

Chapter 10

Beyond Biblical Games

10.1 Introduction

In this chapter, I go beyond biblical games by asking two questions that depart from the earlier textual analysis:

1. *Counterfactual*: Might characters in the Bible stories have acted differently from the way they did (“contrary to fact”) and thereby have better fulfilled their goals?¹
2. *Theological*: Might a person’s relationship to God or some other superior being be understood in more general terms than what is suggested by the Bible stories?

I believe the answers to both questions are “yes,” which I will attempt to demonstrate

(i) by revisiting one Bible story to illustrate how a character might have reached a preferred outcome by making a choice that he apparently rejected;

(ii) by constructing a game that, while never played as such in the Bible, seems nevertheless to speak to two questions that concern many people today: Is belief in a superior being rational? If there exists a superior being, should it reveal itself?

In addressing these questions, I introduce some new game-theoretic concepts. For example, I make explicit how threats, if credible, can upset rational outcomes of the kind analyzed in earlier chapters. I also indicate how the power of one player to continue moving when an opponent must eventually stop can benefit the mover.

In both the counterfactual and theological games I propose, I do not, as earlier, simply write down the preferences of the players. Instead, I derive them from primary

and secondary goals that I attribute to the players. If the reader disagrees with these attributions, I invite him or her to propose different goals and redo the analysis. In this manner, the robustness of the conclusions I draw from assumptions about player goals and their ordering can be tested.

I stress that it is the theoretical approach, and the game-theoretic methodology for implementing it, that is key. If other plausible goals lead to different conclusions about optimal play and rational outcomes, they are fair game (no pun intended).

10.2 What If Abraham Had Refused to Sacrifice Isaac?

In section 3.2, I showed that it was rational for Abraham to offer to sacrifice his son Isaac, whether Abraham was faithful regardless, wavered somewhat, or wavered seriously. These varying levels of faith were operationalized by different preferences I postulated for Abraham while holding God's preferences fixed.

In each situation, the game-theoretic analysis demonstrated that the rational outcome was a mutually best (4, 4) for Abraham and God. However, if Abraham had either wavered somewhat or wavered seriously, he did not have a dominant strategy of offering Isaac. Instead, he had to anticipate what God's choice would be in order to determine whether offering or not offering Isaac was his own rational choice.

Fortunately for Abraham, even if he wavered seriously, it was still rational for him to offer Isaac, anticipating that God's best response would be to renege on his command to sacrifice Isaac. By contrast, Jephthah faced a more vindictive God who desired above all else that Jephthah uphold his sacred vow (section 3.3). This gave Jephthah no option—unless he were seriously wavering, which apparently he was not—than to sacrifice his daughter.

What makes matters “easier” for Abraham than Jephthah is that the three games I assume Abraham might have played all contain a (4,4) outcome. True, various commentators, including Kierkagaard (see section 3.4), have argued that Abraham’s decision was anything but easy—in fact, monumentally difficult. How could any father offer to sacrifice his beloved child?

Several modern commentators consider Abraham’s decision, despite its favorable consequences, odious. Some believe that Abraham should have pleaded for Isaac’s life, as he did for saving the inhabitants of Sodom and Gomorrah. Others consider Abraham’s attempt to sacrifice Isaac a morally reprehensible act.²

Before condemning Abraham, however, let us suppose that his preferences were somewhat different from those I postulated earlier. In particular, suppose Abraham cared greatly for his son and preferred not to offer him, regardless of what God did subsequently. In this case, might Abraham have displayed the kind of moral fiber that the aforementioned commentators think he lacked (the Bible is silent on this question, reporting only Abraham’s actions)?

To frame this question in terms of two levels of goals, suppose that Abraham considered not offering Isaac for sacrifice because his (i) primary and (ii) secondary goals were as follows:

- Abraham:* (i) Preferred that God renege on his command;
(ii) Preferred not to offer Isaac.

As for God, suppose that His goals were similar but not identical to Abraham’s:

- God:* (i) Preferred to renege on his command;

(ii) Preferred that Abraham offer Isaac.

I will justify these goals in some detail later.

The primary and secondary goals of each player, taken together, completely specify the players' orderings of outcomes from best to worst. The primary goal distinguishes between the two best (4 and 3) and the two worst (2 and 1) outcomes of a player, whereas the secondary goal distinguishes between 4 and 3, on the one hand, and 2 and 1 on the other.³

Thus in the 2 x 2 matrix shown in Figure 10.1 (left side), (i) establishes that

Figure 10.1 about here

Abraham preferred outcomes in the first column (4 and 3), associated with God's strategy of renege/relent (R), to outcomes in the second column (2 and 1), associated with don't renege/relent (\bar{R}). Between the two states in each column, (ii) establishes that Abraham preferred to offer Isaac (hence, 4 and 2 are associated with O) than not offer him (3 and 1 are associated with \bar{O}).

Likewise for God, (i) says that He preferred the outcomes associated with R to those associated with \bar{R} . Unlike Abraham, however, God preferred that Abraham offer Isaac, so 4 and 2 are associated with O and 3 and 1 are associated with \bar{O} . In the 2 x 4 expansion of the 2 x 2 matrix—reflecting the fact that Abraham must act before God responds—God has a dominant strategy of R/R, and Abraham's best response to it is \bar{O} . (Notice that \bar{O} is not a dominant strategy for Abraham; he must anticipate God's choice of R/R to make his own rational choice of \bar{O} .)

Since Abraham chose O, the 2 x 4 game in Figure 10.1, which I call the Caring Game, does not provide an explanation of Abraham's action. Although it may justify Abraham's counterfactual action of not offering Isaac, how can it be reconciled with the outcome in the Bible story?

