

THE MORAL CONSEQUENCE OF RELIGIONS

by

AZIM FAYAZ SHARIFF

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## ABSTRACT

Debates about the causal relationship between religion and morality continue to be inconclusive, despite the willingness of pundits on both sides to speculate freely. We present three studies aimed at resolving whether religion has a causal effect on prosocial behaviour, and what mechanisms may be involved. Our results indicate that the implicit priming of religion does, indeed, increase prosocial behaviour towards anonymous strangers. The effect holds both for theists and atheists. Meanwhile, self-reported religiosity as a trait measure does not seem to be associated with prosocial behaviour. We also find that religion primes, but not control primes or ones associated secular institutions of morality increase feelings of guilt and nervousness. We discuss the mechanisms that may underlie such effects. In addition, we examine the implications that such a finding has for theories positing religion as a necessary, culturally evolved, facilitator in the emergence of large scale societies at the beginning of the Neolithic period.

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## Introduction

We would like to believe that we are not in the business of surviving but in being good, and we do not like to admit to ourselves that we are good in order to survive.

-Dorothy Rowe

Let me give you the definition of ethics: it is good to maintain life and to further life. It is bad to damage and destroy life. And this ethic, profound and universal, has the significance of a religion. It is religion.

-Albert Schweitzer

The dialogue between two areas is most fruitful when it is mutually revelatory. That is, when studying religion and morality, for instance, it is ideal when by studying religion you learn something new about morality and, likewise, by studying morality, you learn something new about religion. Given that the connection between religion and moral behaviour has been a matter of debate for as long as debates about religion have been tolerated, and likely longer, learning or saying something new may seem like a tall order. But, surprisingly, methodological issues and, perhaps, a degree of scientific timidity have kept a consensus from developing about the empirical validity of this connection. We still do not know if religion causes people to be more moral. The relative empirical vacuum has allowed many – including respected empiricists – to fill the void with opinions built from unfounded assumptions and selective anecdotes. Bertrand Russell claimed that “I

am as certain that religion does harm as I am that it is untrue". Richard Dawkins has gone further,

It is fashionable to wax apocalyptic about the threat to humanity posed by the AIDS virus, "mad cow" disease, and many others, but I think a case can be made that faith is one of the world's great evils, comparable to the smallpox virus but harder to eradicate. (Dawkins, 1997, p.26)

Such opining is tactless, especially from a respected scientist who has issued a general call for a more empirically oriented dialogue about religion. That religion causes misery and harm, even immense misery and harm, is hard to refute. But this is no argument against its utility, and certainly no argument for its abolition. Fevers cause great discomfort. But this is a discomfort that is more than compensated for by the protection they offer. Cough medicine, interest rates, exercise, pain itself – all examples of a lesser cost for a greater benefit. It is possible that religion falls in this category. It is equally likely that it doesn't, and that it instead results in a net negative to mankind. But Dawkins' disparaging of religion as a scourge to be vanquished from the Earth before the evidence is in is an affront to his own scientific leanings

Our goal then, is to add some evidence, in either direction, about the moral benefits of religion to the small collection that does exist. While anecdotes documenting religion's prosocial effects are abundant, empirical literature is scant. The work which has been done suffers from two main caveats: it is overwhelmingly based on self-reports and it is

entirely correlational. The validity of self report data has been most seriously undermined by the consistent finding that while religious people tend to self-report more moral behaviour, such reports showed no correlation with their performance in laboratory based helping behaviour experiments (Batson, Shoenrade and Ventis, 1993). Moral behaviour is too wound up in self-presentation effects to trust on self-report alone.

Meanwhile, the predominant problem with the correlational data is that the role of religion in the equation is ambiguous. It is just as likely that a moral disposition causes one to be more religious, or that some third variable is responsible for both moral behaviour and religiosity, than it is that being religious causes one to behave morally. Thus, part of our motivation for the current set of studies was to attempt to induce religious thinking among people of varied beliefs and religious orientations in the hopes of better understanding the causal nature of religion on behaviour and affect.

But understanding the causal connection between religion and prosocial behaviour could do more than enlighten today's debates. A number of theorists have suggested that the aspect of religion that encourages and facilitates prosocial behaviour was critical to the vast expansion in population densities that occurred between five and ten thousand years ago – and thus to the spread of those religions involved. These theories, of course, depend upon a still unfounded assumption of religion's causal effects on prosociality. But before we turn to our studies, the hypothesis, itself, deserves some elaboration.

### **The Varieties of Selection Processes**

Charles Darwin's greatest insight was not that of the evolution of organisms, but rather the process of natural selection. Erasmus Darwin – Charles's grandfather and a

contemporary of Lamarck – had argued for the idea of common descent at least half a century before *On the Origins of Species*. It was what was contained in the other, often omitted, half of the book's title – *by the process of natural selection* – that transformed thought well beyond the confines of biology. The tautology at the heart of natural selection, that the survivors survive, that the things that exist now do so because they were better at continuing to exist than other things, can be used to explain everything from the loyalty of dogs to why the smallest potato chips are always at the bottom of the bag, and it can go a long way in explaining why today's civilizations contain the cultural traits that they do – including religion.

### *Group Selection*

Cultural evolution is the process by which human cultural practices are put through the sieve of differential advantage. Group selection holds that groups that either deliberately adopt or otherwise quite accidentally stumble upon those cultural traits which enhance the group's fitness, tend to outlast groups which stumble upon maladaptive traits. Consider, for example, a society that adopts, for whatever reason, prohibitions against high birthrates and strict restrictions on allowing new members to join the group. This society will numerically expand less than would a society that encouraged high birthrates and had an aggressive tradition of proselytizing. Were these adjacent communities competing for the same resources and territory, it is likely that the latter group would out-compete and out-last the former<sup>1</sup>.

This process of group selection on a cultural level should not be confused with the biological variety of group selection. The latter term refers to a heavily debated idea that

certain alleles can proliferate because of the advantage that they lend groups, regardless of the fitness of the individual carriers of the gene. The biological group selection argument is that if there is enough genetic homogeneity among within groups and enough genetic diversity between groups, then anything that strengthens the in-group, even the sacrifice of certain members, will strengthen their overall fitness since enough of their genetic material will be passed on via the group members. It is, essentially, kin selection writ large. And success is measured, like in natural selection, at the level of genetic propagation. This is not the case in cultural group selection. Success, in this case, is not measured by differential representation of a particular allele in future generations, but rather in the continued presence of that cultural group. This difference is key.

Adaptations in biological group selection arise in the gene and get passed down in the gene. Cultural group adaptations develop as cultural inventions: practices or ideas or concepts – *memes*. They are transmitted from one mind to another and need not maintain or depend upon the genetic homogeneity of a group; they are concerned only with survival of the group. Thus successful, adaptive cultures are ones that survive through the ages, even if the genetic lines of their original members have died out. Cultural expansion is driven through breeding, or recruiting more members, while cultural extinction can be caused by the cultural analogues of suicide<sup>ii</sup>, homicide<sup>iii</sup> or radical transformation<sup>iv</sup>. For the remainder of this paper, group selection will refer to the cultural, rather than biological variety.

Adaptive cultural traits often evolve to solve cultural problems in the same manner that biological adaptation evolve to solve biological problems<sup>v</sup>. But since random selection *is* random, almost all the words in the previous sentence need to be qualified.

‘Problems’ only exist in hindsight – as existing situations that changed via the overcoming of some barrier to that change. For example, the problem of flight, or rather flightlessness, was not really a problem that either the organism or some anthropomorphized Mother Nature was striving to fix. Instead, at one point organisms could not fly, and later, through some variations, some organisms could. ‘Solutions’ only occur randomly, and in reference to the ‘problems’ – thus a cultural or biological solution is really any variation that made a difference.

### *Memetic Selection*

The units of cultural information – the memes – themselves undergo a process of selection that resembles, though certainly not identically, the process of genetic evolution. The fitness of memetic units depends, again, on how well they manage to survive and replicate as patterns of thought or behaviour. How well memes can be represented in the mind of the (usually but not exclusively human) organism is critical for their survival. Their replication depends upon how well they can be transferred from mind to mind, and how well they ‘stick’ once transferred. Thus the overall fitness of memes depends desperately on how well they capitalize on the cognitive environment they find themselves developing in.

Languages, for example, could be considered sets of memes. Decades of intensive study have shown us that, while there can be tremendous variation globally, what can survive and thrive as a language is limited by the mind’s own biological adaptations. A universal grammar, for instance, constrains syntax (Chomsky, 1965). Languages that betray these rules will find, in minds, unreceptive hosts; these memes will not survive.

The fitness of language memes is also constrained by culture. After an initial window of under a year, infants' minds lose the ability differentiate certain phonemes – *l* and *r* in Japanese for example, or *dal* from *dhal* in English (Werker and Tees, 1984). Again, for the success of these memes they must be easily transferred and adopted by new hosts. A culture comprised of initially unilingual Japanese speakers will be a much less fertile environment for memes exploiting the *l-r* difference than one of native English speakers.

### *Religious Selection*

Religions themselves, survive on the successes both of their host cultural groups, and the memes that make them up. While all operating at different levels of selection, memetic, religious and group selection are by no means independent. The case of the Shakers illustrates this well.

In 1774, under the pretense that she was the second coming of Christ, an Englishwoman named Ann Lee led a group of Quakers to the American colonies to escape the persecution they experienced at home (Foster, 1987). Ann Lee, who came to be known as Mother Ann, was a strong believer both in the equality of the sexes and in celibacy. Seeing carnal lust as the source of all evil, she decreed that her flock, which came to be known as the Shakers, would live sex segregated and fully chaste lives. This proved, eventually, to be maladaptive both on a memetic and a group level. Firstly, cultures with population-wide celibacy norms have, theoretically, non-existent birth rates. This already dramatically reduces the possibility of that culture expanding or even sustaining their numbers. The Shakers relied upon adoption and conversion for these ends and, though it initially worked to some extent, by the mid-19<sup>th</sup> century, their numbers

were on the decline and they could no longer compete with neighbouring sects for the souls of the population. Part of the reason for this was the unattractiveness of the celibacy meme – one of the defining features of Shakerism. *Natural* selection has endowed all creatures with a drive and need for reproduction. A meme which directly and unqualifiedly contradicts this drive is one with an uphill battle for replication. It is largely incompatible with the cognitive architecture it requires for its propagation. Without the success of its host – the Shaker *group*, or the success of its central meme (of which it *is* host), the Shaker *religion* has not flourished. Its numbers have been reduced to a mere handful – four at last count – living in Maine.

