosity (psychoticism being a possible combination of agreeableness and

conscientiousness) and the connection between a preference for FJ (feeling and judging) and religiosity (feeling being correlated with agreeableness and judging with conscientiousness).

Although the Big Five model has many benefits, there is one major weakness that makes it unsuitable to serve as the main model of personality used for the current project: Like the Eysencks' model, it uses labels that are extremely value-laden and easily perceived as perjorative. Since the words "openness", "agreeableness", and "conscientiousness" all carry very positive connotations, scoring low on these traits can be seen as negative. Likewise, since "neuroticism" carries a very negative connotation, scoring high on this trait can also be seen as negative. The only trait label in the Big Five model that is value-free is extraversion. On the other hand, psychological type theory uses dichotomous terms that are all value-free. For example, by using the terms "thinking" and "feeling" instead of high agreeableness and low agreeableness, it is easier to point out the fact that both sides have strengths and that both sides have weaknesses. This is particularly important when dealing with a sensitive topic like religion. It is for this reason that the current project has chosen to use psychological type theory as its main model for exploring the role that personality might play in why certain people give up belief in God and become atheists.

5.2.4 Other relevant variables

One more recently published study is worth noting. In her meta-review of empirical research focusing on atheists and independent personality variables, Caldwell-Harris (2012) noted that atheists tend to score higher on measures of logical reasoning as well as measures of nonconformity. This fits well with the expectation

that atheists would tend towards a preference for thinking and for perceiving in the psychological type model.

5.3 Conclusion

Chapter four and five of this paper have examined psychological type theory in depth, from its development to how it has been used in empirical studies focused on personality and religion. Based on this analysis, it is concluded that psychological type is a robust model and the best model to use for the current project due to its use of neutral terminology. Based on the studies surveyed in this chapter, it is hypothesized that the current project will find a connection between atheism and psychological type preferences for thinking (T) and perceiving (P). Should such a connection be found, it would provide confirmation of what is already known about the link between personality and religiosity from two other models. Due to the known correlations between the various personality models, it would support the finding that low religiosity is associated with psychoticism in the Eysenck model and the finding that low religiosity is associated with low agreeableness and low conscientiousness in the Big Five model.

A connection between preferences for TP and atheism would also provide a new explanation for why some individuals are more likely than others to stop attending church and to become atheists. Individuals who prefer TP are minorities in church environments and are therefore more likely than other types to feel out of place. On top of this, individuals who prefer TP are non-conformists who prefer to make decisions based on logical reasoning as opposed to shared social values. They would thus have the boldness necessary to leave their childhood religious beliefs behind and to embrace a new worldview without God.

This concludes the literature review portion of this thesis (Part I). The second half of the thesis (Part II) will turn its attention towards the current research project. Chapter six will cover the research assumptions, research questions, and methodology used. Chapters seven through nine will outline the predictions and results. Please note that, unlike the first half of this thesis, which referred to the current project using the future tense, the second half of this thesis will refer to the current project using the past tense.

6 GENERAL METHODOLOGY

The main goal of this research project was to explore the reasons why certain individuals who were raised in Christian environments as children become atheists as adults, while other individuals remain Christian. In particular, the goal was to explore the role of innate personality using psychological type theory as the primary model. With this goal in mind, the first half of this paper reviewed the research literature relevant to the topic, including: atheist terminology and history (Chapter One); the concept of worldview and how it applies to atheist beliefs (Chapter Two); existing theories of why certain individuals become atheists after having been raised in Christian environments (Chapter Three); the development and application of psychological type theory (Chapter Four); and finally, empirical studies that have used psychological type theory and other models of personality within the realm of religion and spirituality (Chapter Five). The following chapter will summarize the assumptions that were made in the current project based on the literature review, list the research questions, and outline the general methodology that was used.

6.1 Assumptions based on the literature review

Based on the literature reviewed in Chapter One, for the purposes of this research project, the term “atheist” was defined as: “an individual who lacks a belief in God due to a conscious rejection of that belief.” However, it was understood that such a person may or may not actually use the label “atheist” to describe him or herself and may instead, or in addition, choose to use a label such as agnostic, freethinker, humanist, or skeptic. Hence, the question of whether or not an individual

meets the definition of an atheist was assumed to be of greater importance than the question of which label they prefer to use for self-description.

Based on the literature reviewed in Chapter Two, it was further assumed that atheists share much in common with each other with regard to worldview-level beliefs, in addition to sharing a lack of belief in God. Most importantly, it was assumed that atheists share an ontology based on naturalism (the belief that the natural world is all that exists and that there is no such thing as the supernatural), and an epistemology based on rationalism (the belief that knowledge should be based on science and reason alone and never on divine revelation or tradition).

Based on the literature reviewed in Chapter Three, it was assumed that the following seven factors *may* play a role in why certain individuals become atheists and therefore should be tested alongside psychological type: selfishness, arrogance, anger, relationship with parents during childhood, religious emphasis in the home during childhood, deliberation in the pursuit of truth, and intelligence.

Based on the literature reviewed in chapters four and five, it was assumed that innate differences in personality exist between individuals and that these differences can be best determined using psychological type theory. These primary differences include two ways of maintaining psychological energy (extraversion versus introversion), two ways of gathering information (sensing versus intuition), two ways of making decisions (thinking versus feeling), and two ways of operating in the outside world (judging versus perceiving).

6.2 Research questions

The current project examined three major research questions. The first and most important research question was: Which psychological types are over-represented among atheist church-leavers, as compared to those who continue to

attend church, and what might this reveal about why certain individuals are more likely than others to give up their childhood religious beliefs and become atheists? The hypothesized answer to this question as well as the results will be covered in Chapter Seven. Chapter Seven will also discuss the psychological type profiles of theist church-leavers as well as those who did not grow up attending church.

The second research question was: Is there evidence to support any of the other theories about why certain individuals are more likely than others to give up their childhood religious beliefs and to become atheists? This question was broken down into seven parts based on the seven theories outlined in Chapter Three:

1. Are atheist church-leavers more selfish than those who remain in church?
2. Are atheist church-leavers more arrogant than those who remain in church?
3. Are atheist church-leavers more prone to anger than those who remain in church?
4. Did atheist church-leavers have a more negative relationship with one or both of their parents during childhood, as compared to those who remain in church?
5. Did atheist church-leavers grow up in homes where religion was emphasized less than in the homes of those who remain in church?
6. Are atheist church-leavers more deliberate in their decision-making processes than those who remain in church?
7. Are atheist church-leavers more intelligent than those who remain in church?

The hypothesized answer to these questions as well as the results will be covered in Section 8.1. Section 8.2 will use binomial logistic regression to explore the relative importance of each factor as well as of psychological type.

The third research question had two parts. The first part was: Do atheists share a common worldview, as suggested in Chapter Two of this paper? This part of the question was explored by comparing the way in which atheists answered various

worldview questions with the way in which churchgoers and other theists answered the same questions. The second part was: Do the different terms used by atheists for self-description (atheist, agnostic, freethinker, humanist, or skeptic) reflect major differences in worldview-level beliefs? This part of the question was explored by comparing the way in which self-described atheists answered various worldview questions with the way in which self-described agnostics, freethinkers, humanists, and skeptics answered the same questions. The hypothesized answer to both parts of the third research question, as well as the results, will be covered in Chapter Nine.

6.3 Procedure

The method used for the current project was quantitative and survey-based. According to Cohen, Manion and Morrison (2000), the survey model is the best approach for research that aims to make large scale generalizations (p. 78). They also write that, “where measurement is sought then a quantitative approach is required” (p. 248). The primary purpose of the present study was to make generalizations about the differences between atheist church-leavers and continuing churchgoers based on measuring variables thought to be relevant, and therefore the quantitative survey model was ideal. More specifically, the study aimed to test for possible correlations between the variables and therefore required data that could be stored numerically and analyzed statistically. In such cases, a large sample with easily coded data is more important than more rich, contextualized data (Robson, 1993, pp. 49 & 243) and therefore a questionnaire made up entirely of close-ended items was chosen over case studies or a series of interviews. Further details on the specific items used will be described in section 6.5 below.

The survey was constructed using software from the website surveymonkey.com and was made available online at the domain godsurvey.org for a

total of seven months, from September 1, 2011 to March 31, 2012. Potential participants were invited to take the survey using the snowball sampling method. In snowball sampling, the researcher finds individuals who fit the criteria for participation and then asks those individuals to pass the survey on to others in their social network who also fit the criteria. According to Palys (2003), the snowball technique is particularly appropriate, “if your target population is a deviant or ‘closet’ population, or isn’t well-defined or accessible” (p. 145). This applied to the case at hand because individuals from one of the groups being studied, the atheist church-leavers, are often stigmatized and therefore do not always openly identify themselves as atheists. Also, most atheists do not belong to organizations from which they could be easily recruited. Because of these reasons, the snowball sampling method was the easiest way to find atheist participants. In order to ensure that the two samples were comparable, the same method was used for recruiting churchgoing participants.

In order to obtain a wide range of participants, “snowballs” were started using a variety of different approaches: directly emailing leaders from both the atheist and Christian communities; approaching well-known atheist and Christian bloggers and asking them to provide a link to the survey on their blogs; posting messages on forums and Facebook groups frequented by either atheists or Christians, or both; and placing advertisements on Facebook, Google, and other websites targeting atheists and Christians.

This procedure proved to be very successful and, due to the viral nature of internet sharing, the total number of completed questionnaires was 23,697 (far exceeding expectations). An analysis of the visitor statistics for the domain godsurvey.org revealed that 78% of the visitors to the site came from one of the following three sources: by clicking on a Facebook post shared by one of their friends (40%); by clicking on a link posted in the atheist category of the bookmark sharing

website Reddit (24%); or, by clicking on a link posted by the popular atheist blogger P. Z. Myers on his blog Pharyngula (14%). The remainder of the visitors came from a variety of other blogs, forums, and social media websites. Although these statistics are for the *website visitors* as opposed to the actual survey participants (the two numbers being different because some visitors opted not to complete the survey), they do provide a general idea of how survey participants learned about the survey.

6.4 Ethical considerations

The primary ethical considerations were confidentiality and informed consent. Confidentiality was ensured by making the questionnaire anonymous. No names, addresses or other identifying information were collected. According to Cohen, Manion and Morrison (2000), informed consent requires four main elements: competence, voluntarism, full information and comprehension (p. 51). These conditions were met by limiting participation to adults aged 19 or older and by posting this message on the first screen of the questionnaire: “The following survey consists of questions about your personality, life experiences and religious beliefs. Participation is voluntary and you may choose to exit at any time. Upon completion of the survey, your responses will be submitted anonymously and there is no way that they can be linked back to you.” The survey was submitted to the ethics committee at the University of Warwick and approved in 2012.

6.5 Measures

The survey consisted of seven sections. The first section contained a single question, which was used to determine whether the participant was an atheist (option 1), a traditional theist (option 2), a non-traditional theist (option 3) or unsure of his or her position (option 4). The question read: “To begin, please select the phrase that

best describes your current view” and the four options were: (1) I do not believe in any sort of God, gods, or Higher Power; (2) I believe in a personal, creator God; (3) I believe in some other kind of God, gods, or Higher Power; or (4) I’m really not sure.

The second section differed according to how the participant answered the initial question in Section One. Those who selected option 1 (the atheists) were asked five questions. First, they were asked which terms they felt comfortable using to describe themselves. Options included: atheist, agnostic, bright, freethinker, humanist, and skeptic. Second, they were instructed to choose the *one* term that they use the most often to describe themselves. The same six options were given as well as a box for “other” in which the participants could choose their own word. Third, they were asked if they are a member of an atheist, humanist, or other similar organization. Fourth, they were asked information about how often they engage in atheist-related activities. Fifth, they were asked whether or not they attended a church or other place of worship as children or teenagers.

Those who selected option 2 (I believe in a personal, creator God), option 3 (I believe in some other kind of God, gods, or Higher Power), or option 4 (I’m really not sure) for the initial question in Section One were given four questions in Section Two. First, they were asked which term they felt best described themselves. Options included: Christian, Muslim, Jew, Hindu, Buddhist, spiritual but not religious, agnostic, don’t know, and don’t care. Second, they were asked how often they *currently* attend a church or other formal place of worship (mosque, temple, etc.). Options included: usually every week, at least six times a year, once a year, and rarely or never. Those who selected rarely or never were instructed to skip ahead to Section Three. Third, they were asked which denomination or faith community they currently attend. Twenty-one options were given as well as other Christian, and other non-Christian. Fourth, they were asked to describe their church or faith community using

one of the following terms: very conservative, conservative, moderate, liberal, or very liberal.

The rest of the survey was identical for both the atheists and the other participants. Section Three consisted of six questions. First, participants were asked how many years, from birth to age 18, they regularly attended a church or other place of worship (“regularly” being defined as at least six times per year). Those who selected zero were instructed to skip ahead to Section Four. Second, they were asked which denomination or faith community they attended as a child. Twenty-one options were given as well as “Other Christian”, and “Other non-Christian”. Third, they were asked to describe the church or faith community of their childhood using one of the following terms: very conservative, conservative, moderate, liberal, or very liberal. Fourth, they were asked which of the following individuals attended with them: father, mother, sibling(s), grandparent(s), and other extended family. Fifth, they were asked to what degree the teachings and practices of the group were emphasized in their childhood home: very high, high, moderate, low, or very low. Sixth, they were asked to rate their feelings about their childhood religious experiences using a five-point Likert scale (very positive, positive, neutral, negative, and very negative). This sixth question was broken down into ten items. Participants were asked to rate their feelings about: the other children their age, the adult members, the leadership, the teachings and practices, the activities they participated in, the opportunities they were given, the way they were treated, the sincerity of the members, the integrity of the members, and the overall experience that they had. These ten items were used to calculate an overall childhood religious experience score.

Section Four included 18 items designed to measure worldview-level beliefs. These were given in the form of statements followed by a five-point Likert scale: strongly agree, agree, not sure, disagree, and strongly disagree. There were three

items for each of the six worldview components discussed in Chapter Two: ontology, cosmology, teleology, axiology, praxeology, and epistemology. For each component, two items were stated in the positive and one item in the negative.

Section Five collected basic demographic information, including sex, age, race/ethnicity, nationality, birth order, education, income level, marital status, and sexual orientation.

Section Six consisted of the 50 items from the Francis Psychological Type Scales (Francis, 2005). These were all forced-choice items with two options each. Forty of the items were used to determine psychological type. The remaining ten were used to determine a score for emotional stability. However, this final scale was not used in the analysis as it does not impact psychological type.

Section Seven consisted of 50 items from the open-source international personality item pool (Goldberg, 1999) designed to measure the following five facets (ten items per facet) from the Big Five model of personality: selfishness (altruism), arrogance (modesty), anger, deliberation, and intellect. These five facets were selected from the total of thirty facets because they were, according the literature reviewed in chapter three, the most relevant to the second research question. The items that measure the facets are part of a subset of the international personality item pool known as the IPIP-NEO and consist of a brief statement following by a five-point Likert scale: strongly agree, agree, not sure, disagree, and strongly disagree.

The final section, Section Eight, consisted of seven questions related to parental relationships. The first question asked how many years, from birth to age 18, the participant shared a home with his or her father. The second question asked how many years, from birth to age 18, the participant shared a home with his or her mother. The third question asked if the participant's parents had divorced or separated and, if so, how old the participant was at the time. The fourth question asked if the

participant's father had died and, if so, how old the participant was at the time. The fifth question asked if the participant's mother had died and, if so, how old the participant was at the time. The sixth and seventh questions consisted of a list of words or phrases that could be used to describe his or her father (Question 6) and mother (Question 7). For each item, the participants were asked to rank how well a word or phrase described their parents while growing up using five-point Likert scale: strongly agree, agree, not sure, disagree, and strongly disagree. The words/phrases were: caring, supportive, involved in my life, loving, close to me, sensitive, accepting, always there for me, someone I respected, and someone others respected. The ten items from these questions were used to calculate overall scores for "childhood relationship with father" and "childhood relationship with mother".

6.6 Participants

6.6.1 Sample groups

The 23,697 participants were divided into six samples, three of which comprised individuals who attended church regularly as children and three of which comprised individuals who did *not* attend church regularly as children. Regular attendance was defined as attending at least six times per year, for at least one full year. The three samples who grew up attending church were further subdivided into those who continue to attend church as adults (Group One), those who no longer attend church as adults and are atheists (Group Two) and those who no longer attend church as adults but still retain some sort of belief in God (Group Three). The three samples who did not grow up attending church were further subdivided into those who converted to Christianity and currently attend church as adults (Group Four), those who still do not attend church as adults and are atheists (Group Five), and those

who still do not attend church as adults but have some sort of belief in God (Group Six). Due to low numbers, members of non-Christian religions (such as Jews, Muslims, Hindus, Buddhists, and Sikhs) as well as genderqueer individuals (participants who indicated that they were neither male nor female) were not placed into a sample.

As mentioned above, the individuals in Group One included those who attended church as children, still attend church as adults, and still believe in some sort of God as adults. This group consisted of 2,326 individuals (1,137 females and 1,189 males) and will henceforth be referred to as the “continuing churchgoers”. This group included current churchgoers who selected “I believe in a personal, creator God” in response to the initial survey question, as well as current churchgoers who selected “I believe in some other kind of God, gods, or Higher Power” and current churchgoers who selected “I’m not sure” but then self-identified as being either Christian or spiritual.

The individuals in Group Two included those who attended church as children, do not attend church as adults, and do not believe in God. This group consisted of 10,515 individuals (2,677 females and 7,838 males) and will henceforth be referred to as the “atheist church-leavers”. This group included church-leavers who selected “I do not believe in any sort of God, gods, or Higher Power” in response to the initial survey question as well as church-leavers who chose “I’m really not sure” but then self-identified as being either atheist or agnostic. Many of the individuals in this group could be considered what Altemeyer and Hunsberger (1997) called “amazing apostates” (see Section 3.2.1).

The individuals in Group Three included those who attended church as children, do not attend church as adults, but still believe in some sort of God as adults. This group consisted of 2,326 individuals (1,137 females and 1,189 males) and will

henceforth be referred to as the “theist church-leavers”. Some of these individuals stated that they believe in a personal, creator God while others stated that they believe in some other kind of God, gods, or Higher Power. Likewise, some still identified as Christian while others identified as deist, neopagan, or “spiritual but not religious”.

The individuals in Group Four included those who did not attend church as children but who attend church as adults due to a conversion to Christianity. This group consisted of 179 individuals (78 females and 101 males) and will henceforth be referred to as the “Christian converts”. Many of the individuals in this group could be considered what Altemeyer and Hunsberger (1997) called “amazing believers” (see Section 3.2.1).

The individuals in Group Five included those who did not attend church as children, do not attend church as adults, and do not believe in God. This group consisted of 7,123 individuals (1,776 females and 5,341 males) and will henceforth be referred to as the “unchurched atheists”.

The individuals in Group Six included those who did not attend church as children, do not attend church as adults, but do believe in some sort of God. This group consisted of 510 individuals (270 females and 240 males) and will henceforth be referred to as the “unchurched theists”.

The first two groups, the continuing churchgoers and the atheist church-leavers, were the most important to the project as their responses were used to answer the first two research questions. The two groups were compared in terms of psychological type (see Chapter Seven) as well as in terms of the seven theories thought to be relevant to atheist church-leavers (see Chapter Eight). The other groups were used to further explore differences in psychological type (see Chapter Seven) as well as differences in worldview (see Chapter Nine). When it came to worldview, Groups One and Four were combined as “Churchgoing Christians”, Groups Two and

Five were combined as “Atheists and Agnostics”, and Groups Three and Six were combined as “Spiritual but not Religious”. A summary of the six samples is provided in Table 7 below.

Table 7: Summary of the six samples

Sample/Group	Description	Female	Male	Gender-queer	Totals
1. Continuing churchgoers	Attended church as children Attend church now Believe in God	1,137	1,189	-	2,326
2. Atheist church-leavers	Attended church as children Do not attend church now Do not believe in God	2,677	7,838	-	10,515
3. Theist church-leavers	Attended church as children Do not attend church now Believe in God	1,134	843	-	1,977
4. Christian converts	Did not attend church as children Attend church now Believe in God	78	101	-	179
5. Unchurched atheists	Did not attend church as children Do not attend church now Do not believe in God	1,776	5,341	-	7,117
6. Unchurched theists	Did not attend church as children Do not attend church now Believe in God	270	240	-	510
Unused data	Members of other religions Gender-queer individuals	346	620	107	1,073
Totals		7,418	16,172	107	23,697

6.6.2 Demographics

The demographics of the two main samples (the continuing churchgoers and the atheist churchleavers) differed in several ways. In terms of age, the average age for the atheists was 34, whereas the average age for the churchgoers was slightly higher, at 35. In terms of race and ethnicity, the atheist group was less diverse with

90.2% of the atheists self-identifying as white, compared to 86.5% of the churchgoers. This matches the observation made by Hutchinson (2014) that minorities are under-represented in atheist communities. In terms of nationality, both groups were primarily comprised of Americans (71.9% for the atheists and 76.8% for the churchgoers) but the atheist group had a noticeably larger percentage of Europeans (13.5% for the atheists and 6.8% for the churchgoers). This was likely due to the fact that rates of atheism are much higher in Europe (see Table 1 in section 1.3.4). In terms of income level, the atheists reported higher levels of income overall, with 38.4% stating that their income was either higher or much higher than average, compared to 31.6% for churchgoers. In terms of marital status, the atheist group had a lower percentage of married individuals (45.9%, compared to 54.9% for the churchgoers). Finally, in terms of sexual orientation, 13.2% of the atheists self-identified as either lesbian, gay, or bisexual, whereas the figure was only 5.3% for the churchgoers. This difference can be explained by the fact that a stigma against lesbians, gays, and bisexuals still exists in many churches, particularly those associated with conservative denominations.

By far the most significant way in which the two main samples differed from each other was with regard to sex. The atheist sample had about three times as many males as females (7,838 males and 2,677 females), whereas the churchgoing sample was fairly evenly divided between males and females (1,189 males and 1,137 females). It is unknown whether the disproportionate number of males in the atheist samples was due to the sampling method used or whether it indicates that atheists are more likely to be male. However, the belief that males far outnumber females among atheists is not new. For example, Bekiempis (2011) and Engelhart (2013) mention it as a major problem for the new atheist movement, with Engelhart stating that atheism is a “clique of white men” (Engelhart, 2013, online). Because of the

disproportionate number males in the atheist sample and because sex is known to be a factor on the T/F dimension of psychological type, each samples was divided into female and male subgroups for statistical analysis.

6.6.3 Additional information on the atheist participants

According to the data collected, only 20.3% of the atheist participants indicated that they were a member of an atheist-related organization, and only 9.5% indicated that they often attend atheist-related meetings and events. However, 63% indicated that they spend a lot of time on atheist-related websites; 50.7% indicated that they had a lot of atheist friends; 52.5% indicated that they read a lot of books about atheism; and 26.1% indicated that they listen to a lot of atheist-related podcasts. In addition to these figures, 75.7% of the atheist participants indicated that their families were aware that they were atheists and 64.3% indicated that they openly discussed their atheist views with non-atheist friends.

As mentioned in section 6.5 above, the survey included two questions for the atheist participants about preferred terminology. First, it provided the participants with a list of six terms and asked them to choose as many terms as they liked based on which terms they felt comfortable using to describe themselves. Second, it provided the participants with the same list of six terms and asked them to choose only *one* based on which term they use the most to describe themselves. Table 10.1 below presents the results for these two questions. The majority of the atheist participants were comfortable using the terms “atheist” (89.5%), “skeptic” (68.8%), “humanist” (61.3%) and “freethinker” (60.9%). However, only 33.4% were comfortable with the term “bright” and only 28.7% were comfortable with the term “agnostic”. The most popular term used as a primary descriptor was “atheist” (58.2%), followed by “skeptic” (11.4%), “humanist” (8.6%), “freethinker” (7.5%) and “agnostic” (7.2%).

Only 2.0% preferred the term “bright”. 5.1% opted to list their own term, including 0.7% who listed the terms “non-religious”, “non-theist”, or “non-believer” and 0.6% listed the term “anti-theist”.

6.6.4 Additional information on the churchgoing participants

As mentioned in section 6.5 above, the survey included several questions for the churchgoing participants about their denomination and church attendance.

According to the data, the most represented denominations were: non-denominational (19.6%), Catholic (14.3%), Baptist (14.3%), Methodist (8.2%), Pentecostal (6.3%), Presbyterian (5.8%), Anglican (5.4%), Lutheran (4.3%), and Mormon (2.6%). In terms of the conservative-liberal spectrum, 62.0% of the churchgoers described their church as conservative, 28.8% as moderate, and 8.7% as liberal. When it came to church attendance, 80% said that they attend church every week and 20% said that they attend at least six times per year.

7 ANALYSIS OF PSYCHOLOGICAL TYPE

This chapter will address the first research question: Which psychological types are over-represented among atheist church-leavers, as compared to those who continue to attend church, and what might this reveal about why certain individuals are more likely than others to give up their childhood religious beliefs and become atheists? It will use the study data to report on the psychological type profile of the continuing churchgoers and then use this data to make a comparison between the continuing churchgoers and the atheist church-leavers. Of note will be which psychological types were over-represented and under-represented among the atheist church-leavers, as compared to the continuing churchgoers. This chapter will also report on the psychological type profiles of the theist church-leavers, the Christian converts, the unchurched atheists, and the unchurched theists.

7.1 Predictions

It was predicted that the continuing churchgoers in the current study would have a greater tendency towards feeling (F) and judging (J), and that the atheist church-leavers would have a greater tendency towards thinking (T) and perceiving (P). There were four reasons for this prediction. First, as outlined in Section 5.1.2, a well-established body of research has demonstrated that Christian groups tend to have a higher percentage of individuals who prefer feeling (F) and judging (J) than in the general public. In such settings, individuals who prefer the opposite preferences, i.e. thinking (T) and perceiving (P) would likely feel more uncomfortable and isolated. Second, as outlined in Section 5.1.4, several studies have demonstrated that

individuals with more positive attitudes towards Christianity are more likely to prefer feeling (F) and judging (J), whereas individuals with less positive attitudes towards Christianity are more likely to prefer thinking (T) and perceiving (P). In addition to this, Francis and Robbins (2012) reported that individuals who are less satisfied with their church congregations also tend towards thinking (T) and perceiving (P). Third, as outlined in Section 5.2.1, a well-established body of research has demonstrated a link between low religiosity and Hans and Sybil Eysenck's trait of psychoticism. Because psychoticism is known to correlate with a preference perceiving in the psychological type model (Furnham, Jackson, Forde and Cotter, 2001), it follows that there should also exist a link between low religiosity and a preference for perceiving (P). Fourth, as outlined in Section 5.2.3, a well-established body of research has demonstrated a link between low religiosity and both low agreeableness and low conscientiousness in the Big Five model. Because low agreeableness is known to correlate with a preference for thinking and low conscientiousness is known to correlate with a preference for perceiving (Costa & McCrae, 1989), it follows that there should also exist a link between low religiosity and preferences for thinking (T) and perceiving (P).

No prediction was made regarding the psychological type profile of theist church-leavers. This was due to the fact that this group represents a middle ground between the continuing churchgoers and the two atheists groups. On the one hand, they retain some sort of belief in God, and in this manner, are similar to the continuing churchgoers. On the other hand, they do not belong to a religious community and in this manner, are similar to the atheists. Thus, it was unclear as to whether they would have similar preferences to the churchgoers or to the atheists.

As for the unchurched groups, it was predicted that each group would be similar to their corresponding church group in terms of psychological type. In other

words, the Christian converts would be similar to the continuing churchgoers, the unchurched atheists would be similar to the atheist church-leavers, and the unchurched theists would be similar to the theist church-leavers.

7.2 Psychological type analysis of the continuing churchgoers

As stated in Chapter Six, the instrument used to measure psychological type was the Francis Psychological Type Scales (Francis, 2005). The four scales that measured the four dimensions of psychological type all achieved satisfactory alpha coefficients according to DeVellis (2003): extraversion versus introversion 0.80; sensing versus intuition 0.65; thinking versus feeling 0.70; judging versus perceiving 0.74.

Psychological type data was collected from a total of 2,326 continuing churchgoers (1,137 females and 1,189 males). Table 8 presents the type distribution of the 1,137 female continuing churchgoers. These data demonstrated that the female continuing churchgoers displayed overall preferences for introversion (63.2%) over extraversion (36.8%), sensing (60.4%) over intuition (39.6%), feeling (54.1%) over thinking (45.9%), and judging (81.6%) over perceiving (18.4%). The percentage of female continuing churchgoers with the FJ combination was 42.0%, whereas the percentage with the TP combination was 6.3%. In terms of the 16 discreet types, the four most common types among the female continuing churchgoers were ISTJ (19.7%), ISFJ (16.0%), ESFJ (10.6%), and INFJ (8.9%), and the four least common types were ISTP (1.1%), ESTP (1.4%), ISFP (1.5%) and ENTP (1.5%).

Table 9 presents the type distribution of the 1,189 male continuing churchgoers. These data demonstrated that the male churchgoers displayed overall preferences for introversion (69.9%) over extraversion (30.1%), sensing (51.4%) over intuition (48.6%), thinking (68.3%) over feeling (31.7%), and judging (76.2%) over

perceiving (23.8%). The percentage of male continuing churchgoers with the FJ combination was 19.4%, whereas the percentage with the TP combination was 11.5%. In terms of the 16 discreet types, the four most common types among the male continuing churchgoers were ISTJ (25.9%), INTJ (16.3%), ESTJ (8.2%), and ISFJ (7.0%), and the four least common types were ESTP (1.1%), ESFP (1.4%), ISTP (1.6%), and ISFP (2.5%).

These results matched the prediction but only in part. On the one hand, the female continuing churchgoers showed overall preferences for both feeling (F) and judging (J), as expected. Also, the FJ combination occurred at a high percentage among the female churchgoers (42.0%), while the TP combination occurred at a low percentage (6.3%). On the other hand, the male continuing churchgoers showed an overall preference for judging, as expected, but showed an overall preference for thinking instead of feeling, which was not expected. However, this still fits the prediction in part because it was the TJ combination that occurred at a high percentage among the male churchgoers (56.8%), not the TP combination (11.5%).

