

Supporting Information

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SI Text

Analysis of External Variables and Relation to the MDS Solution

(Experiment 1). We performed (i) bivariate linear correlation analyses of subjects' ratings of the statements on the 6 external scales, and (ii) a bivariate linear correlation analysis between the means of these ratings for each subject and aspects of their religiosity (current and anytime belief in God and religiosity). We also compared directly these ratings between religious and nonreligious subjects, using the autoregressive moving average (1) mixed-linear model for fixed effects, which unlike a classic ANOVA does not assume equal variances.

Bivariate linear correlation analyses between subjects' ratings on the 6 external variables showed that God's emotion negatively correlated with God's involvement (Pearson Correlation Coefficient = -0.292 , $P < 0.001$) and prospective reward (Pearson Correlation Coefficient = -0.577 , $P < 0.001$), whereas religious knowledge correlated with time horizon (Pearson Correlation Coefficient = 0.241 , $P < 0.001$). Correlations between means of subjects' ratings and aspects of their religiosity showed (in terms of correlations significant at $P < 0.001$) that (current) religiosity correlated with perceived God's involvement (Pearson Correlation Coefficient = 0.315) and anger (Pearson Correlation Coefficient = -0.477) and exposure to the statements' concepts (Pearson Correlation Coefficient = 0.448); belief in God correlated with exposure to the statements' concepts (Pearson Correlation Coefficient = 0.409), current (Pearson Correlation Coefficient = 0.745) and maximum anytime (Pearson Correlation Coefficient = 0.672) religiosity, time horizon (Pearson Correlation Coefficient = -0.399), and perceived God's anger (Pearson Correlation Coefficient = -0.578). In a direct comparison, currently religious subjects perceived a more involved [$F(1/418.161) = 30.699$, Sig. < 0.001] and less angry God [$F(1/577.402) = 62.797$, Sig. < 0.001] than nonreligious subjects. Religious subjects were also more exposed to the statements' content [$F(1/459.466) = 68.481$, Sig. < 0.001], detected less doctrinal and more experiential content [$F(1/352.089) = 31.881$, Sig. < 0.001], and perceived a less remote time horizon [$F(1/412.050) = 13.616$, Sig. < 0.001] and higher prospect of reward [$F(1/690.563) = 3.990$, Sig. = 0.046].

The final MDS solution was not preferentially derived by either religious or nonreligious subjects and, therefore, represented both groups equally well. Decomposed stress per subject showed no correlation with belief in God, current or maximum anytime religiosity. Similarly, the weights of the different subjects in the final solution did not correlate with belief in God, current or maximum anytime religiosity, age, sex, or education. On the other hand, as noted above, belief in God and current religiosity did influence the rating of statements according to the

external variables. This fact indicates a difference in the cognitive systems recruited by the 2 tasks. For example, even though religious subjects tended to detect in the statements a less angry and more involved God when they were asked to rate them according to these factors, they used the same psychological components to judge statements' dissimilarity as nonreligious subjects.

Behavioral Results in Experiment 2 (fMRI). We performed ANOVA of the reaction time by task (font vs. judgment) and self-reported current religiosity. Subjects who reported their religiosity as being more than or equal to 4 were considered religious, whereas those who reported it as being less than or equal to 3, were considered nonreligious. Reaction time was not influenced by religiosity ($F = 2.561$; $P = 0.118$) or there was no interaction of religiosity with task ($F = 0.678$; $P = 0.415$). We also performed ANOVA of accuracy of font discrimination by self-reported current religiosity. Accuracy was not influenced by religiosity ($F = 0.036$; $P = 0.851$). Finally, we performed ANOVA of agreement to the statements (as a percentage of the total answers) by religiosity. Agreement was influenced by religiosity ($F = 85.176$; $P < 0.001$), with religious subjects agreeing on average to 69% of the statements and nonreligious subjects only to 18% of them.

Stimuli (Experiments 1 and 2). The set of stimuli used in both the MDS and fMRI parts of this study were 70 written statements with religion-related content (Table S1). These statements were extracted from a number of surveys (1, 2), shortened to being 3 to 6 words long and simplified syntactically. The statements either referred to the external reality of a supernatural agent or concept ("God exists," "Hell exists," and so forth); attributed a quality to a supernatural agent ("God is kind"); referred to utilitarian aspects of religion ("Religion answers spiritual needs"); or referred to morals, the meaning of life and death, and other traditional themes of religious thinking.