The example demonstrates how the fitness of religion is dependent upon the fitness of both the group of which it is part, and of the memes that make it up. The selection of all three – group, religion and meme – are tightly related. The fitness of memes determine which religions can develop, the fitness of the religions affect the survival of the groups and the extant groups determine, to a large extent, the environments that memes find themselves adapting to. Natural selection, as we have seen, also places constraints on the memes, groups and religions that can develop. These influences also, to a greater or lesser extent, run bi-directionally, each forcing the others to adapt along with it, coevolutionarily. Among the most interesting instances of this complex web of interrelated evolution, is that of morality, especially the bidirectional relationship between morality and religion.

## **The Evolution of Morality and Religion**

### *The Problem of Large Groups*

Between 12,000 and 10,000 BCE, just prior to the end of the Pleistocene, the town of Jericho was settled. Uncovered in the 1930s by Dorothy Garrod, there was no mistaking that Jericho was a 'town' – consisting of seventy buildings which together housed as many as a thousand people. The size of the settlement and the grandiosity of its architecture was unprecedented (Watson, 2005). Prior to Jericho, the largest groups of humans resided in the pre-agricultural villages of the Natufians. These villages were usually made up of a maximum of five or six houses, and estimations of their populations generally vary between 100 and 200 people, never exceeding 300 (Cauvin, 1999). The burgeoning population densities in places such as Jericho would have faced a food crisis, which was solved by the agricultural revolution, but in numbers that large they also would have faced a crisis of cooperation.

Group sizes in most social organisms are limited by the emergence of non-reciprocating defectors. That is, the stability of socially cohesive groups of organisms is compromised by the presence of members who exploit the benefits of group living without contributing. To be evolutionarily viable, social organisms must evolve to have features which minimize the threat of defectors. Evolutionary theorists have pointed to two main ways in which organisms manage social living without compromising their genetic fitness to defectors – kin selection, by which groups of related organisms interact in the interest of the propagation of their shared genes (Hamilton, 1964), and direct reciprocal altruism, whereby organisms trade favours on a tit-for-tat basis (Trivers, 1971).

These strategies are, however, insufficient in explaining the massive groups that characterize human societies. Kin selection can only sustain groups as large as the amount of genetic relatedness permits. This makes it ideal for, say, bees who, as a result

of all having the same mother, share at least 25% of their genetic material. The ‘litter size’ of humans, however, makes kin selection unfeasible for sustaining large groups. Direct reciprocity is itself limited, not by genetic relatedness, but by the cognitive capacity of the organism. In order to monitor the reciprocal relationships, organisms need to be able to, not only recognize the other individuals, but also remember their relationship with each of those individuals and detect when these relationships have become imbalanced. All of these processes require increasingly sophisticated cognitive systems.

Dunbar (2003) has demonstrated a direct positive correlation across species between average group size on the one hand and, on the other, the size of the species’ neocortex – what he proposes is a ‘social computer’. The larger this social computer, he suggests, the larger the number of individuals that any given organism can know well. Beyond this number, unfamiliarity abounds, trust disintegrates, reciprocity is compromised and groups divide or collapse. But the maximum group size that the human neocortex should support, according to Dunbar, is under 150 – a far cry from the 1,000 of 10,000BCE Jericho, the 500,000 of 3,000BCE Greater Ur, or the 8 million of modern Manhattan. Here, in hindsight, lies a “problem” – the problem of large groups – that has since been “solved”.

Some adaptation(s) allowed humans to function in groups sizeable enough to exceed the number of people they could know well. Some adaptation(s) minimized the threat of defection to a large enough extent to permit communities well beyond 150 members. Many have suggested that the prime contender for this solution was the cultural invention of religion (Irons, 1991). By, in Dennett’s (2006) terms, ‘reverse-engineering’ modern

beliefs and practices, we can find several facets of religion that would have facilitated large group living.

For one, this solution would have introduced the threat of omniscient supernatural watchers – monitoring agents that would be able to see into the otherwise anonymous actions, and sometimes hearts, of men. The punishments of restricted cooperation and eventual social ostracism doled out by the group would be replaced by the threat, promised by some unseen Being, of ending up on the wrong side of fate, karma, or St. Peter's gates.

Another feature of religion conducive to large groups is the ease at which members can be herded towards a common moral goal, thereby extending the self beyond the individual, and to the entire teleologically homogenous collective. Kin selection works on the premise that agents are evolutionarily interested in the wellbeing of their genes. Thus, they will be willing to sacrifice some degree of self-interest in the name of *gene*-interest. Religion has had a tendency to extend the self passed the family unit and into the parish unit. Bound together in spiritual communion, individual self-interest gave way to parish-interest.

Related to this is the concept of costly commitment. Demonstrations of commitment to most religions – such as participation in rituals, prayer, or tithing – are sufficiently elaborate and costly so as to be difficult to fake. Symbols of religious commitment can thus be trusted as honest signals of true belief and true belief can be trusted as a proxy for certain traits conducive to cooperation – respect for certain religiously enforced norms, concern for divine moral arbitration, loyalty to the community<sup>vi</sup>. This is an example of what Bowles and Gintis (2001) describe as “low cost access to information about other

community members” (p.345). For trust and reciprocity to take hold, you no longer need to keep track of everyone’s reputation, you only need to know that they are religious. This is made all the easier by the long history of making the non-religious social pariahs. If *they* don’t fear God, goes the reasoning, you should fear *them*. Minimizing their social presence minimizes perceived threats of defection. Hence, the hostility.

The benefits of large groups, once established, were manifold and dramatic – increased agricultural efficiency, greater protection and safety from external threats, functional division of labour, greater mating opportunities, wider and more extensive distributed cognition- in short, civilization. Religions lacking the memes fostering cooperation, or worse, with memes that divided communities, were maladaptive, and societies carrying these deleterious mutations left few descendents. Religions whose memetic makeups were conducive to cooperation, on the other hand fostered larger group sizes, and all units of selection – the memetic, religious and group – prospered as a result.

While religion paved the way for civilization, civilization allowed the spread and increased complexity of religion memes. Each shaped the cultural evolution of the other. And each was forced to continuously adapt to the latest incantation of the other. The flux and dynamism of the process meant that those religions – and civilizations – that did not keep pace and did not adapt, were weeded out by the selective pressures. Different cultural environments, constantly emerging all over the globe, posed new problems which themselves required new and uniquely adaptive solutions.

*The Context Specificity of Adaptations*

During the Glorious Revolution of late 17<sup>th</sup> century England, there was a huge proliferation of different radical religious sects – a veritable Cambrian explosion of cultural organism, to take the metaphor perhaps a little too far. In addition to the Presbyterians, there emerged the Diggers, the Levelers, the Ranters, the Fifth Monarchy Men and, notably, the Quakers. Each began attracting its own cadre of followers. But the reinstating of the Church of England under Charles II hastened an early death for the vast majority of these sects. Only the Quakers survived. And the reason they survived was that their founder, George Fox, had ascribed them with the doctrine of total pacifism. So while the King's enforcers actively extinguished all the competing radical religious sects, they left the Quakers alone, on account of their harmlessness. Left them alone long enough for them to gain a foothold, and eventually flourish, in a New World under the influence of their most famous convert, William Pitt. Pacifism, it turned out, had been the adaptive trait that made Quakerism fit. But just as in biological evolution, a trait is only deemed adaptive with reference to its particular environment. In another environment, pacifism could be quite *maladaptive*. Consider the political climate in which the Tibetan Buddhists find themselves. Green camouflage only works when your surroundings are green.

The context specificity of adaptations is an important point to remember in any discussion of biological or cultural evolution. Processes of selection based on randomness are fantastically clever, but famously myopic. The cultural traits that we see now exist not because they work but because they *have* worked. There is nothing about them, save their past success, which requires them to be the best, or even a good, solution to today's

problems. And while cultural adaptations are generally more malleable and faster responding than biological ones, there is, nonetheless, often considerable lag time.

A globalized world, where formally isolated populations are not only able, but required to interact, poses unforeseen challenges to many of the solutions that were developed to sustain these communities when they were segregated – including exclusionary, intolerant religions. With a few notable exceptions, most of the world's major religions appear to have little room for tolerant pluralism. A number of theorists (eg, Stark and Finke, 2000, Bowles and Gintis, 2001) have suggested that such out-group derogation is a systematic design feature of extant religions, arguing that harmony among *us* is bought at the cost of antipathy towards *them*.

While this may have been highly adaptive in the past, the cultural environment has changed. Not only are there more interactions – including interactions requiring trust and cooperation – between geographically disparate cultures with different faiths, there are people of multiple faiths interacting within the same geographical locations. Without some degree of pluralistic trust cutting across faiths, these interactions will be stifled by refusals to cooperate or, worse, ridden with defection. Moreover, in-group chauvinism which was previously adaptive in binding together homogenous groups of people, may now prove quite maladaptive in a world where violent demonstrations of out-group intolerance are met with costly sanctions or costly, and often fatal, retaliation. For any religion to survive and thrive in this kind of cultural environment, one presumes that it will have to evolve some level of tolerance for the multiplicity of faiths that its members encounter.