The reconciliation, in my opinion, comes after Isaac asks Abraham, "But where is the sheep for the burnt offering?" (Gen. 22:7). Abraham's answer that "God will see to the sheep for His burnt offering, my son" (Gen. 22:8) strongly indicates that Abraham knew Isaac would not be sacrificed. As additional evidence, Abraham had told his servants, before leaving them and the ass behind, that "we will return to you" (Gen. 22:5). As I showed in section 3.2, this apparent foreknowledge of Abraham—even if he were somewhat wavering or seriously wavering—robbed him of any reason to defy God's edict or plead for Isaac's life.

But now consider the goals I have postulated for Abraham in the Caring Game. As was true of a somewhat and seriously wavering Abraham whose behavior I analyzed in section 3.2, Abraham's primary goal in the Caring Game translates into his attributing highest value to preserving Isaac's life. However, because I now suppose that Abraham prefers not to offer Isaac, the question becomes whether he can do so with impunity.

The answer would appear to be "yes," because God has a dominant strategy of R/R in the Caring Game, which He did not have in the Figure 3.2 games (\bar{R}/\bar{R} was his dominant strategy in all three 2 x 4 games). But because Abraham did not in fact choose O, should not the Caring Game be rejected as a model of what happened?

I think not, because the Almighty can *threaten* to choose \bar{R}/\bar{R} , prior to Abraham's choice, if Abraham does not choose O. Observe that \bar{R}/\bar{R} contains Abraham's two worst

(1 and 2) outcomes. (They also are God’s two worst outcomes, which is a matter I will return to shortly.) If Abraham believes that God’s threat of choosing \bar{R}/\bar{R} is real, then Abraham should choose O, because his next-best (3,4) outcome is preferable to his next-worst (2,1) outcome, especially if Abraham is risk-averse.

True, God never uttered a threat about what would happen to Isaac if Abraham defied his command to offer him as a burnt offering. But this threat was implicit in the language of the command, in which God stressed the sacrifice would be of your “favored one, whom you love” (Gen. 22:2). By revealing that He knew that Abraham prized Isaac above all else, God was almost daring Abraham to defy him—and suffer the consequences if he did. Fearing the worst, Abraham chose what the aforementioned commentators consider a less-than-honorable avenue of escape.⁴

But if we suppose the Caring Game is an accurate rendition of the players’ preferences, then Abraham *could* have afforded to ignore God’s implicit threat, or at least pleaded for Isaac’s life. By refusing to offer Isaac initially, Abraham would have set up a situation in which God must choose between His next-best (4,3) outcome and His worst (2,1) outcome.⁵

In effect, having the first move puts Abraham in the position of being able to force a choice on God that, if He chooses rationally, leads to Abraham’s best outcome, (4,3). Thereby God’s implicit threat is undermined, rendering it more a bluff than a serious threat, *unless* God desires to set a terrible example for those who defy him—and suffer himself for doing so by terminating the “great nation” (Gen. 12:2) that He had promised Abraham He would found and bless (section 3.2).⁶

Was God's threat irrational then? I have argued elsewhere that the nature of a threat is that it is costly for both the threatener and the threatened party if it is carried out.⁷ (If this were not the case, there would be no need to threaten—taking immediate action against a transgressor would be rational.) Threats are made to deter *future* transgressions; they are irrational to carry out if there is no future. That is why God's implicit threat to kill Isaac, and thereby arrest the future of the great nation He had promised Abraham He would establish and make prosper, is problematic.

The fact that God chose to test Abraham under these circumstances raises the following question: Would He have done so if he thought Abraham would fail the test? Perhaps not. But recall that God endowed people with free will, presumably understanding that this might cause Him grief later (section 2.3). When it does, God sometimes finds it rational to swallow His pride and not exact the full retribution he had threatened (for example, against Adam and Eve, Cain, and the Israelites after their idolatry at Mount Sinai).

Because there is a mutually best (4,4) outcome in all the Figure 3.2 games, it is no great feat for the players to achieve it. In the Caring Game, by comparison, there is no such outcome but instead two competing Pareto-optimal outcomes—(4,3) favoring Abraham, and (3,4) favoring God. An outcome is *Pareto-optimal* if there is no other outcome better for *both* players, which is not true of either (1,2) or (2,1).

Game theory predicts (4,3), because it is a dominant-strategy *Nash equilibrium* outcome, or an outcome from which neither player would unilaterally depart because it would do worse if it did. To illustrate, from (3,4), Abraham would benefit by switching from O to \bar{O} , yielding (4,3), which prevents (3,4) from being a Nash equilibrium

outcome. By comparison, from (4,3) God cannot improve on His next-best outcome by switching from R/R to any other strategy.

Now what I have called “threat power” can displace the equilibrium outcome in this game.⁸ Underlying threat power is the ability of one player to threaten a *Pareto-inferior* outcome—one worse for both players than some Pareto-optimal outcome—and, if necessary, choose its strategy associated with it.

In the Caring Game, God’s threat would be to choose R/ \bar{R} ; if Abraham chooses \bar{O} , both players would suffer at (2,1), compared to (3,4), if Abraham chooses O.⁹ Hence, if God has threat power, this threat will deter Abraham from choosing \bar{O} , because this power enables God better to endure the (Pareto-inferior) “breakdown outcome” of (2,1) than Abraham.

Although God regularly clamped down on recalcitrants in order to deter future challenges, we have seen that sometimes He backed off. I believe there are two reasons why He would have done so in Abraham’s case if Abraham had refused to offer Isaac:

1. As already noted, Isaac’s sacrifice would have brought an end to the chosen people, whom God had promised would multiply and prosper. This would have been a huge disappointment to God, throwing away everything He had done since the creation.
2. It would have been foolish of God to have allowed the sacrifice of Isaac simply because Abraham failed a test that may have better reflected Abraham’s strategic acumen than his true faith.