The content in these statements was validated as religion-related by a cohort of 10 independent raters (demographically matched to the subjects in Experiments 1 and 2). These items were selected from a larger set of 140 statements that were scored on 1 to 7 Likert scales according to: religious relatedness (mean score 5.98, SD 1.12); intent to evoke emotion (mean score 5.13, SD 1.13); reward/punishment axis value (mean score 5.56, SD 1.07); time horizon on a present to afterlife axis (mean score 3.96, SD 1.29); the level of the subjects' personal exposure to the issue (mean score 4.54, SD 1.3); the level of anger of a religious agent implied (mean score 4.8, SD 0.87); and the level of involvement of a religious agent implied (mean score 5.72, SD 1.12). Statements that scored lowest in religion-relatedness (i.e., < 5.5) were excluded from the final stimulus set.

1. Hill PC, Wood RWJ (1999) in *Measures of Religiosity* (Religious Education Press, Birmingham, Alabama), pp 1–528.
2. Baylor Institute for Studies of Religion (2006) in *American Piety in the 21st Century; New Insights to the Depth and Complexity of Religion in the US* (Baylor Institute for Studies of Religion, Baylor, Texas), pp 1–74.

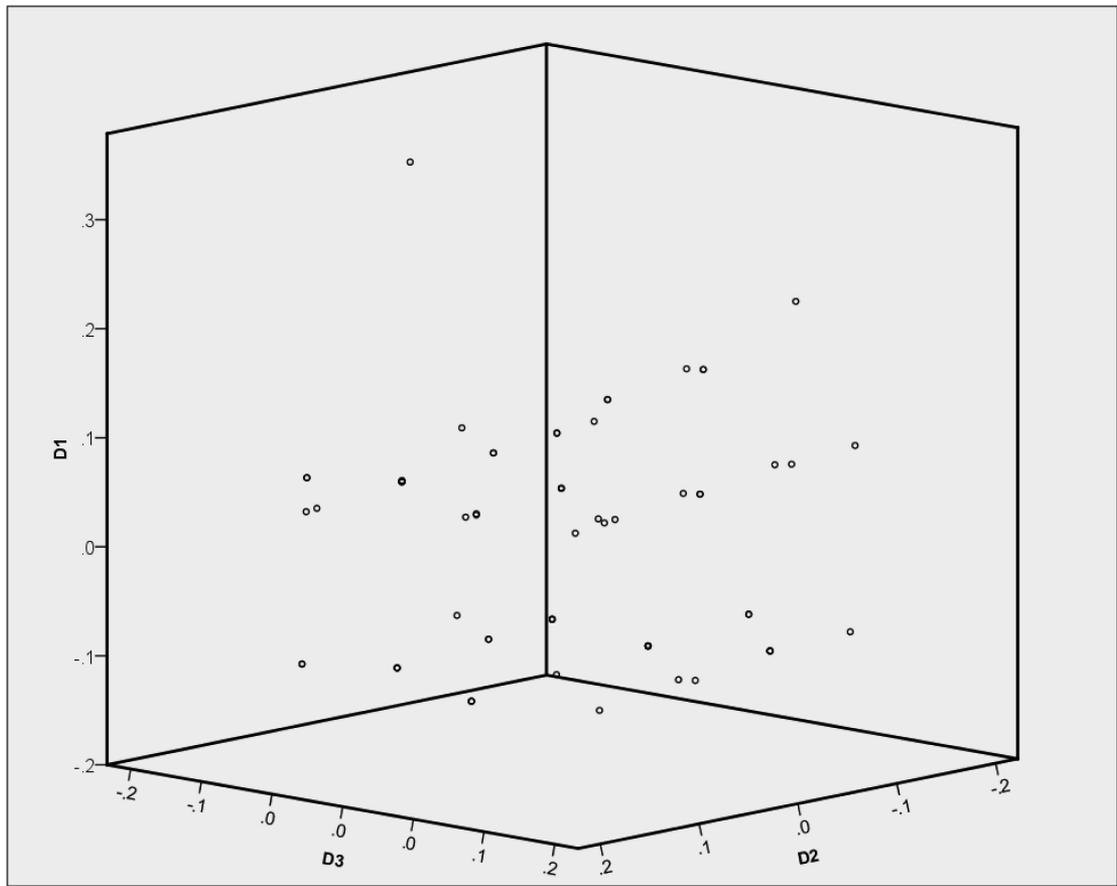


Fig. S1. Graphic depiction of the common MDS solution.