However, it is important to note that solid conclusions cannot be made from type percentages alone. Researchers know that the sixteen psychological types are not distributed equally within the general population (Myers, McCaulley, Quenk & Hammer, 2003, p. 122) and therefore a comparison must be made between at least two groups before any meaningful discussion can be had. When comparing groups, attention must be paid to which types are the most over-represented and which types are the most under-represented. In the next Section, the psychological type profile of the continuing churchgoers will be compared directly to the psychological type profile of the atheist church-leavers in order to test for over-representations and under-representations.

Table 8: Type distribution of continuing churchgoers (females)

The 16 complete types				Dichotomous preferences	
ISTJ <i>n</i> = 224 (19.7%)	ISFJ <i>n</i> = 182 (16.0%)	INFJ <i>n</i> = 101 (8.9%)	INTJ <i>n</i> = 95 (8.4%)	E <i>n</i> = 418 (36.8%)	I <i>n</i> = 719 (63.2%)
+++++	+++++	+++++	+++++	S <i>n</i> = 687 (60.4%)	N <i>n</i> = 450 (39.6%)
+++++	+++++			T <i>n</i> = 522 (45.9%)	F <i>n</i> = 615 (54.1%)
				J <i>n</i> = 928 (81.6%)	P <i>n</i> = 209 (18.4%)
ISTP <i>n</i> = 13 (1.1%)				Pairs and temperaments	
	ISFP <i>n</i> = 17 (1.5%)	INFP <i>n</i> = 61 (5.4%)	INTP <i>n</i> = 26 (2.3%)	IJ <i>n</i> = 602 (52.9%)	IP <i>n</i> = 117 (10.3%)
+	++	+++++	++	EP <i>n</i> = 92 (8.1%)	EJ <i>n</i> = 326 (28.7%)
				ST <i>n</i> = 349 (54.7%)	SF <i>n</i> = 338 (29.7%)
				NF <i>n</i> = 277 (24.4%)	NT <i>n</i> = 173 (15.2%)
ESTP <i>n</i> = 16 (1.4%)				SJ <i>n</i> = 622 (54.7%)	
	ESFP <i>n</i> = 19 (1.7%)	ENFP <i>n</i> = 40 (3.5%)	ENTP <i>n</i> = 17 (1.5%)	SP <i>n</i> = 65 (5.7%)	NP <i>n</i> = 144 (12.7%)
++	++	++++	++	NJ <i>n</i> = 306 (26.9%)	
				TJ <i>n</i> = 450 (39.6%)	TP <i>n</i> = 72 (6.3%)
				FP <i>n</i> = 137 (12.0%)	FJ <i>n</i> = 478 (42.0%)
ESTJ <i>n</i> = 96 (8.4%)				IN <i>n</i> = 283 (24.9%)	
	ESFJ <i>n</i> = 120 (10.6%)	ENFJ <i>n</i> = 75 (6.6%)	ENTJ <i>n</i> = 35 (3.1%)	EN <i>n</i> = 167 (14.7%)	IS <i>n</i> = 436 (38.3%)
+++++	+++++	+++++	+++	ES <i>n</i> = 251 (22.1%)	
	+			ET <i>n</i> = 164 (14.4%)	EF <i>n</i> = 254 (22.3%)
				IF <i>n</i> = 361 (31.8%)	IT <i>n</i> = 358 (31.5%)
Jungian types (E)		Jungian types (I)		Dominant types	
<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
E-TJ	131 (11.5%)	I-TP	39 (3.4%)	Dt. T	170 (15.0%)
E-FJ	195 (17.2%)	I-FP	78 (6.9%)	Dt. F	273 (24.0%)
ES-P	35 (3.1%)	IS-J	406 (35.7%)	Dt. S	441 (38.8%)
EN-P	57 (5.0%)	IN-J	196 (17.2%)	Dt. F	253 (22.3%)

Table 9: Type distribution of continuing churchgoers (males)

The 16 complete types				Dichotomous preferences	
ISTJ <i>n</i> = 308 (25.9%)	ISFJ <i>n</i> = 83 (7.0%)	INFJ <i>n</i> = 72 (6.1%)	INTJ <i>n</i> = 194 (16.3%)	E <i>n</i> = 358 (30.1%)	I <i>n</i> = 831 (69.9%)
+++++	+++++	+++++	+++++	S <i>n</i> = 611 (51.4%)	N <i>n</i> = 578 (48.6%)
+++++			+++++	T <i>n</i> = 812 (68.3%)	F <i>n</i> = 377 (31.7%)
+++++				J <i>n</i> = 906 (76.2%)	P <i>n</i> = 283 (23.8%)
ISTP <i>n</i> = 30 (2.5%)				Pairs and temperaments	
	ISFP <i>n</i> = 19 (1.6%)	INFP <i>n</i> = 70 (5.9%)	INTP <i>n</i> = 55 (4.6%)	IJ <i>n</i> = 657 (55.3%)	IP <i>n</i> = 174 (14.6%)
+++	++	+++++	+++++	EP <i>n</i> = 109 (9.2%)	EJ <i>n</i> = 249 (20.9%)
				ST <i>n</i> = 448 (37.7%)	SF <i>n</i> = 163 (13.7%)
				NF <i>n</i> = 214 (18.0%)	NT <i>n</i> = 364 (30.6%)
ESTP <i>n</i> = 13 (1.1%)				SJ <i>n</i> = 532 (44.7%)	
	ESFP <i>n</i> = 17 (1.4%)	ENFP <i>n</i> = 40 (3.4%)	ENTP <i>n</i> = 39 (3.3%)	SP <i>n</i> = 79 (6.6%)	NP <i>n</i> = 204 (17.2%)
+	+	+++	+++	NJ <i>n</i> = 374 (31.5%)	
				TJ <i>n</i> = 675 (56.8%)	TP <i>n</i> = 137 (11.5%)
				FP <i>n</i> = 146 (12.3%)	FJ <i>n</i> = 231 (19.4%)
ESTJ <i>n</i> = 97 (8.2%)				IN <i>n</i> = 391 (32.9%)	
	ESFJ <i>n</i> = 44 (3.7%)	ENFJ <i>n</i> = 32 (2.7%)	ENTJ <i>n</i> = 76 (6.4%)	EN <i>n</i> = 187 (15.7%)	IS <i>n</i> = 440 (37.0%)
+++++	++++	+++	+++++	ES <i>n</i> = 171 (14.4%)	
				ET <i>n</i> = 225 (18.9%)	EF <i>n</i> = 133 (11.2%)
				IF <i>n</i> = 244 (20.5%)	IT <i>n</i> = 587 (49.4%)
Jungian types (E)		Jungian types (I)		Dominant types	
<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
E-TJ	173 (14.6)	I-TP	85 (7.1)	Dt. T	258 (21.7)
E-FJ	76 (6.4)	I-FP	89 (7.5)	Dt. F	165 (13.9)
ES-P	30 (2.5)	IS-J	391 (32.9)	Dt. S	421 (35.4)
EN-P	79 (6.6)	IN-J	266 (22.4)	Dt. F	345 (29.0)

7.3 Psychological type analysis of the atheist church-leavers

The research literature on psychological type uses the selection ratio (indicated by I) to state the differences in type percentages between two groups. If I is greater than 1, this indicates an over-representation. For example, if $I = 2.0$, this means that there are *twice* as many individuals in the one group as compared to the other group. If I is less than 1, this indicates an under-representation. For example, if $I = 0.5$, this means that there is *half* as many individuals in the one group as compared to the other group. A statistical test based on chi-square is then used to measure the statistical relevance of the differences (indicated by p). When it comes to social science research, a p value of less than 0.05 is generally seen as being significant, a p value of less than 0.01 as highly significant, and a p value of less than 0.001 as very highly significant. These conventions will be used in the comparison between the continuing churchgoers and the atheist church-leavers below. However, it is important to note that large sample sizes, like the ones used in this study, can often lead to very small differences achieving significant p values. For this reason, attention will primarily be paid to results achieving a p value of less than 0.001.

Table 10 compares the type distribution of the 2,677 female atheist church-leavers with the type distribution of the 1,137 female continuing churchgoers. These data demonstrated that the female atheist church-leavers displayed very highly significant over-representations of introversion over extraversion ($I = 1.22$), sensing over intuition ($I = 1.10$), and thinking over feeling ($I = 1.65$). There was no significant difference between judging and perceiving. Also of note was the very highly significant over-representation of the TP combination ($I = 2.14$) and the very highly significant under-representation of the FJ combination ($I = 0.41$). In terms of the 16 discrete types, the female atheist church-leavers had significant over-

representations of ISTP ($I = 3.79$), INTP ($I = 2.29$), ISTJ ($I = 1.91$), and INTJ ($I = 1.47$), and significant under-representations of ENFJ ($I = 0.23$), ESFJ ($I = 0.29$), ENFP ($I = 0.40$), ISFJ ($I = 0.47$), ESFP ($I = 0.49$), INFJ ($I = 0.57$), and INFP ($I = 0.58$). There were no significant differences in the percentages of ISFP, ESTP, ENTP, ESTJ, or ENTJ.

Table 11 compares the type distribution of the 7,838 male atheist church-leavers with the type distribution of the 1,189 male continuing churchgoers. These data demonstrated that the male atheist church-leavers displayed very highly significant over-representations of introversion over extraversion ($I = 1.13$), sensing over intuition ($I = 1.26$), and thinking over feeling ($I = 1.31$). There was no significant difference between judging and perceiving. Also of note was the very highly significant over-representation of the TP combination ($I = 1.89$) and the very highly significant under-representation of the FJ combination ($I = 0.31$). In terms of the 16 discrete types, the male atheist church-leavers had significant over-representations of ISTP ($I = 3.20$), ESTP ($I = 2.19$), INTP ($I = 1.81$), and ISTJ ($I = 1.56$), and significant under-representations of ENFJ ($I = 0.22$), ESFJ ($I = 0.22$), INFJ ($I = 0.29$), INFP ($I = 0.31$), ENFP ($I = 0.32$), ISFJ ($I = 0.42$), ESFP ($I = 0.42$), ENTJ ($I = 0.56$), and ISFP ($I = 0.58$). There were no significant differences in the percentages of INTJ, ENTP, or ESTJ.

The results from these two tables indicate that the prediction regarding the atheist church-leavers was mostly correct. As expected, both the female and the male atheist church-leavers had a very highly significant over-representation of thinking (T) and a very highly significant under-representation of feeling (F). But contrary to the expectation, there was no over-representation of perceiving (P) and no under-representation judging (J). However, it should be noted that, when the T/F and J/P dimensions were considered together, the over-representation of the TP combination

was very highly significant for both sexes and the under-representation of the FJ combination was very highly significant for both sexes. It should also be noted that two TP types in particular, ISTP and INTP, were over-represented at very highly significant levels for both sexes, whereas the two opposite types (ENFJ and ESFJ) were under-represented at very highly significant levels for both sexes.

Four conclusions can be reached from these results. First, atheist church-leavers do in fact differ significantly from continuing churchgoers in terms of psychological type. Whereas churchgoers, on average, tend towards FJ, atheist church-leavers have a much greater tendency towards TP. Second, the way in which atheist church-leavers differ from continuing churchgoers is similar to the way in which those with low congregational satisfaction differ from those with high congregational satisfaction, as reported by Francis and Robbins (2012). This supports the hypothesis that psychological type plays a role in why some individuals are more likely than others to become atheist church-leavers. If churches have a tendency towards FJ preferences, it is easy to imagine that those with the opposite preferences (TP) would feel out of place and would therefore be more likely to leave. Third, the greater tendency among atheist church-leavers towards TP supports the findings from Caldwell-Harris (2012) that indicate that atheists score higher on measures of logical reasoning as well as measures of nonconformity. This also supports the hypothesis that psychological type plays a role in why some individuals are more likely than others to become atheist church-leavers. Churches are complex social settings made up of individuals bound together by shared values. Those with preferences towards FJ will thrive more readily in such environments due to their increased focus on maintaining group harmony and their greater tendency towards social conformity. In contrast, those with preferences towards TP will be more concerned with using logic to analyze beliefs and with doing what seems best for themselves. Fourth, the greater

tendency among atheist church-leavers towards TP supports the research tradition that connects low religiosity with psychoticism in the Eysenck model (Francis, 1991; Francis, 1993, Francis, Lewis, Brown, Philipchalk and Lester, 1995; Francis, 1999) and with low agreeableness and low conscientiousness in the Big Five model (Saroglou, 2010).

Table 10: Type distribution of atheist church-leavers compared to continuing churchgoers (females)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 1,009 (37.7%) <i>I</i> = 1.91***	ISFJ <i>n</i> = 203 (7.6%) <i>I</i> = 0.47***	INFJ <i>n</i> = 135 (5.0%) <i>I</i> = 0.57***	INTJ <i>n</i> = 328 (12.3%) <i>I</i> = 1.47***	E <i>n</i> = 620 (23.2%) <i>I</i> =0.63***	I <i>n</i> =2057 (76.8%) <i>I</i> =1.22***	S <i>n</i> =1773 (66.2%) <i>I</i> =1.10***	N <i>n</i> = 904 (33.8%) <i>I</i> =0.85***	
+++++	+++++	+++++	+++++	T <i>n</i> =2030 (75.8%) <i>I</i> =1.65***	F <i>n</i> = 647 (24.2%) <i>I</i> =0.45***	J <i>n</i> =2129 (79.5%) <i>I</i> =0.97	P <i>n</i> = 548 (20.5%) <i>I</i> =1.11	
ISTP <i>n</i> = 116 (4.3%) <i>I</i> = 3.79***	ISFP <i>n</i> = 43 (1.6%) <i>I</i> = 1.07	INFP <i>n</i> = 83 (3.1%) <i>I</i> = 0.58***	INTP <i>n</i> = 140 (5.2%) <i>I</i> = 2.29***	Pairs and temperaments				
++++	++	+++	++++	IJ <i>n</i> =1675 (62.6%) <i>I</i> =1.18***	IP <i>n</i> = 382 (14.3%) <i>I</i> =1.39***	EP <i>n</i> = 166 (6.2%) <i>I</i> =0.77*	EJ <i>n</i> = 454 (17.0%) <i>I</i> =0.59***	
				ST <i>n</i> =1423 (53.2%) <i>I</i> =1.73***	SF <i>n</i> = 350 (13.1%) <i>I</i> =0.44***	NF <i>n</i> = 297 (11.1%) <i>I</i> =0.46***	NT <i>n</i> = 607 (22.7%) <i>I</i> =1.49***	
ESTP <i>n</i> = 50 (1.9%) <i>I</i> = 1.33	ESFP <i>n</i> = 22 (0.8%) <i>I</i> = 0.49*	ENFP <i>n</i> = 38 (1.4%) <i>I</i> = 0.40***	ENTP <i>n</i> = 56 (2.1%) <i>I</i> = 1.40	SJ <i>n</i> =1542 (57.6%) <i>I</i> =1.05	SP <i>n</i> = 231 (8.6%) <i>I</i> =1.51*	NP <i>n</i> = 317 (11.8%) <i>I</i> =0.93	NJ <i>n</i> = 587 (21.9%) <i>I</i> =0.81***	
++	+	+	++	TJ <i>n</i> =1668 (62.3%) <i>I</i> =1.57***	TP <i>n</i> = 362 (13.5%) <i>I</i> =2.14***	FP <i>n</i> = 186 (6.9%) <i>I</i> =0.58***	FJ <i>n</i> = 461 (17.2%) <i>I</i> =0.41***	
ESTJ <i>n</i> = 248 (9.3%) <i>I</i> = 1.10	ESFJ <i>n</i> = 82 (3.1%) <i>I</i> = 0.29***	ENFJ <i>n</i> = 41 (1.5%) <i>I</i> = 0.23***	ENTJ <i>n</i> = 83 (3.1%) <i>I</i> = 1.01	IN <i>n</i> = 686 (25.6%) <i>I</i> =1.03	EN <i>n</i> = 218 (8.1%) <i>I</i> =0.55***	IS <i>n</i> =1371 (51.2%) <i>I</i> =1.34***	ES <i>n</i> = 402 (15.0%) <i>I</i> =0.68***	
+++++	+++	++	+++	ET <i>n</i> = 437 (16.3%) <i>I</i> =1.13***	EF <i>n</i> = 183 (6.8%) <i>I</i> =0.31***	IF <i>n</i> = 464 (17.3%) <i>I</i> =0.55***	IT <i>n</i> =1593 (59.5%) <i>I</i> =1.89***	
Jungian types (E)			Jungian types (I)			Dominant types		
<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>
E-TJ	331 (12.4)	1.07	I-TP	256 (9.6)	2.79***	Dt. T	587 (21.9)	1.47***
E-FJ	123 (4.6)	0.27***	I-FP	126 (4.7)	0.69***	Dt. F	249 (9.3)	0.39***
ES-P	72 (2.7)	0.87	IS-J	1212 (45.3)	1.27***	Dt. S	1284 (48.0)	1.24***
EN-P	94 (3.5)	0.70*	IN-J	463 (17.3)	1.00	Dt. F	557 (20.8)	0.94

Note: Total *n* = 2,677. **p* < 0.05; ***p* <0.01; ****p* < 0.001.

Table 11: Type distribution of atheist church-leavers compared to continuing churchgoers (males)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 3,158 (40.3%) <i>I</i> = 1.56***	ISFJ <i>n</i> = 229 (2.9%) <i>I</i> = 0.42***	INFJ <i>n</i> = 136 (1.7%) <i>I</i> = 0.29***	INTJ <i>n</i> = 1,169 (14.9%) <i>I</i> = 0.91	E <i>n</i> =1639 (20.9%) <i>I</i> =0.69***	I <i>n</i> =6199 (79.1%) <i>I</i> =1.13***			
+++++	+++	++	+++++	S <i>n</i> =5094 (65.0%) <i>I</i> =1.26***	N <i>n</i> =2744 (35.0%) <i>I</i> =0.72***			
+++++			+++++	T <i>n</i> =7016 (89.5%) <i>I</i> =1.31***	F <i>n</i> = 822 (10.5%) <i>I</i> =0.33***			
+++++				J <i>n</i> =5784 (73.8%) <i>I</i> =0.97	P <i>n</i> =2054 (26.2%) <i>I</i> =1.10			
+++++								
ISTP				Pairs and temperaments				
ISTP <i>n</i> = 632 (8.1%) <i>I</i> = 3.20***	ISFP <i>n</i> = 73 (0.9%) <i>I</i> = 0.58*	INFP <i>n</i> = 144 (1.8%) <i>I</i> = 0.31***	INTP <i>n</i> = 658 (8.4%) <i>I</i> = 1.81***	IJ <i>n</i> =4692 (59.9%) <i>I</i> =1.08**	IP <i>n</i> =1507 (19.2%) <i>I</i> =1.31***	EP <i>n</i> = 547 (7.0%) <i>I</i> =0.76**		
+++++	+	++	+++++	EJ <i>n</i> =1092 (13.9%) <i>I</i> =0.67***				
				ST <i>n</i> =4682 (59.7%) <i>I</i> =1.59***	SF <i>n</i> = 412 (5.3%) <i>I</i> =0.38***	NF <i>n</i> = 410 (5.2%) <i>I</i> =0.29***		
				NT <i>n</i> =2334 (29.8%) <i>I</i> =0.97				
ESTP				SJ				
ESTP <i>n</i> = 188 (2.4%) <i>I</i> = 2.19**	ESFP <i>n</i> = 47 (0.6%) <i>I</i> = 0.42***	ENFP <i>n</i> = 84 (1.1%) <i>I</i> = 0.32***	ENTP <i>n</i> = 228 (2.9%) <i>I</i> = 0.89	SP <i>n</i> = 940 (12.0%) <i>I</i> =1.81***	NP <i>n</i> =1114 (14.2%) <i>I</i> =0.83**	NJ <i>n</i> =1630 (20.8%) <i>I</i> =0.66***		
++	+	+	+++	TJ <i>n</i> =5310 (67.7%) <i>I</i> =1.19***	TP <i>n</i> =1706 (21.8%) <i>I</i> =1.89***	FP <i>n</i> = 348 (4.4%) <i>I</i> =0.36***		
				FJ <i>n</i> = 474 (6.0%) <i>I</i> =0.31***				
ESTJ				IN				
ESTJ <i>n</i> = 704 (9.0%) <i>I</i> = 1.10	ESFJ <i>n</i> = 63 (0.8%) <i>I</i> = 0.22***	ENFJ <i>n</i> = 46 (0.6%) <i>I</i> = 0.22***	ENTJ <i>n</i> = 279 (3.6%) <i>I</i> = 0.56***	EN <i>n</i> = 637 (8.1%) <i>I</i> =0.52***	IS <i>n</i> =4092 (52.2%) <i>I</i> =1.41***	ES <i>n</i> =1002 (12.8%) <i>I</i> =0.89		
+++++	+	+	++++	ET <i>n</i> =1399 (17.8%) <i>I</i> =0.94	EF <i>n</i> = 240 (3.1%) <i>I</i> =0.27***	IF <i>n</i> = 582 (7.4%) <i>I</i> =0.36***		
				IT <i>n</i> =5617 (71.7%) <i>I</i> =1.45***				
Jungian types (E)			Jungian types (I)			Dominant types		
<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>
E-TJ 983 (12.5)		0.86	I-TP 1290 (16.5)		2.30***	Dt. T 2273 (29.0)		1.34***
E-FJ 109 (1.4)		0.22***	I-FP 217 (2.8)		0.37***	Dt. F 326 (4.2)		0.30***
ES-P 235 (3.0)		1.19	IS-J 3387 (43.2)		1.31***	Dt. S 3622 (46.2)		1.31***
EN-P 312 (4.0)		0.60***	IN-J 1305 (16.6)		0.74***	Dt. F 1617 (20.6)		0.71***

Note: Total *n* = 7,838. **p* < 0.05; ***p* <0.01; ****p* < 0.001.

7.4 Psychological type analysis of the theist church-leavers

The present study also collected data from theist church-leavers, i.e. those who no longer attend church yet still retain some sort of belief in God. It was difficult to predict whether this group would be more similar to the continuing churchgoers or to the atheist church-leavers. In order to explore this issue, the theist church-leavers were compared to the continuing churchgoers in the same manner that the atheist church-leavers were compared to the continuing churchgoers in the previous section.

Table 12 compares the type distribution of the 1,134 female theist church-leavers with the type distribution of the 1,137 female continuing churchgoers. These data demonstrated that the female theist church-leavers displayed a significant over-representation of introversion over extraversion ($I = 1.12$), intuition over sensing ($I = 1.25$), thinking over feeling ($I = 1.11$) and perceiving over judging ($I = 1.27$). Also of note was the highly significant over-representation of the TP combination ($I = 1.46$) and the highly significant under-representation of the FJ combination ($I = 0.83$). In terms of the 16 discrete types, only two types were significantly over-represented among the female theist church-leavers: INTP ($I = 2.04$) and INTJ ($I = 1.41$) and only two were significantly under-represented: ESFJ ($I = 0.49$) and ESTJ ($I = 0.61$). There were no significant differences in the percentages of the other twelve types.

Table 13 compares the type distribution of the 843 male theist church-leavers with the type distribution of the 1,189 male continuing churchgoers. These data demonstrated that the male theist church-leavers displayed a significant over-representation for introversion over extraversion ($I = 1.10$), thinking over feeling ($I = 1.08$) and perceiving over judging ($I = 1.16$). There was no significant difference between sensing and intuition. Also of note was the very highly significant over-representation of the TP combination ($I = 1.50$) and the significant under-

representation of the FJ combination ($I = 0.82$). In terms of the 16 discrete types, only two types were significantly over-represented among the male theist church-leavers: INTP ($I = 1.92$) and ISTP ($I = 1.65$) and only three were significantly under-represented: ESFJ ($I = 0.45$), ENTJ ($I = 0.67$), and ESTJ ($I = 0.70$). There were no significant differences in the percentages of the other eleven types.

Two conclusions can be drawn from these results. First, the way in which the theist church-leavers differ from the continuing churchgoers is different from than the way in which the atheist church-leavers differ from the continuing churchgoers. Although both types of church-leavers had very highly significant over-representations of introversion and thinking among both females and males (as compared to the female and male churchgoers), the two types of church-leavers tended in different directions with regard to the sensing-intuition and judging-perceiving dimensions. The atheist church-leavers had an over-representation of sensing (very highly significant for both females and males), whereas the theist church-leavers had an over-representation of intuition (very highly significant for females but not significant for males). Also, neither the female nor the male atheist church-leavers differed significantly from the female and male churchgoers on the judging-perceiving dimension, whereas both the female and male theist church-leavers had a significant over-representation of perceiving (highly significant among females).

Second, when it comes to the TP versus FJ connection to religiosity, the theist church-leavers seem to occupy a “middle ground” between the continuing churchgoers and the atheist church-leavers. Although both types of church-leavers had significant over-representations of the TP combination and under-representations of the FJ combination, the over-representation of TP among the atheist church-leavers was higher (2.14 versus 1.46 for females; 1.89 versus 1.50 for males) and the under-

representation of FJ among the atheist church-leavers was lower (.41 versus .83 for females; .31 versus .82 for males). This indicates that churchgoers, as a whole, tend towards FJ, that atheist church-leavers, as a whole, tend toward TP, and that theist church-leavers, as a whole, lie somewhere in-between.

Table 12: Type distribution of theist church-leavers compared to continuing churchgoers (females)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 240 (21.2%) <i>I</i> = 1.07	ISFJ <i>n</i> = 158 (13.9%) <i>I</i> = 0.87	INFJ <i>n</i> = 118 (10.4%) <i>I</i> = 1.17	INTJ <i>n</i> = 134 (11.8%) <i>I</i> = 1.41**	E <i>n</i> = 333 (29.4%) <i>I</i> =0.80***	I <i>n</i> = 801 (70.6%) <i>I</i> =1.12***	S <i>n</i> = 574 (50.6%) <i>I</i> =0.84***	N <i>n</i> = 560 (49.4%) <i>I</i> =1.25***	
+++++	+++++	+++++	+++++	T <i>n</i> = 578 (51.0%) <i>I</i> =1.11*	F <i>n</i> = 556 (49.0%) <i>I</i> =0.91*	J <i>n</i> = 870 (76.7%) <i>I</i> =0.94**	P <i>n</i> = 264 (23.3%) <i>I</i> =1.27**	
+								
The 16 complete types				Pairs and temperaments				
ISTP <i>n</i> = 16 (1.4%) <i>I</i> = 1.23	ISFP <i>n</i> = 15 (1.3%) <i>I</i> = 0.88	INFP <i>n</i> = 67 (5.9%) <i>I</i> = 1.10	INTP <i>n</i> = 53 (4.7%) <i>I</i> = 2.04**	IJ <i>n</i> = 650 (57.3%) <i>I</i> =1.08*	IP <i>n</i> = 151 (13.3%) <i>I</i> =1.29*	EP <i>n</i> = 113 (10.0%) <i>I</i> =1.23	EJ <i>n</i> = 220 (19.4%) <i>I</i> =0.68***	
+	+	+++++	+++++	ST <i>n</i> = 325 (28.7%) <i>I</i> =0.93	SF <i>n</i> = 249 (22.0%) <i>I</i> =0.74***	NF <i>n</i> = 307 (27.1%) <i>I</i> =1.11	NT <i>n</i> = 253 (22.3%) <i>I</i> =1.47***	
				SJ <i>n</i> = 515 (45.4%) <i>I</i> =0.83***	SP <i>n</i> = 59 (5.2%) <i>I</i> =0.91	NP <i>n</i> = 205 (18.1%) <i>I</i> =1.43***	NJ <i>n</i> = 355 (31.3%) <i>I</i> =1.16*	
				TJ <i>n</i> = 473 (41.7%) <i>I</i> =1.05	TP <i>n</i> = 105 (9.3%) <i>I</i> =1.46**	FP <i>n</i> = 159 (14.0%) <i>I</i> =1.16	FJ <i>n</i> = 397 (35.0%) <i>I</i> =0.83**	
The 16 complete types				Dominant types				
ESTP <i>n</i> = 11 (1.0%) <i>I</i> = 0.69	ESFP <i>n</i> = 17 (1.5%) <i>I</i> = 0.90*	ENFP <i>n</i> = 60 (5.3%) <i>I</i> = 1.50*	ENTP <i>n</i> = 25 (2.2%) <i>I</i> = 1.47	IN <i>n</i> = 372 (32.8%) <i>I</i> =1.32***	EN <i>n</i> = 188 (16.6%) <i>I</i> =1.13	IS <i>n</i> = 429 (37.8%) <i>I</i> =0.99	ES <i>n</i> = 145 (12.8%) <i>I</i> =0.58***	
+	++	+++++	++	ET <i>n</i> = 135 (11.9%) <i>I</i> =0.83	EF <i>n</i> = 198 (17.5%) <i>I</i> =0.78**	IF <i>n</i> = 358 (31.6%) <i>I</i> =0.99	IT <i>n</i> = 443 (39.1%) <i>I</i> =1.24***	
Jungian types (E)			Jungian types (I)			Dominant types		
<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>
E-TJ	99 (8.7)	0.76*	I-TP	69 (6.1)	1.77**	Dt. T	168 (14.8)	0.99
E-FJ	121 (10.7)	0.62***	I-FP	82 (7.2)	1.05	Dt. F	203 (17.9)	0.75***
ES-P	28 (2.5)	0.80	IS-J	398 (35.1)	0.98	Dt. S	426 (37.6)	0.97
EN-P	85 (7.5)	1.50*	IN-J	252 (22.2)	1.29**	Dt. F	337 (29.7)	1.34***

Note: Total *n* = 1,134. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

Table 13: Type distribution of theist church-leavers compared to continuing churchgoers (males)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 251 (29.8%) <i>I</i> = 1.15	ISFJ <i>n</i> = 43 (5.1%) <i>I</i> = 0.73	INFJ <i>n</i> = 53 (6.3%) <i>I</i> = 1.04	INTJ <i>n</i> = 141 (16.7%) <i>I</i> = 1.03	E <i>n</i> = 196 (23.3%) <i>I</i> =0.77*** I <i>n</i> = 647 (76.7%) <i>I</i> =1.10***	S <i>n</i> = 424 (50.3%) <i>I</i> =0.98 N <i>n</i> = 419 (49.7%) <i>I</i> =1.02			
+++++	+++++	+++++	+++++	T <i>n</i> = 622 (73.8%) <i>I</i> =1.08** F <i>n</i> = 221 (26.2%) <i>I</i> =0.83**				
ISTP <i>n</i> = 35 (4.2%) <i>I</i> = 1.65*	ISFP <i>n</i> = 10 (1.2%) <i>I</i> = 0.74	INFP <i>n</i> = 39 (4.6%) <i>I</i> = 0.79***	INTP <i>n</i> = 75 (8.9%) <i>I</i> = 1.92***	Pairs and temperaments				
++++	+	++++	++++	IJ <i>n</i> = 488 (57.9%) <i>I</i> =1.05 IP <i>n</i> = 159 (18.9%) <i>I</i> =1.29* EP <i>n</i> = 74 (8.8%) <i>I</i> =0.96 EJ <i>n</i> = 122 (14.5%) <i>I</i> =0.69***				
ESTP <i>n</i> = 16 (1.9%) <i>I</i> = 1.74	ESFP <i>n</i> = 7 (0.8%) <i>I</i> = 0.58	ENFP <i>n</i> = 31 (3.7%) <i>I</i> = 1.09	ENTP <i>n</i> = 20 (2.4%) <i>I</i> = 0.72	ST <i>n</i> = 350 (41.5%) <i>I</i> =1.10 SF <i>n</i> = 74 (8.8%) <i>I</i> =0.64*** NF <i>n</i> = 147 (17.4%) <i>I</i> =0.97 NT <i>n</i> = 272 (32.3%) <i>I</i> =1.05				
++	+	++++	++	SJ <i>n</i> = 356 (42.2%) <i>I</i> =0.94 SP <i>n</i> = 68 (8.1%) <i>I</i> =1.21 NP <i>n</i> = 165 (19.6%) <i>I</i> =1.14 NJ <i>n</i> = 254 (30.1%) <i>I</i> =0.96				
ESTJ <i>n</i> = 48 (5.7%) <i>I</i> = 0.70*	ESFJ <i>n</i> = 14 (1.7%) <i>I</i> = 0.45**	ENFJ <i>n</i> = 24 (2.8%) <i>I</i> = 1.06	ENTJ <i>n</i> = 36 (4.3%) <i>I</i> = 0.67*	TJ <i>n</i> = 476 (56.5%) <i>I</i> =0.99 TP <i>n</i> = 146 (17.3%) <i>I</i> =1.50*** FP <i>n</i> = 87 (10.3%) <i>I</i> =0.84 FJ <i>n</i> = 134 (15.9%) <i>I</i> =0.82*				
+++++	++	+++	++++	IN <i>n</i> = 308 (36.5%) <i>I</i> =1.11 EN <i>n</i> = 111 (13.2%) <i>I</i> =0.84 IS <i>n</i> = 339 (40.2%) <i>I</i> =1.09 ES <i>n</i> = 85 (10.1%) <i>I</i> =0.70*				
Jungian types (E)			Jungian types (I)			Dominant types		
	<i>n</i> % <i>Index</i>		<i>n</i> % <i>Index</i>		<i>n</i> % <i>Index</i>			
E-TJ	84 (10.0) 0.68**		I-TP	110 (13.0) 1.82***	Dt. T	194 (23.0) 1.06		
E-FJ	38 (4.5) 0.71		I-FP	49 (5.8) 0.78	Dt. F	87 (10.3) 0.74*		
ES-P	23 (2.7) 1.08		IS-J	294 (34.9) 1.06	Dt. S	317 (37.6) 1.06		
EN-P	51 (6.0) 0.91		IN-J	194 (23.0) 1.03	Dt. F	245 (29.1) 1.00		

Note: Total *n* = 843. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

7.5 Psychological type analysis of the Christian converts

Data was also collected from Christian converts, i.e. individuals who did not attend church as children but do attend now as adults because they converted to Christianity. It was predicted that these churchgoers would be similar to the continuing churchgoers in terms of psychological type. In order to test this hypothesis, the Christian converts were compared to the continuing churchgoers in the same manner as the samples in the previous two Sections.