To be sure, God, aware of Abraham’s calculating nature, presumably knew that His test of Abraham’s faith was flawed. Nevertheless, God still probably derived

satisfaction from Abraham's passing the test, even if it was bogus. After all, it showed that Abraham was astute enough to anticipate God's preferences; going through the motions of sacrificing Isaac was better for God than defiance. And it would also impress on others that Abraham was no wimp and could, if necessary, do the unthinkable.¹⁰

But now I postulate a *caring* Abraham who, contrary to what happened, would prefer not to offer Isaac if God is likely to renege. For if Isaac is saved, having a son traumatized by the belief that his father was ready to sacrifice him would hardly lead to a warm and loving relationship between father and son. And if Isaac were killed, Abraham would probably be wracked by guilt that he might have saved his son by acting differently.

In my opinion, Abraham probably could have gotten away with refusing to sacrifice Isaac. For one thing, God's threat was never explicit, so there would not have been an enormous need for face-saving on God's part. For another, God did prove willing to listen to Abraham's appeals on behalf of Sodom and Gomorrah and offer them reprieves, even though, in the end, these cities did not have enough righteous inhabitants to be worth saving.

I believe God would have been more open to an appeal on behalf of an innocent child than the wicked inhabitants of Sodom and Gomorrah, even if Abraham's refusal to offer Isaac was not what God most wanted. From a moral standpoint, Abraham's refusal would have shown him to have had the courage to stand up for something of paramount importance to himself, just as Moses, while infuriated by the behavior of the Israelites for building the golden calf (section 5.6), still stood up for their survival. But, I conclude

reluctantly, Abraham was no Moses, about whom it was said, “Never again did there arise a prophet like Moses” (Deut. 34:10).

The Caring Game, and the preferences on which it is built, suggest that Abraham’s refusal would *not* have been catastrophic either for him or for God. Contrary to what happened in one of the most harrowing situations to face a character in the Hebrew Bible, I believe the counterfactual can be entertained. If Abraham were indeed the caring father, which is a big if, he (rationally) could have ignored God’s implicit threat, or at least pleaded for Isaac’s life, which doubtless would have enhanced his already considerable reputation as patriarch of the Jews.

10.3. The Revelation Game

Using a 2 x 2 game to model the relationship that a person (P) might have with a superior being (SB), like God, drastically simplifies a deep and profound religious experience for many people.¹¹ My aim, however, is not to describe this experience but to abstract from it, using a specific game to analyze two central theological questions: Can P’s belief in SB be conceptualized as a rational choice? Presuming SB exists, is it rational for SB to reveal itself? (I will use the neutral “it,” despite its awkwardness, to refer to both P and SB.)

The answer depends, in part, on whether one thinks it is proper to view SB as a game player, capable, like P, of making independent choices. Or is SB too ethereal or metaphysical an entity to put in these terms? Consider the view expressed by the theologian, Martin Buber—noted at the beginning of this book—about his approach to understanding God:

The description of God as a Person is indispensable for everyone who

like myself means by “God” not a principle . . . not an idea . . . but who rather means by “God,” as I do, him who—whatever else he may be—enters into a direct relation with us.¹²

It is not a great leap of faith, in my view, to model a “direct relation” as a game, though as Raymond Cohen points out, in the nonWestern world “the concept of a personal, unmediated relationship between human being and deity is quite incomprehensible.”¹³

The game I will use to explore the rationality of belief in an SB is the Revelation Game, which supposes specific primary and secondary goals of P and SB. To preview the subsequent analysis, I will show that

- play of this game leads to a Pareto-nonoptimal equilibrium outcome; but
- both P and SB can induce Pareto-optimal outcomes in this game if one or the other possesses “moving power.”

The preferences of players in this game mirror those of players in some of the biblical games discussed earlier. But beyond the Bible, it is useful to consider how players in the Revelation Game might behave over long periods of time.

In the Revelation Game, I assume that SB has two strategies: reveal itself (R), which establishes its existence, and don’t reveal itself (\bar{R}), which does not establish its existence. Similarly, P has two strategies: believe in SB’s existence (B), and don’t believe in SB’s existence (\bar{B}).

As in section 10.2, I begin by specifying (i) primary and (ii) secondary goals of each player:

SB: (i) Wants P to believe in its existence;

(ii) Prefers not to reveal itself.

P: (i) Wants belief (or nonbelief) in SB's existence confirmed by evidence (or lack thereof);

(ii) Prefers to believe in SB's existence.

Thus for SB, (i) establishes that it prefers outcomes in the first column of the Figure 10.2 matrix (4 and 3), associated with P's strategy of B, to outcomes in the second column of

Figure 10.2 about here

the matrix (2 and 1), associated with P's strategy of \bar{B} . Between the two outcomes in each column, (ii) establishes that SB prefers not to reveal itself (hence, 4 and 2 are associated with \bar{R}) over revealing itself (3 and 1 are associated with R).

Likewise for P, (i) says that it prefers to have its belief or nonbelief confirmed by evidence (so the main-diagonal outcomes are 4 and 3) to being unconfirmed (so the off-diagonal outcomes are 2 and 1). Between the pairs of main-diagonal and off-diagonal outcomes, (ii) says that P prefers to believe (so 4 and 2 are associated with B) rather than not to believe (so 3 and 1 are associated with \bar{B}).