Table S1. The final 3-dimensional MDS solution (Experiment 1)

| God's level of involvement (D1) | | God's emotion (D2) | | Religious knowledge (D3) | |
|--|--------|--|--------|--|--------|
| Religion dictates a stance on casual sex. | -0.124 | The afterlife will be punishing. | -0.164 | People commit sin. | -0.147 |
| Religion consecrates people's marriage. | -0.124 | Everyone is a sinner. | -0.161 | God prohibits committing adultery | -0.143 |
| God's will guides my acts. | -0.117 | God is severe. | -0.154 | God is directly involved in worldly affairs. | -0.143 |
| Religion dictates a stance on euthanasia. | -0.117 | God is wrathful. | -0.154 | Religion allows killing people | -0.130 |
| Religion answers this country's social problems. | -0.117 | People go to Hell. | -0.135 | Religion dictates a stance on casual sex. | -0.126 |
| God protects one's life. | -0.112 | Life has no higher purpose. | -0.122 | Religion consecrates people's marriage. | -0.126 |
| God is forgiving. | -0.112 | Religion provides moral guiding. | -0.122 | Jesus is a fictional character. | -0.114 |
| Religion secures family life. | -0.112 | Religion should guide governmental policy. | -0.122 | Everyone is a sinner. | -0.090 |
| Religion allows killing people. | -0.110 | People commit sin. | -0.109 | Religion provides moral guiding. | -0.089 |
| Religion answers problems of abortion. | -0.109 | The devil exists. | -0.097 | Religion should guide governmental policy. | -0.089 |
| God gives meaning to illness. | -0.109 | God is angered by human sin. | -0.094 | Religion dictates a stance on homosexuality. | -0.087 |
| Religion consecrates people's death. | -0.104 | God is punishing. | -0.093 | Religion dictates a stance on suicide. | -0.087 |
| God is punishing. | -0.103 | God punishes people's shortcomings. | -0.093 | God cares about the world's welfare. | -0.085 |
| God punishes people's shortcomings. | -0.103 | God punishes people's mistakes. | -0.093 | God is directly involved in my affairs. | -0.085 |
| God punishes people's mistakes. | -0.103 | God is angered by my sins. | -0.093 | God dictates celebrating the Sabbath. | -0.085 |
| God is angered by my sins. | -0.103 | Religion allows killing people. | -0.080 | God prohibits envying others' property. | -0.085 |
| God is ever-present. | -0.102 | Religion answers spiritual needs. | -0.066 | God prohibits killing. | -0.085 |
| Jesus is the Son of God. | -0.097 | God is absolute. | -0.066 | God prohibits envying others' spouses. | -0.085 |
| God's will guides my family. | -0.097 | A Source of Creation exists. | -0.066 | God protects from enemies. | -0.082 |
| God dictates good and evil. | -0.097 | Death gets meaning only from God. | -0.066 | God protects all people. | -0.082 |
| God puts good and evil everywhere. | -0.097 | Religion dictates a stance on homosexuality. | -0.055 | God is punishing. | -0.072 |
| All religions have truth. | -0.097 | Religion dictates a stance on suicide. | -0.055 | God punishes people's shortcomings. | -0.072 |
| Prayer secures one's life. | -0.095 | Jesus is the Son of God. | -0.048 | God punishes people's mistakes. | -0.072 |
| There is a God. | -0.094 | God's will guides my family. | -0.048 | God is angered by my sins. | -0.072 |
| God is severe. | -0.088 | God dictates good and evil. | -0.048 | Religion answers problems of abortion. | -0.071 |
| God is wrathful. | -0.088 | God puts good and evil everywhere. | -0.048 | God gives meaning to illness. | -0.071 |
| Religion answers spiritual needs. | -0.087 | All religions have truth. | -0.048 | God's will guides my acts. | -0.068 |
| God is absolute. | -0.087 | Religion answers problems of abortion. | -0.026 | Religion dictates a stance on euthanasia. | -0.068 |
| A Source of Creation exists. | -0.087 | God gives meaning to illness. | -0.026 | Religion answers this country's social problems. | -0.068 |
| Death gets meaning only from God. | -0.087 | A Mighty Power exists. | -0.020 | God is just. | 0.012 |
| People go to Hell. | -0.080 | God is removed from personal affairs. | -0.020 | God demands sacrifices. | 0.012 |
| God protects all people. | 0.037 | God is removed from the world. | -0.018 | God is a "He." | 0.012 |
| God protects from enemies. | 0.038 | Jesus is a fictional character. | -0.008 | God is loving. | 0.015 |