Table 14 compares the type distribution of the 78 female Christian converts with the type distribution of the 1,137 female continuing churchgoers. These data demonstrated that there were no significant differences on any of the four dimensions of psychological type. There was insufficient data from the female Christian converts to make a proper comparison at the level of the 16 discrete types since for this analysis, at least 5 cases per type are necessary.

Table 15 compares the type distribution of the 101 male Christian converts with the type distribution of the 1,189 male continuing churchgoers. These data demonstrated that there were no significant differences on any of the four dimensions of psychological type. There was insufficient data from the female Christian converts to make a proper comparison at the level of the 16 discrete types (for this analysis, at least 5 cases per type are necessary).

The results from these two tables indicate that the prediction regarding the Christian converts was correct: the psychological type profile of the Christian converts was very similar to the psychological type profile of the continuing churchgoers for both the females and the males. This indicates that one of the reasons why Christian converts might start attending church is that the overall atmosphere they find there matches their own personality preferences.

Table 14: Type distribution of Christian converts compared to continuing churchgoers (females)

The 16 complete types				Dichotomous preferences							
ISTJ <i>n</i> = 15 (19.2%) <i>I</i> = 0.98	ISFJ <i>n</i> = 10 (12.8%) <i>I</i> = 0.80	INFJ <i>n</i> = 8 (10.3%) <i>I</i> = 1.15	INTJ <i>n</i> = 5 (6.4%) <i>I</i> = 0.77	E <i>n</i> = 30 (38.5%) <i>I</i> =1.05	I <i>n</i> = 48 (61.5%) <i>I</i> =0.97						
+++++	+++++	+++++	+++++	S <i>n</i> = 49 (62.8%) <i>I</i> =1.04	N <i>n</i> = 29 (37.2%) <i>I</i> =0.94						
+++++	+++			T <i>n</i> = 38 (48.7%) <i>I</i> =1.06	F <i>n</i> = 40 (51.3%) <i>I</i> =0.95						
<hr/>				J <i>n</i> = 62 (79.5%) <i>I</i> =0.97	P <i>n</i> = 16 (20.5%) <i>I</i> =1.12						
ISTP <i>n</i> = 3 (3.8%) <i>i/d</i>	ISFP <i>n</i> = 1 (1.3%) <i>i/d</i>	INFP <i>n</i> = 2 (2.6%) <i>i/d</i>	INTP <i>n</i> = 4 (5.1%) <i>i/d</i>	Pairs and temperaments							
++++	+	+++	++++	IJ <i>n</i> = 38 (48.7%) <i>I</i> =0.92	IP <i>n</i> = 10 (12.8%) <i>I</i> =1.25						
				EP <i>n</i> = 6 (7.7%) <i>I</i> =0.95	EJ <i>n</i> = 24 (30.8%) <i>I</i> =1.07						
				ST <i>n</i> = 25 (32.1%) <i>I</i> =1.04	SF <i>n</i> = 24 (30.8%) <i>I</i> =1.04						
				NF <i>n</i> = 16 (20.5%) <i>I</i> =0.84	NT <i>n</i> = 13 (16.7%) <i>I</i> =1.10						
<hr/>				SJ <i>n</i> = 44 (56.4%) <i>I</i> =1.03	SP <i>n</i> = 5 (6.4%) <i>I</i> =1.12						
ESTP <i>n</i> = 0 (0.0%) <i>i/d</i>	ESFP <i>n</i> = 1 (1.3%) <i>i/d</i>	ENFP <i>n</i> = 4 (5.1%) <i>i/d</i>	ENTP <i>n</i> = 1 (1.3%) <i>i/d</i>	NP <i>n</i> = 11 (14.1%) <i>I</i> =1.11	NJ <i>n</i> = 18 (23.1%) <i>I</i> =0.86						
	+	++++	+	TJ <i>n</i> = 30 (38.5%) <i>I</i> =0.97	TP <i>n</i> = 8 (10.3%) <i>I</i> =1.62						
				FP <i>n</i> = 8 (10.3%) <i>I</i> =0.85	FJ <i>n</i> = 32 (41.0%) <i>I</i> =0.98						
<hr/>				IN <i>n</i> = 19 (24.4%) <i>I</i> =0.98	EN <i>n</i> = 10 (12.8%) <i>I</i> =0.87						
ESTJ <i>n</i> = 7 (9.0%) <i>I</i> = 1.06	ESFJ <i>n</i> = 12 (15.4%) <i>I</i> = 1.46	ENFJ <i>n</i> = 2 (2.6%) <i>i/d</i>	ENTJ <i>n</i> = 3 (3.8%) <i>i/d</i>	IS <i>n</i> = 29 (37.2%) <i>I</i> =0.97	ES <i>n</i> = 20 (25.6%) <i>I</i> =1.16						
+++++	+++++	+++	++++	ET <i>n</i> = 11 (14.1%) <i>I</i> =0.98	EF <i>n</i> = 19 (24.4%) <i>I</i> =1.09						
	++++			IF <i>n</i> = 21 (26.9%) <i>I</i> =0.85	IT <i>n</i> = 27 (34.6%) <i>I</i> =1.10						
<hr/>											
Jungian types (E)			Jungian types (I)			Dominant types					
	<i>n</i>	%	<i>Index</i>		<i>n</i>	%	<i>Index</i>		<i>n</i>	%	<i>Index</i>
E-TJ	10	(12.8)	1.11	I-TP	7	(9.0)	2.62*	Dt. T	17	(21.8)	1.46
E-FJ	14	(17.9)	1.05	I-FP	3	(3.8)	0.56	Dt. F	17	(21.8)	0.91
ES-P	1	(1.3)	0.42	IS-J	25	(32.1)	0.90	Dt. S	26	(33.3)	0.86
EN-P	5	(6.4)	1.28	IN-J	13	(16.7)	0.97	Dt. F	18	(23.1)	1.04

Note: Total *n* = 78. *i/d* = insufficient data.

Table 15: Type distribution of Christian converts compared to continuing churchgoers (males)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 25 (24.8%) <i>I</i> = 0.96	ISFJ <i>n</i> = 4 (4.0%) i/d	INFJ <i>n</i> = 4 (4.0%) i/d	INTJ <i>n</i> = 19 (18.8%) <i>I</i> = 1.15	E <i>n</i> = 37 (36.6%) <i>I</i> =1.22	I <i>n</i> = 64 (63.4%) <i>I</i> =0.91			
+++++	++++	++++	+++++	S <i>n</i> = 49 (48.5%) <i>I</i> =0.94	N <i>n</i> = 52 (51.5%) <i>I</i> =1.06			
+++++			+++++	T <i>n</i> = 75 (74.3%) <i>I</i> =1.09	F <i>n</i> = 26 (25.7%) <i>I</i> =0.81			
++++				J <i>n</i> = 70 (69.3%) <i>I</i> =0.91	P <i>n</i> = 31 (30.7%) <i>I</i> =1.29			
The 16 complete types				Pairs and temperaments				
ISTP <i>n</i> = 1 (1.0%) i/d	ISFP <i>n</i> = 2 (2.0%) i/d	INFP <i>n</i> = 4 (4.0%) i/d	INTP <i>n</i> = 5 (5.0%) <i>I</i> = 1.07	IJ <i>n</i> = 52 (51.5%) <i>I</i> =0.93	IP <i>n</i> = 12 (11.9%) <i>I</i> =0.81	EP <i>n</i> = 19 (18.8%) <i>I</i> =2.05**		
+	++	++++	+++++	EJ <i>n</i> = 18 (17.8%) <i>I</i> =0.85				
				ST <i>n</i> = 40 (39.6%) <i>I</i> =1.05	SF <i>n</i> = 9 (8.9%) <i>I</i> =0.65	NF <i>n</i> = 17 (16.8%) <i>I</i> =0.94		
				NT <i>n</i> = 35 (34.7%) <i>I</i> =1.13				
ESTP <i>n</i> = 4 (4.0%) i/d	ESFP <i>n</i> = 1 (1.0%) i/d	ENFP <i>n</i> = 5 (5.0%) <i>I</i> = 0.28***	ENTP <i>n</i> = 9 (8.9%) <i>I</i> = 0.81	SJ <i>n</i> = 41 (40.6%) <i>I</i> =0.91	SP <i>n</i> = 8 (7.9%) <i>I</i> =1.19	NP <i>n</i> = 23 (22.8%) <i>I</i> =1.33		
++++	+	+++++	+++++	NJ <i>n</i> = 29 (28.7%) <i>I</i> =0.91				
				TJ <i>n</i> = 56 (55.4%) <i>I</i> =0.98	TP <i>n</i> = 19 (18.8%) <i>I</i> =1.63*	FP <i>n</i> = 12 (11.9%) <i>I</i> =0.97		
				FJ <i>n</i> = 14 (13.9%) <i>I</i> =0.71				
ESTJ <i>n</i> = 10 (9.9%) <i>I</i> = 1.21	ESFJ <i>n</i> = 2 (2.0%) i/d	ENFJ <i>n</i> = 4 (4.0%) i/d	ENTJ <i>n</i> = 2 (2.0%) i/d	IN <i>n</i> = 32 (31.7%) <i>I</i> =0.96	EN <i>n</i> = 20 (19.8%) <i>I</i> =1.26	IS <i>n</i> = 32 (31.7%) <i>I</i> =0.86		
+++++	++	++++	++	ES <i>n</i> = 17 (16.8%) <i>I</i> =1.17				
				ET <i>n</i> = 25 (24.8%) <i>I</i> =1.31	EF <i>n</i> = 12 (11.9%) <i>I</i> =1.06	IF <i>n</i> = 14 (13.9%) <i>I</i> =0.68		
				IT <i>n</i> = 50 (49.5%) <i>I</i> =1.00				
Jungian types (E)			Jungian types (I)			Dominant types		
	<i>n</i>	% <i>Index</i>		<i>n</i>	% <i>Index</i>		<i>n</i>	% <i>Index</i>
E-TJ	12	(11.9) 0.82	I-TP	6	(5.9) 0.83	Dt. T	18	(17.8) 0.82
E-FJ	6	(5.9) 0.93	I-FP	6	(5.9) 0.79	Dt. F	12	(11.9) 0.86
ES-P	5	(5.0) 1.96	IS-J	29	(28.7) 0.87	Dt. S	34	(33.7) 0.95
EN-P	14	(13.9) 2.09	IN-J	23	(22.8) 1.02	Dt. F	37	(36.6) 1.26

Note: Total *n* = 101. i/d = insufficient data. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

7.6 Psychological type analysis of the unchurched atheists

Data was also collected from unchurched atheists, i.e. those atheists who did not attend church as children. It was predicted that these atheists would be similar to the atheist church-leavers in terms of psychological type. In order to test this hypothesis, the two types of atheists were compared with each other to see what types, if any, were over-represented or under-represented among the unchurched atheists as compared to the atheist church-leavers.

Table 16 compares the type distribution of the 1,780 female unchurched atheists with the type distribution of the 2,677 female atheist church-leavers. These data demonstrated that the female unchurched atheists displayed no significant differences as compared to the female atheist church-leavers on extraversion versus introversion, sensing versus intuition, and judging versus perceiving. However, the female unchurched atheists did display a highly significant over-representation of thinking over feeling ($I = 1.02$). In terms of the 16 discrete types, the female unchurched atheists had a significant over-representation of ISTJ ($I = 1.08$) and a significant under-representation of ESFJ ($I = 0.53$). There were no significant differences in the percentages of the remaining fourteen types.

Table 17 compares the type distribution of the 5,343 male unchurched atheists with the type distribution of the 1,189 male atheist church-leavers. These data demonstrated that the male unchurched atheists displayed no significant differences as compared to the male atheist church-leavers on sensing versus intuition and judging versus perceiving. However, the male unchurched atheists did display a significant over-representation of introversion over extraversion ($I = 1.02$) and a highly significant over-representation of thinking over feeling ($I = 1.02$). In terms of the 16 discrete types, the male unchurched atheists had a significant over-representation of

INTJ ($I = 1.11$) and significant under-representations of ESTJ ($I = 0.86$), ISFJ ($I = 0.79$) and ESFP ($I = 0.53$). There were no significant differences in the percentages of the remaining twelve types.

The results from these two tables indicate that the prediction regarding the unchurched atheists was mostly correct. The psychological type profile of the unchurched atheists was very similar to the psychological type profile of the atheist church-leavers for both the females and the males, with the exception of a small (but still statistically relevant) over-representation of thinking over feeling for both the male and female unchurched atheists and a small (but still statistically relevant) over-representation of introversion over extraversion for the male unchurched atheists.

Table 16: Type distribution of unchurched atheists compared to atheist church-leavers (females)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 723 (40.6%) <i>I</i> = 1.08*	ISFJ <i>n</i> = 123 (6.9%) <i>I</i> = 0.91	INFJ <i>n</i> = 69 (3.9%) <i>I</i> = 0.77	INTJ <i>n</i> = 217 (12.2%) <i>I</i> = 0.95	E <i>n</i> = 370 (20.8%) <i>I</i> =0.90	I <i>n</i> =1410 (79.2%) <i>I</i> =1.03			
+++++	+++++	++++	+++++	S <i>n</i> =1207 (67.8%) <i>I</i> =1.02	N <i>n</i> = 573 (32.2%) <i>I</i> =0.95			
+++++			++	T <i>n</i> =1413 (79.4%) <i>I</i> =1.02**	F <i>n</i> = 367 (20.6%) <i>I</i> =0.95**			
+++++				J <i>n</i> =1402 (78.8%) <i>I</i> =0.99	P <i>n</i> = 378 (21.2%) <i>I</i> =1.04			
+								
ISTP				Pairs and temperaments				
ISTP <i>n</i> = 93 (5.2%) <i>I</i> = 1.21	ISFP <i>n</i> = 32 (1.8%) <i>I</i> = 1.12	INFP <i>n</i> = 48 (2.7%) <i>I</i> = 0.87	INTP <i>n</i> = 105 (5.9%) <i>I</i> = 1.13	IJ <i>n</i> =1132 (63.6%) <i>I</i> =1.02	IP <i>n</i> = 278 (15.6%) <i>I</i> =1.09	EP <i>n</i> = 100 (5.6%) <i>I</i> =0.91		
+++++	++	+++	+++++	EJ <i>n</i> = 270 (15.2%) <i>I</i> =0.89				
				ST <i>n</i> =1009 (56.7%) <i>I</i> =1.07*	SF <i>n</i> = 198 (11.1%) <i>I</i> =0.85	NF <i>n</i> = 169 (9.5%) <i>I</i> =0.86		
				NT <i>n</i> = 404 (22.7%) <i>I</i> =1.00				
ESTP				SJ				
ESTP <i>n</i> = 26 (1.5%) <i>I</i> = 0.78	ESFP <i>n</i> = 14 (0.8%) <i>I</i> = 0.96	ENFP <i>n</i> = 29 (1.6%) <i>I</i> = 1.15	ENTP <i>n</i> = 31 (1.7%) <i>I</i> = 0.83	SP <i>n</i> = 165 (9.3%) <i>I</i> =1.07	NP <i>n</i> = 213 (12.0%) <i>I</i> =1.01	NJ <i>n</i> = 360 (20.2%) <i>I</i> =0.92		
++	+	++	++	TJ <i>n</i> =1158 (65.1%) <i>I</i> =1.04	TP <i>n</i> = 255 (14.3%) <i>I</i> =1.06	FP <i>n</i> = 123 (6.9%) <i>I</i> =0.99		
				FJ <i>n</i> = 244 (13.7%) <i>I</i> =0.80*				
ESTJ				IN				
ESTJ <i>n</i> = 167 (9.4%) <i>I</i> = 1.01	ESFJ <i>n</i> = 29 (1.6%) <i>I</i> = 0.53**	ENFJ <i>n</i> = 23 (1.3%) <i>I</i> = 0.84	ENTJ <i>n</i> = 51 (2.9%) <i>I</i> = 0.92	EN <i>n</i> = 134 (7.5%) <i>I</i> =0.92	IS <i>n</i> = 971 (54.6%) <i>I</i> =1.07*	ES <i>n</i> = 236 (13.3%) <i>I</i> =0.88		
+++++	++	+	+++	ET <i>n</i> = 275 (15.4%) <i>I</i> =0.95	EF <i>n</i> = 95 (5.3%) <i>I</i> =0.78*	IF <i>n</i> = 272 (15.3%) <i>I</i> =0.88		
				IT <i>n</i> =1138 (63.9%) <i>I</i> =1.07**				
Jungian types (E)			Jungian types (I)			Dominant types		
<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>
E-TJ	218 (12.2)	0.99	I-TP	198 (11.1)	1.16	Dt. T	416 (23.4)	1.07
E-FJ	52 (2.9)	0.64**	I-FP	80 (4.5)	0.95	Dt. F	132 (7.4)	0.80*
ES-P	40 (2.2)	0.84	IS-J	846 (47.5)	1.05	Dt. S	886 (49.8)	1.04
EN-P	60 (3.4)	0.96	IN-J	286 (16.1)	0.93	Dt. F	346 (19.4)	0.93

Note: Total *n* = 1,780. **p* < 0.05; ***p* <0.01; ****p* < 0.001.

Table 17: Type distribution of unchurched atheists compared to atheist church-leavers (males)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 2,227 (41.7%) <i>I</i> = 1.03	ISFJ <i>n</i> = 123 (2.3%) <i>I</i> = 0.79*	INFJ <i>n</i> = 94 (1.8%) <i>I</i> = 1.01	INTJ <i>n</i> = 881 (16.5%) <i>I</i> = 1.11*	E <i>n</i> =1027 (19.2%) <i>I</i> =0.92*	I <i>n</i> =4316 (80.8%) <i>I</i> =1.02*			
+++++	++	++	+++++	S <i>n</i> =3459 (64.7%) <i>I</i> =1.00	N <i>n</i> =1884 (35.3%) <i>I</i> =1.01			
+++++			+++++	T <i>n</i> =4860 (91.0%) <i>I</i> =1.02**	F <i>n</i> = 483 (9.0%) <i>I</i> =0.86**			
+++++			++	J <i>n</i> =3992 (74.7%) <i>I</i> =1.01	P <i>n</i> =1351 (25.3%) <i>I</i> =0.96			
+++++								
The 16 complete types				Pairs and temperaments				
ISTP <i>n</i> = 441 (8.3%) <i>I</i> = 1.02	ISFP <i>n</i> = 49 (0.9%) <i>I</i> = 0.98	INFP <i>n</i> = 77 (1.4%) <i>I</i> = 0.78	INTP <i>n</i> = 424 (7.9%) <i>I</i> = 0.95	IJ <i>n</i> =3325 (62.2%) <i>I</i> =1.04**	IP <i>n</i> = 991 (18.5%) <i>I</i> =0.82	EP <i>n</i> = 360 (6.7%) <i>I</i> =0.91		
+++++	+	+	+++++	EJ <i>n</i> = 667 (12.5%) <i>I</i> =1.02*				
				ST <i>n</i> =3230 (60.5%) <i>I</i> =1.01	SF <i>n</i> = 229 (4.3%) <i>I</i> =0.82*	NF <i>n</i> = 254 (4.8%) <i>I</i> =0.91		
				NT <i>n</i> =1630 (30.5%) <i>I</i> =1.02				
ESTP <i>n</i> = 150 (2.8%) <i>I</i> = 1.17	ESFP <i>n</i> = 17 (0.3%) <i>I</i> = 0.53*	ENFP <i>n</i> = 51 (1.0%) <i>I</i> = 0.89	ENTP <i>n</i> = 142 (2.7%) <i>I</i> = 0.91	SJ <i>n</i> =2802 (52.4%) <i>I</i> =0.99	SP <i>n</i> = 657 (12.3%) <i>I</i> =1.03	NP <i>n</i> = 694 (13.0%) <i>I</i> =0.91*		
+++		+	+++	NJ <i>n</i> =1190 (22.3%) <i>I</i> =1.07*				
				TJ <i>n</i> =3703 (69.3%) <i>I</i> =1.02	TP <i>n</i> =1157 (21.7%) <i>I</i> =0.99	FP <i>n</i> = 194 (3.6%) <i>I</i> =0.82*		
				FJ <i>n</i> = 289 (5.4%) <i>I</i> =0.89				
ESTJ <i>n</i> = 412 (7.7%) <i>I</i> = 0.86**	ESFJ <i>n</i> = 40 (0.7%) <i>I</i> = 0.93	ENFJ <i>n</i> = 32 (0.6%) <i>I</i> = 1.02	ENTJ <i>n</i> = 183 (3.4%) <i>I</i> = 0.96	IN <i>n</i> =1476 (27.6%) <i>I</i> =1.03	EN <i>n</i> = 408 (7.6%) <i>I</i> =0.94	IS <i>n</i> =2840 (53.2%) <i>I</i> =1.02		
+++++	+	+	+++	ES <i>n</i> = 619 (11.6%) <i>I</i> =0.91				
				ET <i>n</i> = 887 (16.6%) <i>I</i> =0.93	EF <i>n</i> = 140 (2.6%) <i>I</i> =0.86	IF <i>n</i> = 343 (6.4%) <i>I</i> =0.86*		
				IT <i>n</i> =3973 (74.4%) <i>I</i> =1.04***				
Jungian types (E)			Jungian types (I)			Dominant types		
<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>	<i>n</i>	%	<i>Index</i>
E-TJ	595 (11.1)	0.89*	I-TP	865 (16.2)	0.98	Dt. T	1460 (27.3)	0.94*
E-FJ	72 (1.3)	0.97	I-FP	126 (2.4)	0.85	Dt. F	198 (3.7)	0.89
ES-P	167 (3.1)	1.04	IS-J	2350 (44.0)	1.02	Dt. S	2517 (47.1)	1.02
EN-P	193 (3.6)	0.91	IN-J	975 (18.2)	1.10*	Dt. F	1168 (21.9)	1.06

Note: Total *n* = 5,343. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

7.7 Psychological type analysis of the unchurched theists

Data was also collected from unchurched theists, i.e. those who did not attend church as children, do not attend church now, but believe in some sort of God. It was predicted that these individuals would be similar to the theist church-leavers in terms of psychological type. In order to test this hypothesis, the two types of theists were compared with each other to see what types, if any, were over-represented or under-represented among the unchurched theists as compared to the theist church-leavers.

Table 18 compares the type distribution of the 270 female unchurched theists with the type distribution of the 1,134 female theist church-leavers. These data demonstrated that the female unchurched theists displayed no significant differences as compared to the female theist churchleavers on extraversion versus introversion, sensing versus intuition, and judging versus perceiving. However, the female unchurched theists did display a significant over-representation of thinking over feeling ($I = 1.16$). In terms of the 16 discrete types, the female unchurched theists had a significant over-representation of INTJ ($I = 1.57$) and a significant under-representation of ISFJ ($I = 0.51$). There were no significant differences in the percentages of the remaining fourteen types.

Table 19 compares the type distribution of the 240 male unchurched theists with the type distribution of the 843 male theist church-leavers. These data demonstrated that the male unchurched theists displayed no significant differences as compared to the male theist churchleavers on extraversion versus introversion and thinking versus feeling. However, the male unchurched theists did display a significant over-representation of intuition over sensing ($I = 1.16$) and perceiving over judging ($I = 1.27$). In terms of the 16 discrete types, the male unchurched theists had

a significant over-representation of INFP ($I = 1.89$). There were no significant differences in the percentages of the remaining fifteen types.

The results from these two tables indicate that the prediction regarding the unchurched theists was mostly correct. The psychological type profile of the unchurched theists was very similar to the psychological type profile of the theist church-leavers for both the females and the males, with the exception of a small (but still statistically relevant) over-representation of thinking over feeling for the female unchurched theists and small (but still statistically relevant) over-representations of intuition over sensing and perceiving over judging for the male unchurched theists.