It is very important, then, to understand how cooperatively and prosocially people of all ranges of beliefs react to strangers who themselves could hold any belief. The subsequent set of studies is directed towards this question, as well as better understanding the psychological mechanisms by which religion may induce cooperative behaviour. As stated before, most prior research on religion and altruism has failed to adequately address these problems. Much has been based on generally invalid self-report data, for example, Fredrichs (1960) found a positive correlation between self-reported charitable action and belief in God. Moreover, Langford and Langford (1974) report the results of a 1973 Gallup poll demonstrating that while almost 60% of consistent churchgoers reported ‘almost always’ taking concrete action on the behalf of others, just over 30% of infrequent or non-churchgoers said the same thing. While this is certainly a large effect, studies based on behavioural measures of altruism have not supported these conclusions, and have instead provided mixed, and often null, results. But even these studies (e.g. Batson and Gray, 1981; Batson et al. 1989; Brent, 1989, Ruffle and Sosis, 2003), have still only used self-reported religiosity as their dependent measure.

Very few studies that we know about actually involved inducing supernatural beliefs as a causal factor. Bering (2003) inhibited children’s tendencies to cheat at a particular task by telling them that an invisible agent – Princess Alice – is in the room with them. Even college students who were casually told that a ghost had been spotted in their private testing room were less willing to cheat on a computer task than those told nothing about the ghost (Bering, in press).

Though certainly topical, neither of these studies deals directly with religion, or with the social realm of morality – prosociality and selfishness – that we are especially

interested in. Our research includes two innovations that will, hopefully, expand our understanding of how religion does actually affect moral behaviour in the social domain. First, to circumvent the problems associated with correlational designs, we have developed an priming technique that subtly and implicitly invokes religious thinking in our participants. This allows us to observe how religious thinking causally effects participants of all varieties of belief. Second, in place of self-report methodologies for assessing moral behaviour, we are using the Dictator Game – a well researched tool in both psychology and economics – in a strictly controlled setting with real monetary consequences.

We thus present three studies which aim to induce religious thinking as a causal factor and study the subsequent effects on prosocial behaviour and emotions. For comparison, the last two studies also attempt to induce conceptions of secular systems of ethics. Following description of the studies, is an in-depth discussion of the mechanisms involved as well as the issues provoked.

## **Study One**

### **Overview**

To investigate the causal effect of religious concepts on the prosocial behaviour of people of varied beliefs and religious orientation, we used an implicit priming technique to selectively arouse supernatural concepts in half our participants. Subsequently, their behaviour in a cooperative pool game assessing prosocial decision making was assessed.

## **Participants**

63 participants were recruited through posters at the University of British Columbia and randomly assigned to either the religious prime, or no-prime condition. 13 participants, 6 in the primed group and 7 in the control, were dropped from analysis because they either misunderstood the directions or had suspicions regarding the experiment's confederate (see below). These dropped participants were statistically no different on any of the personality or belief scales. Of the 50 that were analyzed, (34 of them female), 26 indicated identification with a religion and 24 did not. Ages ranged from 18 to 43 with a mean age of 21. Nineteen identified themselves as Christians, 4 as Buddhists, 2 as Jews, 1 as a Muslim. Of the remaining 24, 19 were identified as atheists, and 5 as theists without an organized religion.

All participants were given the money they chose in the dictator game, plus another five dollars for their participation.

## **Methods**

Upon arriving at the lab, participants were told that the current study was a two person experiment and that they would have to wait for the other participant, whose arrival was staggered so as to ensure anonymity. The first and second participant, actually a confederate, were kept in separate rooms by themselves for the duration of the experiment, again to preserve anonymity. The original participant was assigned to the 'giver' condition of the anonymous dictator game by an apparently random, but actually rigged, selection process and given a lockable case (with key) containing (a) the questionnaire materials for both the giver and receiver and (b) ten Canadian dollar coins.

S/He was then instructed to follow the directions laid out in the ‘giver’ package which contained the religious prime (for half the subjects), directions for the anonymous dictator game, a manipulation check, and finally measures of religiosity and demographic information. Each of these is described in the following section.

Once the participant had completed the decision making task and the questionnaires, he was instructed to place all materials inside a sealed envelope which went inside the locked case. Participants were told that the case would be given directly to the second participant. In reality, the case was kept by the experimenter as the participant was fully debriefed about all aspects of the study – including the deception – and then asked standard questions probing for suspicions. If participants had any suspicions about the existence of the receiver, or the anonymity of their behaviour, they were dropped from analysis. All participants were given a five dollar honorarium in addition to the money they kept, and were dismissed.

## **Materials**

### *Religious Priming*

The method of priming that was used was introduced by Srull and Wyer (1979) and has been used to great success by Bargh and colleagues (e.g. Bargh, Chen and Burrows, 1996; Bargh et al., 1995). The prime consists of five-word scrambled sentences out of which a four word logical sentence must be created. Of the ten scrambled sentences given, five contained words that, when taken together, related to the concept that was being primed. The words in this case were *spirit*, *divine*, *sacred*, *God* and *prophet*. The actual sentences are reproduced in appendix A<sub>1</sub>.

### *The Dictator Game*

The Dictator Game is a part of a family of bargaining and decision making games known as collective-pool games. These games involve the splitting of a finite set of resources between two or more players. The Dictator Game places all the decision making authority with one player – the Giver. The Giver’s role is to divide the provided resources between himself and the other participant however he sees fit. This game was chosen because, unlike other collective-pool games like the ultimatum game, the decisions made in this game rely solely on the ‘charity’ of the Giver and not on any expectations, trust, or fear of recourse from the Receiver.

In the current study, perceived anonymity for the Giver was paramount. Thus, pains were taken to convey privacy in all decisions. Since these games are very responsive to phrasing, the direction given to the Giver in his questionnaire package are reproduced in full,

You have been chosen as the **giver** in this economic decision making task.

In this case you will find 10 one dollar coins. Your role is to take **and keep** as many of these coins as you would like, knowing that however many you leave, if any, will be given to the receiver participant to keep.

Remember, your identity will remain anonymous from the receiver and your decision on how much money you take will remain unknown to the experimenter. You will lock the case once you have completed the tasks and

it will be delivered directly to the other subject when he or she arrives, who has the only other key. You will also be dismissed before the other subject arrives, so as to prevent any contact between the two of you. [emphasis in the original]

### *Manipulation Check*

To gauge the effectiveness of the primes, a standard word completion task was used. Strings of letters were interspersed with letter omissions that allowed the strings to be completed in different ways to form different words. The tendency to complete these strings with words relating to religion, rather than other words, was our variable of interest.

### *Other Measures*

To assess strength of the religious beliefs of participants, we used a simple 7-point Likert scale asking participant to rate how much they believed in a god or deities, as well as a more involved scale, known as the Hoge Scale of Intrinsic Religiosity (HSIR) (Hoge, 1972). The HSIR contains ten items and correlated strongly with our single question of belief in god or other deities ( $r = 0.80$ ). Finally a standard demographics form was used in order to obtain more information about the sex, ethnicity, nationality and, if any, the sectarian identification our sample.

## **Results and Discussion**

Those exposed to the religious primes did take much less money in the Dictator Game than those without the prime. Means were calculated for the total amount of money, out of ten, that was taken by participants in the two conditions. Previous research has demonstrated that the majority of givers act selfishly in this anonymous game, leaving little or no money for the receiver. This selfish tendency was confirmed in the control condition of our study. Those with no prime offered, on average, \$2.84, with 13 out of 25 offering or less, only 3 out of 25 offering \$5 and none offering less (see figure A). Those who were primed with supernatural concepts offered, on average, \$5.78, with 16 out of 25 offering \$5 or more (see figure B) and yielding a considerable difference of \$2.38 ( $t(48)=3.69$ ,  $p<.001$ ,  $\text{cohen's } d=1.04$ ) between the groups as determined by an independent samples t-test (see table 1).

Subsequently examining the effect by belief, we found that the main effect was present for both theists (prime-control difference of \$1.88,  $t(29)=2.25$ ,  $p=.032$ ,  $d=0.84$ ) and atheists (prime-control difference of \$2.95,  $t(17)=2.70$ ,  $p=.015$ ,  $d=1.31$ ). Although unprimed atheists offered slightly less than theists, this trend was not statistically significant (\$0.97,  $t(23)=1.34$ ,  $p=.19$ ,  $ns$ ). Neither self-reported belief in god nor self-reported religiosity, as a continuous measure, was not a good predictor of how much participants offered in the unprimed control condition ( $r(24)=.13$ ,  $p=.52$ ,  $ns$ , and  $r(24)=-.22$ ,  $p=.29$ ,  $ns$ , respectively) (see table 2). However, there was a religiosity by prime interaction ( $F(1, 46) = 3.48$ ,  $p=.07$ ). Counter to common intuition, the mitigating effect of religious priming on selfish behavior was greatest among people who reported identifying with a religion but nevertheless scored lower on scales of religiosity – a \$3.58 difference for those who reported low religiosity ( $p<.001$ ,  $d=1.92$ ) compared to a \$1.26

difference among those who reported strong religiosity ( $p=.18$ , *ns*). This difference may be accounted for by the possibility that people who are highly religious are, through constant exposure, inoculated from religious priming.

Neither age, nor sex showed any significant relationship with how much money was taken ( $ps = .684$  and  $.518$  respectively). The manipulation check worked only marginally ( $t(47)=1.64$ ,  $p=.11$ ), possibly due to interference caused by the Dictator Game.

To summarize, religiously primed participants, in accordance with expectations, acted more prosocially and less selfishly than did participants who were not primed at all. Somewhat surprisingly, however, this phenomenon held regardless of whether the participant was an atheist or a theist. The implicit religious prime proved to be much more effective at promoting selfish behaviour than did explicit religious belief.

## Study Two

### Overview

In order to obtain a more externally valid sample of the general population, we sought to replicate the findings of the first study using a sample of participants from the larger community. In addition, we made some changes to the methodology surrounding the Dictator Game in hopes of reducing suspicion. Finally, and importantly, we introduced a secular ‘civic duty’ prime as well a neutral prime to replace the no-prime condition.

### Participants

99 participants were recruited via posters put around Vancouver and advertisement placed in a local newspaper. The ads called for participants for a psychology study entitled *Economic Decision Making* and gave no specific requirements. Of the 99, 24 participants were dropped from analysis for suspicions or misunderstanding of the directions. These participants did not differ on any measures of belief or personality. Of the 75 that were analyzed, (40 female), 25 identified as Christians and 3 as Jews. Of the remaining 47 who did not indicate a religious affiliation, 21 reported being 'spiritual,' 22 reported being 'agnostics' or 'atheists', and 4 declined to answer. Ages ranged from 17 to 82 with a mean age of 44. All participants were given the full ten dollars from the Dictator Game, plus an additional \$20 honorarium for their participation.