| God's level of involvement (D1) | | God's emotion (D2) | | Religious knowledge (D3) | |
|--|-------|--|--------|---------------------------------------|-------|
| God prohibits committing adultery | 0.038 | A Resurrection will occur. | -0.001 | God is friendly. | 0.015 |
| God is directly involved in worldly affairs. | 0.038 | God is distant. | -0.001 | God is kind. | 0.015 |
| God is directly involved in my affairs. | 0.045 | Religion secures one's future. | 0.002 | God is severe. | 0.024 |
| God dictates celebrating the Sabbath. | 0.045 | God is just. | 0.019 | God is wrathful. | 0.024 |
| God prohibits envying others' property. | 0.045 | God demands sacrifices. | 0.019 | Jesus is the Son of God. | 0.027 |
| God prohibits killing. | 0.045 | God is a "He." | 0.019 | God's will guides my family. | 0.027 |
| God prohibits envying others' spouses. | 0.045 | There is a God. | 0.028 | God dictates good and evil. | 0.027 |
| God cares about the world's welfare. | 0.046 | Prayer secures one's life. | 0.031 | God puts good and evil everywhere. | 0.027 |
| God is friendly. | 0.050 | God cares about the world's welfare. | 0.041 | All religions have truth. | 0.027 |
| God is kind. | 0.050 | God is directly involved in my affairs. | 0.041 | Religion consecrates people's death. | 0.029 |
| God is loving. | 0.051 | God dictates celebrating the Sabbath. | 0.041 | God protects one's life. | 0.032 |
| People commit sin. | 0.052 | God prohibits envying others' property. | 0.041 | God is forgiving. | 0.032 |
| Religion dictates a stance on homosexuality. | 0.053 | God prohibits killing. | 0.041 | Religion secures family life. | 0.032 |
| Religion dictates a stance on suicide. | 0.053 | God prohibits envying others' spouses. | 0.041 | God is removed from the world. | 0.076 |
| People go to Heaven. | 0.057 | Religion consecrates people's death. | 0.048 | Life has no higher purpose. | 0.080 |
| God is just. | 0.057 | God prohibits committing adultery | 0.054 | God is angered by human sin. | 0.084 |
| God demands sacrifices. | 0.057 | God is directly involved in worldly affairs. | 0.054 | A Mighty Power exists. | 0.086 |
| God is a "He." | 0.057 | God's will guides my acts. | 0.070 | God is removed from personal affairs. | 0.086 |
| Religion provides moral guiding. | 0.058 | Religion dictates a stance on euthanasia. | 0.070 | Religion secures one's future. | 0.087 |
| Religion should guide governmental policy. | 0.058 | Religion answers this country's social problems. | 0.070 | There is Reincarnation. | 0.088 |
| God cares about my personal welfare. | 0.060 | The afterlife will be rewarding. | 0.081 | The afterlife will be rewarding. | 0.088 |
| There are Angels. | 0.061 | There is Reincarnation. | 0.081 | God cares about my personal welfare. | 0.089 |
| Life after death exists. | 0.062 | Religion dictates a stance on casual sex. | 0.083 | The afterlife will be punishing. | 0.093 |
| Everyone is a sinner. | 0.062 | Religion consecrates people's marriage. | 0.083 | The devil exists. | 0.094 |
| Religion secures one's future. | 0.067 | Life after death exists. | 0.089 | A Resurrection will occur. | 0.097 |
| A Resurrection will occur. | 0.068 | God cares about my personal welfare. | 0.091 | God is distant. | 0.097 |
| God is distant. | 0.068 | There are Angels. | 0.100 | Life after death exists. | 0.099 |
| God is angered by human sin. | 0.074 | God is loving. | 0.108 | There are Angels. | 0.100 |
| The devil exists. | 0.077 | God is friendly. | 0.108 | People go to Heaven. | 0.101 |
| The afterlife will be punishing. | 0.081 | God is kind. | 0.119 | Religion answers spiritual needs. | 0.101 |
| There is Reincarnation. | 0.168 | God is ever-present. | 0.129 | God is absolute. | 0.101 |
| The afterlife will be rewarding. | 0.168 | God protects from enemies. | 0.131 | A Source of Creation exists. | 0.101 |
| God is removed from the world. | 0.175 | People go to Heaven. | 0.131 | Death gets meaning only from God. | 0.101 |
| A Mighty Power exists. | 0.176 | God protects one's life. | 0.137 | Prayer secures one's life. | 0.104 |
| God is removed from personal affairs. | 0.176 | God is forgiving. | 0.137 | People go to Hell. | 0.109 |