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**Pascal's Wager:
A Good Bet for Personal Evangelism**

Charles H. Reilly¹

Abstract

Blaise Pascal (1623-1662), a French scientist and mathematician, argued that it is advantageous to believe in or to "bet on" God because the rewards for doing so are at least as great as the rewards for not believing in God, regardless of whether or not God exists. His decision theoretic argument is commonly referred to as Pascal's Wager. It is unlikely that everyone has the same estimates of the rewards for believing in God or for not believing in God that Pascal had. Consequently, a series of five questions, based on Pascal's Wager, is suggested here for personalizing Pascal's Wager. Results from an informal survey consisting of the five recommended questions are presented and analyzed. Finally, it is argued that a person's responses to the five questions may be used to diagnose the person's spiritual condition and to identify an appropriate evangelism strategy.

Now there were four leprous men at the entrance of the gate and they said to one another, "Why do we sit here until we die? If we say 'We will enter the city,' then the famine is in the city and we will die there; and if we sit here, we die also. Now therefore come, and let us go over to the camp of the Arameans. If they spare us, we will live; and if they kill us, we will but die." 2 Kings 7:3-4 (NASB)

Introduction

The lepers at the gate of besieged Samaria in the passage above had a choice to make. One option was to stay at Samaria

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and die of starvation, whether they went into the city itself or remained outside at the gate, because of an ongoing famine. The other option for the lepers was to venture to the plentiful camp of the enemy, the Arameans. They understood that the Arameans might kill them. But there was also a chance that they would be spared and fed. They had nothing to lose by going to the camp of the Arameans, so they decided to go there. Their decision had enormous consequences not only for themselves, but also for all the people of Samaria, as the rest of 2 Kings 7 relates.

Blaise Pascal (1623-1662) was a French scientist and mathematician. He was sickly from childhood, so his brief life makes his important contributions to the fields of probability theory (e.g., the negative binomial random variable), mathematics (Pascal's Triangle), and hydraulics (Pascal's Law) all the more remarkable.

Pascal converted to Christianity on his "Night of Fire", the evening of November 23, 1654, when he believed that God revealed Himself to him through the Bible.² His conversion experience determined much of the course of the rest of his life, as he became eager to persuade his learned friends and colleagues to adopt the Christian faith. He began working on an apologetic by recording his thoughts on religion as he had them, but he died before he was able to bring together and organize his ideas.

Following his death, hundreds of Pascal's handwritten notes were discovered. They were compiled and published posthumously as *Pensées*, a collection of his "thoughts" on Christianity.³ Perhaps the most famous entry in this volume is *Infiny-rien* (Infinity-nothing), which is more commonly referred to as Pascal's Wager.

According to Pascal, every person has to decide whether or not to believe in God (that is, the God of the Christian Bible). He argued using simple mathematical logic that the choice of believing in God, or "betting on God", is superior to the alternative of not believing in God. Much like the choice that the lepers in Samaria faced, Pascal thinks that a person has nothing to lose by choosing to believe in God.

The Bible makes it clear that belief in God alone is not sufficient for one's salvation. After all, even the demons believe in God (James 2:19). To be saved, one must recognize and repent of his or her sinfulness (Luke 13:3, 5); believe that Jesus Christ is God incarnate (John 1:14) and that He died for sinners, was buried, and was raised by God on the third day (1 Corinthians 15:3-4); and trust Jesus alone (Acts 4:12) as Lord and Savior (Romans 10:9-10). While Pascal's Wager does not present God's plan for

salvation,⁴ it does provide a conversational entrée into spiritual matters.

This article briefly reviews the decision theoretic argument of Pascal. Then, a series of five questions is suggested as a way to personalize Pascal's Wager. These questions account for an individual's own beliefs about the payoffs or rewards for believing or not believing in God if God exists and if He does not. A breakeven probability for the existence of God is calculated based on a person's responses to four of the questions. This breakeven probability may then be compared to the person's subjective probability of God's existence, the response to the fifth question. Data gathered from an informal survey using the five questions is discussed and analyzed. Finally, a plan for using the responses to the questions and the calculated breakeven probability to diagnose a person's spiritual condition and identify an appropriate evangelism strategy is outlined.