Table 18: Type distribution of unchurched theists compared to theist church-leavers (females)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 55 (20.4%) <i>I</i> = 0.96	ISFJ <i>n</i> = 19 (7.0%) <i>I</i> = 0.51**	INFJ <i>n</i> = 27 (10.0%) <i>I</i> = 0.96	INTJ <i>n</i> = 50 (18.5%) <i>I</i> = 1.57**	E <i>n</i> = 68 (25.2%) <i>I</i> =0.86	I <i>n</i> = 202 (74.8%) <i>I</i> =1.06			
+++++	+++++	+++++	+++++	S <i>n</i> = 119 (44.1%) <i>I</i> =0.87	N <i>n</i> = 151 (55.9%) <i>I</i> =1.13			
+++++			+++++	T <i>n</i> = 159 (58.9%) <i>I</i> =1.16*	F <i>n</i> = 111 (41.1%) <i>I</i> =0.84*			
				J <i>n</i> = 196 (72.6%) <i>I</i> =0.95	P <i>n</i> = 74 (27.4%) <i>I</i> =1.18			
The 16 complete types				Pairs and temperaments				
ISTP <i>n</i> = 6 (2.2%) <i>I</i> = 1.58	ISFP <i>n</i> = 4 (1.5%) i/d	INFP <i>n</i> = 21 (7.8%) <i>I</i> = 1.32	INTP <i>n</i> = 20 (7.4%) <i>I</i> = 1.58	IJ <i>n</i> = 151 (55.9%) <i>I</i> =0.98	IP <i>n</i> = 51 (18.9%) <i>I</i> =1.42*			
++	++	+++++	+++++	EP <i>n</i> = 23 (8.5%) <i>I</i> =0.85	EJ <i>n</i> = 45 (16.7%) <i>I</i> =0.86			
				ST <i>n</i> = 80 (29.6%) <i>I</i> =1.03	SF <i>n</i> = 39 (14.4%) <i>I</i> =0.66**			
				NF <i>n</i> = 72 (26.7%) <i>I</i> =0.99	NT <i>n</i> = 79 (29.3%) <i>I</i> =1.31			
The 16 complete types				Pairs and temperaments				
ESTP <i>n</i> = 4 (1.5%) i/d	ESFP <i>n</i> = 5 (1.9%) <i>I</i> = 1.24	ENFP <i>n</i> = 11 (4.1%) <i>I</i> = 0.77	ENTP <i>n</i> = 3 (1.1%) i/d	SJ <i>n</i> = 100 (37.0%) <i>I</i> =0.82*	SP <i>n</i> = 19 (7.0%) <i>I</i> =1.35			
++	++	++++	+	NP <i>n</i> = 55 (20.4%) <i>I</i> =1.13	NJ <i>n</i> = 96 (35.6%) <i>I</i> =1.14			
				TJ <i>n</i> = 126 (46.7%) <i>I</i> =1.12	TP <i>n</i> = 33 (12.2%) <i>I</i> =1.32			
				FP <i>n</i> = 41 (15.2%) <i>I</i> =1.08	FJ <i>n</i> = 70 (25.9%) <i>I</i> =0.74**			
The 16 complete types				Pairs and temperaments				
ESTJ <i>n</i> = 15 (5.6%) <i>I</i> = 1.09	ESFJ <i>n</i> = 11 (4.1%) <i>I</i> = 0.78	ENFJ <i>n</i> = 13 (4.8%) <i>I</i> = 0.88	ENTJ <i>n</i> = 6 (2.2%) <i>I</i> = 0.61	IN <i>n</i> = 118 (43.7%) <i>I</i> =1.33***	EN <i>n</i> = 33 (12.2%) <i>I</i> =0.74			
+++++	++++	+++++	++	IS <i>n</i> = 84 (31.1%) <i>I</i> =0.82*	ES <i>n</i> = 35 (13.0%) <i>I</i> =1.01			
				ET <i>n</i> = 28 (10.4%) <i>I</i> =0.87	EF <i>n</i> = 40 (14.8%) <i>I</i> =0.85			
				IF <i>n</i> = 71 (26.3%) <i>I</i> =0.83	IT <i>n</i> = 131 (48.5%) <i>I</i> =1.24**			
Jungian types (E)			Jungian types (I)			Dominant types		
	<i>n</i>	% <i>Index</i>		<i>n</i>	% <i>Index</i>		<i>n</i>	% <i>Index</i>
E-TJ	21	(7.8) 0.89	I-TP	26	(9.6) 1.58*	Dt. T	47	(17.4) 1.18
E-FJ	24	(8.9) 0.83	I-FP	25	(9.3) 1.28	Dt. F	49	(18.1) 1.01
ES-P	9	(3.3) 1.35	IS-J	74	(27.4) 0.78*	Dt. S	83	(30.7) 0.82*
EN-P	14	(5.2) 0.69	IN-J	77	(28.5) 1.28*	Dt. F	91	(33.7) 1.13

Note: Total *n* = 270. i/d = insufficient data. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

Table 19: Type distribution of unchurched theists compared to theist church-leavers (males)

The 16 complete types				Dichotomous preferences				
ISTJ <i>n</i> = 59 (24.6%) <i>I</i> = 0.83	ISFJ <i>n</i> = 7 (2.9%) <i>I</i> = 0.57	INFJ <i>n</i> = 11 (4.6%) <i>I</i> = 0.73	INTJ <i>n</i> = 45 (18.8%) <i>I</i> = 1.12	E <i>n</i> = 53 (22.1%) <i>I</i> =0.95	I <i>n</i> = 187 (77.9%) <i>I</i> =1.02			
+++++	+++	+++++	+++++	S <i>n</i> = 102 (42.5%) <i>I</i> =0.84*	N <i>n</i> = 138 (57.5%) <i>I</i> =1.16*			
+++++			+++++	T <i>n</i> = 178 (74.2%) <i>I</i> =1.01	F <i>n</i> = 62 (25.8%) <i>I</i> =0.99			
++++				J <i>n</i> = 156 (65.0%) <i>I</i> =0.90*	P <i>n</i> = 84 (35.0%) <i>I</i> =1.27*			
ISTP				Pairs and temperaments				
ISTP <i>n</i> = 10 (4.2%) <i>I</i> = 1.00	ISFP <i>n</i> = 5 (2.1%) <i>I</i> = 1.76	INFP <i>n</i> = 21 (8.8%) <i>I</i> = 1.89*	INTP <i>n</i> = 29 (12.1%) <i>I</i> = 1.36	IJ <i>n</i> = 122 (50.8%) <i>I</i> =0.88	IP <i>n</i> = 65 (27.1%) <i>I</i> =1.44**	EP <i>n</i> = 19 (7.9%) <i>I</i> =0.90		
++++	++	+++++	+++++	EJ <i>n</i> = 34 (14.2%) <i>I</i> =0.98				
			++	ST <i>n</i> = 85 (35.4%) <i>I</i> =0.85	SF <i>n</i> = 17 (7.1%) <i>I</i> =0.81	NF <i>n</i> = 45 (18.8%) <i>I</i> =1.08		
				NT <i>n</i> = 93 (38.8%) <i>I</i> =1.20				
ESTP				SJ <i>n</i> = 85 (35.4%) <i>I</i> =0.84	SP <i>n</i> = 17 (7.1%) <i>I</i> =1.88	NP <i>n</i> = 67 (27.9%) <i>I</i> =1.43**		
ESTP <i>n</i> = 1 (0.4%) i/d	ESFP <i>n</i> = 1 (0.4%) i/d	ENFP <i>n</i> = 8 (3.3%) <i>I</i> = 0.91	ENTP <i>n</i> = 9 (3.8%) <i>I</i> = 1.58	NJ <i>n</i> = 71 (29.6%) <i>I</i> =0.98				
		+++	++++	TJ <i>n</i> = 129 (53.8%) <i>I</i> =0.95	TP <i>n</i> = 49 (20.4%) <i>I</i> =1.18	FP <i>n</i> = 35 (14.6%) <i>I</i> =1.41		
				FJ <i>n</i> = 27 (11.3%) <i>I</i> =0.71				
ESTJ				IN <i>n</i> = 106 (44.2%) <i>I</i> =1.21*	EN <i>n</i> = 32 (13.3%) <i>I</i> =1.01	IS <i>n</i> = 81 (33.8%) <i>I</i> =0.84		
ESTJ <i>n</i> = 15 (6.3%) <i>I</i> = 1.10	ESFJ <i>n</i> = 4 (1.7%) i/d	ENFJ <i>n</i> = 5 (2.1%) <i>I</i> = 0.73	ENTJ <i>n</i> = 10 (4.2%) <i>I</i> = 0.98	ES <i>n</i> = 21 (8.8%) <i>I</i> =0.87				
+++++	++	++	++++	ET <i>n</i> = 35 (14.6%) <i>I</i> =1.02	EF <i>n</i> = 18 (7.5%) <i>I</i> =0.83	IF <i>n</i> = 44 (18.3%) <i>I</i> =1.07		
				IT <i>n</i> = 143 (59.6%) <i>I</i> =1.00				
Jungian types (E)			Jungian types (I)			Dominant types		
	<i>n</i>	% <i>Index</i>		<i>n</i>	% <i>Index</i>		<i>n</i>	% <i>Index</i>
E-TJ	25	(10.4) 1.05	I-TP	39	(16.3) 1.25	Dt. T	64	(26.7) 1.16
E-FJ	9	(3.8) 0.83	I-FP	26	(10.8) 1.86**	Dt. F	35	(14.6) 1.41
ES-P	2	(0.8) 0.31	IS-J	66	(27.5) 0.79*	Dt. S	68	(28.3) 0.75**
EN-P	17	(7.1) 1.17	IN-J	56	(23.3) 1.01	Dt. F	73	(30.4) 1.05

Note: Total *n* = 240. i/d = insufficient data. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

7.8 Conclusion

One of the primary research goals of this project was to compare the psychological type profile of continuing churchgoers with that of atheist church-leavers. As expected, the data demonstrated that the greatest differences exist in the thinking-feeling and judging-perceiving dimensions with continuing churchgoers tending more towards feeling and judging (FJ) and atheist church-leavers tending more towards thinking and perceiving (TP). This supports the notion that psychological type does indeed play a role in why certain individuals are more likely than others to stop attending church and to become atheists. Individuals with combined preferences for thinking and perceiving (TP) are minorities in church congregations and are therefore more likely than other types to feel out of place. In addition, TP types are also non-conformists who prefer to make decisions based on logical reasoning as opposed to shared social values. Such types are thus more likely to stop attending church and to explore alternative worldviews instead.

The data reported in this chapter also demonstrated that there is not as profound a difference in psychological type between theist church-leavers and continuing churchgoers as there is between atheist church-leavers and continuing churchgoers. This indicates that psychological type plays a greater role in why those who go on to become atheists stop attending church than it does among those who remain theists. Finally, the data demonstrated that when it comes to their overall psychological type profile, Christian converts are similar to continuing churchgoers, unchurched atheists are similar to atheist church-leavers and unchurched theists are similar to theist church-leavers.

8 ANALYSIS OF OTHER THEORIES

This chapter will address the second research question: Is there evidence to support any of the other theories about why certain individuals are more likely than others to give up their childhood religious beliefs and to become atheists? The seven “other” theories considered in the study were: selfishness, arrogance, anger at God, poor father-child relationships, lower religious emphasis during childhood, deliberation in the pursuit of truth, and higher intelligence. Section 8.1 will look at each theory separately and report on the independent t-tests and chi square tests that were used to measure the statistical significance of various factors selected to represent the seven theories (one factor each for selfishness, arrogance, anger, deliberation, and intelligence; seven factors related to father-child relationships; and nine factors related to religious emphasis during childhood). For each theory, the results of the statistical tests as well as the raw scores (on a scale of 0 to 50) will be used to determine whether the theory should be accepted or rejected. Section 8.2 will then report on the binary logistic regression that was used to rank the relative importance of each accepted theory and thus determine which theories have the most validity.

8.1 Independent t-tests and chi-square tests

An independent t-test is a standard statistical test used to compare the mean scores of two groups on a variable that is continuous (i.e. a scale with many possible points). An example of a continuous variable from this project is the scale that represented the strength of an individual’s relationship with his or her father (with

possible values between 0 and 50). In the cases where the variable was categorical rather than continuous, a chi-square test was used instead. An example of a categorical variable from this project was the yes or no answer to the question, “Did the individual attend church with his or her father?” For both the t-tests and the chi square test, the statistical relevance of the difference between the means or percentages is indicated by p . As mentioned in section 7.3, a p value of less than 0.05 is seen as significant, a p value of less than 0.01 is seen as highly significant, and a p value of less than 0.001 is seen as very highly significant. However, because large sample sizes, like the ones used in this study, can often lead to very small differences achieving significant p values, attention will primarily be paid to results achieving a p value of less than 0.001.

8.1.1 Analysis of selfishness

As outlined in Section 3.1.1, many conservative Christian writers have claimed that one of the main reasons atheists reject God is that they are selfish and immoral (Sproul, 1974; Stroebel, 1998; Vitz, 2008; Spiegel, 2010). The current project tested this theory by including a measure of selfishness in its survey. The measure was the reverse of a 10-item scale from the IPIP-NEO designed to measure the facet “altruism”. In this study, the scale achieved a coefficient alpha of .82, which is considered to be a sign of good internal consistency. Independent t-tests were then used to compare the mean scores of the atheist church-leavers with the mean scores of the continuing churchgoers with females and males being considered separately.

Table 20 presents the results of the independent t-tests. According to the data, the female atheist church-leavers scored higher, on average, than the female continuing churchgoers on selfishness with the difference in mean scores being

considered very highly significant. In addition to this, the male atheist church-leavers also scored higher, on average, than the male continuing churchgoers on selfishness with the difference in mean scores being considered very highly significant.

However, it is important to note that the results cannot be said to indicate that atheists are selfish and that churchgoers are not. Although there was a statistically relevant difference in their mean scores on selfishness, both the mean scores of the female and male atheist church-leavers as well as the mean scores of the female and male continuing churchgoers were on the lower side of the 50-point scale (and hence on the side of altruism). Rather than the results indicating that atheists are more selfish than churchgoers, it would be more accurate to say that atheists are simply less altruistic. If selfishness was indeed a core trait of atheists, one would have expected a much larger difference in mean scores. For this reason, the theory that some individual become atheists because they are selfish was rejected.

Table 20: Selfishness (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Selfishness	(female)	2,677	20.08	5.47	1,137	17.73	4.86	13.14	.001
	(male)	7,838	21.81	5.44	1,189	19.81	5.43	11.79	.001

8.1.2 Analysis of arrogance

As outlined in Section 3.1.2, many conservative Christian writers have also claimed that many atheists reject God because they are arrogant (D'Souza, 2007; Pasquini, 2009; Hart, 2009; Markham, 2011; Stokes, 2012). The current project tested this theory by including a measure of arrogance in its survey. The measure was the reverse of a 10-item scale from the IPIP-NEO designed to measure the facet

“modesty”. In this study, the scale achieved a coefficient alpha of .83, which is considered to be a sign of good internal consistency. Independent t-tests were then used to compare the mean scores of the atheist church-leavers with the mean scores of the continuing churchgoers with females and males being considered separately.

Table 21 presents the results of the independent t-tests. According to the data, the female atheist church-leavers scored higher, on average, than the female continuing churchgoers on arrogance with the difference in mean scores being considered very highly significant. In addition to this, the male atheist church-leavers also scored higher, on average, than the male continuing churchgoers on arrogance with the difference in mean scores being considered very highly significant.

However, it is important to note that the results cannot be said to indicate that atheists are arrogant and that churchgoers are not. Although there was a statistically relevant difference in their mean scores on arrogance, both the mean scores of the female and male atheist church-leavers as well as the mean scores of the female and male continuing churchgoers were located near the center of the 50-point scale. If arrogance was indeed a core trait of atheists, one would have expected a much larger difference in mean scores. In addition to this, it should be noted that both the male groups (the male atheist church-leavers *and* the male continuing churchgoers) scored higher on the arrogance scale than both the female groups. This indicates that sex is also an important factor when it comes to arrogance. For these reasons, the theory that some individual become atheists because they are selfish was rejected.

Table 21: Arrogance (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Arrogance	(female)	2,677	26.65	7.07	1,137	24.53	6.61	8.84	.001
	(male)	7,838	28.88	7.02	1,189	27.50	6.84	6.34	.001

8.1.3 Analysis of anger

As outlined in Section 3.1.3, another theory about atheists is that they are angry at God (Exline, Yali & Lobel, 1999; Novotni & Petersen, 2001). Although the current project was unable to measure anger towards God specifically, it did measure a tendency towards anger in general. The measure used in the survey was the 10-item scale from the IPIP-NEO designed to measure the facet “anger”. In this study, the scale achieved a coefficient alpha of .92, which is considered to be a sign of excellent internal consistency. Independent t-tests were used to compare the mean scores of the atheist church-leavers with the mean scores of the continuing churchgoers with females and males being considered separately.

Table 22 presents the results of the independent t-tests. According to the data, the female atheist church-leavers scored higher, on average, than the female continuing churchgoers on anger with the difference in mean scores being considered significant. However, no significant difference was found between the mean scores of the male atheist church-leavers and the continuing churchgoers on anger. Because a *p* value of less than .001 was not achieved in either the comparison of females, nor the comparison of males, the theory that some individual become atheists because they are prone to anger was rejected.

Table 22: Anger (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Anger	(female)	2,677	26.50	8.18	1,137	25.88	7.92	2.16	.05
	(male)	7,838	23.71	8.23	1,189	23.46	8.00	.098	NS

8.1.4 Analysis of father-child relationships

As outlined in Section 3.1.4, Paul Vitz has put forward the theory that atheists have fathers that are cold, distant, or absent (Vitz, 1999). In order to test this theory, participants in the current study were asked to report how many years, between birth and age 18, they spent with their fathers. They were also asked to report the same for their mothers. Independent t-tests were used to compare the mean for the atheist church-leavers with the mean for the continuing churchgoers with females and males being considered separately.

The project also measured the overall strength of the father-child and mother-child relationships by asking participants to rank, on a 5-point Likert scale, how applicable a set of 10 words or phrases were in describing their father and mother. The words/phrases included: caring, supportive, involved in my life, loving, close to me, sensitive, accepting, always there for me, someone I respected, and someone others respected. The ten items for the participant's father and the ten items for the participant's mother were used to create scales labelled, "childhood relationship with father" and "childhood relationship with mother". Both scales achieved a coefficient alpha of .95, which is considered to be a sign of excellent internal consistency. Independent t-tests were used to compare the mean scores of the atheist church-leavers with the mean scores of the continuing churchgoers with females and males being considered separately.

Table 23 presents the results of the independent t-tests. According to the data, there was no significant difference between the two groups, for both females and males, when it came to the number of years that the participants spent with their mothers. However, when it came to the number of years that the participants spent with their fathers, a very highly significant difference was found for both males and females. In both cases though, the difference amounted to less than one full year (about 8 months for females and 5 months for males). It is thus important to note that, although these differences are considered to be very highly significant in terms of *statistics*, the differences were, in fact, extremely small in terms of actual numbers. Of greater significance were the participants' relationships with their parents. According to the data, the atheist church-leavers (both the females and males) scored lower, on average, than the continuing churchgoers on the 50-point scales designed to measure their relationships with their fathers and mothers. In each case, the differences were considered very highly significant.

Table 23: Parental Relationships (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Years with father	(female)	2,677	14.86	5.47	1,137	15.51	5.05	-3.56	.001
	(male)	7,838	15.43	5.06	1,189	15.87	4.79	-2.94	.01
Relationship with father	(female)	2,677	35.62	10.66	1,137	37.29	10.88	-4.27	.001
	(male)	7,838	36.47	9.40	1,189	38.01	9.50	-5.16	.001
Years with mother	(female)	2,677	17.15	2.69	1,137	17.31	2.56	-1.78	NS
	(male)	7,838	17.17	2.73	1,189	17.29	2.76	-1.44	NS
Relationship with mother	(female)	2,677	38.88	9.97	1,137	41.31	9.05	-6.98	.001
	(male)	7,838	41.58	7.81	1,189	43.42	7.38	-7.86	.001

The current project also collected data on whether or not the participants' parents divorced during childhood and whether or not the participants' had a parent (or parents) die during childhood. Chi square tests were used to compare the differences in percentages between the atheist church-leavers and the continuing churchgoers, with females and males being considered separately. Table 24 presents the results of the chi square tests. In terms of divorce, the parents of both the female and male atheist church-leavers divorced more often than the parents of the continuing churchgoers, with the differences in percentages being considered very highly significant. However, when it came to the death of a parent or parents, the only significant difference that was found was for females whose father had died. In this case, the female atheist church-leavers experienced the loss of a father more often than the female continuing churchgoers with the difference in percentages being highly significant.

Table 24: Parental Death & Divorce (atheist church-leavers versus continuing churchgoers)

Factor		Atheist church-leavers	Continuing churchgoers	χ^2	$p <$
		%	%		
Father died	(female)	5.2	3.2	7.25	.001
	(male)	3.9	3.7	0.16	NS
Mother died	(female)	1.8	2.3	1.02	NS
	(male)	1.8	1.4	0.77	NS
Parents divorced	(female)	29.7	23.2	16.70	.001
	(male)	25.9	17.9	35.36	.001

Looking at the results from all seven factors examined in this section, there appears to be some validity to the theory that the father-child relationship plays a role in why some individuals become atheists. However, the strength of the relationship

appears to be more important than the number of years spent together. Also, the relationship with one's mother appears to be just as important as the relationship with one's father. Finally, it should be noted that it is impossible to know from these results whether the weaker parental relationships led to the individuals becoming atheists or whether the individuals becoming atheists led to weaker parental relationships. Nonetheless, the theory based on father-child relationships was accepted and the factor "relationship with father" was included in the binary logistic regression discussed in section 8.2 below.

8.1.5 Analysis of religious emphasis in childhood

As outlined in Section 3.2.1, there is conflicting evidence when it comes to whether or not the degree of religious emphasis in the home during childhood plays a role in why certain individuals become atheists (e.g. - Hunsberger & Brown, 1984; Altemeyer & Hunsberger, 1997). The current project collected data on this factor by asking participants to state the number of years they spent attending church regularly as a child (from birth to age 18) with "regularly" being defined as at least six times per year. The questionnaire also asked participants to rank the degree to which their church's teachings and practices were emphasized in the home using the terms very high, high, moderate, low, or very low. In addition to these questions, participants were also asked to describe the church or faith community of their childhood using one of the following terms: very conservative, conservative, moderate, liberal, or very liberal. Finally, an overall childhood religious experience score was determined based on how the participants ranked their feelings about the following ten items using a five-point Likert scale (very positive, positive, neutral, negative, and very negative): the other children their age, the adult members, the leadership, the teachings and practices, the activities they participated in, the opportunities they were given, the

way they were treated, the sincerity of the members, the integrity of the members, and the overall experience that they had. These ten items achieved a coefficient alpha of .92, which is considered to be a sign of excellent internal consistency. Independent t-tests were used to compare the mean scores of the atheist church-leavers with the mean scores of the continuing churchgoers with females and males being considered separately.

Table 25 presents the results of the independent t-tests. According to the data, the female atheist church-leavers had lower values, on average, than the female continuing churchgoers when it came to the number of years of church attendance, the degree of religious emphasis in the home, the conservatism of their church and their overall church experience. All of these differences were considered to be very highly significant, except for the conservatism of their church, which was considered significant. According to the data, the male atheist church-leavers also had lower values, on average, than the male continuing churchgoers when it came to the number of years of church attendance, the degree of religious emphasis in the home, the conservatism of their church and their overall church experience. All of these differences were considered to be very highly significant.

Table 25: Religious emphasis (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Years of church	(male)	2,677	13.28	4.85	1,137	14.70	4.99	-8.17	.001
	(female)	7,838	13.45	4.62	1,189	15.03	4.82	-11.00	.001
Degree of emphasis	(male)	2,677	29.50	1.21	1,137	34.30	0.92	-11.28	.001
	(female)	7,838	29.30	1.15	1,189	34.10	1.17	-13.21	.001
Conservatism of church	(male)	2,677	36.60	0.95	1,137	37.30	0.91	-2.27	.05
	(female)	7,838	35.40	0.94	1,189	37.20	0.92	-6.09	.001
Overall church experience	(male)	2,677	30.56	7.60	1,137	37.91	7.46	-27.14	.001
	(female)	7,838	31.16	7.24	1,189	38.13	7.04	-30.71	.001

The current project also collected data on with whom the participants attended church, including fathers, mothers, siblings, grandparents, and other extended family. Chi square tests were used to compare the differences in percentages between the atheist church-leavers and the continuing churchgoers, with females and males being considered separately. Table 26 presents the results of the chi square tests. According to the data, both the female and male atheist church-leavers attended church with their fathers less often, on average, than the female and male continuing churchgoers with the difference in percentages being considered very highly significant for both females and males. Likewise, both the female and male atheist church-leavers also attended church with their mothers less often, on average, than the female and male continuing churchgoers but the difference in percentages was very highly significant for the males only. In addition to this, the female and male atheist church-leavers also attended church with their siblings less often, on average, than the female and male continuing churchgoers but the difference in percentages were not very highly significant for either sex. No significant differences were found with regard to attending church with grandparents or extended family with the exception of the females and their grandparents. In that case, the female atheist church-leavers attended church with their grandparents *more often*, on average, than the female and male continuing churchgoers with the difference in percentages being considered significant.

Table 26: Church attendance (atheist church-leavers versus continuing churchgoers)

Factor (attended with:)		Atheist church-leavers	Continuing churchgoers	χ^2	$p <$
		%	%		
Father	(female)	55.5	64.4	25.59	.001
	(male)	64.3	75.4	56.16	.001
Mother	(female)	80.0	82.4	3.03	.05
	(male)	84.5	88.9	15.99	.001
Siblings	(female)	72.7	75.9	4.23	.05
	(male)	76.7	79.6	4.73	.05
Grandparents	(female)	30.5	27.9	2.59	NS
	(male)	28.6	25.0	6.71	.01
Extended family	(female)	22.5	24.8	2.48	NS
	(male)	21.9	20.5	1.21	NS

It is also worth noting that the years of church, degree of religious emphasis, conservatism of church, overall church experience all differed according to which denomination the participants attended as children. According to the data, the denominations in which atheist church-leavers spent the most amount of years were Worldwide Church of God (15.38), Mormon (14.98), Jehovah's Witnesses (14.84), Pentecostal (14.10), and Mennonite (14.06), whereas the denominations in which atheist church-leavers spent the least amount of years were United Church of Canada (11.28), Anglican (11.58), Churches of Christ (12.91), Baptist (13.14), and Eastern Orthodox (13.17). The denominations for which the atheist church-leavers reported the highest levels of religious emphasis were Worldwide Church of God (4.49), Jehovah's Witnesses (4.31), Seventh Day Adventists (3.97), Mormons (3.96), and Pentecostal, whereas the denominations for which the atheist church-leavers reported the lowest levels of religious emphasis were United Church of Canada (2.31), Anglican (2.34), Methodist (2.71), Lutheran (2.75), and Presbyterian (2.77). The denominations that the atheist church-leavers considered to be the most conservative

were Jehovah's Witnesses (4.62), Worldwide Church of God (4.62), Mormon (4.57), Pentecostal (4.44), and Seventh Day Adventist (4.41), whereas the denominations that the atheist church-leavers considered to be the most liberal were the United Church of Canada (2.32), Anglican (2.98), Lutheran (3.20), Methodist (3.21), and Presbyterian (3.27). Finally, the denominations for which the atheist church-leavers reported the most positive church experiences were United Church of Canada (33.13), Methodist (33.09), Presbyterian (32.82), Anglican (32.40), and Lutheran (32.05), whereas the denominations for which the atheist church-leavers reported the most negative church experiences were Jehovah's Witnesses (27.20), Eastern Orthodox (27.88), Pentecostal (29.11), Roman Catholic (30.00), and Baptist (30.05).

The pattern that emerges from these statistics is that atheist church-leavers report more positive experiences among liberal denominations but at the same time, lower degrees of religious emphasis. Conversely, they report more negative experiences among conservative denominations but at the same time, higher degrees of religious emphasis. This means that if both low levels of religious emphasis and negative church experience are factors that influence church-leaving, they must be factors that operate in different situations and not factors that work together. To put it more clearly, negative church experiences appear to be a factor in conservative churches but not in liberal churches, whereas low levels of religious emphasis appears to be a factor in liberal churches but not in conservative churches.

Looking at the results from all nine factors examined in this section, there appears to be some validity to the theory that religious emphasis in childhood plays a role in why some individuals become atheists. Individuals who went on to become atheists reported much lower degrees of religious emphasis in the home, had fewer years of church attendance (about one and a half years less on average), and were less likely to have attended church with their fathers. This was especially true for

individuals who attended liberal churches. However, for individuals who attended conservative churches, there appears to be some validity to the related theory that negative church experience also plays a role in why some individuals become atheists. For these reasons, both the theory based on religious emphasis during childhood and the theory based on negative church experiences were accepted and the factors “years of church” and “overall church experience” were included in the binary logistic regression discussed in section 8.2 below.

8.1.6 Analysis of deliberation

As outlined in Section 3.2.2, there is evidence that many individuals stop believing in God as a result of their deliberation in pursuing truth (Babinski, 1995 ; Altemeyer & Hunsberger, 1997). Although the current project was unable to measure deliberation in pursuing truth specifically, it did measure deliberation in general. The measure used in the survey was the 10-item scale from the IPIP-NEO designed to measure the facet labelled “deliberation”. In this study, the scale achieved a coefficient alpha of .84, which is considered to be a sign of good internal consistency. Independent t-tests were then used to compare the mean scores of the atheist church-leavers with the mean scores of the continuing churchgoers with females and males being considered separately.

Table 27 presents the results of the independent t-tests. According to the data, the female atheist church-leavers scored higher, on average, than the female continuing churchgoers on deliberation with the difference in mean scores being considered significant. In addition to this, the male atheist church-leavers also scored higher, on average, than the male continuing churchgoers on deliberation with the difference in mean scores being considered highly significant. However, because a *p* value of less than .001 was not achieved in either the comparison of females, nor the

comparison of males, the theory that some individual become atheists because they are more deliberate was rejected.

Table 27: Deliberation (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Deliberation	(female)	2,677	34.83	6.68	1,137	34.27	6.84	2.34	.05
	(male)	7,838	34.85	6.18	1,189	34.20	6.77	3.11	.01

8.1.7 Analysis of intelligence

As outlined in Section 3.2.3, there is conflicting evidence when it comes to the claim that atheists are more intelligent and/or more educated (e.g. Nyborg, 2009; Spencer, 2009). Although the current project was unable to measure IQ, it did measure general intellect. The intelligence measure used in the survey was the 10-item scale from the IPIP-NEO designed to measure the facet labelled “intellect”. In this study, the scale achieved a coefficient alpha of .84, which is considered to be a sign of good internal consistency.

Table 28 presents the results of the independent t-tests. According to the data, the female atheist church-leavers scored higher, on average, than the female continuing churchgoers on intellect with the difference in mean scores being considered very highly significant. In addition to this, the male atheist church-leavers also scored higher, on average, than the male continuing churchgoers on intellect with the difference in mean scores being considered very highly significant. Because even small differences in intelligence are considered to be practically significant, the theory based on intelligence was accepted and the factors “intellect” was included in the binary logistic regression discussed in section 8.2 below.

Table 28: Intellect (atheist church-leavers versus continuing churchgoers)

Factor	Atheist church-leavers			Continuing churchgoers			<i>t</i>	<i>p</i> <	
	<i>n</i>	mean	SD	<i>n</i>	mean	SD			
Intellect	(female)	2,677	42.27	5.16	1,137	38.38	6.51	17.91	.001
	(male)	7,838	43.18	4.69	1,189	41.57	5.97	8.88	.001

8.1.8 Conclusion

Based on the results discussed in this section, the theories based on selfishness, arrogance, anger, and deliberation were rejected but the theories based on father-child relationships, childhood religious emphasis, and intelligence were accepted. The factors father-child relationship, years of church attendance, overall church experience, and intellect were selected to represent these theories in the binary logistic regression that follows in section 8.2

8.2 Binary Logistic Regression

In the previous section, it was determined that the more negative an individual's relationship with his or her father, the fewer the years that he or she attended church, the more negative his or her experience at church, and the higher his or her level of intellect, the greater the chances that that individual will become an atheist church-leaver. It was also determined in chapter seven that having a psychological preference for thinking (T) combined with a psychological preference for perceiving (P), also increases the chances that an individual will become an atheist church-leaver.

In order to determine which of the five factors mentioned above is the strongest predictor of atheist church-leaving, a binary logistic regression test was performed using the combined data from both the males and females in Group One

(the continuing churchgoers, $n = 2,326$) and Group Two (the atheist church-leavers, $n = 10,515$). This binary logistic regression considered all five variables together in a single model. Table 29 presents the results of this test.