In the contemporary world, I would submit, evidence from one's observations, experiences, and reflections accumulates that predisposes one to believe or not believe in the existence of God or some other supernatural being or force—or leaves the issue open. How beliefs are formed about a deity is less well understood.¹⁴

Of course, religions predispose one toward particular views, and religious works may reinforce them. I next offer some brief remarks on the Hebrew Bible, which may lend plausibility to the goals of P and SB that I have postulated.

Evidence that God wanted His supremacy acknowledged by both Israelites and non-Israelites is certainly plentiful in the Bible. Moreover, the biblical narratives make plain that God pursued this goal with a vengeance not only by severely punishing, on numerous occasions, those who did not adhere to His commands and precepts but also by bestowing rewards on the faithful who demonstrated their unswerving belief through good deeds and sacrifices.

Yet beyond providing indirect evidence of His presence through displays of His might and miraculous powers, God has an overarching reason for not revealing Himself directly: it would undermine any true test of a person's faith, which I assume to be belief in God not necessarily corroborated by direct evidence. Only to Moses did God confirm His existence directly—"face-to-face" (Exodus 33:11; Numbers 12:6-8; Deuteronomy 34:10)—but that Moses actually saw God firsthand is contradicted by the statement God made to Moses: "But," He said, "you cannot see My face, for man may not see Me and live." (Exodus 33:20)

Because a person cannot be truly tested if God's existence has already been confirmed by some unequivocal revelatory experience, I assume God most desires from His subjects an expression of belief that relies only on faith—that is, belief without direct evidence. Indeed, it is not unfair, as I argued in section 9.2, to read the Bible as the almost obsessive testing of human beings by God to distinguish the faithful from those whose commitment to Him is lacking in zeal or persistence. Although I did not analyze

the Book of Job (see ch. 9, note 1), Job's plight is worth recalling: When he was subjected to great misfortune, his faith faltered; but he never abandoned God and was richly rewarded in the end.

This justification of SB's goals by way of the God's statements and actions will not be persuasive to those who regard the Hebrew Bible as an unreliable source at best, pure fantasy at worst. It is *not*, however, a nonbeliever—or, for that matter, a believer—whom I postulate as P in the Revelation Game. Instead, I assume that P is somebody who takes the Bible (or other monotheistic religious works) seriously. Although these works may describe experiences that are outside P's ken or beyond the secular world, I suppose that P has yet to make up its mind about the existence of an “ultimate reality” embodied in some SB.

While P entertains the possibility of SB's existence, and in fact would prefer confirmatory to nonconfirmatory evidence in the Revelation Game (according to its secondary goal), *evidence is P's major concern* (according to its primary goal). Moreover, P realizes that whether or not SB provides it will depend on what SB's rational choice in the Revelation Game is.

To highlight the quandary that the Revelation Game poses for both players, observe that SB has a dominant strategy of \bar{R} : this strategy is better for SB whether P selects B [because SB prefers (4,2) to (3,4)] or \bar{B} [because SB prefers (2,3) to (1,1)]. Given SB's dominant strategy of \bar{R} , P, which does not have a dominant strategy but prefers (2,3) to (4,2) in the second row of the Revelation Game, will choose \bar{B} as a best response. These strategies lead to the selection of (2,3), which is the unique Nash

equilibrium outcome in the Revelation Game, but it is an outcome Pareto-inferior to (3,4).

Even though (3,4) is better for both players than (2,3), (3,4) is not a Nash equilibrium because SB has an incentive, once at (3,4), to depart to (4,2). But neither is (4,2) an equilibrium, because once there P would prefer to move to (2,3).

According to the theory of moves (see note 6), the Revelation Game is “moderately cyclic.” This means that when the players cycle in the direction of the arrows shown in Figure 10.2 (counterclockwise), the player moving from one outcome to another never moves from its best outcome of 4. For example, if play starts at the upper-right outcome of (1,1), then

- from (1,1), P’s departs from its worst to its best outcome of (3,4);
- from (3,4), SB departs from its next-best to its best outcome of (4,2);
- from (4,2), P departs from its next-worst to its next-best outcome of (2,3);
- from (2,3), SB departs from its next-worst to its worst outcome of (1,1).

Observe that all these moves immediately benefit the mover, except SB’s move from (2,3) to (1,1). This move creates an *impediment*, making the Revelation Game *moderately cyclic*. If there are no impediments, a game is *strongly cyclic*; if there are two impediments, a game is *weakly cyclic*.¹⁵

Before applying the concept of moving power to the Revelation Game, let me clarify SB’s choice of \bar{R} , which I interpreted earlier as “don’t establish its existence” (see Figure 10.2). From P’s perspective, \bar{R} may occur for two distinct reasons: (i) SB does not in fact exist, or (ii) SB does not choose to reveal itself. Not only can P not distinguish

between these two reasons for nonrevelation, but even if SB exists, P knows that SB has a dominant strategy of \bar{R} and would, therefore, presumably choose it in the Revelation Game.

For this reason, I do not assume that P would ever think there is conclusive evidence of *nonexistence*, so I do not give P this option in the Revelation Game. Instead, P can choose *not to believe* in SB's existence and—though this is not shown in the matrix—not to believe in SB's nonexistence, either, which is to say that P is an agnostic. That is, P suspends judgment, which I interpret as a kind of commitment to remain noncommittal.¹⁶

In a sense, a thoughtful agnostic plays the Revelation Game all its life, never certain about SB's strategy choice, or even that SB exists. In choosing \bar{B} , I interpret P to be saying that it does not believe either in SB's existence or nonexistence *yet*—in other words, it wants to keep its options open.