Pascal's Wager

Pascal knew that there is no way to empirically prove the existence of God. No one has ever seen Him (John 1:18) or experienced Him with the senses. So, each person has to decide whether to believe in Him or not to believe in Him without absolute proof of His existence or non-existence.

Pascal believed that, if God exists, wholehearted belief (that is, complete trust) in God would result in a person's experiencing an eternity of infinite happiness, or eternal life in heaven. If, on the other hand, God does not exist, he saw no downside risk to leading a Christian life. He considered his own life after his conversion to Christianity to be a better life than that he had before his conversion. Like the Apostle Paul (Philippians 1:21), Pascal found his joy in Christ, even in his own difficult circumstances. He argued that, since there is nothing lost when a person chooses to believe in God, even if it would turn out that He does not exist, it is prudent to "bet on" (i.e., to believe in or to live a life that pleases) God.⁵ In the language of decision theory, the choice to "bet on God" is dominant because the payoff or reward for betting on God is at least as great as the payoff for not betting on God, regardless of whether God exists or not.⁶

Pascal's Wager may be summarized in the following payoff or reward matrix:

Table 1. Payoff Matrix for Pascal's Wager

	Payoff or Reward	
	If God Exists	If God Does Not Exist
Bet on God	α	β
Do Not Bet on God	δ	γ

According to Pascal, $\alpha = \infty$ and $\beta \geq \gamma$. His argument seems to suggest that he thought everyone's payoff matrix was identical, or at least very similar, to his own. Modifications to Pascal's Wager that have been suggested include finite payoffs⁷ and recognition that different persons may have their own unique payoff matrices.⁸ Next, these modifications are considered formally.

Personalizing Pascal's Wager

Suppose that every person may have unique beliefs about the payoff entries in the matrix in Table 1. Knowing a person's payoff-matrix values may help assess his or her spiritual condition and determine an appropriate evangelism approach.

Imagine that a person is asked to respond to the following questions:

1. Suppose that God exists. What would you estimate the expected rewards, from now through eternity, to be for living a God-pleasing⁹ life?
2. Suppose that God exists. What would you estimate the expected rewards, from now through eternity, to be for living a God-displeasing life?
3. Suppose that God does not exist. What would you estimate the expected rewards, from now through eternity, to be for living a "God"-pleasing life?
4. Suppose that God does not exist. What would you estimate the expected rewards, from now through eternity, to be for living a "God"-displeasing life?
5. In your personal opinion, what is the probability or likelihood that God exists?

The first four responses can be in any units (such as money, hot fudge sundaes, etc.) so long as all four responses are in the same units. These responses correspond to the payoff-matrix entries α , δ , β , and γ , respectively. The last response about the probability of the existence of God, $\Pr(G)$, should be a number between 0 and 1 or a percent between 0 and 100.

Example 1. Suppose that some person's responses to the five

questions are: $\alpha = 100$, $\delta = -50$, $\beta = 2$, $\gamma = 6$, and $\Pr(G) = 0.50$ or 50%. These responses indicate that the person believes that there is a significantly greater payoff for living a God-pleasing life than for living a God-displeasing life if God exists. If God does not exist, the person believes the payoff would be three times greater for a "God"-displeasing life than for a "God"-pleasing life. The worst scenario for such a person seems to be not to believe in God if God does indeed exist.

Example 2. Suppose that another person's responses to the five questions are: $\alpha = 200$, $\delta = 65$, $\beta = -40$, $\gamma = 100$, and $\Pr(G) = 0.40$ or 40%. This person believes that the reward for living a God-pleasing life is only about three times as great as the reward for living a God-displeasing life if God exists. If God does not exist, this person would have strong regrets about having lived a God-pleasing life. The worst scenario for this person would seem to be betting on God if in fact God does not exist.

Notice that there is not a dominant choice in either of these examples. It is not clear whether the persons portrayed in the examples should live a God-pleasing life or not. What should each person choose to do? How should their choices be made?