## **Methods**

Appointments were set up with participants via either phone or email. Upon arrival, participants were led into a private room, given the informed consent form to read, and subsequently asked to confirm their informed consent by signing in on a provided sheet. The sheet also determined which condition they would be in - the 'giver' or 'receiver'. Each entry line alternated condition, so that every odd participant was a giver, and every even participant a receiver. In reality, the names on the even, receiver lines were all made up, ensuring that each participant was a giver, but was under the impression that this assignment was due only to the order of their appointment.

After signing in, participants were given the lockable case from study one, again with the receiver and giver packages, instructed that, as a giver, they should remove only the

giver package and complete all tasks described therein in private. The experimenter then left the room, closing the door behind him.

All participants started with the priming task, in either the religious, secular or control prime. In order to avoid experimenter bias, the experimenter remained blind to which condition the participant was in for the duration of the testing phase. Following completion of the primes, participants completed, in order, the anonymous Dictator Game task, the PANAS, the demographics form, a manipulation check, a suspicion check, and finally some relevant questions on religious beliefs.

Upon completion of all tasks, the questionnaire package instructed participants to put the package inside the provided envelope, put the sealed envelope inside the case, lock the case and call for their experimenter. They were then fully debriefed regarding the true aims of their experimenter, paid their honorarium and dismissed.

## **Materials**

Many of the materials were identical to those used in the first study with the exception of the introduction of the PANAS, the introduction of the new primes, and two small modifications made to the instructions to the Dictator Game and the demographics form, respectively. Since the Dictator Game was adjusted to reduce suspicion, the text was redressed to indicate that the receiver would be the subsequent participant to come in for the study rather than a concurrent participant. On the demographics form, questions about employment and income level were added to gather information that was not of great concern with the previous student based sample.

The religious prime was the same as that from study one, but a neutral prime as added in lieu of the no-prime control condition (appendix A<sub>3</sub>), and a secular ‘civic duty’ prime was added with the target words *civic*, *jury*, *court*, *police*, and *contract* (appendix A<sub>2</sub>).

The Positive and Negative Affect Schedule (PANAS) (Watson et al. 1988) was added to better understand the emotional effects of the primes. It was modified slightly from its original form to measure the *current* self-assessment of a variety of positive and negative affects such as ‘jittery’ or ‘interested’. Participants were instructed to determine on a scale of 6 how much they felt that way with 1 being “very slightly or not at all” and 6 being “extremely”. We were particularly interested in the measures of guilt, shame and fear in response to religious priming.

## Results and Discussion

The main effect from the first study was replicated. Participants in the religious condition offered an average of \$4.56, while those in the control condition offered \$2.56, resulting in a \$2.00 difference ( $t(48)=2.47, p<.02, d=.71$ ) (see Figure C). Due perhaps to the more heterogeneous sample, there was much greater variance in the amount of money offered than there was in the first study (see Figure D). Note that as in Study 1, the religious prime shifted the modal response from selfishness to fairness. A higher proportion of participants behaved selfishly (offering nothing) in the control condition (40%) than in the religious condition (12%), whereas a higher proportion behaved fairly (offering exactly \$5) in the religious condition (44%) than in the control condition (28%) ( $\chi^2(N=31)=4.4, p=.036$ ).

The secular prime, meanwhile, had nearly as large an effect as the religious one. These participants left, on average, \$4.44, or \$1.88 more than those in the control condition ( $t(48)=2.29, p<.03, d=.67$ ).

This study demonstrates, then, that the prosocial effect of the religious prime is not limited to college students, but is in fact robust across a much more diverse sample. Moreover, since a neutral prime was used in the control condition, we can further rule out the unlikely possibility that the effect of religious concepts on prosocial behavior is an artifact of the priming procedure itself. Finally, we showed that these types of selfishness restraining effects of religious suggestion are as strong as implicit activation of concepts related to secular moral institutions. The psychological mechanisms by which the religious prime encouraged participants to act more selflessly, however, have yet to be determined. Study 3 investigated these mechanisms.

The manipulation check for the religious prime was, again, only in the right direction ( $t(39)=1.413, p=.17$ ). For the secular prime, however, it was more robust ( $t(39)=2.13, p=.04$ ).

### **Study Three**

#### **Overview**

To obtain more information about the effects of the religious and secular primes on emotional and attitudinal dispositions, without interference from the Dictator Game, we gave students simple questionnaires packages which primed them with one of the three conditions and then asked them to fill out a battery of relevant dependent measures.

## **Participants**

65 students (40 female) participated in a questionnaire study in exchange for course credit. Participants were randomly assigned to three conditions: 21 in the religious prime condition, 20 in the secular prime, and 24 in the neutral prime. Seventeen identified as Christians, 4 as Buddhists, 2 as Sikhs, 1 as a Jew and 1 as a Muslim. Of the remaining 39, 9 considered themselves 'spiritual', 19 as 'agnostics' or 'atheists' and 1 declined to answer. Ages ( $M=21$ ) ranged from 18 to 40. No participant was dropped from analysis. All gave informed consent and were compensated with partial course credit.

## **Methods**

Participants picked up questionnaire packages from the lab. 16 of the participants then completed the questionnaires in a private room within the lab, while the other 49 were instructed to complete the questionnaire on their own in one sitting, privately and without distractions. There were no significant differences between the two groups on any of the variables of interest. Following completion of the questionnaire, all participants were debriefed in the lab about the purposes of the study, given their credit and dismissed.

## **Materials**

The questionnaire package contained the prime, followed by the PANAS, the IRI, a standard demographics form, a manipulation check and some questions concerning their religious beliefs. The primes were the same as the ones used in the second study.

New for this study, the Interpersonal Reactivity Index (IRI) (Davis, 1980) is widely used as a general measure for interpersonal differences in empathy. Comprised of four subscales measuring empathic concern, perspective taking, fantasy and personal distress, it asks participants to rate their agreement with statements such as “I often have tender, concerned feelings for people less fortunate than me” on 7 point Likert scales.

## Results and Discussion

Self-reported religiosity (theists vs. atheists) did not interact with the effect of the primes for any of the measures reported here (all  $p$ 's > .30); therefore we present the main effect of the primes for each measure. For the PANAS variables, one-way ANOVAs with contrast tests indicated that there was a significant difference in self-reported feelings of guilt between religion and the control condition for guilt ( $t(42)=2.51$ ,  $p<.02$ ,  $d=.77$ ). There was also a very strong effect for alertness, with those receiving the religious prime reported higher level than those in control condition ( $t(42)=3.5$ ,  $p<.001$ ,  $d=1.1$ ). Those receiving the secular prime generally responded no differently from the control prime on any of the affective measures, with the exception of alertness where there was a marginal effect ( $t(42)=1.72$ ,  $p<.10$ ).

Interestingly, there were no significant differences between the groups on our measures of support for charity ( $F(35)=.52$ ,  $p=.60$ ,  $ns$ ), positive affect ( $F(55)=.24$ ,  $p=.79$ ,  $ns$ ), negative affect ( $F(57)=.41$ ,  $p=.69$ ,  $ns$ ) or empathic concern ( $F(60)=.44$ ,  $p=.65$ ,  $ns$ ) (These results are all summarized in Tables 3 and 4). In fact, the only difference of note on any of the measures of empathy was that religious condition participants *more* positively supported the statement *If I'm sure I'm right about something, I don't waste*

*much time listening to other people's arguments* than were those in control condition ( $t(48)=2.14, p=.04, d=.66$ ) (see figure F). Given that this is not a spurious result, it might illuminate some of the costs that come with the prosocial benefits of religion, namely that, in the face of religion, people may become less selfish, but more narrow-minded.

In summary, the religious prime seemed to make people feel guiltier, even in absence of any decision making tasks. In addition, it tended to make people report more alertness and report being more closed mindedness to arguments. It did not increase positive or negative affect, feelings of charity or feelings of empathy. Finally, the secular prime had little effect on the measures we used, save making participants feel slightly more alert. What these data mean, in terms of explanations for the prosocial effect we saw in the first two studies is discussed more fully in the following section.

## **General Discussion**

*When I do good, I feel good; when I do bad, I feel bad. That's my religion.*

– Abraham Lincoln

### **Possible Mechanisms**

By what mechanisms does the priming of religious concepts lead participants to behave more prosocially? We have three main possibilities under our consideration – (a) the primes induce an automatic association with an internalized moral code; (b) the primes automatically make more salient emotions relevant to cooperative behaviour and

(c) the primes arouse the presence of a supernatural watcher. None of these, it should be mentioned, is mutually incompatible. Religions are complex sets of memes, and many different memes may have developed in interactive ways over the ages to encourage prosociality.

### *Internalized Moral Codes*

People may have an internalized moral code tied so tightly to religion that the mere unconscious activation of religious concepts activates these feelings of right and wrong, thus *reminding* people to do good. Social norms are learned very young and often in conjunction with religious stories and sermons. Even for the minority who are raised without religion at home, there is ample exposure to the moralistic sides of religions in most societies. Years of this continuously reinforced connection would create an automatic association between any religious imagery or conception and the normative, moralistic teachings one has acquired. The subtle arousal of religious thoughts, even outside of explicit awareness, should be sufficient to activate this normative mental framework as well. While the default position may be one of self-interest and profit, as demonstrated by the behaviour of participants in the control condition of study one, a fairness norm may be just under the surface ready to dominate the mental space if only given a small boost of activation strength.

### *Emotional Salience*

Along the same lines is the explanation that religion encourages moral behaviour by intensifying the emotions that foster cooperative behaviour. For example, it is possible

that religion induces guilt, and guilt causes people to believe less selfishly. The latter half of the equation enjoys strong empirical support (Ketelaar and Tung Au, in press).