Table 29: Binary logistic regression results

	B	S.E.	Wald	$p <$	Exp(B)
Preference for TP	.695	.086	66.0	.001	2.00
Intellect	.098	.005	406.7	.001	1.10
Relationship with father	.009	.003	10.5	.01	1.01
Years of church attendance	-.055	.250	107.9	.001	0.95
Overall church experience	-.140	.004	1095.0	.001	0.87

The B value in the table, along with the standard error, were used to determine the relationship between the variable and the likelihood that a participant belonged to the atheist church-leaver group. The results were as expected with the exception of the relationship with father variable. When all five variables were considered together, a preference for TP, a higher intellect, fewer years of church attendance and a more negative church experience all still indicated a higher chance of being an atheist church-leaver. However, a negative relationship with one's father did not. Instead, when the other four factors were controlled for, a positive relationship with one's father actually became a predictor, albeit a very minor one.

The Wald statistic and the p value were used to determine whether or not the variable is statistically relevant when it comes to predicting whether or not an individual is likely to be an atheist church-leaver. In this case, all the variables were demonstrated to be very highly significant, with the exception of relationship with father.

The Exp(B) value represents an odds ratio and was used to determine which variable was the strongest predictor of atheist church-leaving. When all five variables

were considered together, having a psychological preference for TP stood out as being the strongest predictor. According to the data, the odds of an individual with a psychological preference for TP becoming an atheist church-leaver as opposed to a continuing churchgoer was two to one (2:1), after the other four variables were taken into consideration.

This last finding – that having a psychological preference for TP is the strongest predictor of an individual becoming an atheist church-leaver – is extremely significant in that it demonstrates that psychological type does play a major role in atheist church-leaving and in fact, probably plays a greater role than the various other theories that have been put forward over the years by both Christian and non-Christian writers. Future research on church-leaving should therefore focus on psychological type and other models of personality in addition to continuing to investigate other, more well-established theories.

9 ANALYSIS OF WORLDVIEW-LEVEL BELIEFS

This chapter will address the third research question, the first part of which was: Do atheists share a common worldview? Section 9.1 will address this part of the question by reporting on the descriptive statistics and independent t-tests that were used to compare the worldview-level beliefs of atheists with the worldview-level beliefs of theists. The second part of the question was: Do the different terms used by atheists for self-description (atheist, agnostic, freethinker, humanist, or skeptic) reflect major differences in worldview-level beliefs? Section 9.2 will address this part of the question by reporting on the descriptive statistics and independent t-tests that were used to compare the worldview-level beliefs of atheists with each other based on the primary term used for self-description (atheist, agnostic, freethinker, humanist, or skeptic). Throughout this chapter, greater attention will be given to the patterns that emerge in the descriptive statistics as opposed to the results from the independent t-tests. This is due to the fact that the current study was based on large sample sizes and as mentioned earlier, large sample sizes often result in differences that can be considered very highly significant *statistically-speaking* even when they are not really that significant *practically-speaking*. For example, if sample sizes are large enough, the difference between 95% and 94% and the difference between 95% and 12% might both be considered very highly significant (the highest level of statistical significance) even though the second difference is obviously the more significant one overall.

9.1 Worldview-level beliefs of atheists versus theists

According to the literature reviewed in chapter two, a worldview has six major components: ontology, cosmology, teleology, axiology, praxeology, and epistemology. In the current study, participants were given three statements related to each component and were asked to rate their agreement or disagreement with the statements using a five-point Likert scale: strongly agree, agree, not sure, disagree, and strongly disagree. These statements were based on the secular humanist manifestos discussed in Section 2.2. For each set of three items, two were worded to match the secular humanist position and one was worded to match the opposite of the secular humanist position. For the worldview comparisons, the six original sample groups were combined into three, with females and males considered together: Group One (the continuing churchgoers) and Group Four (the Christian converts) were combined as “Churchgoing Christians” (n = 2,505); Group Two (the atheist church-leavers) and Group Five (the unchurched atheists) were combined as “Atheists and Agnostics” (n = 17,632); and Group Three (the theist church-leavers) and Group Six (the unchurched theists) were combined as “Spiritual but not Religious” (n = 2,487). The “Spiritual but not Religious” group was comprised of individuals who believe in some sort of God but do not attend church. As noted in Chapter Six, members of non-Christian religions were not placed in any of the samples due to the low number of responses received from such individuals.

The hypothesis was that the atheist and agnostic participants would, as a whole, side with the secular humanist position for each worldview item, thus indicating that there is indeed such a thing as an “atheist worldview”. It was also hypothesized that the churchgoing Christian participants would, as a whole, reject the secular humanist position on four of the six components – ontology, cosmology, teleology, and epistemology – thus indicating that there is a clear difference between

the Christian worldview and the atheist worldview. No prediction was made with regard to the spiritual but not religious individuals.

Figure 5 presents the descriptive statistics for the three items related to ontology. As discussed in chapter two, ontology refers to an individual's beliefs about what exists and what does not. According to the data, 89.1% of the atheists and agnostics either agreed or strongly agreed with the statement, "The natural world is all that really exists."; 83.7% of the atheists and agnostics agreed or strongly agreed with the statement, "There is no such thing as a 'spirit world'."; and 84.9% of the atheists and agnostics disagreed or strongly disagreed with the statement, "Humans have a soul that lives on after death." In contrast, only 5.6% the churchgoing Christians either agreed or strongly agreed with the statement, "The natural world is all that really exists."; 5.4% of the churchgoing Christians agreed or strongly agreed with the statement, "There is no such thing as a 'spirit world'."; and 3.8% of the churchgoing Christians disagreed or strongly disagreed with the statement, "Humans have a soul that lives on after death." For all three items, two parabolic curves can be seen, proceeding in opposite directions: the atheist and agnostic curve toward the expected secular humanist position and the churchgoing Christian curve toward the opposite position. These results indicate that the majority of atheists and agnostics do share the same worldview-level beliefs about ontology and that these beliefs are in direct opposition to the shared worldview-level beliefs of most churchgoing Christians. However, according to the data, the spiritual but not religious do not belong to either camp. Instead, the results indicate that the spiritual but not religious individuals hold a variety of different positions when it comes to their worldview-level beliefs about ontology. Independent t-tests confirmed that the differences in mean scores on the three items related to ontology were all statistically very highly significant ($p < .001$) when it came to the atheists and agnostics versus the churchgoing Christians.

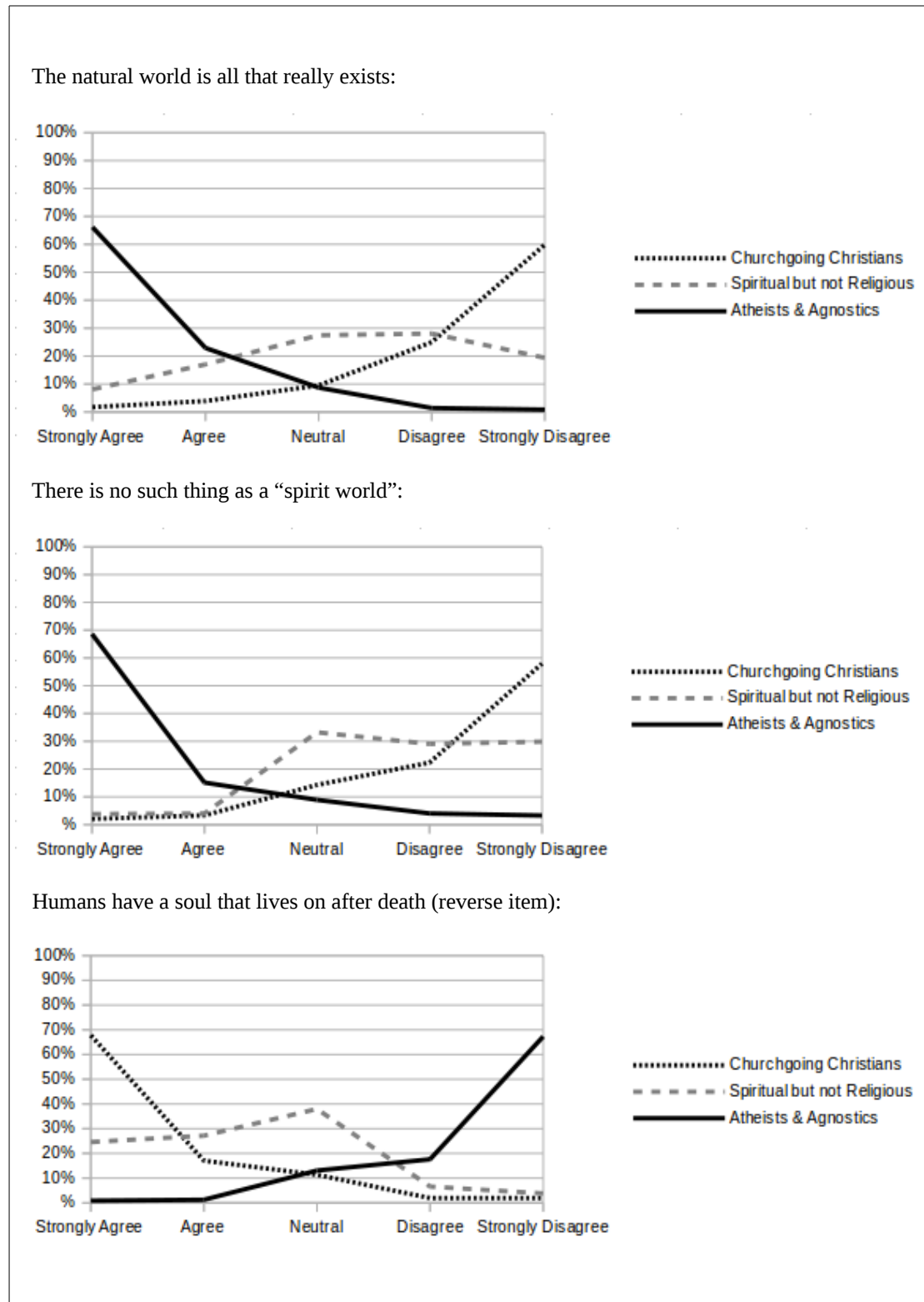


Figure 5: Statements about ontology (atheists versus theists)

Figure 6 presents the results for the three items related to cosmology. As discussed in chapter two, cosmology refers to an individual's beliefs about how the world came to be. According to the data, 94.7% of the atheists and agnostics either agreed or strongly agreed with the statement, "Nature exists without a creator."; 91.3% of the atheists and agnostics agreed or strongly agreed with the statement, "The universe is self-existing."; and 96.7% of the atheists and agnostics disagreed or strongly disagreed with the statement, "God created the universe." In contrast, only 6.2% the churchgoing Christians either agreed or strongly agreed with the statement, "Nature exists without a creator."; 7.9% of the churchgoing Christians agreed or strongly agreed with the statement, "The universe is self-existing."; and 4.5% of the churchgoing Christians disagreed or strongly disagreed with the statement, "God created the universe." For all three items, two parabolic curves can be seen, proceeding in opposite directions: the atheist and agnostic curve toward the expected secular humanist position and the churchgoing Christian curve toward the opposite position. These results indicate that the majority of atheists and agnostics do share the same worldview-level beliefs about cosmology and that these beliefs are in direct opposition to the shared worldview-level beliefs of most churchgoing Christians. However, according to the data, the spiritual but not religious do not belong to either camp. Instead, the results indicate that the spiritual but not religious individuals hold a variety of different positions when it comes to their worldview-level beliefs about cosmology. Independent t-tests confirmed that the differences in mean scores on the three items related to cosmology were all statistically very highly significant ($p < .001$) when it came to the atheists and agnostics versus the churchgoing Christians.

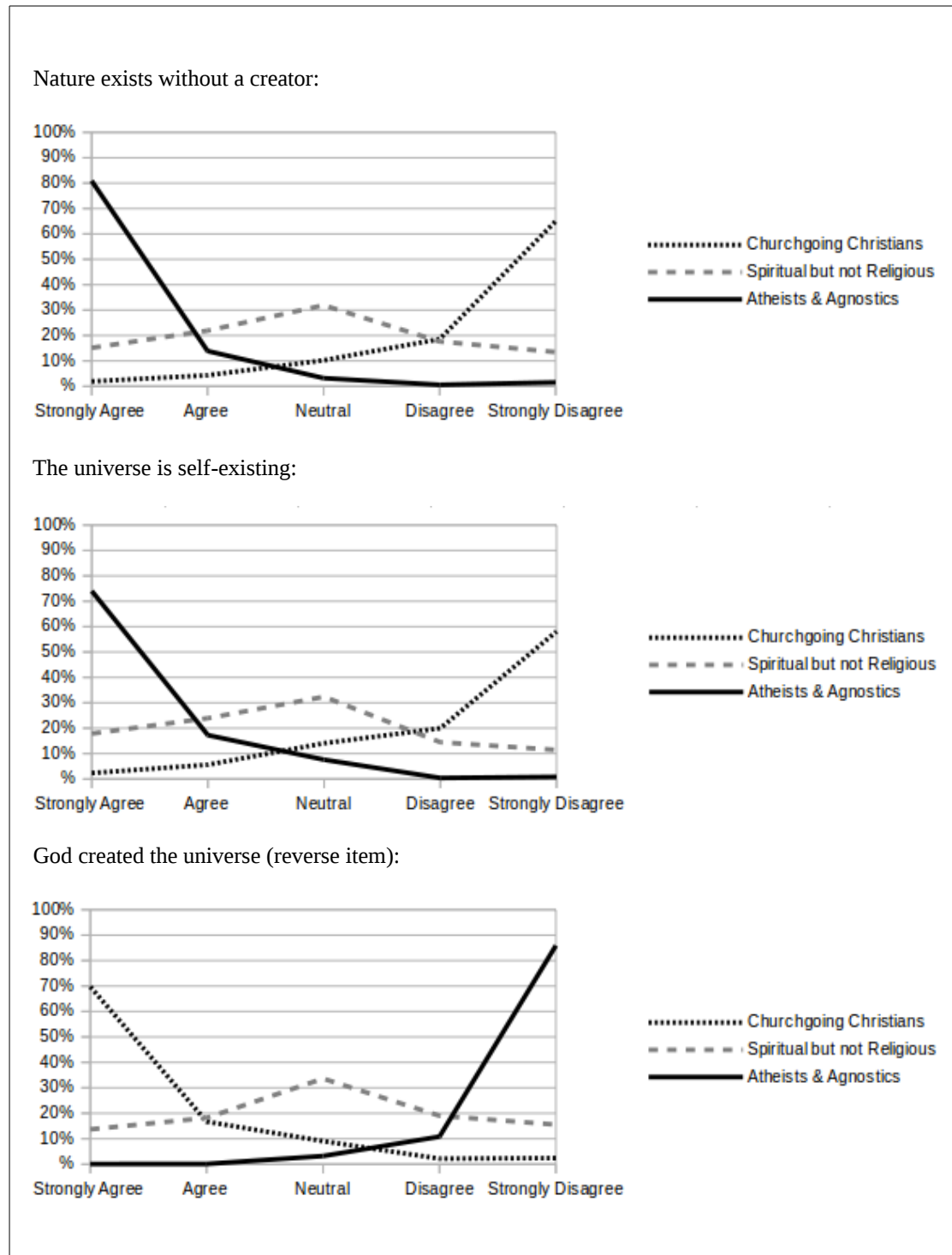


Figure 6: Statements about cosmology (atheists versus theists)

Figure 7 presents the results for the three items related to teleology. As discussed in chapter two, teleology refers to an individual's beliefs about the direction our world is heading and the purpose behind it. According to the data, 95.2% of the atheists and agnostics either agreed or strongly agreed with the statement, "Humans must create their own meaning in life."; 91.9% of the atheists and agnostics agreed or strongly agreed with the statement, "There is no preordained purpose to life."; and 98.0% of the atheists and agnostics disagreed or strongly disagreed with the statement, "History is unfolding according to God's will." In contrast, 30.1% the churchgoing Christians either agreed or strongly agreed with the statement, "Humans must create their own meaning in life."; 12.8% of the churchgoing Christians agreed or strongly agreed with the statement, "There is no preordained purpose to life."; and 18.4% of the churchgoing Christians disagreed or strongly disagreed with the statement, "History is unfolding according to God's will." For all three items, the atheist and agnostic line curves in a parabolic fashion toward the expected secular humanist position. However, unlike in the figures for ontology and cosmology, the churchgoing Christian line for the three teleology items is less steep. This indicates that, although the majority of atheists and agnostics do share the same worldview-level beliefs about teleology, churchgoing Christians are less unified when it comes to this worldview component. Likewise, the spiritual but not religious individuals are also less unified than the atheists and agnostics when it comes to this worldview component. Independent t-tests confirmed that the differences in mean scores on the three items related to teleology were all statistically very highly significant ($p < .001$) when it came to the atheists and agnostics versus the churchgoing Christians.

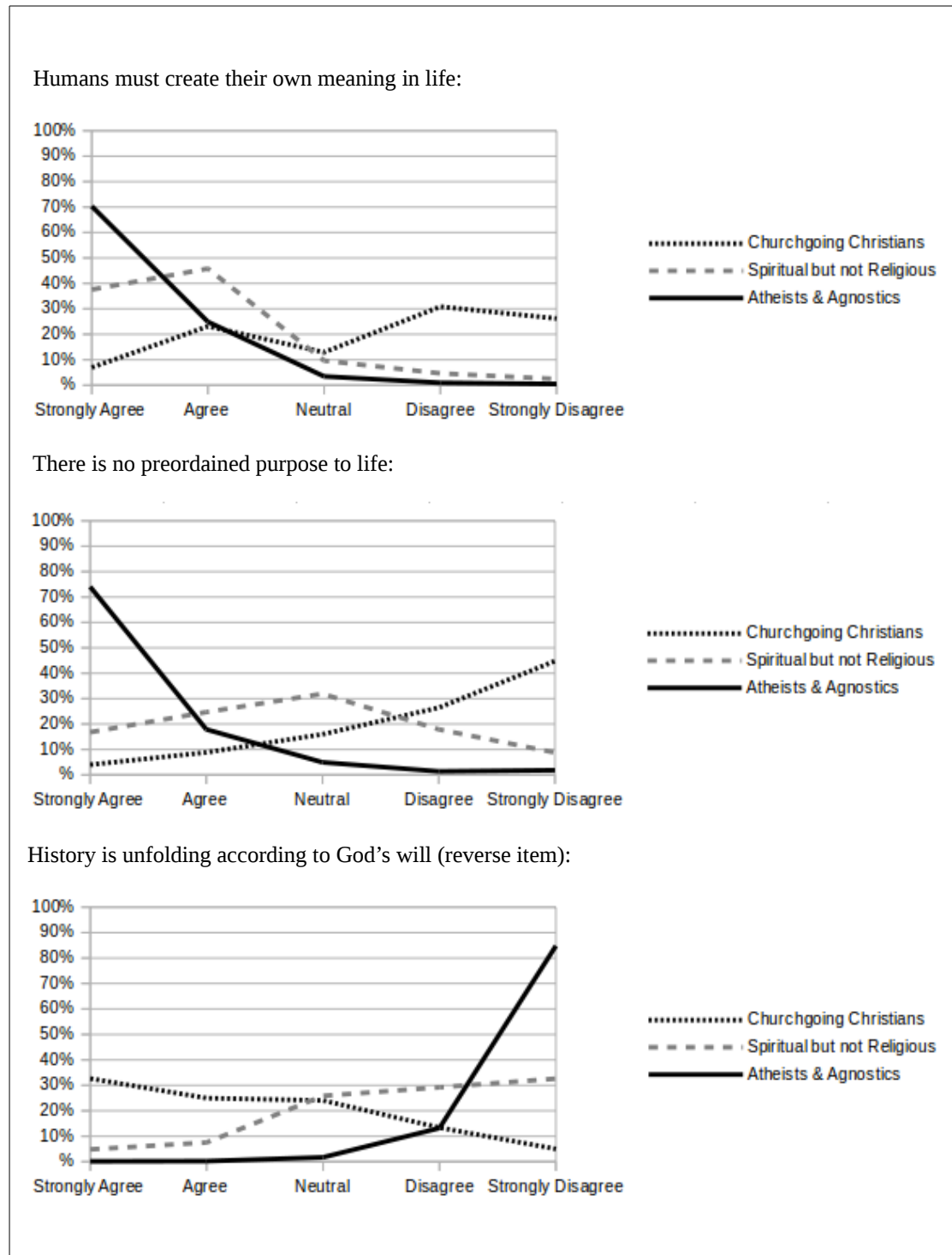


Figure 7: Statements about teleology (atheists versus theists)

Figure 8 presents the results for the three items related to axiology. As discussed in chapter two, axiology refers to an individual's beliefs about right and wrong. According to the data, 96.8% of the atheists and agnostics, 99.1% of churchgoing Christians, and 95.0% of spiritual but not religious individuals either agreed or strongly agreed with the statement, "It is good to help the less fortunate."; 97.7% of the atheists and agnostics, 97.2% of churchgoing Christians, and 95.9% of spiritual but not religious individuals either agreed or strongly agreed with the statement, "We should avoid harming others."; and 74.8 % of the atheists and agnostics, 92.7% of churchgoing Christians, and 69.1% of spiritual but not religious individuals either disagreed or strongly disagreed with the statement, "It is okay to lie for personal gain." As expected, these results indicate that the majority of atheists and agnostics, the majority of churchgoing Christians, and the majority of spiritual but not religious individuals hold similar worldview-level beliefs about axiology. In other words, all three groups are in agreement about basic moral truths. There is slightly less agreement when it comes to the issue of lying for personal gain but overall, the majority from all three groups are still in agreement on this issue. In contrast to this conclusion, independent t-tests found that the differences in mean scores on the three items related to axiology were all statistically very highly significant ($p < .001$) when it came to the atheists and agnostics versus the churchgoing Christians. However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

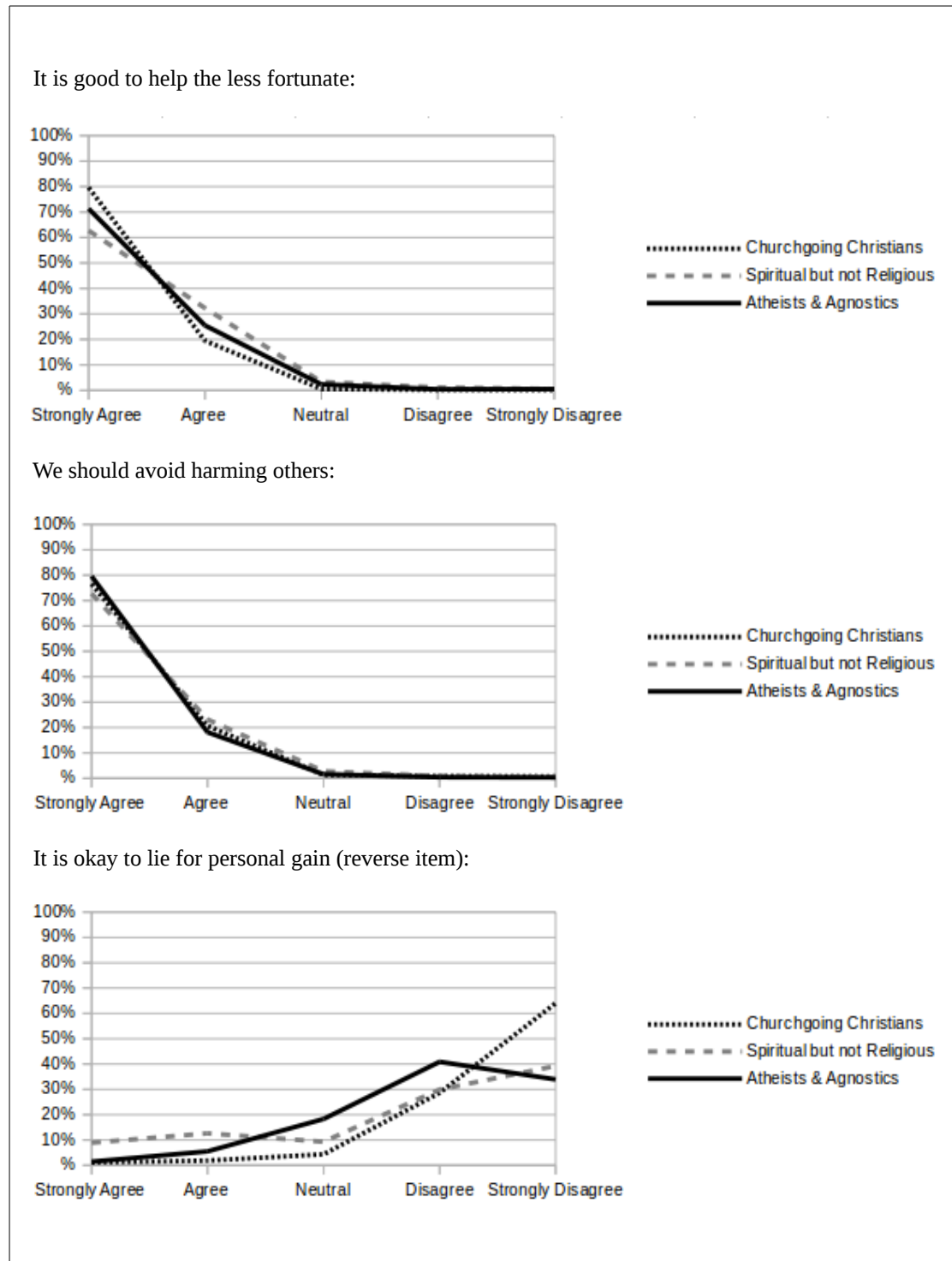


Figure 8: Statements about axiology (atheists versus theists)

Figure 9 presents the results for the three items related to praxeology. As discussed in chapter two, praxeology refers to an individual's beliefs about what goals are worth striving to achieve. According to the data, 98.6% of the atheists and agnostics, 98.0% of churchgoing Christians, and 96.2% of spiritual but not religious individuals either agreed or strongly agreed with the statement, "We should work to improve society."; 95.2% of the atheists and agnostics, 95.3% of churchgoing Christians, and 97.3% of spiritual but not religious individuals either agreed or strongly agreed with the statement, "Human rights and freedoms should be defended."; and 95.2 % of the atheists and agnostics, 95.3% of churchgoing Christians, and 98.5% of spiritual but not religious individuals either disagreed or strongly disagreed with the statement, "Literature, art, and music are not important." As expected, these results indicate that the majority of atheists and agnostics, the majority of churchgoing Christians, and the majority of spiritual but not religious individuals hold similar worldview-level beliefs about praxeology. In contrast to this conclusion, independent t-tests found that the differences in mean scores on the three items related to praxeology were all statistically very highly significant ($p < .001$) when it came to the atheists and agnostics versus the churchgoing Christians. However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

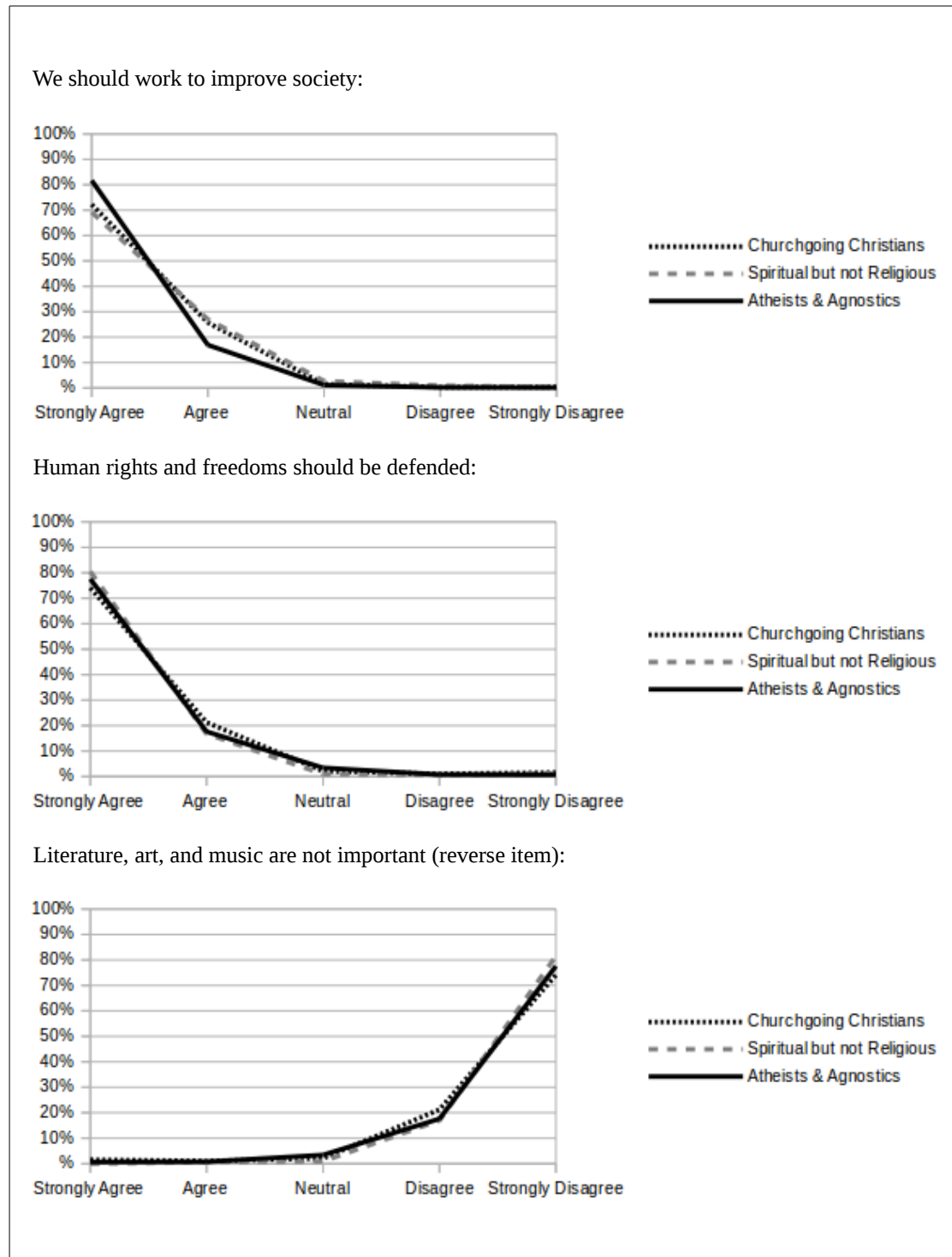


Figure 9: Statements about praxeology (atheists versus theists)

Figure 10 presents the results for the three items related to epistemology. As discussed in chapter two, epistemology refers to an individual's beliefs about how we can know things. According to the data, 94.7% of the atheists and agnostics either agreed or strongly agreed with the statement, "Reason, not revelation, allows us to explore life's big questions."; 91.3% of the atheists and agnostics agreed or strongly agreed with the statement, "Human reason, not divine revelation, is the foundation of knowledge."; and 96.7% of the atheists and agnostics disagreed or strongly disagreed with the statement, "God has revealed important truths to humanity." In contrast, only 6.2% the churchgoing Christians either agreed or strongly agreed with the statement, "Reason, not revelation, allows us to explore life's big questions."; 7.9% of the churchgoing Christians agreed or strongly agreed with the statement, "Human reason, not divine revelation, is the foundation of knowledge."; and 4.5% of the churchgoing Christians disagreed or strongly disagreed with the statement, "God has revealed important truths to humanity." For all three items, the atheist and agnostic line curves in a parabolic fashion toward the expected secular humanist position. However, unlike in the figures for ontology and cosmology, the churchgoing Christian line for the three teleology items is less steep. This indicates that, although the majority of atheists and agnostics do share the same worldview-level beliefs about teleology, churchgoing Christians are less unified when it comes to this worldview component. Likewise, the spiritual but not religious individuals are also less unified than the atheists and agnostics when it comes to this worldview component. Independent t-tests confirmed that the differences in mean scores on the three items related to epistemology were all statistically very highly significant ($p < .001$) when it came to the atheists and agnostics versus the churchgoing Christians.