Breakeven Probability For The Existence Of God

Using elementary probability theory, a breakeven probability for the existence of God, denoted G here, can be calculated based on a person's responses to the first four questions in the previous section. The concept of such a breakeven probability was suggested by Unwin;¹⁰ a procedure for computing a breakeven probability is outlined here. The expected payoff for living a God-pleasing life is $\alpha \Pr(G) + \beta (1 - \Pr(G))$, and the expected reward for living a God-displeasing life is $\delta \Pr(G) + \gamma (1 - \Pr(G))$. Assuming that $\alpha + \gamma - (\beta + \delta) > 0$, the expected reward for living a God-pleasing life exceeds the expected payoff for living a God-displeasing life as long as:

$$\alpha \Pr(G) + \beta(1 - \Pr(G)) - (\delta \Pr(G) + \gamma(1 - \Pr(G))) \geq 0$$

or

$$\Pr(G) \geq \frac{\gamma - \beta}{\alpha + \gamma - (\beta + \delta)}$$

The breakeven probability for the existence of God, that is, the probability at which the payoff for living a God-pleasing life equals the reward for living a God-displeasing life, is then:

$$G^* = \frac{\gamma - \beta}{\alpha + \gamma - (\beta + \delta)}$$

Suppose that $\beta > \gamma$. Then it is always preferable to live a God-pleasing life, no matter what the subjective probability, $\Pr(G)$, for God's existence is. Suppose instead that $\beta \leq \gamma$. Then, in terms of expected return, it is preferable to live a God-pleasing life if $\Pr(G) \geq G^*$.

Example 3. Recall Example 1. For the responses given to the first four questions,

$$G^* = \frac{6-2}{100+6-(2-(-50))} = \frac{4}{154} = 0.026.$$

Since $\Pr(G) = 0.50 > 0.026 = G^*$, the person who responded to the questions ought to carefully seek the truth about God. He or she is at significant eternal risk based on his or her own payoff-matrix values.

Example 4. Recall Example 2. Based on the responses to the first four questions,

$$G^* = \frac{100-(-40)}{200+100-(-40+65)} = \frac{140}{275} = 0.509$$

Since $\Pr(G) = 0.40 < 0.509 = G^*$, a decision not to bet on God is logically consistent with this person's payoff beliefs.

Informal Survey Results

An informal survey consisting of the five questions from §3 was administered anonymously to 136 undergraduate engineering students in a classroom setting at the University of Central Florida. Respondents were asked to indicate their gender; no other demographic or background information was requested.

One response was not at all usable. Of the 135 usable responses, 108 were provided by males and 27 were provided by females. Sixty-three of the responses (50 males, 13 females) were complete, contained only finite values for the payoff-matrix values, and appeared to be free of logical and mathematical anomalies. From each one of these usable responses, a value of G^* was calculated.

Two responses (1 male, 1 female) were incomplete. Seven responses (6 males, 1 female) had logical flaws. An example would be a higher reward indicated for living a God-displeasing life than for living a God-pleasing life if God exists. Twenty-six responses (22 males, 4 females) resulted in an undefined value for G^* (because the denominator in the calculation was zero). The other 37 responses (29 males, 8 females) included at least one payoff-matrix value that was infinite.

The responses to the fifth question about the probability that

God exists ($\Pr(G)$) are analyzed for the 135 usable responses. The breakeven probabilities (G^*) calculated for the 63 complete, finite, and logical responses are analyzed as well. The responses of males and females are summarized separately and collectively. The responses to the first four questions cannot be meaningfully analyzed because all of the respondents were not measuring their responses in the same units, such as dollars. Table 2 presents summary statistics for the responses to the question about $\Pr(G)$. For females, males, and all respondents, the table provides the number of responses, the sample average, the sample standard deviation, the maximum response value, the minimum response value, and a 95% confidence interval for the population mean. In a few instances where the response was over 1 or 100%, the response was truncated to 1. It is interesting to note that 69 (54 males, 15 females) of the 135 respondents estimated $\Pr(G)$ to be 1 (or greater). Only three respondents (2 males, 1 female) said that they believe there is no chance that God exists, that is, $\Pr(G) = 0$.