Meanwhile, study three in the current set demonstrated that the implicit religious primes cause self-reported guilt to increase in comparison to the secular and control primes – a finding that seems to intuitively fit certain religious stereotypes. Study two demonstrated that people who were primed with religion, to a much greater extent than in the other two conditions, felt guilt more acutely, the more money they took.

Guilt, itself, is an emotion that is elicited when the agent has done something they know to be wrong – be it intentional or otherwise, from a simple norm violation to a defection in a relationship (Fessler and Haley, in press). Its purpose, conceivably, is to encourage social harmony by placing costs on defection – not only will you face the ire of the slighted party, but you yourself will be eaten inside by the negative valence of guilt. If religion managed to exacerbate the feelings of guilt – as it seems to be doing – it would likewise be increasing the costs of defection. In economic language, religion would be said to be adding disutility to unfair decisions – rendering selfish behaviour aversive and tilting the (still self-interested) cost/benefit analysis closer to cooperation (Fehr and Schmidt, 1999).

The flipside of guilt is righteousness – the positively valenced emotion elicited when an agent does something they feel is right. Instead of placing disutility on unfair decisions, righteousness adds utility to fair ones – making them more attractive, despite the possibility of reduced personal gain. We had no measure of righteousness, though the highly significant results we found for strength and inspiration may be seen as a loose proxy. It is possible that, just as religion makes guilt more salient, thus placing greater

costs on defection, it also makes righteousness more salient, placing greater benefits on cooperation.

Empathy is another important emotion involved in cooperative behaviour, and is intuitively another likely mechanism that religion could capitalize on to foster such behaviour. However, our use of the IRI as a general empathy measure found no evidence that the religious primes increased empathic feelings. Nor was there any increase in support for charity.

### *The Supernatural Watcher*

The third possibility is that the priming of religious concepts subtly rouses into peoples' minds the presence of a supernatural watcher. There is some circumstantial evidence to suggest that this may be the case. The Dictator Game has been shown to be very sensitive to variables that might compromise anonymity (Hoffman et al. 1994) with participants keeping more money for themselves the more they believe their decisions will be private. This is unsurprising considering the importance of reputation, especially in the context of fairness norms. It is reasonable to assume that, in such situations, a hair triggered agency detection system (Atran and Norenzayan, 2004) might become even more hyper-active, as the cost of a Type II error increases. A recent experiment (Haley and Fessler, 2005) found that even so subtle a cue as stylized eyespots on the computer background had a small, but significant effect in reducing the amount of money that was taken in the Dictator Game. Bering's (in press) study mentioned above is also relevant. If casual information about the presence of a ghost could reduce cheating, it is very plausible that rousing belief in a supernatural watcher could produce similar effects.

The fact that, in the current research, the religious primes (which mention God and spirit), activated feelings of nervousness in response to selfish behaviour and guilt with or without any decision making, while the secular primes (which mention police, court and jury) did not, is also quite suggestive of the influence of an omniscient and judgmental deity.

If true, this explanation is consistent with theories stating that the cultural concept of a supernatural watcher was adaptive because it curtailed selfish behaviour even in anonymous situations where individuals could act with social impunity – a phenomenon that went a long way towards reducing social cheating, and thus promoting the stability and cohesion of large scale societies.

#### *Discounting Other Explanations*

While the data we have collected allow us to speculate about what mechanisms may be contributing to the effects that have been demonstrated, they also lead us towards discount other possibilities. Two intuitive alternative explanations are that religion increases either general positive affect or feelings of empathy, and one of these, or both, then contribute to more cooperative behaviour. Certainly, many studies have demonstrated connections between both of these factors and helping behaviour (Cialdini & Kenrick, 1976; Batson & Oleson, 1991, respectively). However, the measures we used – the PANAS and IRI – yielded nothing that would support the premise that the religious prime we were using increased either factor. As mentioned, all positive affect variables were non-significantly lower after participants completed the religious prime than after they completed control prime. Similarly, each of the subscales of the IRI, including

Empathic Disposition, yielded non-significant results. While null effects are not ideal for drawing conclusions, they do, in this case, suggest that the three aforementioned mechanisms are more likely.

### **The Problem of Unconscious Morality**

One of the commonalities between all three mechanisms we are suggesting is that all seem to imply a cynical and calculating approach to moral decision making. On the one hand, with regards to the internalized moral code or emotional manipulation hypotheses, religion compels us to behave prosocially almost as an operant conditioned response. We are rewarded with the positive affect of righteousness and punished with the negative affect of guilt. We may as well be bar-pressing.

The supernatural watcher theory seems worse; being good out fear of supernatural punishment or want of supernatural reward punishments is a sorry excuse for moral behaviour (e.g. Kant, 1785/1964). Ideally, moral behaviour should be guided out of respect for the norm – because it is good, not because of what it will achieve. Invoking the religious cost/benefit analysis is, as the philosopher Bernard Williams put it, “having one thought too many.” (quoted in Blackburn 2001, p. 16) But this attitude may betray a misunderstanding, albeit a common one, about the psychology underlying our moral decisions, namely the degree to which we have access to our motivations, and control over our behaviour.

That it was *implicit* primes, operating largely outside of consciousness, which stimulated people to act more prosocially raises some interesting questions along these lines. Since we, as experimenters, surreptitiously induced certain ways of thinking, can

the participant really be praised or blamed for their decisions? To what extent, really, were they *their* decisions?

Of course, the participants did *feel* their decisions were entirely their own; many provided protracted descriptions of their reasoning processes, either explaining their motivations for fairness, or justifying their selfishness. But how much can these explanations really be trusted? A century of psychology, and especially the last 20 years in social psychology, has shown us that the suggestion that people's reasons and motivations are transparent to them is suspect, at best (Wegner, 2002).

Even without delving too far into discussions of free will, it would be unreasonable to claim that the behaviour of the primed participants in this study was a case of pure, self-generated free will. Their decisions were covertly influenced, coerced even, by an externally administered psychological variable – a cognitive Trojan Horse. And since the only notable difference between these participants and those in the control condition was whether or not they were exposed to this variable, it is unreasonable to praise them for their more prosocial decision. But, to whom, then, is credit due? Who is responsible for the decision?

Partially, it is the participants themselves, but only partially. It wasn't them making the decision in the moment, but rather the aggregation of their decisions over the span of their lifetime that was involved. Their tendency to be swayed by the prime in that moment was the product of the mental associations (between religion and morality, or religion and guilt, or religion and supernatural watchers or whatever) that have been built up over years – Hebbian connections that have been strengthened through a thousand different events.

But responding to associations is only a proximate cause. The real source, the distal source, of those associations is in the religious meme itself. The moral decisions are not made by individuals, but made *exo-psychically* by the normative codes that have been honed over hundreds of generations. The decisions are made for us, and come prepackaged, so to speak, for implementation without conscious intervention, without rational thought, and without moral evaluation. Praise and blame are not then due to us, but to these ancient, but ever changing, ever evolving adaptations whose only ‘purpose’ is to keep themselves – and their host cultures – afloat. This is an important point. It demonstrates how intertwined our behaviour is with our cultures<sup>vii</sup> and how our decisions can be direct and unqualified extensions of our extant norms. Even for those atheists, who as individuals explicitly reject beliefs in supernatural creatures on a rational level, the norms associated with those beliefs guide their decisions. Our so-called moral behaviour is at least as much a product of religiously inspired memes as it is of our self-generated free will.

### **The Atheist Effect**

Notably, in the first and third, but not the second study, in all situations where there was as a large enough sample size to cleave atheists from theists, neither group seemed to act much differently from the other. This is especially interesting with regards to the main effect of the first study. That religious primes reduced selfish behaviour in people who identified with no religion, nor had a strong belief in a god or deities, calls for at least an attempt at an explanation. One possibility, and probably the most parsimonious, is that the religious primes remind atheists of the normative structure of their society. There is,

perhaps, an automatic and unconscious connection between religion and fair behaviour that they have learned either through their upbringing or from a society where court witnesses still swear in on a Bible. If this is the case, it could be a thought of as a good justification for keeping the Bible in that context.

Another, more intriguing, possibility is that, at an unconscious level where these primes are purported to be working, there are no such things as atheists. There is a convincing amount of literature making the case that a belief in supernatural agents is an indirect but nearly necessary product of a host of evolved cognitions (see e.g. Atran and Norenzayan, 2004). It is possible, even plausible, that we are natural born theists. Atheism would then represent an attempt to override underlying cognitive biases with rational and conscious thought. If this is the case, ones automatic reactions would be in line with religious belief, while only with the extra thought of conscious reflection would one resist that reaction.

Some empirical evidence is consistent with this suggestion. Bering (2005) showed that when asked to sign away their souls, even atheists were hesitant despite not (consciously) believing in a soul. Clearly, some underlying beliefs were interfering with their rational ones. That implicit religious belief may survive attempts at conscious override is a possibility with tantalizing consequences. Dennett (2006) proposes that a moral system based on a belief in supernatural agents “would be vulnerable to collapse if its credibility was threatened.” (p.282). This brings to mind Ivan Karamazov’s warning that with God dead, everything is permitted (Dostoevsky, 1958/1880), but what if this belief really was, at an unconscious level, unshakeable? What if God really *couldn't* die? Religiosity, we have seen, is not a sufficient condition for religiously inspired moral

behaviour, but perhaps it isn't a necessary condition either. The current data certainly support the possibility. Again, more research clearly needs to be done on this front. The Future Directions section below highlights some suggestions.