Should P become a believer or a nonbeliever, then it no longer would be torn by the self-doubt reflected in its choices in the Revelation Game. The evidence, so to speak, would be in. But I assume that P is neither an avowed theist nor an avowed atheist but a person with a scientific bent, who desires confirmation of either belief or nonbelief. Preferring the former to the latter as a secondary goal, P is clearly not an inveterate skeptic.

What SB might desire, on the other hand, is harder to discern. Certainly the God of the Hebrew Bible very much sought, especially from His chosen people, the Israelites, untrammelled faith and demonstrations of it. Although He never revealed Himself in any

physical form, except possibly to Moses before he died, He continually demonstrated His powers in other ways, especially by punishing those he considered transgressors.

A player has “moving power” if it can outlast its opponent in a cyclic game. By “outlast” I mean that one (stronger) player can force the other (weaker) player to stop the move-countermove process at an outcome where the weaker player has the next move.

More precisely, P1 has *moving power* in a 2 x 2 game if it can induce P2 eventually to stop, in the process of cycling, at one of the two outcomes at which P2 has the next move. The state at which P2 stops, I assume, is that which P2 prefers.¹⁷

In the Revelation Game, moving power is *effective*—the outcome that each player can induce with moving power is better for it than the outcome that the other player can induce with this power. To see this, assume that SB possesses moving. Because cycling is counterclockwise, SB can induce P to stop at either (4,2) or (1,1), where P has the next move. Obviously, P would prefer (4,2), which is indicated as the moving-power outcome that SB can induce by the superscript SB in the Revelation Game; it gives SB its best outcome of 4 and P its next-worst outcome of 2.

On the other hand, if P possesses moving power, it can induce SB to stop at either (3,4) or (2,3), where SB has the next move. Obviously, SB would prefer (3,4), which is indicated as the moving-power outcome that P can induce by the superscript P in the Revelation Game; it gives P its best outcome of 4 and SB its next-best outcome of 3.

Notice that the player with moving power can ensure a better outcome for itself (4) than the player without it (either 2 or 3). Hence, it is better for a player to possess moving power in the Revelation Game than for the other player to possess it, which makes this power effective.¹⁸

If SB has moving power, it can induce P to believe without evidence, which satisfies both of SB's goals. By contrast, P satisfies only its secondary goal of believing, but not its primary goal of having evidence to support this belief.

Endowing SB with moving power raises a feasibility question: whenever P moves from belief to nonbelief, SB should switch from revelation to nonrevelation. But once SB has established its existence by revealing itself, can it be denied?

I suggest that this is possible, but only if one views the Revelation Game as a game played out over a long period of time. To illustrate this point, consider the situation recounted in Exodus. After God "called Moses to the top of the mountain" (Exodus 19:20) to give him the ten commandments, there was "thunder and lightning, and a dense cloud . . . and a very loud blast of the horn" (Exodus 19:16). This display provided incontrovertible evidence of God's existence to the Israelites, but for readers of the Bible today, it is perhaps not so compelling.

Yet even the Israelites became wary and restive after Moses's absence on Mount Sinai for forty days and nights (section 5.6). With the complicity of Aaron, Moses's brother, they revolted and built themselves a golden calf. God's earlier displays of might and prowess had lost their immediacy and, therefore, their force.

Moving to the present, the basis of belief would seem even more fragile. Many people seek a more immediate revelatory experience than reading the Bible, and some find it. For those who do not, God remains hidden or beyond belief unless they can apprehend Him in other ways.

This is where the problem of revelation arises. Without a personal revelatory experience, or the reinforcement of one's belief in God that may come from reading the

Bible or going to religious services, belief in God's existence may be difficult to sustain with unswerving commitment.

Revelation, also, may be a matter of degree. If God appears with sound and fury, as He did at Mount Sinai, He may likewise disappear like the morning fog as memories of Him slowly fade. Thereby seeds of doubt are planted. But a renewal of faith may also occur if a person experiences some sort of spiritual awakening.

A wavering between belief and nonbelief created by SB's moving between revelation and nonrevelation shows that P's belief in SB *may have a rational basis for being unstable*. Sometimes the evidence manifests itself, sometimes not, in the Revelation Game. What is significant in this game is that SB's exercise of moving power is consistent with SB's sporadic appearance and disappearance—and with P's responding to revelation by belief, to nonrevelation by nonbelief.

In the Bible, God seems to want to remain inscrutable, as the following colloquy suggests:

Moses said to God, "When I come to the Israelites and say to them 'The God of your fathers has sent me to you,' and they ask me, 'What is His name?' what shall I say to them?" And God said to Moses, "Ehyeh-Asher-Ehyeh" ["I Am That I Am"]. He continued, "Thus shall you say to the Israelites, 'Ehyey [I Am] sent me to you.'"

(Exodus 3:13-14)

As enigmatic as this reply is, however, God is also quick to trumpet His deeds and demonstrate His powers, as I showed in section 5.5 in discussing the pursuit of the Israelites by Pharaoh.

Relying on faith alone, when reason dictates that it may be insufficient to sustain belief, produces an obvious tension in P. Over a lifetime, P may move back and forth between belief and nonbelief as seeming evidence appears and disappears. For example, the indescribable tragedy of the Holocaust destroyed the faith of many believers, especially Jews, in a benevolent God, and for some it will never be restored.

But for others it has been rejuvenated. Furthermore, many former nonbelievers have conversion experiences—sometimes induced by mystical episodes—and, as a result, pledge their lives to Christ or God. For still others, there is a more gradual drift either toward or away from religion and belief in an SB, which is often positively related to age.