Table 2. Summary Statistics for Responses to the Probability of God's Existence

Statistic	Respondents		
	Females	Males	All
Number	27	108	135
Mean	0.814	0.774	0.782
Std. Deviation	0.281	0.332	0.322
Maximum	1	1	1
Minimum	0	0	0
95% CI for Mean	(0.708, 0.920)	(0.712, 0.837)	(0.728, 0.836)

Table 3 shows the same summary statistics for the calculated values of G^* based on the 63 completely usable responses to the first four survey questions.

Table 3. Summary Statistics for Calculated Values of G^*

Statistic	Respondents		
	Females	Males	All
Number	13	50	63
Mean	0.154	0.048	0.070
Std. Deviation	0.375	0.182	0.235
Maximum	1.0	1.0	1.0
Minimum	0.0	0.0	0.0
95% CI for Mean	(0,0.358)	(0,0.098)	(0.013,0.126)

There are 28 respondents (22 males, 6 females) for whom $\beta > \gamma$, meaning that they believe the rewards for living a God-pleasing life exceed the rewards for living a God-displeasing life, even if God does not exist. There were no responses suggesting $\delta > \alpha$, meaning that all 63 respondents think that the rewards for living a God-pleasing life exceed the rewards for living a God-displeasing life if God exists. Finally, for only 3 respondents (2 males, 1 female) was $G > \Pr(G)$.

Statistical tests were conducted to determine if there are any significant gender differences among the sample means and sample standard deviations for the responses for $\Pr(G)$ and the calculated values of G^* . The only statistically significant gender difference is for the standard deviation of the G^* values. The standard deviation for females is found to be greater than the standard deviation for males at significance levels up to 10%.

The results on the tests for gender differences are somewhat surprising in light of the findings of Miller and Hoffman. They found females to be more sensitive to risk when it comes to religious matters.¹¹ If that were true for the survey respondents, then the standard deviation for the calculated G^* values would likely be smaller, rather than larger, for females than it is for males. Additionally, more gender differences might have been expected. Since the sample of complete responses by females has only 13 observations, this unexpected result may be best attributed to a small sample size.

It is expected that persons who think it is very likely that God exists would provide payoff-matrix values that would result in a rather low calculated value for G^* . In other words, it is expected that there is an indirect relationship, i.e., a negative correlation, between the estimates for $\Pr(G)$ and the calculated values for G^* . For males and females combined, this correlation is -0.194 . It is -0.295 for the males and -0.022 for the females.

Spiritual-Condition Diagnosis With Pascal's Wager

An informal survey may be a good way to collect data, but it alone is certainly not a good way to carry out the Great Commission (Matthew 28:18-20). The questions suggested in §3 may be used as part of a personal evangelism encounter where one-on-one interaction allows for clarification of the questions and for detection and possibly correction of logical inconsistencies in responses. Additional questions about a person's spiritual background (including church attendance, denomination, and exposure to the Bible) would facilitate even better diagnosis of a person's spiritual condition.

An important early step in personal evangelism is evaluating a person's spiritual condition. For example, the FAITH program uses one "key" question to diagnose a person's spiritual condition.¹² The Evangelism Explosion (EE) program suggests using two diagnostic questions, one to determine if a person believes that he or she has secured eternal life and another to determine in what he or she is trusting (i.e., faith or works) for salvation.¹³ The questions related to Pascal's Wager may be used along with the FAITH key question or the EE questions to learn even more about a person's spiritual condition.

The question about the probability of God's existence allows an interviewer or evangelist to determine whether the person recognizes God's general revelation through nature, history, and humanity. Any response less than 1 or 100% is a sign of some doubt as to the existence of God. The smaller the response for $\text{Pr}(G)$ is, the greater the doubt about the existence of God. For a person with significant doubt about the existence of God, it does not make sense to present the Gospel without first giving a clear indication of who God is and what He has done through His creation, sustenance, and providence.

Thirty-eight of the 135 survey respondents, including 19 of those with completely usable responses to all five questions, said that they believe the probability that God exists is 0.5 or less. Before God's plan of salvation could be expected to have much meaning to these 38, they would need greater knowledge of God.

Assuming that a person is reasonably certain that God exists, it is important that he or she has a good understanding of what sin is and what its consequences are. Indications of a good understanding of sin and its consequences include $\alpha \gg 0$ and $\delta < 0$, or $\alpha \gg \delta$. In other words, a person with a good understanding of man's sin problem ought to believe that there is a substantially greater payoff for living a God-pleasing life than for living a

God-displeasing life.