### **The Case for Religion – A Tentative Conclusion**

The key to cultural evolution, or any selection process for that matter, is that traits are not chosen by reason and design, but by trial and error. What this means for us, is that our culturally evolved traditions serve crucial purposes that may not be understood, or even apparent to us. Just as the rabbit has no rational understanding of the purposes of its sex-crazed ways, neither does the human being recognize how his religion is vital to sustaining his race. The religious moral tradition that has been honed through hundreds of generations may have done as much or more for the flourishing of our species than all of our reason and intellectual insight. Hayek captured this well,

Group selection thus does not primarily choose what the individuals recognize as serving their own ends, or what they desire. It will elect customs whose beneficial assistance to the survival of men are not perceived by individuals. The group thereby becomes dependent for the very survival of its increased numbers on the observance by its members of practices which they cannot rationally justify, and which may conflict with both their innate instincts on the one hand, and their intellectual insight on the other. (Hayek, 1984, p. 324)

The opacity to the individual of religion's true group-wide benefits directly contradicts Stark and Finke's (2000) rational-choice model of religion which attempts to show that religious adherents, far from being half-mad dupes, are rather reasonable agents making an economically viable choice. It is not by reason that the benefits of religious cooperation are accrued. Religion restrains our natural tendencies and offends our scientific understanding. In a world of cooperators, the optimal individual strategy is

defection, and yet religion compels each to cooperate anyway. Anonymity should free humans from concerns about retribution, and yet religion binds men into never feeling anonymous.

Religion is not a rational choice on the individual level. Reason drives us elsewhere. Through directed reasoning, philosophers have tried to ground our morals in other institutions. Hayek, again,

Hedonistic, utilitarian, or egalitarian morals, or conceptions like distributive justice, are all intellectual inventions which have never been tested and have never been shown that they improve, or even could secure, the preservation of the group. (Hayek, 1984, p.325)

The exclusive reliance on reason puts undue faith in the human mind. Belief that our best reasoning can always outdo the wisdom gleaned from thousand of years of blind experimentation vastly underestimates the limitations of our cognitive processes and our current bank of knowledge. When Dawkins and other critics of religion call for its eradication, they offer no viable replacement for its moral effects. To build, by reason, a functional moral system, would require a thorough and infallible understanding of, at least, social cognition, group dynamics, the emotions, and developmental, social and personality psychology. It would require an immense degree of insight and foresight. For cultural evolution to achieve the same feat, it would need no sight at all, only time enough to run through the permutations, to tinker and discard until it worked. An unquestioning belief in the power of reason is as arrogant as the appreciation of cultural adaptations is humbling.

But as much as this discussion makes a case against the exclusive use of reason, it is a case *for* religion. If religion, more than any other institute, encourages us to cooperate – its effectiveness perfected at the cost of death of a thousand less fit groups, and a million

less fit memes, if this benefit outweighs its costs in harm and misery, if religion *works*, then it deserves to be not only tolerated, but cherished, regardless of its veracity.

### **Limitations**

There are a few factors which have compromised our ability to give as complete an explanation of these phenomena as we would otherwise have liked. With the present priming methodology, we could not assess which of our explanations – the activation of the internalized moral code, the emotional salience, or of the supernatural watcher – was the active mechanism in religion's influence on prosocial behaviour. By priming religion in the way we did, as a broad concept, it is impossible to arouse one of the mechanisms to the exclusion of the other. Surgically activating cognitions relating to only one or the other of these mechanisms would be a challenge considering their conceptual overlap, but may be possible with the proper experimental design.

The inconsistency of the atheist effect allows constrains our ability to draw conclusions. Part of this difference may be due to a more stringent definition of atheism in the second study. Participants' identification with atheism was not a clear-cut issue. Many would claim to be an atheist, but at the same time report a not inconsiderable belief in God. Thus classification was an imprecise business. While this difference in classification by itself may not have accounted for the large discrepancy between the two studies, it does betray the need for a more thorough understanding of unbelief before any definitive conclusions can be drawn.

Another limitation is that, while it would make a compelling story to demonstrate that either secular concepts of civic duty, or supernatural concepts of religion have a stronger

effect on moral behaviour than the other, such a story could not be told with the current methodology. We have not demonstrated equality in the strength of the primes we are using. Any difference that the two primes induce is as likely to be a product of that particular prime working more effectively as it is the influence of the concept involved.

Finally, a major limitation with regards to our commenting on the social cohering effects of early religions is that we are not studying early religions, but only their most recent incarnations. Behaviour, it is famously said, doesn't fossilize. Speculations about past practices are pieced together from historical records, cultural artifacts and modern extrapolation. Since the era we are dealing with largely predates written history, historical records are only marginally useful. We can, for instance, read about the rise and fall of ancient religions, such as that of the Egyptians or the Mayans, but these are still modern compared to the crucial period human densification ten to twelve thousand years ago.

With regards to cultural artifacts, archaeological records do reveal an emergence of materials presumed to have religious significance contemporaneously with the rise of large scale group living (Cauvin, 2000). Though art had existed for thousands of years prior to sedentism, most famously demonstrated by the prehistoric cave paintings found in what is now France, it wasn't until just a few centuries prior to the population explosion that accompanied the agricultural revolution that there emerged unmistakably religious art depicting, for instance, the Goddess and the Bull. Though this co-incidence could be the result of a variety of factors, Cauvin (2000) makes a convincing case for a dramatic shift in human psychology indicating "an entirely new relationship of subordination between god and man" (p.69).

Our final tool for trying to uncover the behaviour of our ancient ancestors is extrapolating from current data and observation. This remains tricky. While our biological hardware has barely changed since pre-agricultural times, the cultural content has changed dramatically. The time separating us from the first large scale communities is three times as long as Judaism has existed, at least five times longer than Christianity has, and over twenty times longer than Protestantism. How are we meant to use modern religions for any insight?

One fruitful way is through comparative religions. If all modern major religion share the same characteristics, there are two possibilities explaining why. One is that all these religions stemmed from the same religion which carried this feature, another is that all have stumbled upon it independently. In either case, there is a reasonably strong chance that if all major religions currently posses a particular feature, then the religions of yore possessed or stumbled upon this trait themselves. A number of theorists have devoted considerable research to addressing the universally shared religious characteristics. Among them are moral codes encouraging cooperation.

### **Future Directions**

Both the methodology and content of the current studies open possibilities for interesting avenues of future investigation.

#### *Better Understanding the Mechanisms of Religiously Inspired Morality*

As noted in the limitations section, the current studies, as designed were not able to discern to any acceptable degree the mechanisms underlying the prosocial effects that

religious priming seems to be causing. More targeted methodologies may prove more enlightening in this regard. A more thorough measure of feelings of guilt, for example, might be used, just as we might introduce a measure of righteousness. Testing the supernatural watcher hypothesis by itself requires a precise methodology that surgically activates thoughts of supernatural watchers while minimizing associations with moral codes. This may ultimately prove impossible as the two may be inextricably linked. However, a possible approach would be to prime a foreign or ancient deity, like Zeus, who people recognize as omniscient but do not fear as a moral arbiter.

### *Better Understanding Atheism*

As mentioned before, the finding that atheists' response to the primes was indistinguishable from that of the believers in two of the three studies raises interesting questions about the nature of atheistic belief, or disbelief as it were. It is plausible that atheists maintain implicit beliefs in religious concepts at the same time as they hold their explicit disbeliefs of those same concepts. There are a few promising approaches to uncovering these implicit beliefs, should they exist.

The Implicit Associations Test (IAT) is a task devised to measure the mental associations between two categories (Greenwald, McGhee & Schwartz, 1998). The test operates on the assumption that concepts that are more strongly associated mentally are easier and thus faster to associate when prompted in the task. By asking participants to categorize various being of variable veracity, like the Easter Bunny, Zeus, God, and the President into categories of true or false, real or fake, one might find interesting differences.

Another method of investigating implicit beliefs is through physiological measures. Galvanic Skin Response (GSR), for instance, has been widely used to measure fluctuations in the conductance of skin that indicate emotional reactions (e.g. Damasio et al. 1991). These responses often betray emotions too subtle for conscious recognition. Demonstrating GSR responses by atheists to religious material could be considered a demonstration of an implicit belief.

Another avenue to examine is behaviour under cognitive load. Baumeister and colleagues (1998) have developed a methodology called ‘ego depletion’ wherein the consumption of conscious self-regulatory resources in one domain (such as resisting eating tempting desserts), leaves one depleted and unable to self-regulate as well in a different domain (like a verbal persistence task). If atheism is a rational, consciously expensive overriding of unconscious beliefs, one should find it harder to abide by atheist behaviours under ego-depletion.

Each of these suggestions needs, of course, much further elaboration. Methodologically, they must be cleverly and precisely designed to avoid alternative explanations, moreover operational definitions are needed for vague terms like ‘implicit belief’ and ‘atheist behaviours’. Nonetheless, the research program could teach us a lot about the nature of faith and religious belief – whether we are, as Thomas Edison said, ‘incurably religious’.

### *Better Understanding Cooperation*

Our measure of cooperation in the current set of studies was the behaviour exhibited in the Anonymous Dictator Game. We used this particular measure because it gives us a

quantifiable and continuous measure differentiating selfish from prosocial behaviour. However, cooperation, especially in the form that facilitates large scale group living, requires more than just concern for thy neighbour; it also requires trust that thy neighbour has similar concerns for you. Should religion's effects on cooperation operate, at least partly, by binding people together into parish-interested units rather than just self-interested units, we would expect our religious prime to increase, not only one's own prosocial tendencies, but trust in the prosocial tendencies of others as well. Empirically testing this hypothesis only requires replacing the Dictator Game with a Prisoner's Dilemma Game which offers players the opportunity to maximize their gain only if they can trust the other player not to defect.

This methodology also allows us to see how such religious differentially affects behaviour towards religious in-group and out-group members. While no information whatsoever was given to the participants about their 'receivers' in the current research, releasing selective information may change their decisions. It is possible, for example, that while the religious primes may compel religious in-group dyads to behave more cooperatively, it may have an opposite effect on out-group dyads. Alternatively, there may be no difference. Religion may communicate, however implicitly, a measure of universalism.

Whether the prosocial effects of religion are blind to creed and belief remains to be seen. This is a hypothesis that will play itself out in France and Chechnya and Palestine and all the areas around the globe where multiple faiths must coexist. The current data, it must be recognized, come from a small sample of Canadians, living in a liberal and progressive city. It may not generalize globally, but it is a start. The sample was very

diverse, with Buddhists and Jews, Catholics and Muslims, the very devout to the very atheistic. In such a mixed society as this one, religion still made people cooperate, it still *worked*. If anything, these data offer a prediction, some small amount of empirical validation, and hope.