More broadly, there are periods of religious revival and decline, which extend over generations and even centuries, that may reflect a collective consciousness about the presence or absence of an SB—or maybe both. As Leszek Kolakowski remarked, “The world manifests God and conceals Him at the same time.”¹⁹

It is, of course, impossible to say whether an SB, behind the scenes, is ingeniously plotting its moves in response to the moves, in one direction or another, of individuals or society. But this is not the first Age of Reason, though it has had different names in the past (for example, Age of Enlightenment), in which people seek out a rational explanation. Nor will it be the last, probably again alternating with periods of religious reawakening, as occurred during the Crusades and arguably today, that will also come and go. This ebb and flow is inherent in the instability of moves in the Revelation Game, even if an SB, possessed of moving power, has its way on occasion and is able temporarily to implement (4,2).

Perhaps the principal difficulty for SB in making this outcome stick is that peoples' memories erode after a prolonged period of nonrevelation. Consequently, the foundations that support belief may crumble. Nonbelief sets up the need for some new revelatory experiences, sometimes embodied in a latter-day messiah, followed by a rise and then another collapse of faith.

If P is assumed to be the player who possesses moving power, then it can induce (3,4), which SB would prefer to (2,3), given that SB must stop at one or the other of these two outcomes when it has the next move. If the idea of "forcing" SB to reveal itself—and, on this basis, for P to believe—sounds absurd, it is useful to recall that God exerted Himself mightily on occasion to demonstrate His awesome powers to new generations. By the same token, God left the stage at times in order to test a new generation's faith, usually being forced to return in order to foster belief again.

The effects of moving power, whether possessed by SB or P, seem best interpreted in the Revelation Game as occurring over extended periods of time. Memories fade, inducing SB to move from nonrevelation to revelation when the next generation does not understand or appreciate SB's earlier presence. Even when SB moves in the opposite direction, going from revelation to nonrevelation, its actions may not appear inconsistent if P, effectively, is a different player. Thereby the earlier concern I raised about infeasible moves is dissipated in an extended game in which the identity of P changes.

Because the Revelation Game is a cyclic game with two Pareto-optimal outcomes, one of which each player can induce, it seems best viewed as a game of movement, in which either player, if it possesses moving power, can induce its best outcome. Yet this is usually only a temporary "passing through," because the other player can respond by

switching strategies. Finally, the player without moving power will be forced to desist. But if this player is P, and it believes for a time without evidence, then eventually it will be replaced by another P that feels less piety in the face of an ineffable SB.

Feasibility may militate against too quick switches on the part of the players, but fundamentally the Revelation Game is a game for the ages. Its fluidity—rather than the stability of its Pareto-inferior (2,3) Nash equilibrium—seems its most striking feature. The theory of moves highlights its unsettling nature as players alternate between belief and nonbelief when they cycle through the two Pareto-optimal moving-power outcomes, (3,4) and (4,2).

10.4. Conclusions

I emphasized at the outset that my interpretation of player goals in both the Caring Game and the Revelation Game are not sacrosanct. If the reader disagrees with the goals I have postulated, he or she can propose alternative goals and explore their ramifications using game theory and the theory of moves.

In the Caring Game, there is a unique Nash equilibrium, but Abraham's strategy associated with it was not the one he chose in the Bible story. To explain why even a caring Abraham might have departed from his dominant strategy and instead offered Isaac for sacrifice, I invoked the possibility that God had threat power and that Abraham was risk averse.

Still, Abraham probably could have chosen not to offer Isaac and escaped severe punishment, because the costs to God of carrying out his implicit threat would have been great. Moreover, how could Abraham not be aware of God's interest in making Abraham

the progenitor of His chosen people when, just before commanding Abraham to sacrifice Isaac, God promised him abundant offspring for the sixth time?

If Abraham had acted to save Isaac, he would have been seen as possessing moral fortitude in the eyes of some, lacking faith in the eyes of others. But morality aside, just as Abraham's actual choice in the Bible has a rational explanation (indeed, several explanations, as I showed earlier), so does his counterfactual action. In short, game theory and the theory of moves helps us understand what happened, and under what circumstances what did not happen *might* have happened.

I posited that players in the Revelation Game might possess moving rather than threat power, which in this game upsets the Pareto-inferior Nash equilibrium—at which SB does not reveal itself and P does not believe—whichever player has this power. Normally, one would suppose that SB would possess moving power and so would be able to implement its most-preferred outcome, getting P to believe without revelation.

However, it is just as reasonable, when the torch passes to a new generation of people that does not remember the punishment their forbears suffered for their lack of faith, that the game will cycle to nonbelief. SB will then be forced to reveal itself, possibly through the retribution it inflicts on nonbelievers, and belief in SB once again will be restored.

The alternation between belief and nonbelief, and revelation and nonrevelation, illustrates the instability inherent in the Revelation Game, despite its unique Nash equilibrium. Similarly, God's threat power in the Caring Game might have moved Abraham away from his Nash equilibrium strategy of refusing to offer Isaac, though I

suggested that Abraham had good reasons for believing that his punishment for defiance would be minimal or nonexistent.

The theory of moves illuminates the dynamics of play in games, and the effects of different kinds of power, that standard game theory does not uncover. The games themselves take us beyond the Hebrew Bible by shedding light on (i) what did not but might have happened in one famous story (Caring Game) and (ii) the rational basis for believing in a superior being that abstracts from different stories (Revelation Game). In sum, the strategic interpretation of the Bible via game theory and the theory of moves helps us think afresh about old stories—including what did not happen as well as what did—and about their larger significance in our lives today.