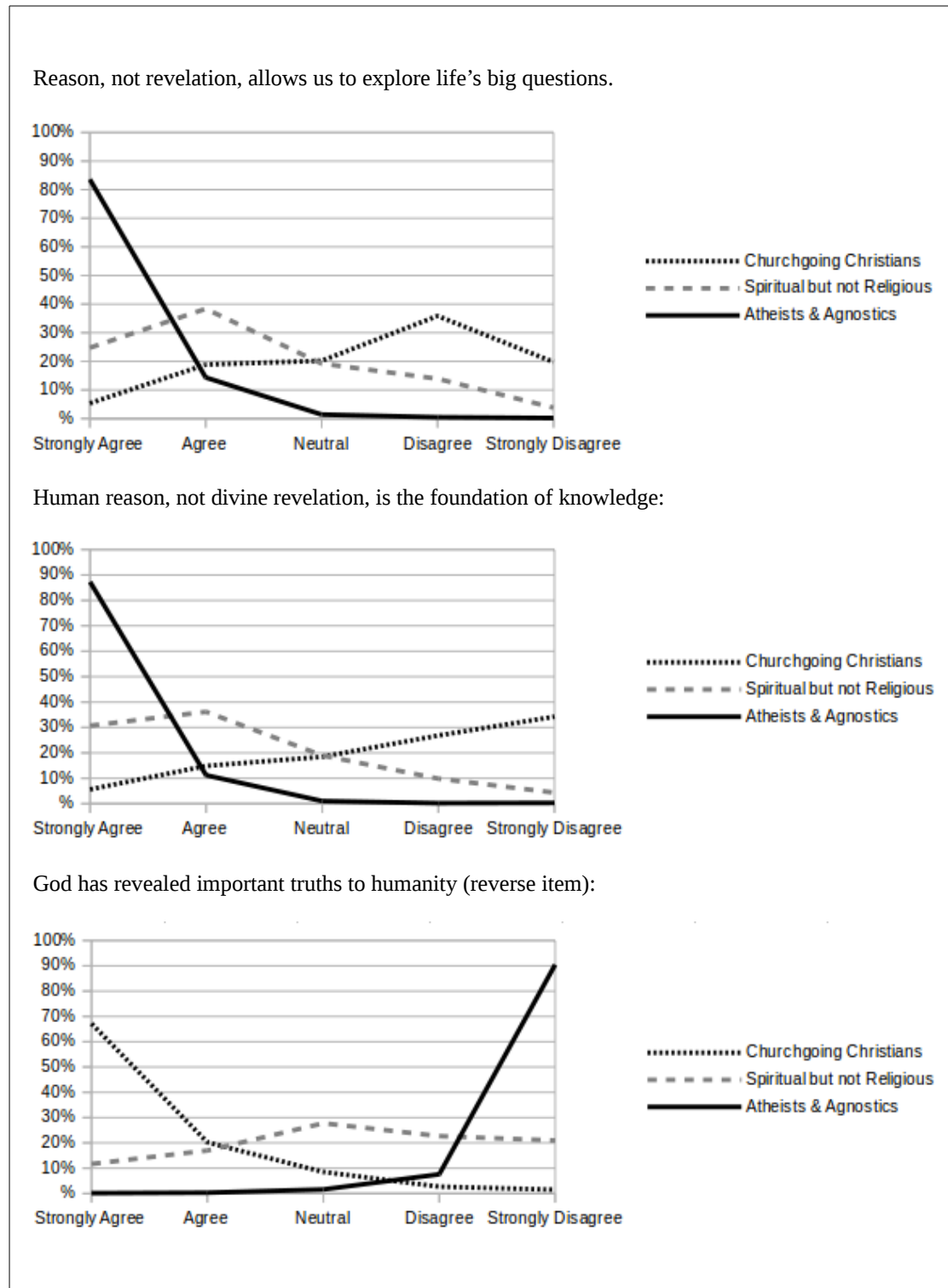


Figure 10: Statements about epistemology (atheists versus theists)

It is clear from the data reported in this section that the vast majority of atheists and agnostics share the same worldview-level beliefs. For all six worldview components, the beliefs of the atheists and agnostics matched those of the secular humanist worldview. In the cases of ontology, cosmology, teleology, and epistemology, these beliefs were in direct opposition to the beliefs of the churchgoing Christians. However, as expected, when it came to axiology and praxeology, the atheists and agnostics had similar views to the churchgoing Christians. The main conclusion from these findings is that an atheist worldview does, in fact, exist.

Although atheism is not an organized belief system and thus does not prescribe a worldview to its adherents, atheists can be *described* as sharing the same worldview-level beliefs. This is important for dialogue between atheists and Christians.

Although atheists often claim that they are unified by a single-issue – their lack of belief in God – discussions with Christians often end up dealing with worldview-level questions as well. Atheists need to realize this and be willing to share the burden of proof with those who hold opposing worldviews. If discussions stick to the single issue of God’s existence, atheists can rightly claim that their view is a negative one and that therefore the burden of proof lies with the theists. However, when discussions end up in the territory of worldview-level beliefs (as they so often do), atheists need to share the burden of proof with theists.

9.2 Worldview-level beliefs of atheists by primary term

In the previous section, atheists and agnostics were placed in a single group based primarily on their agreement with the statement, “I do not believe in any sort of God, gods, or Higher Power” (see Section 6.6.1 for full details). In this section, however, the atheist and agnostic group will be subdivided based on the *one* term that each participant indicated that they preferred the most. The five most popular terms

were “atheist” (n = 10,543), “skeptic” (2,067), “agnostic” (n = 1,625), “humanist” (1,565), and “freethinker” (n = 1,360). This section will compare the worldview-level beliefs of these five subgroups with each other to see if they all share a single, common worldview (as suggested in section 9.1 above) or whether one or more should be viewed as a distinct worldview.

Figure 11 presents the descriptive statistics for the three items related to ontology. As discussed in chapter two, ontology refers to an individual’s beliefs about what exists and what does not. Overall, the atheists who preferred the term “atheist”, “skeptic”, “humanist” or “freethinker” offered very similar responses to all three questions, whereas those who preferred the term “agnostic” stood out as being quite different. Whereas the vast majority of the atheists, skeptics, humanists, and freethinkers were very clear on where they stood when it came to their ontological beliefs (as evidenced by the steep parabolic curves pointing in the expected directions), the agnostics were much more neutral, indicating that many agnostics are uncertain about their ontological beliefs. Independent t-tests comparing the two largest groups (the atheists and the skeptics) partially contradicted these findings. The t-tests found that the differences in mean scores between those who preferred the term “atheist” and those who preferred the term “skeptic” were actually very highly significant ($p < .001$) for the statements, “There is no such thing as a ‘spirit world’.” and “Humans have a soul that lives on after death.”. However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

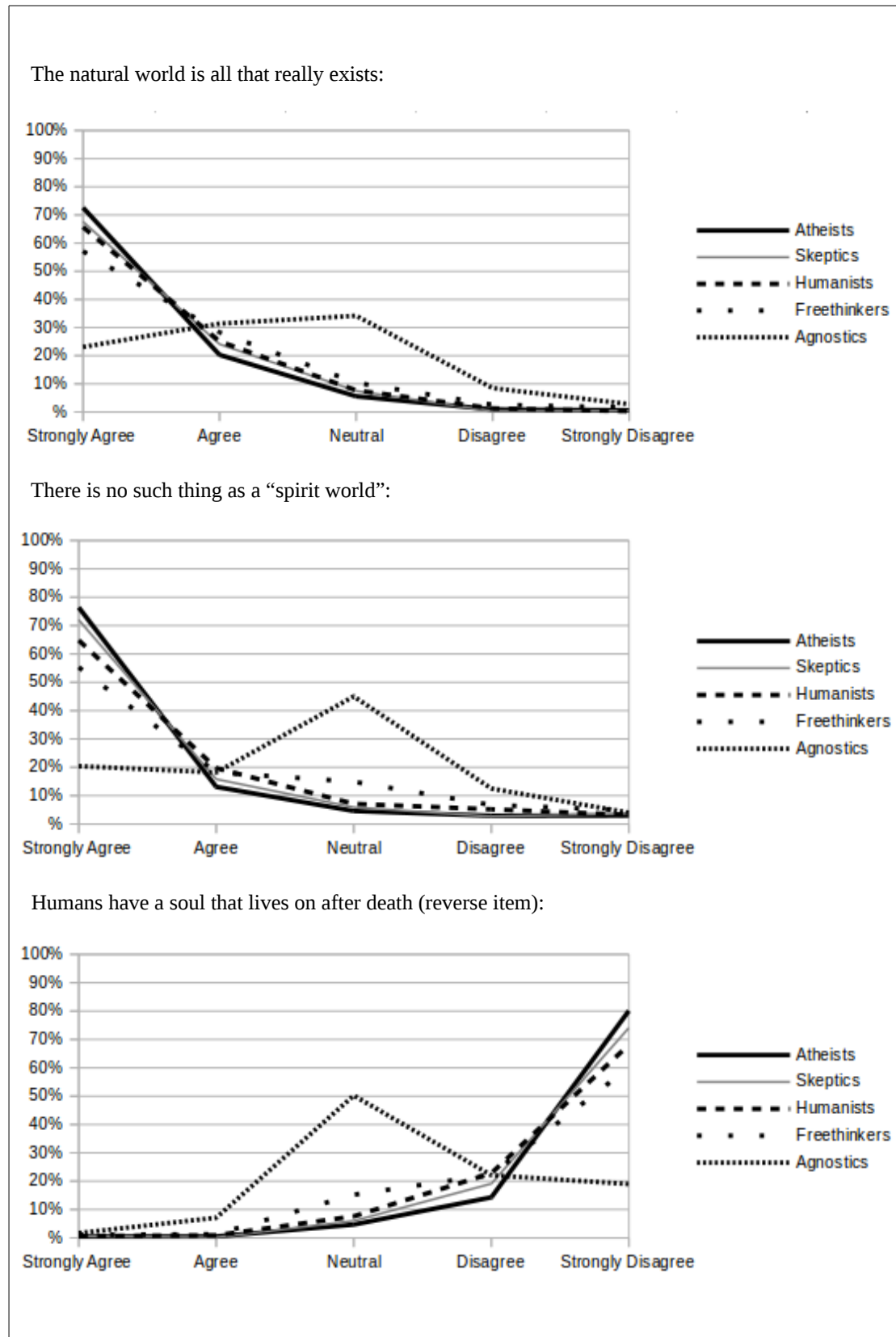


Figure 11: Statements about ontology (atheists by primary term)

Figure 12 presents the results for the three items related to cosmology. As discussed in Chapter Two, cosmology refers to an individual's beliefs about how the world came to be. Overall, the atheists who preferred the term "atheist", "skeptic", "humanist" or "freethinker" offered very similar responses to all three questions, whereas those who preferred the term "agnostic" stood out as being quite different. Whereas the vast majority of the atheists, skeptics, humanists, and freethinkers were very clear on where they stood when it came to their cosmological beliefs (as evidenced by the steep parabolic curves pointing in the expected directions), the agnostics were much more neutral, indicating that many agnostics are uncertain about their cosmological beliefs. Independent t-tests comparing the two largest groups (the atheists and the skeptics) contradicted these findings. The t-tests found that the differences in mean scores between those who preferred the term "atheist" and those who preferred the term "skeptic" were actually very highly significant ($p < .001$) for all three statements. However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

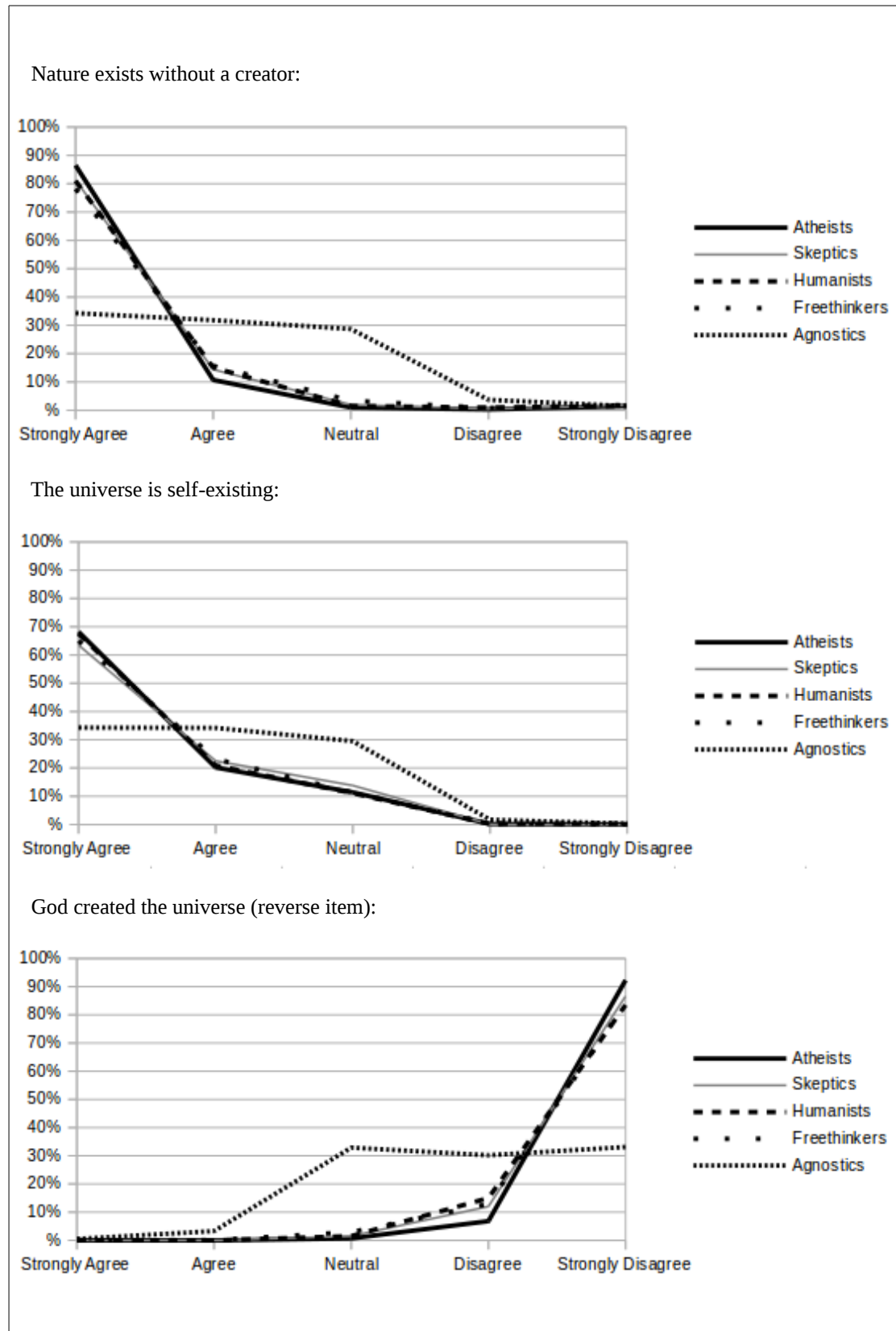


Figure 12: Statements about cosmology (atheists by primary term)

Figure 13 presents the results for the three items related to teleology. As discussed in Chapter Two, teleology refers to an individual's beliefs about the direction our world is heading and the purpose behind it. Overall, the atheists who preferred the term "atheist", "skeptic", "humanist" or "freethinker" offered very similar responses to all three questions, whereas those who preferred the term "agnostic" stood out as being somewhat different. Whereas the vast majority of the atheists, skeptics, humanists, and freethinkers were very clear on where they stood when it came to their teleological beliefs (as evidenced by the steep parabolic curves pointing in the expected directions), the agnostics were slightly less clear. Independent t-tests comparing the two largest groups (the atheists and the skeptics) partially contradicted these findings. The t-tests found that the differences in mean scores between those who preferred the term "atheist" and those who preferred the term "skeptic" were actually very highly significant ($p < .001$) for the statements, "Humans must create their own meaning in life." and "History is unfolding according to God's will.". However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

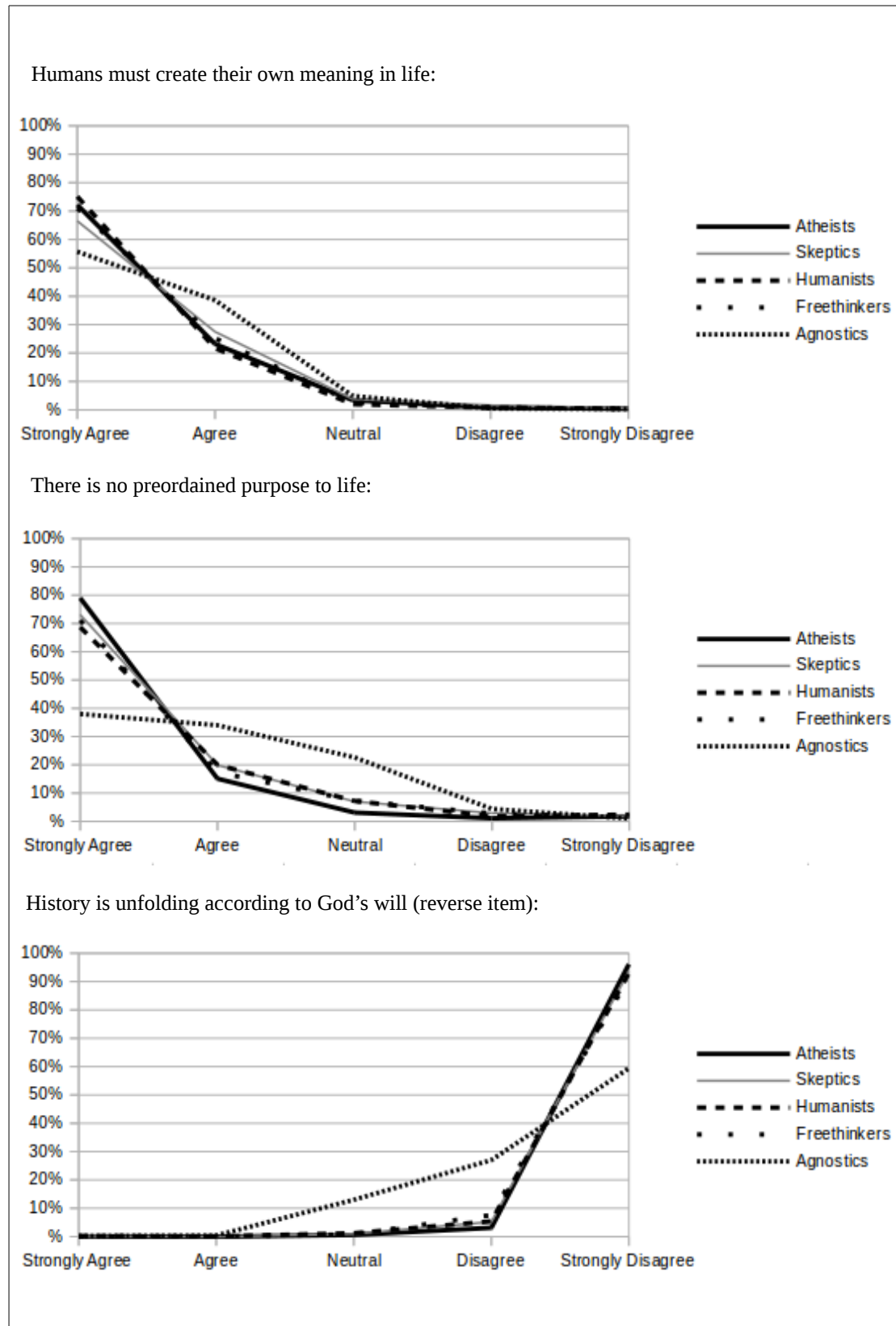


Figure 13: Statements about teleology (atheists by primary term)

Figure 14 presents the results for the three items related to axiology. As discussed in Chapter Two, axiology refers to an individual's beliefs about right and wrong. When it came to this dimension of worldview, those who preferred the term "agnostic" answered in a similar manner to those who preferred "atheist", "skeptic", "humanist" or "freethinker". This was expected given that the data from section 9.1 demonstrated that atheists in general do not even differ from theists on this aspect of worldview. Independent t-tests comparing the two largest groups (the atheists and the skeptics) partially contradicted these findings. The t-tests found that the difference in mean scores between those who preferred the term "atheist" and those who preferred the term "skeptic" was actually very highly significant ($p < .001$) for the statement, "It is good to help the less fortunate". However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

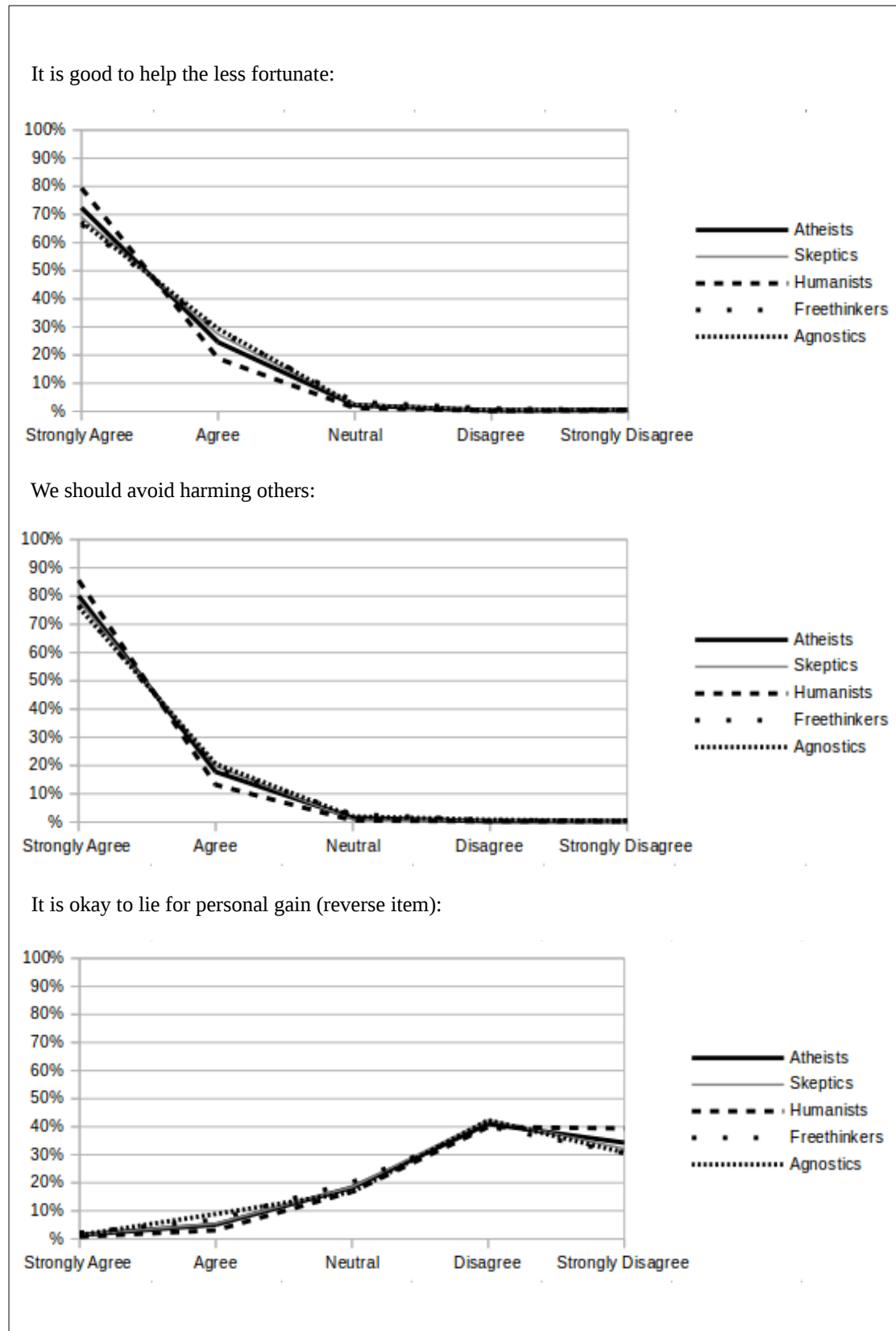


Figure 14: Statements about axiology (atheists by primary term)

Figure 15 presents the results for the three items related to praxeology. As discussed in Chapter Two, praxeology refers to an individual's beliefs about what goals are worth striving to achieve. When it came to this dimension of worldview, those who preferred the term "agnostic" answered in a similar manner to those who preferred "atheist", "skeptic", "humanist" or "freethinker". This was expected given that the data from section 9.1 demonstrated that atheists in general do not even differ from theists on this aspect of worldview. Independent t-tests comparing the two largest groups (the atheists and the skeptics) partially contradicted these findings. The t-tests found that the difference in mean scores between those who preferred the term "atheist" and those who preferred the term "skeptic" were actually very highly significant ($p < .001$) for the statements, "We should work to improve society" and "Literature, art, and music are not important". However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

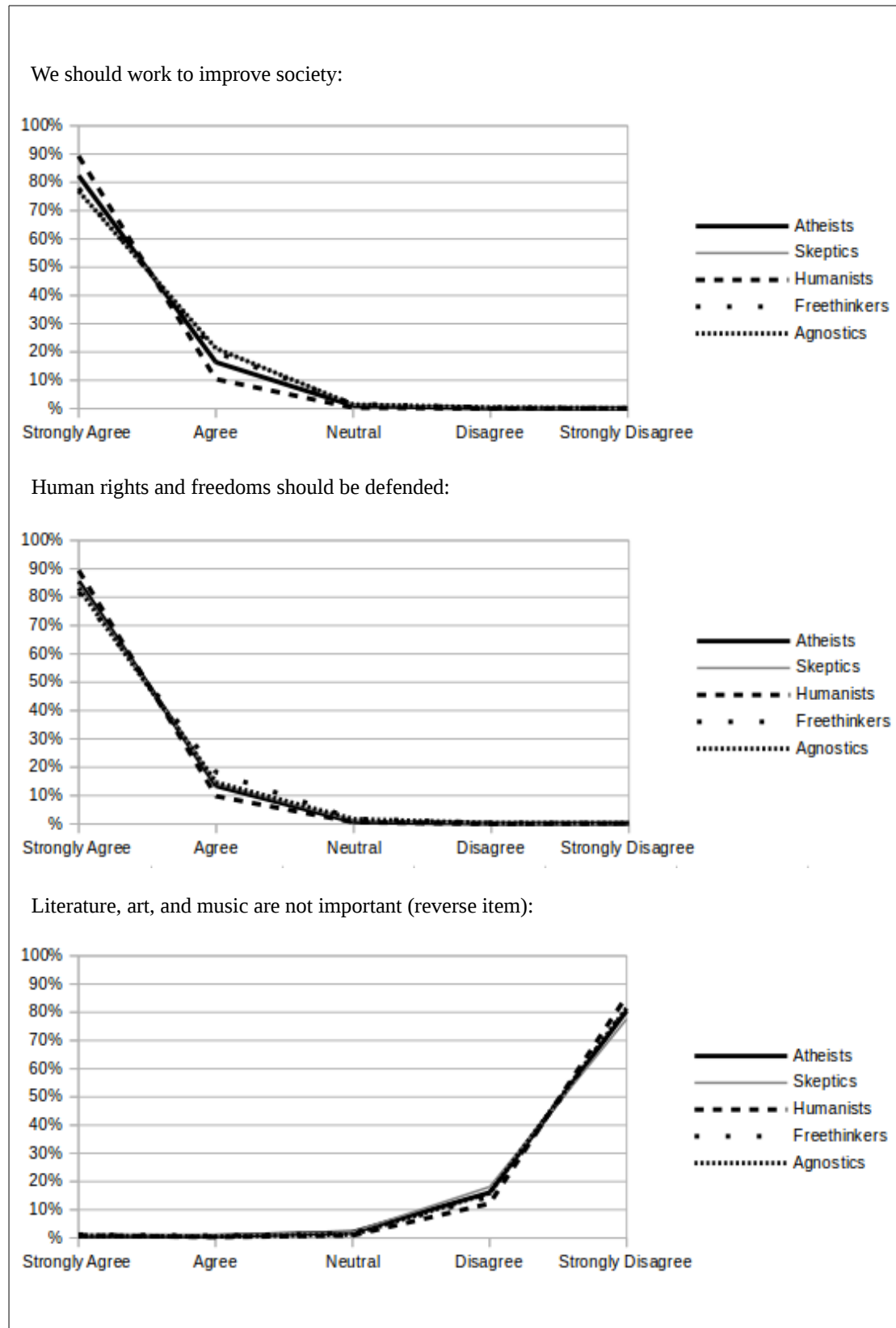


Figure 15: Statements about praxeology (atheists by primary term)

Figure 16 presents the results for the three items related to epistemology. As discussed in Chapter Two, epistemology refers to an individual's beliefs about how we can know things. Overall, the atheists who preferred the term "atheist", "skeptic", "humanist" or "freethinker" offered very similar responses to all three questions, whereas those who preferred the term "agnostic" stood out as being somewhat different. Whereas the vast majority of the atheists, skeptics, humanists, and freethinkers were very clear on where they stood when it came to their epistemological beliefs (as evidenced by the steep parabolic curves pointing in the expected directions), the agnostics were slightly less clear. Independent t-tests comparing the two largest groups (the atheists and the skeptics) partially contradicted these findings. The t-tests found that the difference in mean scores between those who preferred the term "atheist" and those who preferred the term "skeptic" was actually very highly significant ($p < .001$) for the statement, "God has revealed important truths to humanity.". However, as mentioned at the beginning of this chapter, this statistical difference can be accounted for by the large sample sizes used in this study.