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## TABLES AND FIGURES

Table 1. T-test differences between the religiously primed and unprimed groups in Study One. Overall, by belief and by religiosity.

Group	N	Prime-Control Difference	P-value	Cohen's d
<b>Overall</b>	50	\$2.38	.001	1.04
<b>Theists</b>	31	\$1.88	.032	.084
<b>Atheists</b>	19	\$2.95	.015	1.31
<b>High Religiosity</b>	24	\$1.26	.18	
<b>Low Religiosity</b>	22	\$3.58	<.001	

Table 2. Correlations between variables of interest and the amount of cash offered in the unprimed group of Study One.

Variable	r	p
<b>Age</b>	.06	0.79
<b>Belief in God</b>	.13	0.52
<b>Hoge Religiosity Scale</b>	.22	0.29
<b>Importance of Religion to Identity</b>	.15	.048

Tables 3 and 4

The Effect of the Religious and Secular Primes on various dependent measures (Study Three).

	Guilt (out of 5)	Alert (out of 5)	Positive Affect (out of 50)	Negative Affect (out of 50)	Charity (out of 7)	Empathy (out of 49)
Religion Prime Condition	2.2	3.6	30.6	21.1	5.8	23.4
Control Prime Condition	1.4	2.5	28.6	18.7	5.5	22.1
Difference between Religion and Control	$t(62)=2.5,$ $p<.02,$ $p_{rep}=.93$	$t(62)=3.5,$ $p<.001,$ $p_{rep}=.99$	$t(53)=.69$ $p=.49$ $p_{rep}=.51$	$t(55)=.84$ $p=.41$ $p_{rep}=.56$	$t(33)=1.0,$ $p=.33,$ $p_{rep}=.62$	$t(58)=.93$ $p=.36,$ $p_{rep}=.60$

	Guilt (out of 5)	Alert (out of 5)	Positive Affect (out of 50)	Negative Affect (out of 50)	Charity (out of 7)	Empathy (out of 49)
Secular Prime Condition	1.4	3.0	29.8	19.1	5.6	22.8
Control Prime Condition	1.4	2.5	28.6	18.7	5.5	22.1
Difference between Secular and Control	$t(41)=.07,$ $p=.94,$ $p_{rep}=.17$	$t(42)=1.7,$ $p=.09,$ $p_{rep}=.83$	$t(36)=.48$ $p=.63$ $p_{rep}=.41$	$t(36)=.18$ $p=.86$ $p_{rep}=.22$	$t(33)=.22,$ $p=.83,$ $p_{rep}=.25$	$t(39)=.53$ $p=.60,$ $p_{rep}=.43$

Figure A: The distribution of the amount of cash offered by the unprimed participants in Study One.

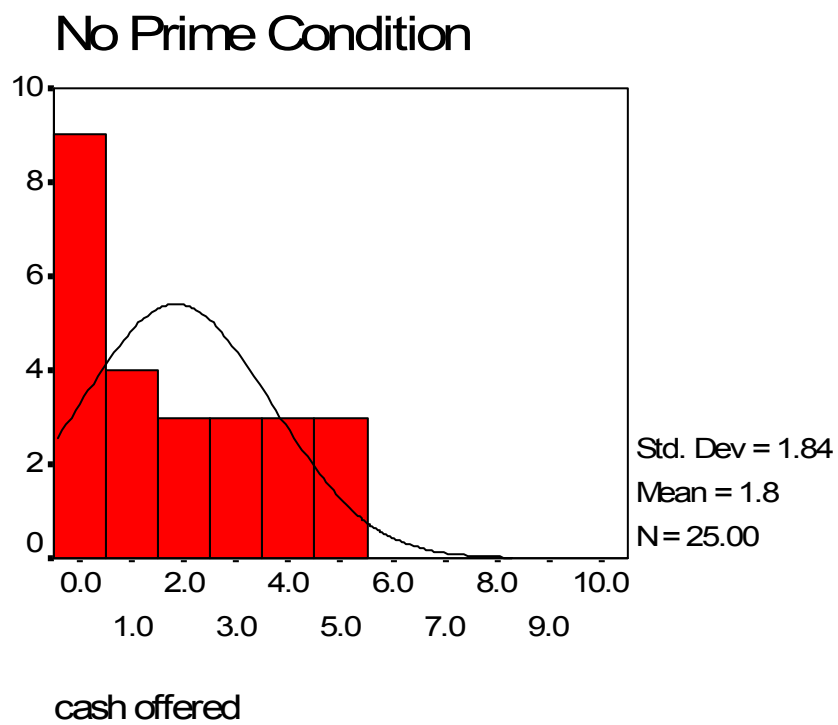


Figure B: The distribution of the amount of cash offered by the religiously primed participants in Study One.