Figure 10.1

Payoff Matrix of Caring Game

		God		God			
		R	\bar{R}	R/R	\bar{R}/\bar{R}	R/ \bar{R}	\bar{R}/R
Abraham	O	(3,4)	(1,2)	(3,4) ^G	(1,2)	(3,4)	(1,2)
	\bar{O}	(4,3)	(2,1)	<u>(4,3)</u>	(2,1)	(2,1)	(4,3)
				↑			
				Dominant			

Key: $(x,y) = (\text{payoff to Abraham, payoff to God})$

4 = best; 3 = next best; 2 = next worst; 1 = worst

Nash equilibrium underscored

G = threat power outcome God can induce

Figure 10.2

Outcome and Payoff Matrix of Revelation Game

		P	
		Believe in SB's existence (B)	Don't believe in SB's existence (\bar{B})
SB	Reveal itself (R) (establish its existence)	P faithful with evidence: belief in existence confirmed $(3,4)^P$	P unfaithful despite evidence: nonbelief in existence unconfirmed $(1,1)$
	Don't reveal itself (\bar{R}) (don't establish its existence)	P faithful without evidence: belief in existence unconfirmed $(4,2)^{SB}$	P unfaithful without evidence: nonbelief in existence confirmed <u>$(2,3)$</u> ← Dominant

← ↓ ↑ →

Key: $(x,y) = (\text{payoff to SB, payoff to P})$

4 = best; 3 = next best; 2 = next worst; 1 = worst

Nash equilibrium underscored

Arrows indicate direction of cycling

SB = moving power outcome SB can induce

P = moving power outcome P can induce

¹ Counterfactual analysis has been mostly applied to international politics and military affairs. See, for example, Philip E. Tetlock and Aaron Belkin (eds.), *Counterfactual Thought Experiments in World Politics: Logical, Methodological, and Psychological Perspectives* (Princeton, NJ: Princeton University Press, 1996); and Robert Cowley (ed.), *What If? The Worlds' Foremost Military Historians Imagine What Might Have Been* (New York: G. P. Putnam's Sons, 1999). Two contributions to the Tetlock-Belkin volume make explicit use of game theory: Bruce Bueno de Mesquita, "Counterfactuals and International Affairs: Some Insights from Game Theory" (pp. 211-229); and Barry R. Weingast, "Off-the-Path Behavior: A Game-Theoretic Approach to Counterfactuals and Its Implications for Political and Historical Analysis" (pp. 230-243).

² An excellent summary of these views can be found in Alan M. Dershowitz, *The Genesis of Justice: Ten Stories of Biblical Injustice that Led to the Ten Commandments and Modern Law* (New York: Warner Books, 2000), ch. 6. More traditional interpretations of the Hebrew Bible are discussed in James L. Kugel, *The Bible as It Was* (Cambridge, MA: Harvard University Press, 1997). A good balance of both ancient and modern interpretations of the text of the Torah, which is given in both Hebrew and English, can be found in *The Torah: A Modern Commentary* (New York: Union of American Hebrew Congregations, 1981), supplemented by the prophetic writings in *The Haftorah Commentary* (New York: Union of American Hebrew Congregations, 1996); and *Etz Chaim: Torah and Commentary* (New York: Rabbinical Assembly and United Synagogue of Conservative Judaism, 2001). A noteworthy attempt to develop a political

theory, starting with the Bible but encompassing the entire span of Jewish political thought, is Michael Walzer, Menachem Lorberbaum, and Noam J. Zohar (eds.), *The Jewish Political Tradition* (New Haven, CT: Yale University Press); vol. I, *Authority*, appeared in 2000; three more volumes, *Membership*, *Community*, and *Politics in History*, are forthcoming.

³ This is an example of a *lexicographic decision rule*, whereby outcomes are first ordered on the basis of a most important criterion, then a next most important criterion, and so on. See Peter C. Fishburn, “Lexicographic Orders, Utilities and Decision Rules: A Survey,” *Management Science* 20, no. 11 (July 1974): 1442-1471.

⁴ The question of honor, and the use of dares to test a person’s fearlessness when his or her honor is challenged, is imaginatively discussed in Barry O’Neill, *Honor, Symbols, and War* (Ann Arbor, MI: University of Michigan Press, 1999), ch. 7.

⁵ The idea of setting up a situation in which it is rational to be truthful is the subject of “implementation theory” in game theory. Mechanisms for eliciting the truth in the Solomon story (section 6.4) are proposed in John Glazer and C. Albert Mu, “Efficient Allocation of a ‘Prize’—King Solomon’s Dilemma,” *Games and Economics Behavior* 1, no. 3 (1989): 222-233, and discussed, along with other mechanisms, in Martin J. Osborne and Ariel Rubinstein, *A Course in Game Theory* (Cambridge, MA: MIT Press, 1994); and Motty Perry and Philip J. Renny, “A General Solution to King Solomon’s Dilemma,” *Games and Economic Behavior* 26, no. 2 (February 1999): 279-285.

⁶ In *God: A Biography* (New York: Vintage, 1995), p. 60, Jack Miles views the test as a combination of “bluff and ruse,” questioning to what extent God had the upper hand if Abraham saw through what the test was intended to do. It is worth noting here that God is not the only character in the Hebrew Bible to have been the subject of a recent “biography.” See, for example, Pamela Norris, *Eve: A Biography* (New York: New York University Press, 1999), Steven L. McKenzie, *King David: A Biography* (New York: Oxford University Press, 2000), and Jonathan Kirsch, *King David: The Real Life of the Man Who Ruled Israel* (New York: Ballantine, 2000). Books in this vein on Moses include Jonathan Kirsch, *Moses: A Life* (New York: Ballantine, 1998), and Aaron Wildavsky, *The Nursing Father: Moses as a Political Leader* (University, AL: University of Alabama Press, 1984). These books bring in archeological, historical, linguistic, and other sources both to paint rich portraits of their featured characters and trace their evolution through time. More generally, applications of game theory to literature are discussed and illustrated in Steven J. Brams, “Game Theory and Literature,” *Games and Economic Behavior* 6, no. 1 (January 1994): 32-54; and Steven J. Brams, “Game Theory and Emotions,” *Rationality and Society* 9, no. 1 (February 1997): 93-127.