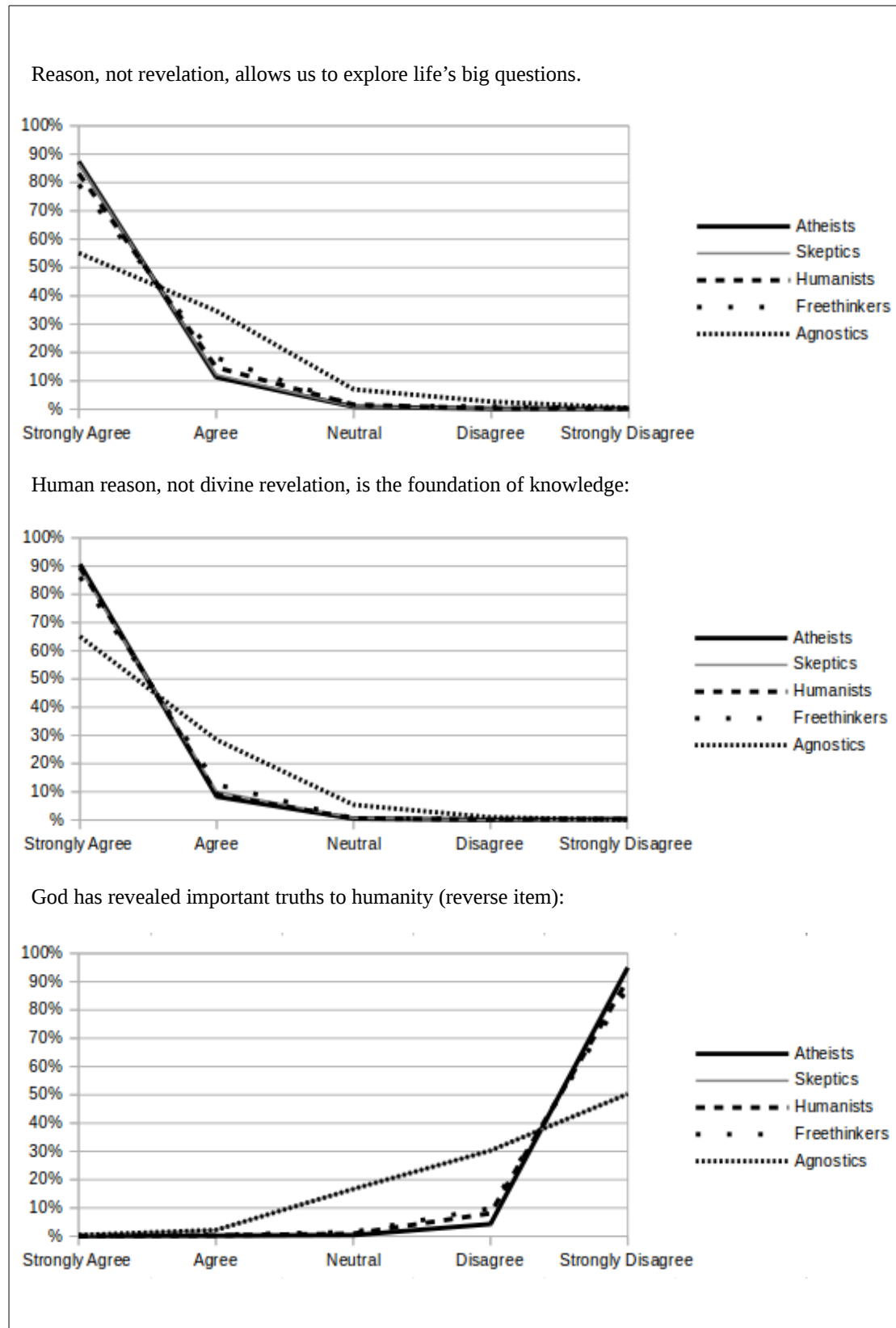


Figure 16: Statements about epistemology (atheists by primary term)

It is clear from the data reported in this section that there is very little difference in worldview-level beliefs between atheists who actually use the term “atheist” as their primary self-descriptor and those who prefer to use the terms “skeptic”, “humanist” or “freethinker” instead. However, it is also clear that those who prefer the term “agnostic” do in fact differ when it comes to their worldview. In contrast to other atheists, agnostics are often neutral and/or uncertain when it comes to worldview-related positions. The findings reported in this section confirm the main conclusion from the previous section that an atheist worldview does, in fact, exist. The only added caveat is that agnostics should not be included with atheists when it comes to worldview.

CONCLUSION

This project set out to explore the relationship between psychological type and atheism, particularly with regard to why some individuals stop attending church as adults while others do not. It also explored seven existing theories on why certain individuals become atheists and compared those theories to the psychological type theory. Finally, it explored the relationship between several terms related to atheism and worldview-level beliefs. In the end, four major conclusions were reached.

The first conclusion is that atheist church-leavers do in fact differ from continuing churchgoers when it comes to psychological type and that this likely plays a role in why some individuals stop attending church. Atheist church-leavers are far more likely to tend towards thinking (T) and perceiving (P), whereas continuing churchgoers are far more likely to tend towards the opposite preferences: feeling (F) and judging (J). This was demonstrated most clearly by the fact that the percentage of atheist church-leavers with the thinking-perceiving (TP) combination was approximately twice as high as the percentage of continuing churchgoers with that particular combination. Compared to the continuing churchgoers sample, the TP combination was over-represented in the atheist sample by a factor of 2.14 for the females and 1.89 for the males. Statistically, these figures can be considered very highly significant ($p < .001$).

This first conclusion supports existing research in two major ways. First, it supports the growing body of research that indicates a preference for feeling (F) and judging (J) among Christian churchgoers and among those with high congregational satisfaction and very positive attitudes towards Christianity. Second, it supports the

existing research surveyed in Caldwell-Harris (2012) that indicates a tendency towards logical reasoning and nonconformity among atheists. Taken together, a convincing explanation for why certain individuals become atheist church-leavers emerges. A person with innate preferences for thinking (T) and perceiving (P) is likely to feel out of place in a church environment, where the majority of individuals have preferences for feeling (F) and judging (J) instead. This is likely to lead to lower congregational satisfaction and a higher likelihood of leaving altogether. In addition to this, a person with innate preferences for thinking (T) and perceiving (P) is more likely than others to be attracted to the logical reasoning and nonconformity found in atheism. Again, this leads to a higher likelihood of the person leaving church and embracing atheist beliefs instead.

The second conclusion is that psychological type likely plays a larger role in why some individuals become atheists than other commonly cited factors. The results of the current study demonstrated that four factors commonly cited by conservative Christians (selfishness, arrogance, anger, and poor father-child relationships) do not appear to play a role in why some individuals become atheists. On the other hand, several other factors (less religious emphasis in childhood, negative church experiences, and higher intellect) do appear to play a role, but, when compared to psychological type, the results of the current study demonstrated that those factors are not as important.

The third conclusion is that psychological type theory confirms what is already known about religious differences from other personality models and is a better model for future research. The results from the current study show a strong tendency towards thinking (T) and perceiving (P) among atheists, thus supporting the existing research that links low religiosity with the related traits of low agreeableness and low conscientiousness in the Big Five models of personality and psychoticism in the

Eysenck model. However, psychological type theory has the added benefit of using terminology that is far less value-laden. Therefore, it is able to serve as an ideal model of personality for future research on religious differences.

The fourth conclusion is that there is such a thing as an atheist worldview, so long as it is understood to be the worldview held by most atheists as opposed to the worldview prescribed by atheism. The results from the current study indicated that atheists, as a whole, do tend to agree with one another on worldview-level beliefs and that, on most worldview components, these beliefs are in direction opposition to the worldview-level beliefs of churchgoing Christians. It was also determined that the exact term used by an atheist for self-description – whether it be “atheist”, “humanist”, “freethinker”, or “skeptic” – does not matter when it came to worldview-level beliefs. In other words, atheists, humanists, freethinkers, and skeptics can in fact be considered to be a single group.

This last conclusion is particularly important for discussion between atheists and Christians. Atheists often claim that they are unified by a single-issue: their lack of belief in God. However, the results of the current study indicate that they are united by much more. When discussion with Christians ventures into the territory of worldview-related beliefs (which it usually does), atheists need be willing to share the burden of proof rather than fall back on the claim that theirs is solely a negative view that need not be defended.

It should be noted that, although the topic of this thesis relates more directly to the field of the psychology of religion, it was conducted under the direction of the Warwick Religions and Education Research Unit (WRERU) at the Centre for Educational Studies. Much of the information included in this paper is beneficial to those working in the field of education. Classrooms today have a wide-range of students from various religious backgrounds and it is very common to find individuals

who currently attend Christian churches but are tending towards atheist beliefs. An understanding of how such individuals differ from their peers in terms of innate personality preferences can particularly benefit teachers who are involved in discussions related to religion.

Although a general picture has emerged from this project on the role that psychological type plays in why certain individuals become atheists, additional research is needed in order to further clarify this picture. For this, the following recommendations are given based on two weaknesses in the study: First, the current project relied entirely on data that was collected online using a snowball sampling method. Future studies could benefit from targeting more specific groups and by collecting the data in person. This will ensure that geography is more adequately controlled for at the same time as allowing for greater diversity within the samples when it comes to individual interests. Second, the current project focused entirely on Christian churches and did not distinguish between denominations. Future studies could benefit from looking at atheists who grew up in other religious environments and by looking separately at atheists who grew up in different Christian denominations.

These weakness aside, the current study has made a very valuable contribution to the Psychology of Religion research community. The main strength of the study was the fact that such an extremely large number of individuals ($n = 23,697$) ended up participating in the research, resulting in very large sample sizes. This, combined with the fact that the survey included such a wide variety of questions, means that a very solid set of data was obtained. This thesis has only scratched the surface when it comes to the various ways in which the data can be analyzed. Thus, the data set will remain a valuable resource for further research for many more years to come.

REFERENCES

- Aerts D., Apostel, L., De Moor, B., Hellemans, S., Maex, E., Van Belle, H. and Van der Veken, J. (2007), *World Views: From fragmentation to integration*. Retrieved August 4, 2013 from: <http://www.vub.ac.be/CLEA/pub/books/worldviews.pdf>.
- Albrecht, S. L. and Cornwall, M. (1989), Life events and religious change, *Review of Religious Research*, 31:1, 23-38.
- Aldridge, A. (2000), The sovereign consumer? Religious allegiance and disaffiliation in a detraditionalized world. In: Francis, L. J. & Katz, Y. J. (eds.), *Joining and leaving religion: Research perspectives*, Leominster, UK: Gracewing.
- Alidoosti, B. (2009), The process and experience of deciding to live openly atheist in a Christian family: A qualitative study, unpublished Masters thesis, Virginia Polytechnic Institute and State University. Retrieved August 2, 2013 from: <http://scholar.lib.vt.edu/theses/available/etd-12222009-140247>.
- Allport, G. W. (1966). Religious context of prejudice. *Journal for the Scientific Study of Religion*, 5, 447-457.
- Altemeyer, B. and Hunsberger, B. (1997), *Amazing Conversions: Why some turn to faith and others abandon religion*, Amherst, NY: Prometheus Books.
- Amarasingam, A. (2010), To err in their ways: The attribution biases of the new atheists, *Studies in Religion*, 39:4, 574-588.
- American Heritage dictionary of the English language* (2009), New York: Houghton Mifflin. Retrieved August 2, 2013 from: <http://education.yahoo.com/reference/dictionary/>.

American Humanist Association (1973a), *Humanism Manifesto I* (online). Retrieved

August 3, 2013 from:

http://americanhumanist.org/Humanism/Humanist_Manifesto_I

American Humanist Association (1973b), *Humanism Manifesto II* (online). Retrieved

August 3, 2013 from:

http://americanhumanist.org/Humanism/Humanist_Manifesto_II

American Humanist Association (2003), *Humanism and its aspirations: Humanist*

Manifesto III (online). Retrieved August 3, 2013 from:

http://americanhumanist.org/Humanism/Humanist_Manifesto_III

Baab, L. (1998), *Personality type in congregations: How to work with other more effectively*, Herndon, VA: The Alban Institute.

Babinski, E. T. (1995), *Leaving the fold: Testimonies of former fundamentalists*,

Amherst, NY: Prometheus Books.

Baggini, J. (2003), *Atheism: A very short introduction*, New York: Oxford University Press.

Ball, I. L. (2008), Australian data on the distribution of psychological types, *Bulletin of Psychological Type*, 31, 53-55.

Barker, D. (1992), *Losing faith in faith: From preacher to atheist*, Madison, WI:

Freedom from Religion Foundation.

Barker, D. (2011), *The good atheist: Living a purpose-filled life without God*,

Berkeley, CA: Ulysses Press.

Batson, C. D. (1976). Religion as prosocial: Agent or double agent? *Journal for the Scientific Study of Religion*, 15, 29-45.

Beit-Hallahmi, B. (2010), Morality and immorality among the irreligious, In:

Zuckerman, (ed.), *Atheism and Secularity Volume 1: Issues, Concepts, and Definitions*, Santa Barbara, CA: Praeger Perspectives, 113-148.

- Beit-Hallahmi, B., and Argyle, M. (1997), *The psychology of religious behaviour, belief and experience*, London: Routledge.
- Bekiempis, V. (2011), Why the New Atheism is a boys' club, *The Guardian*, September 26, 2011. Retrieved September 9, 2014 from: <http://www.theguardian.com/commentisfree/cifamerica/2011/sep/26/new-atheism-boys-club>.
- Bell, M. (2002), Faust's Pendular Atheism and the British Tradition of Religious Melancholy, In: Boyle, N. & Guthrie, J. (eds.), *Goethe and the English-speaking world: Essays from the Cambridge symposium*, Camden House: Rochester, NY, 71-83.
- Bell, P., (2002), Would you believe it? *Mensa Magazine*, Feb., 12–13. Quoted in: Dawkins, R. (2006), *The God Delusion*, 103.
- Berkowitz, P. (2007), The new new [sic] atheism, *The Wall Street Journal*, July 16, p. A13.
- Bibby, R. W. (2007), Good without God, but better with God? Press release, University of Lethbridge, October 8, 2007.
- Bjorken, J. D. (2009), The definition and classification of universes, in Carr, B. (ed.) *Universe or multiverse?* Cambridge: Cambridge University Press.
- Blackford, R. (2013), *50 great myths about atheism*, Hoboken, NJ: Wiley-Blackwell.
- Bourke, R., Francis, L. J. and Robbins, M. (2007), Cattell's personality model and attitude toward Christianity, *Mental Health, Religion & Culture*, 10:4, 353-362.
- Bremmer, J. N. (2007), Atheism in antiquity, in Martin, M. (ed.) *The Cambridge companion to atheism*, Cambridge: Cambridge University Press.
- Brinkerhoff, M. B. and Burke, K. L. (1980), Dissaffiliation: Some notes on 'falling from faith', *Sociological Analysis*, 41:1, 41-54.

- Bullivant, S. and Lee, L. (2012), Interdisciplinary studies of non-religion and secularity: The state of the union, *Journal of Contemporary Religion*, 27:1, 19-27.
- Caldwell-Harris, C. L. (2012), Understanding atheism/non-belief as an expected individual-differences variable, *Religion, Brain & Behaviour*. 2:1, 4-47.
- Caplovitz, D. and Sherrow, F. (1977), *The religious drop-outs: Apostasy among college graduates*, London: Sage Publications.
- Carr, B. (2009), Introduction and overview, in Carr, B. (ed.) *Universe or multiverse?* Cambridge: Cambridge University Press.
- Carr, B. (2012), Lemaître's Prescience: The beginning and the end of the cosmos, in Holder, R. & Milton, S. (eds.), *Georges Lemaître: Life, Science and Legacy*, London: Springer.
- Carskadon, T. J. (1982), MBTI characterizations: A Jungian horoscope? *Research in psychological type*, 5, 87-88.
- Cattell, R.B. (1973), *Personality and mood by questionnaire*, San Francisco, CA: Jossey-Bass.
- Center for Inquiry (2012), *Paul Kurtz Obituary* (press release), Retrieved November 28, 2013 from: http://www.centerforinquiry.net/paul_kurtz_obituary.
- Centore, F. F. (1979), *Persons: a comparative account of the six possible theories*, Westport, CT: Greenwood Press.
- Cimino, R. & Smith, C. (2011), The new atheism and the formation of the imagined secularist community, *Journal of Media and Religion*, 10, 24-38.
- Cohen, L., Manion, L. and Morrison, K. (2000), *Research Methods in Education, 5th Edition*, London: RoutledgeFalmer.

- Costa, P. T. and McCrae, R. R. (1989), Reinterpreting the Myers-Briggs Type Indicator from the perspective of the five-factor model of personality, *Journal of Personality*, 57:1, 17-40.
- Costa, P. T. and McCrae, R. R. (1992a). NEO-PI-R professional manual. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T. and McCrae, R. R. (1992b), Normal personality assessment in clinical practice: the NEO Personality Inventory, *Psychological Assessment*, 4:1, 5-13.
- Craig, C. L., Duncan, B., & Francis, L. J. (2006), Psychological type preferences of Roman Catholic priests in the United Kingdom, *Journal of Beliefs and Values*, 27, 157-164.
- Craig, C. L., Francis, L. J., Bailey, J., and Robbins, M. (2003). Psychological types in Church in Wales congregations. *The Psychologist in Wales*, 15, 18-21.
- Craig, C.L., Francis, L. J. and Barwick, J. (2010), Psychological type preferences of Christian groups: comparisons with the UK population norms, *Journal of Psychological Type*, 70:3, 31-39.
- Craig, C. L. Horsfall, T., & Francis, L. J. (2005), Psychological types of male missionary personnel training in England: a role for thinking type men?, *Pastoral Psychology*, 53, 475-482.
- D'Souza, Dinesh (2003), Not so 'bright'; Atheists aren't as rational as they think, *The Wall Street Journal*, October 12, 2003. Retrieved January 22, 2013 from: <http://online.wsj.com/news/articles/SB122730390376349015>.
- D'Souza, Dinesh (2007), *What's So Great about Christianity*, Carol Stream, IL: Tyndale House.
- Dawkins, R. (2006), *The God Delusion*, New York: Houghton Mifflin.
- Delis-Bulhoes, V. (1990), Jungian psychological types and Christian belief in active church members, *Journal of Psychological Type*, 20, 25-33.

Dennett, D. (2007), *Breaking the spell: Religion as a natural phenomenon*, New York: Viking Press.

DeVellis, R. F. (2003), *Scale development: Theory and applications*. London: Sage.

Dostoevsky, F. (1984), *The Brothers Karamazov*, New York: Bantam.

Draper, P. (2007), *Natural selection and the problem of evil*, The Secular Web

(online). Retrieved August 3, 2013 from:

http://www.infidels.org/library/modern/paul_draper/evil.html.

Durant, W. (1935/2011), *The story of civilization: Our Oriental heritage*, Ebook, New York: Simon and Schuster.

Edgell, P., Gerteis, J. and Hartmann, D. (2006), Atheists as 'other': Moral boundaries and cultural membership in American society, *American Sociological Review*, 71:2, 211-234.

Englehart, K. (2013), *From Hitchens to Dawkins: Where are the women of New*

Atheism? Salon, July 21, 2013. Retrieved September 9, 2014 from:

http://www.salon.com/2013/07/21/from_hitchens

[_to_dawkins_where_are_the_women_of_new_atheism/](http://www.salon.com/2013/07/21/from_hitchens_to_dawkins_where_are_the_women_of_new_atheism/).

Everett, D. (2010), *Don't sleep, there are snakes: Life and language in the Amazonian jungle*, London: Profile Books.

Exline, J. J. (2004), Anger toward God: A brief overview of existing research.

Psychology of Religion Newsletter, 29:1, 1-8.

Exline, J. J. and Martin, A. (2005), Anger toward God: A new frontier in forgiveness research, In: Worthington, E.L. (ed.), *Handbook of forgiveness*, New York: Routledge.

Exline, J. J., Yali, A.M. and Lobel, M. (1999), When God disappoints: Difficulty forgiving God and its role in negative emotion, *Journal of Health Psychology*, 4:3, 365-379.

Eysenck, H. J. (1947), *Dimensions of Personality*, London: Transaction Publishers.

Eysenck, H. J. and Eysenck, S. B. G. (1976), *Psychoticism as a Dimension of Personality*, London: Hodder & Stoughton.

Faucett, R. and Faucett, C. A. (1985), *Personality and spiritual freedom: Growing in the Christian life through understanding personality type and the Myers-Briggs Type Indicator*, New York: Image Books.

Fearn, M., Francis, L. J. and Wilcox, C. (2001), Attitude toward Christianity and psychological type: a survey among religious studies students, *Pastoral Psychology*, 49, 341-348.

Flew, A. (1984), *God, freedom, and immorality: A critical analysis*. Amherst, NY: Prometheus Books.

Francis, L. J. (1991), Personality and attitude towards religion among adult churchgoers in England, *Psychological Reports*, 69, 791-794.

Francis, L. J. (1993), Personality and religion among college students in the UK, *Personality and Individual Differences*, 14, 619-622.

Francis, L. J. (1999), Personality and attitude toward Christianity among undergraduates, *Journal of Research on Christian Education*, 8, 179-195.

Francis, L. J., (2002), Psychological type and mystical orientation: anticipating individual differences within congregational life, *Sciences Pastorales*, 21:1, 77-93.

Francis, L. J. (2005), *Faith and Psychology*, London: Darton, Longman & Todd.

Francis, L. J. (2003), Personality and religion: Applying Cattell's model among secondary school pupils, *Current Psychology*, 22:2, 125-137.

Francis, L. J., Butler, A., Jones, S.H. and Craig, C.L. (2007), Type patterns among active members of the Anglican church: a perspective from England, *Mental Health, Religion and Culture*, 10:5, 435-443.

- Francis, L.J., Craig, C.L., & Butler, A. (2007), Psychological types of male evangelical Anglican seminarians in England, *Journal of Psychological Type*, 67, 11-17, 2007
- Francis, L. J., Craig, C.L. and Hall, G. (2008), Psychological type and attitude towards Celtic Christianity among committed Churchgoers in the United Kingdom: an empirical study, *Journal of Contemporary Religion*, 23:2, 181-191.
- Francis, L. J., Craig, C. L., Whinney, M., Tilley, D., and Slater, P. (2007), Psychological profiling of Anglican clergy in England: Employing Jungian typology to interpret diversity, strengths, and potential weaknesses in ministry. *International Journal of Practical Theology*, 11, 266-284.
- Francis, L. J. and Dato, F. A. (2012), Inside the mosque: A study in psychological-type profiling, *Mental Health Religion & Culture*, 15:10, 1037-1046.
- Francis, L. J., Duncan, B., Craig, C.L. and Luffman, G. (2004), Type patterns among Anglican congregations in England, *Journal of Adult Theological Education*, 1:1, 65-77.
- Francis, L. J. and Jones, S.H. (1997), Personality and charismatic experience among adult Christians, *Pastoral Psychology*, 45, 421-428.
- Francis, L. J. and Jones, S.H. (1998), Personality and Christian belief among adult churchgoers, *Journal of Psychological Type*, 47, 5-11.
- Francis, L. J. and Jones, S.H. (1999), Psychological type and tolerance for religious uncertainty, *Pastoral Psychology*, 47, 253-259.
- Francis, L. J., Jones, S.H. and Craig, C.L. (2004), Personality and religion: the relationship between psychological type and attitude toward Christianity, *Archiv Für Religionspsychologie*, 26, 15-33.

- Francis, L. J., Lewis, J. M., Brown, L.B., Philipchalk, R. and Lester, D. (1995), Personality and religion among undergraduate students in the United Kingdom, United States, Australia and Canada, *Journal of Psychology and Christianity*, 14, 250-262.
- Francis, L. J., Littler, K. and Robbins, M. (2012), Mystical orientation and the perceiving process: a study among Anglican clergymen, *Mental Health Religion & Culture*, 15:9, 945-953.
- Francis, L.J., Nash, P., Nash, S., & Craig, C.L. (2007), Psychology and youth ministry: psychological type preferences of Christian youth workers in the United Kingdom, *Journal of Youth Ministry*, 5(2), 73-90.
- Francis, L. J., Penson, A. W. and Jones, S. H. (2001), Psychological types of male and female Bible College students in England, *Mental Health, Religion and Culture*, 4, 23-32.
- Francis, L. J. and Loudon, S.H. (2000), Mystical orientation and psychological type: a study among student and adult churchgoers, *Transpersonal Psychology Review*, 4:1, 36-42.
- Francis, L. J. and Robbins, M. (2012), Not fitting in and getting out: Psychological type and congregational satisfaction among Anglican churchgoers in England, *Mental Health, Religion & Culture*, 15:10, 1023-1035.
- Francis, L. J., Robbins, M., Boxer, A., Lewis, C.A., McGuckin, C. and McDaid, C.J. (2003), Psychological type and attitude toward Christianity: a replication, *Psychological Reports*, 92, 89-90.
- Francis, L. J., Robbins, M. and Cargas, S. (2012), The perceiving process and mystical orientation : an empirical study in psychological type theory among participants at the parliament of the world's religions, *Studies in Spirituality*, 22, 341-352.

- Francis, L. J., Robbins, M., and Craig, C.L. (2011). The psychological type profile of Anglican churchgoers in England: Compatible or incompatible with their clergy? *International Journal of Practical Theology*, 15, 243-259.
- Francis, L. J., Robbins, M., Kaldor, and Castle, K. (2009), Psychological type and work-related psychological health among clergy in Australia, England and New Zealand, *Journal of Psychology and Christianity*, 28:3, 200-212.
- Francis, L. J., Robbins, M., and Murray, L. (2010), Psychological type and religious orientation: Do introverts and extraverts go to church for different reasons? *Mental Health, Religion and Culture*, 13, 821-827.
- Francis, L. J., Robbins, M., Williams, A., and Williams, R. (2007), All types are called, but some are more likely to respond: The psychological profile of rural Anglican churchgoers in Wales, *Rural Theology*, 5, 23-30.
- Francis, L. J. and Ross, C.F.J. (1997), The perceiving function and Christian spirituality: Distinguishing between sensing and intuition, *Sciences Pastorales*, 16, 93-103.
- Francis, L. J., Village, A., Robbins, M. and Ineson, K. (2007), Mystical orientation and psychological type: an empirical study among guests staying at a Benedictine Abbey, *Studies in Spirituality*, 17, 207–223.
- Freud, S. (1933/1990), *New introductory lectures on psycho-analysis*, New York: W. W. Norton & Co.
- Furnham, A., Jackson, C.J., Forde, L. and Cotter, T. (2001), Correlates of the Eysenck Personality Profiler, *Personality and Individual Differences*, 30, 587-594.
- Geertz, A. W. and Markusson, G. I. (2010), Religion is natural, atheism is not: On why everyone is both right and wrong, *Religion*, 40:3, 152-165.
- Gellner, E. (1992), *Postmodernism, reason and religion*, New York: Routledge.

- Gerhardt, R. (1983), Liberal religion and personality type, *Research in Psychological Type*, 6, 47-53.
- Goldberg, L. R. (1990), An alternative “description of personality”: The Big-Five factor structure, *Journal of Personality and Social Psychology*, 59:6, 1216-1229.
- Goldberg, L. R. (1999), A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models, In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe*, Vol. 7. Tilburg, The Netherlands: Tilburg University Press.
- Gosling, S. D. and John, O. (1999), Personality dimensions in nonhuman animals, *Current directions in psychological science*, 8:3, 69-75.
- Gottlieb, A. (2007), Atheists with attitude, *The New Yorker*, May 21.
- Grant, W. H., Thompson, M. and Clarke, T. E. (1983), *From image to likeness: A Jungian path in the gospel journey*, New York: Paulist Press.
- Graylong, A. C. (2007), *Against all gods*, London: Oberon Books.
- Hadaway, C. K. & Roof, W. C. (1988), Apostasy in American Churches: Evidence from National Survey Data. In: Bromley, D. G. (ed.), *Falling from Faith*, Newbury Park, CA: Sage Publications, 29-46.
- Haggbloom, S. J., Warnick, R., Warnick, J. E., Jones, V. K., Yarbrough, G. L., Russell, T. M., Borecky, C. M., McGahhey, R., Powell, J. L., Beavers, J. M. and Monte, E. (2002), The 100 most eminent psychologists of the 20th Century, *Review of General Psychology*, 6:2, 139-152.
- Hammer, O. (2004), *Claiming knowledge: Strategies of epistemology from Theosophy to the New Age*, Leiden, The Netherlands: Brill.
- Happold, F. C. (1962), *Mysticism: A study and an anthology*, Harmondsworth: Penguin.
- Harding, N. (2008), *How to be a good atheist*, Harpenden: Oldcastle Books.