From the completely usable responses to the survey, none of the 63 respondents indicated that $\alpha < 0$. However, two did respond that $\alpha = 0$. There were only two of the usable responses that indicated that $\alpha = \delta$ (including one who indicated that $\alpha = \delta = 0$). Twenty-seven responded with negative values for δ ; another twenty-one indicated that $\delta = 0$. That means that 15 of these respondents seem to think there is some benefit for living a God-displeasing life even if God exists.

Finally, the third and fourth questions can be used to determine if the person believes there is greater reward for living a "God"-pleasing life rather than a "God"-displeasing life if God does not exist. The responses to these questions may indicate whether the person believes the claims of the Bible about the abundance and joy of the Christian life (John 10:10).

Twenty-seven of the 63 respondents with completely usable responses indicated that they believe that $\beta > \gamma$, which implies that $G^* < 0$. Such persons may be saved, but at a minimum, should be interested in knowing more about God and His plan of salvation since in their cases $\Pr(G) > G^*$.

For persons who have a limited knowledge of God or who do not believe strongly that He exists, a personal evangelism approach must begin with establishing an understanding of who God is. In such a case, evangelizing the person may entail a significant commitment over a period of time. For persons with a reasonable understanding of who God is but who are not as clear about sin, a standard Gospel presentation, such as EE, FAITH, or the Evangecube,¹⁴ with good emphasis on sin and the need to repent is appropriate. Finally, a personal testimony or a NET¹⁵ presentation may be very effective for helping a person with relatively good understanding about God and sin to appreciate the joy of living the Christian life.

It is not possible with the survey responses alone to determine which respondents are Christians and which are not. However, it is clear that the questions based on Pascal's Wager are helpful for diagnosing a person's spiritual condition and identifying an appropriate evangelism strategy. Reward units mentioned in some of the responses cannot be repeated here and probably would have pointed out good candidates for an evangelism encounter had the survey responses not been anonymous. Those whose responses were not usable may include those most in need of an evangelistic encounter.

Discussion

The lepers in 2 Kings 7 decided they had nothing to lose by

venturing to the enemy's camp. There they found that the camp of the Arameans had been abandoned because God had caused the Arameans to think that they were about to be attacked by a large army with horses and chariots. The Arameans left everything behind, including food, drink, clothing, silver, gold, and horses. The lepers had their fill of food and drink and then decided that they should return to Samaria and tell the king of their windfall discovery. So much was recovered from the camp of the Arameans that the famine in Samaria was ended. God had graciously provided relief for the lepers and for all of Samaria.

Pascal wished to convey the message about God's incredible grace, like that experienced by the lepers, to unbelievers of his day. He used an argument that he thought would appeal to his rational contemporaries. Pascal believed that no decision could be as rewarding as the decision to bet on God. The message is just as pertinent today that God "is able to do far more abundantly beyond all that we ask or think" (Ephesians 3:20, NASB), just as He did for the lowly lepers. It seems that all they wanted was a meal. They made a step of faith into the unknown and were indeed blessed beyond their expectations. Pascal believed that faith in God brings rewards beyond anyone's expectations.

A series of questions based on Pascal's Wager is recommended for diagnosing a person's spiritual condition and identifying an appropriate evangelism approach. These questions, along with typical diagnostic questions, can lead to a more precise diagnosis of a person's spiritual condition. With a more accurate spiritual diagnosis, an evangelist can tailor a message to better meet the needs of the person being evangelized.

The strategy suggested here may be helpful in reaching lost persons who have analytical or quantitative skills, like those Pascal had hoped to reach, with the Gospel message. Using Pascal's Wager or the questions presented here as part of an evangelistic conversation may be more effective in reaching women than men because females are more risk-averse than males.¹⁶ In recent years, there has been much written about reaching lost people in a postmodern culture.¹⁷¹⁸¹⁹ The present approach may appeal to postmodern persons because they are interactive and there are no right or wrong answers.²⁰ Additionally, the discussion of payoffs or rewards may be especially interesting for persons with materialistic tendencies.

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NOTES

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