⁷ Steven J. Brams, *Theory of Moves* (Cambridge, UK: Cambridge University Press, 1994), ch. 5.

⁸ Threat power is formally defined in Steven J. Brams and Marek P. Hessel, “Threat Power in Sequential Games,” *International Studies Quarterly* 28, no. 1 (March 1984): 23-44, and *Theory of Moves*, ch. 5, and has been applied to a variety of situations. In the

Caring Game, Abraham has a “compellent” threat and God has a “deterrent” threat. But God’s deterrent threat is not credible, because Abraham chooses first. This game, incidentally, is called a “king-of-the-mountain game” in Steven J. Brams and Christopher B. Jones, “Catch-22 and King-of-the-Mountain Games: Cycling, Frustration, and Power,” *Rationality and Society* 11, no. 2 (May 1999): 1349-167; it is susceptible to the exercise of “moving power,” which I will describe and illustrate in section 10.3. Threat power, moving power, and a third kind of power (order power) are all concepts defined and analyzed in Brams, *Theory of Moves*. This theory and its applications have been controversial; see, for example, the exchange between Randall W. Stone, “The Use and Abuse of Game Theory in International Relations: The Theory of Moves,” and Steven J. Brams, “Response to Randall Stone: Heresy or Scientific Progress?,” both in *Journal of Conflict Resolution* 45, no. 2 (April 2001): 216-244 and 245-256.

⁹ They would also suffer if the 3 and 2 payoffs for God were interchanged in the 2 x 2 game, so (4,3) would be (4,2) and (1,2) would be (1,3). In the resulting 2 x 4 game, God would have the same dominant strategy and threat opportunity as in the Caring Game; the difference is that for God, saving Isaac’s life if Abraham offers him for sacrifice is ranked below sacrificing Isaac if he is offered (2 versus 3). While God is less forgiving in this variation of the Caring Game, it would still be in His interest to renege if Abraham offers Isaac, because (4,2) is better for God than (2,1).

¹⁰ This point was suggested to me by Michael Segal.

¹¹This section is adapted from Steven J. Brams, *Superior Beings: If They Exist, How Would We Know. Game-Theoretic Implications of Omniscience, Omnipotence, Immortality, and Incomprehensibility* (New York: Springer-Verlag, 1983), pp. 15-24, 145, 101-104; and *Theory of Moves*, pp. 102-110.

¹²Martin Buber, *I and Thou*, 2nd ed. (New York: Scribner's, 1958), p. 135.

¹³Raymond Cohen, *Negotiating Across Cultures* (Washington, DC: U.S. Institute of Peace, 1991), p. 24.

¹⁴For a developmental analysis of faith, see James W. Fowler, *Stages of Faith: The Psychology of Human Development and the Quest for Meaning* (San Francisco: Harper and Row, 1981). Different kinds of theological evidence, and the different kinds of rationality that they give rise to, are discussed in Richard Swinburne, *Faith and Reason* (Oxford, UK: Clarendon, 1981), chs. 2 and 3.

¹⁵In *Theory of Moves*, ch. 4, it is shown that no 2 x 2 game can have more than two impediments. Additionally, if a game is cyclic in one direction, it cannot be cyclic in the other direction. Thus in the Revelation Game, clockwise moves from (4,2) to (3,4) by SB, and from (3,4) to (1,1) by P, involve moving from a best outcome (4), so this game does not cycle in a clockwise direction. Of the 57 distinct 2 x 2 conflict games—in which each player can rank the four outcomes from best to worst, and there is no mutually best (4,4) outcome—36 games (63 percent) are cyclic in either a clockwise or counterclockwise direction.

¹⁶ Not everyone believes such openness is desirable, at least in the case of God. In *What I Don't Believe and Other Essays* (edited by Stephen Toulmin and Harry Woolf; Dordrecht, Holland: D. Reidel, 1971, pp. 303-331), Norwood Russell Hanson argues that the proper position of the agnostic on the question of God's existence should be one of reasonable doubt. For Hanson, moreover, the evidence is tipped decisively against God's existence. I discuss the views of other thinkers about the rationality of believing in God (for example, Blaise Pascal, who proposed a famous wager based on the probability that God exists) in Brams, *Superior Beings*.

¹⁷ An earlier version of this concept was proposed in Steven J. Brams, "Omniscience and Omnipotence: How They May Help—or Hurt—in a Game," *Inquiry* 25, no. 2 (June 1982): 217-231, where it was called "omnipotence"; it was later refined and analyzed in more detail in *Superior Beings*, ch. 4, and *Theory of Moves*, ch. 4.

¹⁸ Of the 36 2 x 2 cyclic games, 16 are games, like the Revelation Game and the Caring Game, in which moving power is effective. (I used threat power in the analysis of the Caring Game, because there is no evidence that there was cycling in this game. Nevertheless, the exercise of moving power in this game has the same effect as threat power, though this is not the case in all games.) Of the remaining 20 games, in 16 games moving power is *irrelevant*—the outcome induced by one player is better for both players—and in 4 games it is *ineffective*—each player prefers the outcome that the other player can induce. Because the exercise of moving power is counterproductive in the

latter games, such power would be something that players, paradoxically, would not want to wield.

¹⁹ Leszek Kolakowski, *Religion* (New York Oxford University Press, 1982), p. 140.