- Harris, S. (2004), *The end of faith: Religion, terror, and the future of reason*, New York, W. W. Norton.
- Harris, S. (2006), 10 myths—and 10 truth—about atheism, *The Los Angeles Times*, December 24, 2006. Retrieved August 2, 2013 from:
http://www.samharris.org/site/full_text/10-myths-and-10-truths-about-atheism1.
- Hart, D. B. (2009), *Atheist delusions: The Christian revolution and its fashionable enemies*, New Haven, CT: Yale University Press.
- Hecht, J. M. (2004), *Doubt: A History*, New York: HarperCollins.
- Heelas, P. (1996), *The new age movement: The celebration of the self and the sacralization of modernity*, Cambridge: Blackwell.
- Heelas, P. and Woodhead, L. (2005), *The spiritual revolution: Why religion is giving way to spirituality*, Oxford: Blackwell.
- Hirsh, S. K. and Kise, J. A. G. (2006), *SoulTypes: Matching your personality and spiritual path*, Minneapolis, MN: Augsburg Books.
- Hitchens, C. (2007), *God is not great: How religion poisons everything*, Toronto: McClelland & Stewart.
- Hodges, H. A. (1998), *Wilhelm Dilthey: An Introduction*, London: Routledge.
- Holmes, A. F. (1983), *Contours of a world view*, Grand Rapids, MI: Eerdmans.
- Holyoake, G. J. (1896/2011), *English Secularism: A confession of belief*, Ebook.
Retrieved November 25, 2013 from:
<http://www.gutenberg.org/files/38104/38104-h/38104-h.htm>.
- Horwitz, R. H. (1986), *The Moral Foundations of the American Republic*, Charlottesville, VA: University of Virginia Press.
- Hunsberger, B. (1980), A reexamination of the antecedents of apostasy, *Review of Religious Research*, 21:2, pp.158-170.

- Hunsberger, B. (1983), Apostasy: A social learning perspective, *Review of Religious Research*, 25:1, 21-38.
- Hunsberger, B. and Altemeyer, B. (2006), *Atheists: A groundbreaking study of America's nonbelievers*, Amherst, NY: Prometheus Books.
- Hunsberger, B. and Brown, L. B. (1984), Religious socialization, apostasy, and the impact of family background, *Journal for the Scientific Study of Religion*, 23:3, 239-251.
- Hutchinson, S. (2014), Atheism has a big race problem that no one's talking about, *The Washington Post*, June 16, 2014. Retrieved September 9, 2014 from: <http://www.washingtonpost.com/posteverything/wp/2014/06/16/blacks-are-even-discriminated-against-by-atheists/>.
- Huxley, T. (1889), *Agnosticism* (online). Retrieved October 24, 2013 from: http://www.infidels.org/library/historical/thomas_huxley/huxley_wace/part_02.html.
- Hyman, G. (2007), Atheism in modern history, in Martin, M. (ed.) *The Cambridge companion to atheism*, Cambridge: Cambridge University Press.
- Hyman, G. (2010), *A short history of atheism*, New York: I. B. Tauris.
- International Humanist and Ethical Union (2002), *Amsterdam declaration* (online). Retrieved August 3, 2013 from: <http://www.iheu.org/amsterdamdeclaration>.
- Jacoby, S. (2013), *The great agnostic: Robert Ingersoll and American freethought*, New Haven, CT: Yale University Press.
- Johnson, R. D. (1999), *Your personality and the spiritual life*, Gainesville FL: CAPT.
- Jones, S.H. and Francis, L. J. (1999), Personality type and attitude toward Christianity among student churchgoers, *Journal of Beliefs and Values*, 20, 105-109.

- Jones, S.H., Francis, L. J. and Craig, C.L. (2005), Charismatic experience and psychological type: an empirical enquiry, *Journal of the European Pentecostal Theological Association*, 25, 39-53.
- Jung (1971a), Psychological types, in Cambell, J. (ed.) *The Portable Jung*, New York: Viking Press.
- Jung (1971b), The structure and dynamics of the psyche, in Cambell, J. (ed.) *The Portable Jung*, New York: Viking Press.
- Kanazawa, S. (2010), Why Liberals and Atheists Are More Intelligent, *Social Psychology Quarterly*, 73:1, 33-57.
- Keating, C. J. (1987), *Who we are is how we pray: Matching personality and spirituality*, Mystic, CT: Twenty-Third Publication.
- Keirsey, D. (1984), *Please Understand Me*. Del Mar, CA: Prometheus Nemesis Book Company.
- Keirsey, D. (1998), *Please Understand Me II*. Del Mar, CA: Prometheus Nemesis Book Company.
- Kendall, E. (1998), *Myers-Briggs type indicator: Step 1 manual supplement*, Palo Alto, California: Consulting Psychologists Press.
- Kluckhohn, C. and Murray, H. A. (1953), *Personality in nature, society, and culture*, New York: Knopf.
- Koltko-Rivera, M. E. (2004), The Psychology of Worldviews, *Review of General Psychology*, 8:1, 3-58. Retrieved August 4, 2013 from:
<http://www.apa.org/pubs/journals/features/gpr-813.pdf>.
- Kosmin, B. A. and Keysar, A. (2009). *American Religious Identification Survey (ARIS 2008) Summary Report*. Hartford, CT: Institute for the Study of Secularism in Society & Culture. Retrieved April 10, 2013 from:
<http://commons.trincoll.edu/aris/publications/aris-2008-summary-report/>.

- Kurtz, (1980), *A secular humanist declaration*, Buffalo, NY: Council for Secular Humanism. Retrieved August 3, 2013 from:
<http://www.secularhumanism.org/index.php?page=declaration§ion=main>.
- Lamont, C. (1965), *The Philosophy of humanism*, New York: Frederick Ungar Publishing.
- Larson, E. J. and Witham, L. (1997), Scientists are still keeping the faith, *Nature*, 386, 435–436.
- Larson, E. J. and Witham, L. (1998), Leading scientists still reject God, *Nature*, 394, 313.
- Larson, G. J. (1998), *Classical Samkhya: An interpretation of its history and meaning*, Delhi, India: Motilal Banarsidass.
- Lawton, L. E. and Bures, R. (2001), Parental divorce and the ‘switching’ of religious identity, *Journal for the Scientific Study of Religion*, 40:1, 99-111.
- Lee, J. J. (2002), Religion and college attendance: Change among students, *The Review of Higher Education*, 25:4, 369-384.
- Lee, L. (2012), Research note: Talking about a revolution: Terminology for the new field of non-religion studies. *Journal of Contemporary Religion*. 27:1, 129-139.
- Lee, L. and Bullivant, S. (2010), Where do atheists come from? *New Scientist*, March 6, 2010, 26-27.
- Lewis, C. S. (1952), *Mere Christianity*, New York: Collier Books.
- Linneman, T. J. and Clendenen, M. A. (2010), Sexuality and the secular, In: Zuckerman, (ed.), *Atheism and Secularity Volume 1: Issues, Concepts, and Definitions*, Santa Barbara, CA: Praeger Perspectives, 89-111.
- Locke, J. (1689/1983), *A letter concerning toleration*, Indianapolis: Hackett Publishing.

- Lundin, R. (2007), *There before us: Religion, literature, and culture from Emerson to Wendell Berry*, Grand Rapids, MI: Eerdmans.
- Lynn, R., and Vanhanen, T. (2006), *IQ and global inequality*, Athens: GA: Washington Summit Publishers.
- Lynn, R., Harvey, J. and Nyborg, H. (2009), Average intelligence predicts atheism rates across 137 nations, *Intelligence*, 37, 11-15.
- Makreel, R. A. (1992), *Dilthey: Philosopher of the human studies*, Princeton, NJ: Princeton University Press.
- Mann, N. (1996), The origins of humanism, In: Kraye, J. (ed.), *The Cambridge Companion to Renaissance Humanism*, Cambridge: Cambridge University Press.
- Manning, C. (2010), Atheism, Secularity, the Family, and Children, In: Zuckerman, (ed.), *Atheism and Secularity Volume 1: Issues, Concepts, and Definitions*, Santa Barbara, CA: Praeger Perspectives, 19-41.
- Markham, I. (2011), *Against atheism: Why Dawkins, Hitchens, and Harris are fundamentally wrong*, Hoboken, NJ: Wiley-Blackwell.
- Martin, M. (1990), *Atheism: A philosophical justification*, Philadelphia, PA: Temple University Press.
- McGrath, A. (2006), *The Twilight of Atheism*, Colorado Springs, CO: WaterBrook Press.
- McKnight, S. and Ondrey, H. (2008), *Finding faith, losing faith: Stories of conversion and apostasy*, Waco, TX: Baylor University Press.
- Michael, C. and Norrissey, M. C. (1991), *Prayer and temperament: Different prayer forms for different personalities*, Charlottesville, VA: The Open Door.
- Myers, I. (1980), *Gifts differing: Understanding personality type*, Palo Alto, CA: Davies-Black.

- Myers, I., McCaulley, M. H., Quenk, N. L. and Hammer, A. L. (2003), *MBTI® Manual: A guide to the development and use of the Myers-Briggs Type Indicator®, 3rd Edition*, Mountain View, CA: CPP, Inc.
- Naugle, D. K. (2002), *Worldview: The history of a concept*, Grand Rapids, MI: Eerdmans.
- New Revised Standard Version Bible* (1989), New York: Harper Collins.
- New York Society for Ethical Culture (n.d.), *Our History* (online). Retrieved November 26, 2013 from: <http://www.nysec.org/history>.
- Nielsen, K. (1990), *Ethics without God*, Amherst, NY: Prometheus Books.
- Norris, P. and Inglehart, R. (2004), *Sacred and secular: Religion and politics worldwide*, New York: Cambridge University Press.
- Novotni, M. and Petersen, R. (2001), *Angry with God*, Colorado Springs, CO: Pinon.
- Nyborg, H. (2009), The intelligence–religiosity nexus: A representative study of white adolescent Americans, *Intelligence*, 37, 81-93.
- Oswald, R. M. And Kroeger, O. (1988), *Personality type and religious leadership*, Herndon, VA: The Alban Institute.
- Palys, T. (2003), *Research Decisions: Quantitative and qualitative perspectives*, Scarborough, ON: Thompson Nelson.
- Pasquini, J. J. (2009), *The existence of God: Convincing and converging arguments*, Lanham, MD: University Press of America.
- Paul, G. S. (2005), Cross-national correlations of quantifiable societal health with popular religiosity and secularism in the prosperous democracies, *Journal of Religion & Society*, 7, 1-17.
- Pepper, S. C. (1970), *World hypotheses*, Berkeley, CA: University of California Press.
- Richardson, T. (1996), *Four Spiritualities: Expressions of self, expressions of spirit*, Palo Alto, CA: Davies-Black Publishing.

- Robbins, M. J., and Francis, L. J. (2011), All are called, but some psychological types are more likely to respond: Profiling churchgoers in Australia. *Research in the Social Scientific Study of Religion*, 22, 212-229.
- Robson, C. (1993), *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*, Oxford: Blackwell.
- Rosenberg, A. (2011), *The atheist's guide to reality: Enjoying life without illusions*, New York: W. W. Norton & Co.
- Ross, C. F. J. (1993), Type patterns among active members of the Anglican church: Comparisons with Catholics, Evangelicals and clergy, *Journal of Psychological Type*, 26, 28-35.
- Ross, C. F. J. (1995), Type patterns among Catholics: Four Anglophone congregations compared with Protestants, Francophone Catholics and priests, *Journal of Psychological Type*, 33, 33-41.
- Ross, C.F.J. and Francis, L. J. (2010), The relationship of intrinsic, extrinsic and quest religious orientations to Jungian psychological type among churchgoers in England and Wales, *Mental Health, Religion & Culture*, 13:7/8, 805-819.
- Ross, C.F.J., Weiss, D. and Jackson, L. (1996), The relation of Jungian psychological type to religious attitudes and practices. *International Journal for the Psychology of Religion*, 6, 263–279.
- Ross, C.F.J., Francis, L. J. and Craig, C.L. (2005) Dogmatism, religion and psychological type, *Pastoral Psychology*, 53, 483-497.
- Russell, B. (1944), *The value of free thought: How to become a truth-seeker and break the chains of mental slavery*, Giard, KS: Haldeman-Julius Publications.
- Saroglou, V. (2010), Religiousness as a cultural adaptation of basic traits: A five-factor model perspective, *Personality and Social Psychology Review*, 14, 108-125.

- Schwitzgebel, E. (2011), Belief, In: Zalta, E. N. (ed.), *The Stanford Encyclopedia of Philosophy* (online). Retrieved October 24, 2013 from:
<http://plato.stanford.edu/archives/win2011/entries/belief/>
- Shermer, M. (1997), *Why people believe weird things: Pseudoscience, superstition, and other confusions of our time*, New York: W. H. Freeman.
- Shermer, M. (2004), *The science of good and evil: Why people cheat, gossip, share, and follow the golden rule*, New York: Holt Paperbacks.
- Silver, C., Ross, F. J., and Francis, L. J. (2012), New Kadampa Buddhists and Jungian psychological type, *Mental Health Religion & Culture*, 15:10, 1055-1064.
- Sire, J. W. (2004), *The universe next door: A basic worldview catalog*, Downer's Grove, IL: InterVarsity.
- Smith, G. H. (1974), *Atheism: The case against God*, Los Angeles, CA: Nash Publishing.
- Smith, Q. (2008), *A cosmological argument for a self-caused universe*, The Secular Web (online). Retrieved August 3, 2013 from:
http://www.infidels.org/library/modern/quentin_smith/self-caused.html.
- Spencer, N. (2009), Religion and learning: what we know, *The Guardian*, October 6, 2009. Retrieved August 2, 2013, from:
<http://www.guardian.co.uk/commentisfree/belief/2009/oct/05/atheist-religion-education-demographics-class>.
- Spiegel, J. S. (2010), *The making of an atheist: How immorality leads to unbelief*, Chicago: Moody Publishers.
- Spilka, B., Hood, R., Hunsberger, B. and Gorsuch, R. (2003), *The Psychology of Religion*, New York: Guilford Press.
- Sproul, R. C. (1974), *The psychology of atheism*, Minneapolis, MN: Bethany Fellowship.

- Stokes, M. (2012), *A shot of faith (to the head): Be a confident believer in an age of cranky atheists*, Nashville, TN: Thomas Nelson.
- Stroebel, L. (1998), *The case for Christ: A journalist's personal investigation of the evidence for Jesus*, Grand Rapids, MI: Zondervan.
- Templeton, C. (1996), *Farewell to God: My reasons for rejecting the Christian faith*, Toronto: McClelland & Stewart, 1996.
- The Barna Group (2008), Young adults and liberals struggle with morality, (online). Retrieved August 2, 2013 from: <http://www.barna.org/barna-update/article/16-teensnext-gen/25-young-adults-and-liberals-struggle-with-morality>.
- Tucker, R. A. (2002), *Walking away from faith*, Downers Grove, IL: InterVarsity Press.
- Tupes, E. C. and Christal, R. E. (1992), Recurrent personality factors based on trait ratings, *Journal of Personality*, 60:2, 225-251.
- Van der Horst, W. (2006), *Jews and Christians in their Graeco-Roman context*, Mohr Siebeck: Tübingen, Germany.
- Vetter, G. B. and Green, M. (1932), Personality and group factors in the making of atheists, *Journal of Abnormal and Social Psychology*, 27:2, 179–94.
- Vidal, C. (2008), Wat is een wereldbeeld? (What is a worldview?), in Van Belle, H. & Van der Veken, J. (eds.), *Nieuwheid denken. De wetenschappen en het creatieve aspect van de werkelijkheid*, Acco: Leuven, Belgium. Retrieved August 4, 2013 from: http://cogprints.org/6094/2/Vidal_2008-what-is-a-worldview.pdf.
- Village, A. (2012), Biblical literalism among Anglican clergy: What is the role of psychological type?, *Mental Health Religion & Culture*, 15:9, 955-968.
- Village, A., Baker, S. and Howat, S. (2012), Psychological-type profiles of churchgoers in England, *Mental Health Religion & Culture*, 15:10, 969-978.

- Village, A., Francis, L. J. and Craig, C.L. (2009), Church tradition and psychological type preferences among Anglicans in England, *Journal of Anglican Studies*, 7:1, 93-109.
- Vitz, P. (2008), The Psychology of Atheism, *AntiMatters*, 2:4, 33-44. Retrieved August 2, 2013 from: <http://anti-matters.org/articles/91/public/91-84-1-PB.pdf>.
- Vitz, P. (1999), *Faith of the fatherless: The psychology of atheism*, Dallas, TX: Spence Publishing Company.
- Williams, E., Francis, L. J., Billington, U. and Robbins, M. (2012). The psychological-type profile of practicing British druids compared to Anglican churchgoers. *Mental Health Religion & Culture*, 15:10, 1065-1075.
- Wolf, G. (2006), The Church of the Non-Believers, *Wired*, Issue 14.11, Retrieved January 21, 2014 from:
<http://www.wired.com/wired/archive/14.11/atheism.html>.
- Zuckerman, (2007), Atheism: Contemporary numbers and patterns, In: Martin, M. (ed.), *The Cambridge Companion to Atheism*, Cambridge: Cambridge University Press, 47-65.
- Zuckerman, P. (2010), What is atheism?, In: Zuckerman, (ed.), *Atheism and Secularity Volume 1: Issues, Concepts, and Definitions*, Santa Barbara, CA: Praeger Perspectives, 1-18.
- Zuckerman, P. (2011), *Faith No More: Why People Reject Religion*, Oxford: Oxford University Press.

APPENDIX A

Personality and Belief in God Survey

Principal Researcher: Matthew Baker, University of Warwick (Coventry, UK)

The following survey is completely voluntary and is made up of questions about your personality, life experiences, and belief (or lack of belief) in God. Your responses are anonymous and we have no way of linking them back to you. There are six sections and the entire survey should take about 30 minutes to complete. You must be at least 19 years of age to participate.

If you have any questions about the survey, please write to:
matthew.baker@warwick.ac.uk.

To begin, please select the phrase that best describes your current view:

- I do not believe in any sort of God, gods, or Higher Power
- I believe in a personal, creator God
- I believe in some other kind of God, gods, or Higher Power
- I'm really not sure

Section 1 of 6 (atheist version)

1. Which of the following terms would you feel comfortable using to describe yourself? (Select as many as apply):

atheist agnostic bright freethinker humanist skeptic

2. Which ONE of the following terms do you use the most in order to describe yourself?

atheist agnostic bright freethinker humanist skeptic

Other (please specify) : _____

3. Are you currently a member of an atheist, humanist, or other like organization?

Yes No

4. Please rate your agreement to the following statements:

I often attend atheist-related meetings and events.	SD	D	N	A	SA
I have read a lot of books about atheism.	SD	D	N	A	SA
I spend a lot of time on atheist-related websites.	SD	D	N	A	SA

I listen to a lot of atheist-related podcasts.	SD	D	N	A	SA
I have a lot of atheist friends.	SD	D	N	A	SA
I openly discuss my atheist views with theists.	SD	D	N	A	SA
My family knows that I am an atheist.	SD	D	N	A	SA

Section 1 of 6 (all other versions)

1. Which one of the following terms best describes you?

- Christian Muslim Jew Hindu Buddhist Spiritual
 Don't know

Other (please specify) : _____

2. How often do you CURRENTLY attend a church or other formal place of worship (mosque, synagogue, temple, etc.)?

- usually every week
 at least six times a year
 at least once a year
 rarely or never

3. If you currently attend a church or place of worship at least once a year, please indicate the denomination or faith community:

- | | | |
|--|--|--|
| <input type="checkbox"/> Anglican/Episcopalian | <input type="checkbox"/> Lutheran | <input type="checkbox"/> Reformed/Presbyterian |
| <input type="checkbox"/> Baptist | <input type="checkbox"/> Mennonite | <input type="checkbox"/> Seventh-Day Adventist |
| <input type="checkbox"/> Buddhist | <input type="checkbox"/> Methodist/Wesleyan | <input type="checkbox"/> Sikh |
| <input type="checkbox"/> Catholic | <input type="checkbox"/> Mormon/LDS | <input type="checkbox"/> United Ch. of Canada |
| <input type="checkbox"/> Churches of Christ | <input type="checkbox"/> Muslim | <input type="checkbox"/> W.W. Church of God |
| <input type="checkbox"/> Hindu | <input type="checkbox"/> Non-denominational | <input type="checkbox"/> Other Christian |
| <input type="checkbox"/> Jehovah's Witnesses | <input type="checkbox"/> Orthodox | <input type="checkbox"/> Other non-Christian |
| <input type="checkbox"/> Jewish | <input type="checkbox"/> Pentecostal/Charismatic | <input type="checkbox"/> n/a |

4. How would you describe this church or faith community?

- very conservative conservative moderate liberal very liberal
 n/a

Section 2 of 6

1. For how many years, from BIRTH TO AGE 18, did you regularly attend a church or other place of worship (at least six times a year)? ____ 0-18 (If 0, please skip ahead to Section 3)

2. Which term below best describes the denomination or faith community you belonged to during this time (if you belonged to more than one, please choose the one which you feel had the greatest impact on your life):

- | | | |
|--|--|--|
| <input type="checkbox"/> Anglican/Episcopalian | <input type="checkbox"/> Lutheran | <input type="checkbox"/> Reformed/Presbyterian |
| <input type="checkbox"/> Baptist | <input type="checkbox"/> Mennonite | <input type="checkbox"/> Seventh-Day Adventist |
| <input type="checkbox"/> Buddhist | <input type="checkbox"/> Methodist/Wesleyan | <input type="checkbox"/> Sikh |
| <input type="checkbox"/> Catholic | <input type="checkbox"/> Mormon/LDS | <input type="checkbox"/> United Ch. of Canada |
| <input type="checkbox"/> Churches of Christ | <input type="checkbox"/> Muslim | <input type="checkbox"/> W.W. Church of God |
| <input type="checkbox"/> Hindu | <input type="checkbox"/> Non-denominational | <input type="checkbox"/> Other Christian |
| <input type="checkbox"/> Jehovah's Witnesses | <input type="checkbox"/> Orthodox | <input type="checkbox"/> Other non-Christian |
| <input type="checkbox"/> Jewish | <input type="checkbox"/> Pentecostal/Charismatic | <input type="checkbox"/> n/a |

3. How would you describe this church or faith community?

- very conservative conservative moderate liberal very liberal

4. Who attended this church or place of worship with you? (Select as many as apply)

- father mother sibling(s) grandparent(s) other extended family

5. During the period in which you belonged to this church or faith community, to what degree were its teachings and practices emphasized in your home?

- very high high moderate low very low

6. Please rate your agreement with the following:

Thinking back on my childhood experiences as part of this church or faith community, I have positive feelings about...

the other children my age	SD	D	N	A	SA
the adult members	SD	D	N	A	SA
the leadership	SD	D	N	A	SA
the teachings and practices	SD	D	N	A	SA
the activities I participated in	SD	D	N	A	SA
the opportunities I was given	SD	D	N	A	SA
the way I was treated	SD	D	N	A	SA
the sincerity of the members	SD	D	N	A	SA
the integrity of the members	SD	D	N	A	SA
the overall experience that I had	SD	D	N	A	SA

Section 3 of 6

1. I am: male female transgendered

2. My age is: drop-down menu (19-99)

3. I would classify myself as:

- Asian Black Hispanic Middle Eastern
- Native American Pacific Islander White

4. I currently reside in:

USA Canada United Kingdom

Other (please specify) : _____ (drop down menu?)

5. My birth order is:

firstborn middleborn lastborn only child

6. I have completed a:

Bachelor's degree Master's degree Doctoral degree

7. Compared to other people my age, I would say that my income level is:

much lower than average

lower than average

about average

higher than average

much higher than average

n/a

8. I am currently:

single married / living common law separated / divorced widowed

9. My sexual orientation is:

straight gay bisexual

Section 4 of 6

The following list contains pairs of characteristics. For each pair, select the characteristic which is closer to the real you, even if you feel both characteristics apply to you. Select the characteristic that reflects the real you, even if other people see you differently.

1. Do you tend to be more...

active

reflective

2. Do you tend to be more interested in...

facts

theories

3. Do you tend to be more concerned for...

harmony

justice

4. Do you tend to be more...

happy with routine

unhappy with routine

5. Do you tend to be...
___ emotional ___ unemotional
6. Are you more...
___ private ___ sociable
7. Are you more...
___ inspirational ___ practical
8. Are you more...
___ analytic ___ sympathetic
9. Are you more...
___ structured ___ open-ended
10. Are you mostly...
___ contented ___ discontented
11. Do you prefer...
___ having many friends ___ a few deep friendships
12. Do you prefer...
___ the concrete ___ the abstract
13. Do you prefer...
___ feeling ___ thinking
14. Do you prefer...
___ to act on impulse ___ to act on decisions
15. Do you mostly...
___ feel secure ___ feel insecure
16. Do you...
___ dislike parties ___ like parties
17. Do you...
___ prefer to design ___ prefer to make
18. Do you...
___ tend to be firm ___ tend to be gentle
19. Do you like to be...
___ in control ___ adaptable
20. Do you tend to...
___ stay stable ___ have mood swings
21. Are you...
___ energized by others ___ drained by too many people

22. Are you...
___ conventional ___ inventive
23. Are you...
___ critical ___ affirming
24. Are you happier...
___ working alone ___ working in groups
25. Do you tend to...
___ get angry quickly ___ remain placid
26. Do you tend to be more...
___ socially detached ___ socially involved
27. Do you tend to be more concerned...
___ for meaning ___ about details
28. Do you tend to be more...
___ logical ___ humane
29. Do you tend to be more...
___ orderly ___ easygoing
30. Do you tend to feel...
___ guilty about things ___ guilt-free
31. Are you more...
___ talkative ___ reserved
32. Are you more...
___ sensible ___ imaginative
33. Are you more...
___ tactful ___ truthful
34. Are you more...
___ spontaneous ___ organized
35. Are you more...
___ at ease ___ anxious about things
36. Are you mostly...
___ an introvert ___ an extrovert
37. Are you more focused on...
___ present realities ___ future possibilities
38. Are you mostly...
___ trusting ___ skeptical

39. Are you mostly...
 ___ leisurely ___ punctual
40. Do you tend to...
 ___ stay calm ___ panic easily
41. Do you...
 ___ speak before thinking ___ think before speaking
42. Do you prefer to...
 ___ improve things ___ keep things as they are
43. Do you...
 ___ seek for truth ___ seek for peace
44. Do you...
 ___ dislike detailed planning ___ like detailed planning
45. Do you...
 ___ frequently get irritated ___ rarely get irritated
46. Are you...
 ___ happier with uncertainty ___ happier with certainty
47. Are you...
 ___ up in the air ___ down to earth
48. Are you...
 ___ warm-hearted ___ fair-minded
49. Are you mostly...
 ___ unbothered by things ___ easily bothered
50. Are you...
 ___ systematic ___ casual

Section 5 of 6

Below are phrases describing people's behaviours. Please use the given scale to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future or think you should be. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age.

(items will be randomly mixed)

Believe in the importance of art.	SD	D	N	A	SA
Have a rich vocabulary.	SD	D	N	A	SA
Enjoy examining myself and my life.	SD	D	N	A	SA
Enjoy discussing movies and books with others.	SD	D	N	A	SA

Try to examine myself objectively.	SD	D	N	A	SA
Am not interested in abstract ideas.	SD	D	N	A	SA
Try to avoid complex people.	SD	D	N	A	SA
Avoid philosophical discussions.	SD	D	N	A	SA
Am not interested in theoretical discussions.	SD	D	N	A	SA
Do not like poetry.	SD	D	N	A	SA
Get angry easily.	SD	D	N	A	SA
Get irritated easily.	SD	D	N	A	SA
Get upset easily.	SD	D	N	A	SA
Am often in a bad mood.	SD	D	N	A	SA
Lose my temper.	SD	D	N	A	SA
Rarely get irritated.	SD	D	N	A	SA
Seldom get mad.	SD	D	N	A	SA
Am not easily annoyed.	SD	D	N	A	SA
Keep my cool.	SD	D	N	A	SA
Rarely complain.	SD	D	N	A	SA
Make people feel welcome.	SD	D	N	A	SA
Anticipate the needs of others.	SD	D	N	A	SA
Love to help others.	SD	D	N	A	SA
Am concerned about others.	SD	D	N	A	SA
Have a good word for everyone.	SD	D	N	A	SA
Look down on others.	SD	D	N	A	SA
Am indifferent to the feelings of others.	SD	D	N	A	SA
Make people feel uncomfortable.	SD	D	N	A	SA
Turn my back on others.	SD	D	N	A	SA
Take no time for others.	SD	D	N	A	SA
Don't think that I'm better than other people.	SD	D	N	A	SA
See myself as an average person.	SD	D	N	A	SA
Am just an ordinary person.	SD	D	N	A	SA
Consider myself an average person.	SD	D	N	A	SA
Would like to have more power than other people.	SD	D	N	A	SA
Believe that I am better than others.	SD	D	N	A	SA
Like to attract attention.	SD	D	N	A	SA
Am more capable than most others.	SD	D	N	A	SA
Am likely to show off if I get the chance.	SD	D	N	A	SA
Boast about my virtues.	SD	D	N	A	SA
Avoid mistakes.	SD	D	N	A	SA
Choose my words with care.	SD	D	N	A	SA
Stick to my chosen path.	SD	D	N	A	SA
Jump into things without thinking.	SD	D	N	A	SA
Make rash decisions.	SD	D	N	A	SA
Like to act on a whim.	SD	D	N	A	SA
Rush into things.	SD	D	N	A	SA
Do crazy things.	SD	D	N	A	SA
Act without thinking.	SD	D	N	A	SA
Often make last-minute plans.	SD	D	N	A	SA

Section 6 of 6

1. For how many years, from birth to age 18, did you share a home with your FATHER?

___ drop-down menu (0-18)

2. For how many years, from birth to age 18, did you share a home with your MOTHER?

___ drop-down menu (0-18)

3. If any of the following events apply, please indicate your age at the time of the event. Otherwise, please skip ahead.

My parents separated (and/or divorced) when I was ___ years old 0-29, 30+
 My father died when I was ___ years old 0-29, 30+
 My mother died when I was ___ years old 0-29, 30+

4. As a child, my FATHER was:
 (rate your agreement; if n/a, please skip this question)

caring	SD	D	N	A	SA
supportive	SD	D	N	A	SA
involved in my life	SD	D	N	A	SA
loving	SD	D	N	A	SA
close to me	SD	D	N	A	SA
sensitive	SD	D	N	A	SA
accepting	SD	D	N	A	SA
always there for me	SD	D	N	A	SA
someone I respected	SD	D	N	A	SA
someone others respected	SD	D	N	A	SA

5. As a child, my MOTHER was:
 (rate your agreement; if n/a, please skip this question)

caring	SD	D	N	A	SA
supportive	SD	D	N	A	SA
involved in my life	SD	D	N	A	SA
loving	SD	D	N	A	SA
close to me	SD	D	N	A	SA
sensitive	SD	D	N	A	SA
accepting	SD	D	N	A	SA
always there for me	SD	D	N	A	SA
someone I respected	SD	D	N	A	SA
someone others respected	SD	D	N	A	SA