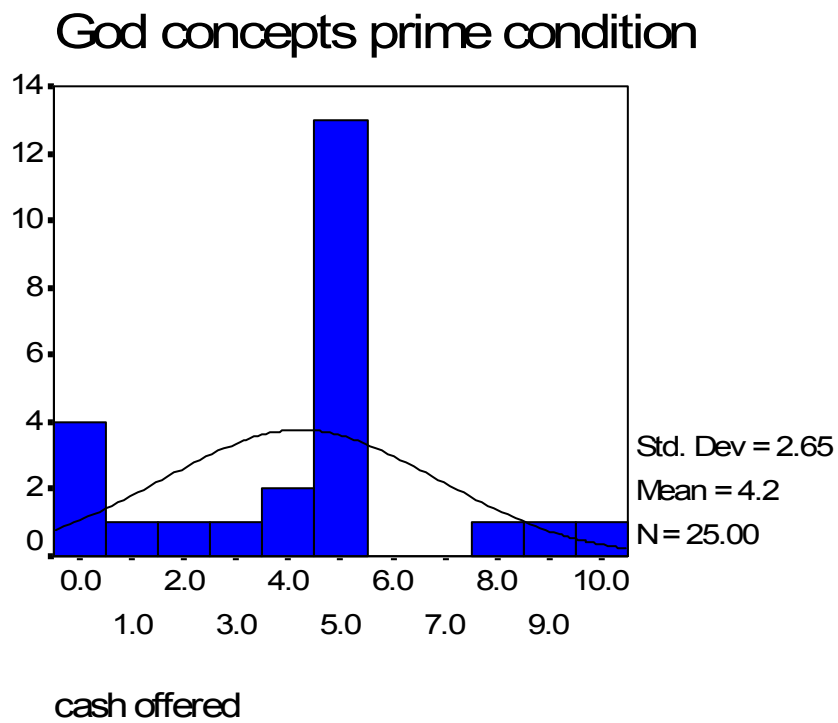


Figure C: Means, by condition, for how much cash was offered in Study Two

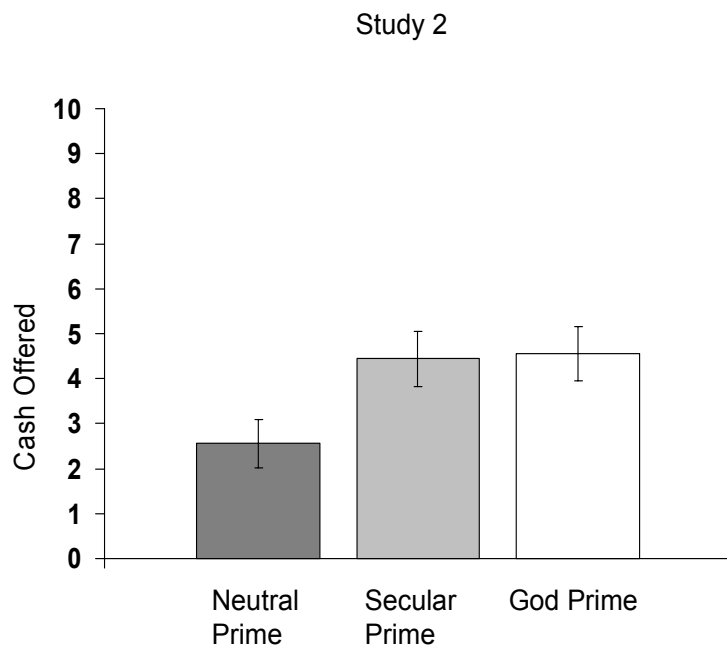
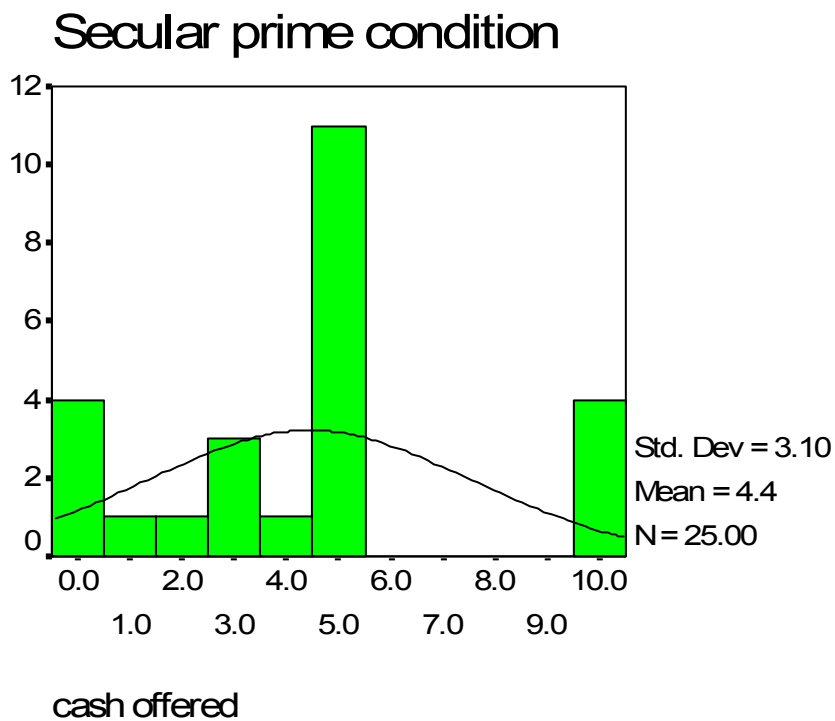
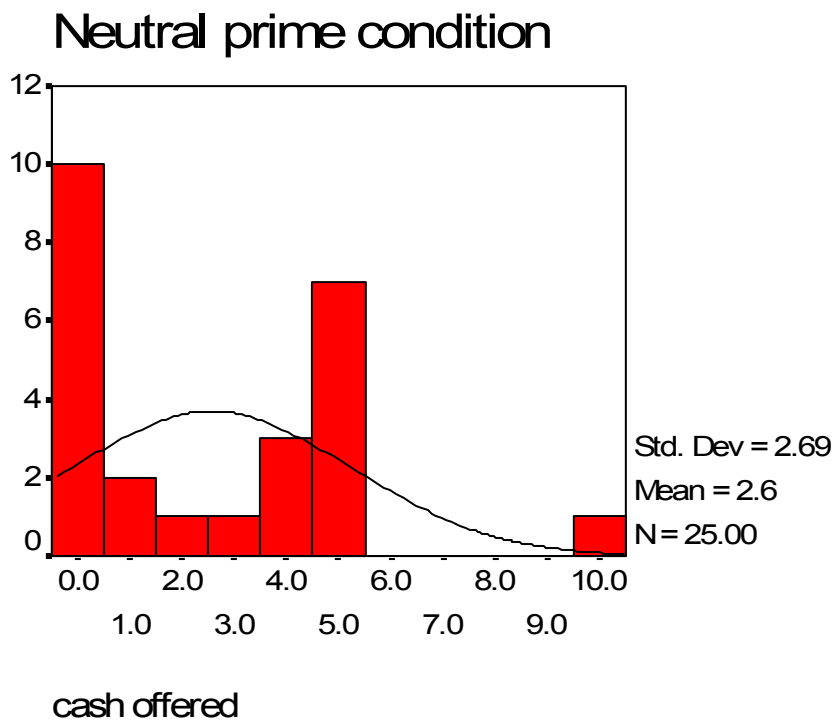
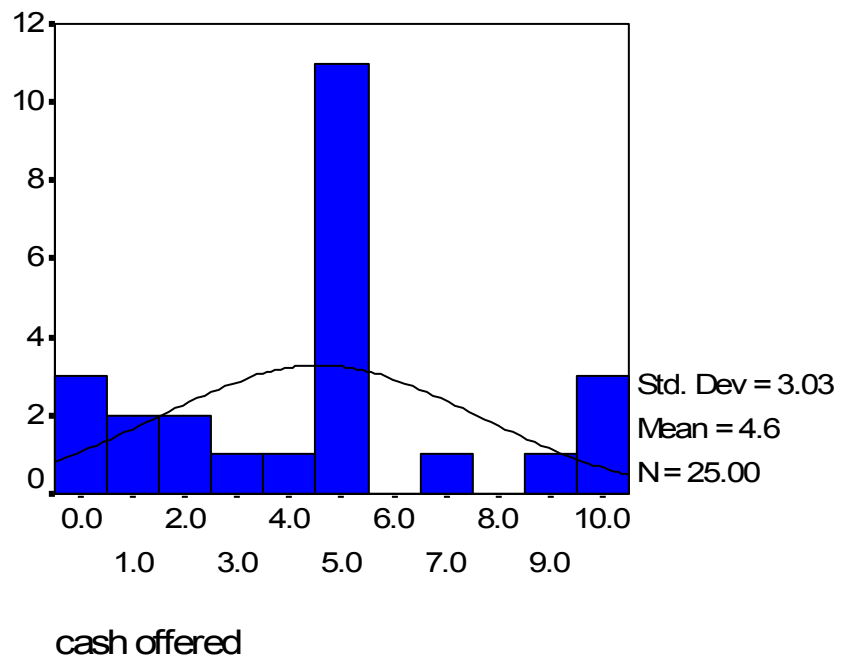


Figure D: The distribution of the amount of cash offered by the participants in the three conditions of Study Two.



## God concepts prime condition



## APPENDICES

Appendix A<sub>1</sub>: Religious Primes

1. felt she eradicate spirit the \_\_\_\_\_
2. dessert divine was fork the \_\_\_\_\_
3. appreciated presence was imagine her \_\_\_\_\_
4. judgment her withheld she mindset \_\_\_\_\_
5. send I over it mailed \_\_\_\_\_
6. evil thanks give God to \_\_\_\_\_
7. yesterday it finished track he \_\_\_\_\_
8. sacred was book refer the \_\_\_\_\_
9. reveal the future simple prophets \_\_\_\_\_
10. prepared somewhat I was retired \_\_\_\_\_

Appendix A<sub>2</sub>: Secular Primes

1. it's duty your civic evil \_\_\_\_\_
2. the told jury imagine she \_\_\_\_\_
3. appreciated presence was imagine her \_\_\_\_\_
4. judgment her withheld she mindset \_\_\_\_\_
5. treat I over it mailed \_\_\_\_\_
6. went they court to mistake \_\_\_\_\_
7. yesterday it finished track he \_\_\_\_\_
8. police come complex here the \_\_\_\_\_
9. social she contract the signed \_\_\_\_\_
10. social she contract the signed \_\_\_\_\_

Appendix A<sub>3</sub>: Control Primes

1. fall was worried she always

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2. shoes give replace old the

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3. retrace good have holiday a

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4. more paper it once do

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5. send I over it mailed

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6. saw hammer he the train

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7. yesterday it finished track he

---

8. sky the seamless blue is

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9. sky the seamless blue is

---

10. prepared somewhat I was retired

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## NOTES

<sup>i</sup> A notable aberration would be modern China which is both a relatively closed society with regards to immigration and one with an official policy limiting birthrates and they remain the largest culture on Earth. The fitness of cultural traits is always dependent upon the particular environment (a point that will be expanded upon below) and in the case of the Chinese, limiting birth rates was done for the farsighted conservation of resources and ultimate benefit of the group's members. That being said, we have yet to see the full consequences of the one-child policy. 'Artificial' cultural interventions by the government rarely work as efficiently as did the evolved cultural traits that were trying to be replaced, a problem examined extensively in the writings of Frederick Hayek (e.g. Hayek, 1960, 1973 and 1984).

<sup>ii</sup> Cultural suicide can occur by environmental insustainability, like in the case of the Easter Islanders documented chillingly by Diamond (1999), or by population insustainability, like in the case of the Aztecs whose later years were characterized by an overzealous attachment to sacrifice, or the Shakers, whose prohibitions of sex led both to a very low birth rate, and a difficulty in attracting more members from the outside. The Shakers will be further discussed in the paper.

<sup>iii</sup> While examples of cultural extinction by a conquering force are plentiful, one of the most dramatic is the eradication of the Tasmanian aborigines by the British conquerors of Australia. Having been separated from the Australian mainland since the ebbing of the last Ice Age, the Tasmanians were, at the time of their discovery, the most primitive people on the planet (Diamond, 1999). Lacking bone tools and even control over fire, they faced the sophisticated military of late 19<sup>th</sup> century Britain. Their complete eradication is a story heartbreakingly captured in Knealy (2000).

<sup>iv</sup> The case of radical transformations of cultures so that they are no longer the same culture brings up important questions regarding cultural boundaries. Just as with biological organisms, groups can stray so far from their original form, so as to no longer be considered the same group. And, as with biological organisms, classification is an imprecise science, at best. While it falls outside the scope of the current paper, recognizing what makes a group a group is an important question in understanding group selection.

<sup>v</sup> While there are many parallels between cultural and natural selection, these similarities must not be overstated; there are certain pronounced differences. For one, there is the timescale. Evolutionary theorists are quick to point out that human beings have undergone little in the way of biological evolution in the last 140,000 or even 250,000 years, but this is the time frame in which *all* cultural evolution has taken place. The reason is that the latter is much more responsive than the former. While many cultural adaptations occur by chance, just like mutations, they require neither the time lag of a generation to arise, nor the time lag involved in differential mating to proliferate. A highly impactful cultural adaptation can develop, take over, and even die out within a single human lifetime. Nothing of the sort could happen in the gene. Another key difference is that unlike all but the most recent biological evolution, there is a degree of deliberate and directed human control over cultural evolution. People – and not just random chance – introduce, or modify, or destroy cultural traits with the hope of shaping the future. Sometimes, though certainly not always, these attempts work. So while biological evolution is driven by a blind watchmaker, cultural evolution is not, or at least, not always. The watchmaker in this case may be terribly myopic and even foolish, but he is not blind. This fact poses some interesting questions regarding the naturalistic fallacy. If the 'goal' of cultural selection is the survival of cultural traits, one could easily be tempted to see these goals as isomorphic with the goals of man, and thus as Good. With only a few examples of culturally

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adaptive traits – such as the Indian caste system or hawkish warmongering, one can see that this leap of logic is unfounded. It is, nonetheless interesting, to examine why.

G.E. Moore's (1903) originally coined the term naturalistic (or genetic) fallacy to refer to the fallacy of defining anything as 'good' with reference to another intrinsic quality (e.g. natural, efficient, pleasant). Goodness is an irreducible property definable only by itself, thus nothing can be good simply because it possesses another quality. What this means, with reference to cultural selection, or any other type of selection, is that while many processes evolved via cultural selection *may* be good, none is *necessarily* good because it has evolved. This is why counter examples are so plentiful. For an interesting discussion on the dangers of drawing moral conclusions from cultural selection arguments, see Hayek (1984).

<sup>vi</sup> The further these displays of commitment deviate from what could be considered “rational” or “logical” behaviour, that is, the less they could be interpreted in a self-interested manner, the more convincing they are. Celibacy, then, becomes a good example. Neither rational nor logical from a biological perspective, it can be seen, along with martyrdom, as the ultimate display of commitment.

<sup>vii</sup> Given the ubiquity of moral norms in religions, it is unlikely that these effects are unique to our Canadian sample, though, it does remain to be seen.