Scientific and Religious Mindsets: A Candid Look at the Perils of a Panglossian President

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Abstract

Through Voltaire's novella *Candide*, this essay examines the differences between a scientific and a religious mindset and the consequences of poor decision-making when a political leader has a religious mindset that he misapplies to fundamentally scientific questions. By analyzing various decisions that President Bush has made, it is argued that he has a religious mindset that has resulted in several fallacious choices of extreme import, yielding considerable losses. As such, a decision-maker with power should be able to distinguish questions best answered with a scientific mindset from those that are in the realm of philosophy or religion and apply a scientific mindset to the former. A scientific mindset formulates a theory that yields testable propositions, it acquires data and uses that to evaluate the verity of the theory. As the data contradict the theory's predictions, the theory is adjusted. The religious mindset proffers certain explanations but then holds steadfastly to them. It ignores contrary evidence, does not adjust its tenets, or alter its prescribed behaviors, attacks the integrity of those who espouse contrarian viewpoints, and commits logical fallacies, such as inverting the causative relationship. KEYWORDS: *Candide*, Panglossian, Scientific Mindset, Religious Mindset, George W. Bush.

Nearly three centuries ago, the French philosopher and thinker Voltaire wrote a novella that has given the English language two words – 'candid' and 'Panglossian' – which seem eerily appropriate to a few current debates.

President Bush’s justification of the Iraq war, his obstinacy and intransigence of his administration’s policies to reconstruct Iraq, and the argument that supports teaching intelligent design in science classrooms, all commit logical fallacies that Voltaire critiques in *Candide*. Such egregious errors of judgement and analysis yield disastrous consequences, whether in fiction or reality.

Also in *Candide*, Voltaire criticizes religion in general; in so doing, he contrasts the devout mind that forces facts to conform to preconceived ideas, with the scientific mind that seeks truth, observes reality, incorporates data, and adjusts theory.

In this essay, we argue that President Bush’s mind does not think logically or scientifically; rather, his thought processes more closely resemble those of one who has a religious mindset, that sees the world in stark absolutes – good versus evil, with us or with the terrorists. A person with such a mindset also both obdurately maintains a course of action based upon beliefs that observation has cast into doubt, and attacks, not their assumptions and logic, but rather the
integrity of those who aver contrary positions. Finally, such an individual only admits errors after considerable time, pressure, and evidence have cumulated.

This lack of scientific thinking manifests itself beyond merely a hostility toward science and an abuse of scientific results, though these attributes are indicative of a mindset that is not scientific. Part of the job of presidency is policy-maker, which almost necessitates emphasizing certain results and information in general to achieve policy objectives. Other presidents have diminished the role of the science advisor, and it has not been uncommon for department secretaries to resign over the politicization of information, but President Bush has used knowledge and information in an extremely different manner.

While it is easy to find newspaper editorials and books accusing President Bush of politicizing intelligence, it is rare that a president is accused, by scientists, of falsifying scientific facts. As we will argue, his lack of interest in and respect for science, which are widely shared opinions about him, are indicative of his religious mindset. Moreover, his religious mindset causes him to be hostile to dissenting evidence and explanations; through this lens, it becomes easy to see why he would politicize intelligence, scientific or otherwise.

The perils of a religious mindset arise though not merely because he has such, but because he also cannot distinguish those questions best argued with logic and observation, from those where logic and observation do not arrive at an answer.

The ramifications can be significant, as is evidenced by the hundreds of billions of dollars expended on troops and materiel rendered necessary by policy failures. The excess spending has enlarged the budget deficit and weakened the dollar. Other policy shortcomings result in the U.S., with the best universities, the most developed financial institutions, and one of the most flexible labor forces in the world, relinquishing leadership in nascent industries such as clean-energy development and embryonic stem-cell research. Moreover, because the president also is instrumental in guiding how the government is organized, and because any bureaucracy can be difficult and slow to amend, errors in allocating government resources or responsibilities may persist beyond the current policies.

The essay is structured as follows. In the next section, we examine four lessons from Candide about thinking scientifically, and in the following section, we define and contrast the scientific and religious mindsets. In the main part of the essay, we first examine President Bush’s decision to invade Iraq and argue that, if he had had a scientific mindset, he almost assuredly would not have invaded in March 2003. It is worth emphasizing that while there are several theories that purport to explain the decision to invade, including varied conspiracy theories, none of these explains as well the other decisions that President Bush has made. After briefly describing the decision-making process under uncertainty, we then examine the reconstruction and reconstitution of Iraq, where he again has exhibited behavior that is consistent with a religious mindset. To be sure, this behavior appears in other areas. His position on the teaching of

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1Beginning in February 2004, the Union of Concerned Scientists released a statement signed by many scientists accusing the Bush administration of censorship, political interference, and misrepresentation for political gain, including falsification of scientific facts. As of December 2006, more than 10,000 scientists have signed this statement.

2For example, FEMA’s movement to DHS may have contributed to the poor response to Hurricane Katrina in 2005.
Intelligent Design in high school science classrooms is then examined. A fundamental characteristic of the scientific mindset is intellectual curiosity. This main section concludes by arguing that he lacks this characteristic by analyzing his decisions on clemency and his stance on global warming. It is also shown therein that this lack of intellectual curiosity has led him to logically contradictory positions. The final section concludes and shows the magnitude of errors that can be made when a leader with a religious mindset that he misapplies to fundamentally scientific questions, acquires considerable power. Thus, voters should pay more careful attention to how a candidate thinks and less to his platform’s promises, and that in order to determine how he thinks, past decisions are a more accurate guide than political speeches.

1 Four Lessons from Candide

Voltaire reserves particular scorn for the excessive optimism of Dr. Pangloss, who, despite both observing ever-present misery and misfortune, and being the victim of numerous nefarious acts, stubbornly insists that “all is for the best in the physical world and in the moral, and that nothing could have been otherwise” (Voltaire 1981, 73). ‘Panglossian’ means excessive optimism. Dr. Pangloss, when confronted with impending horrors, would view misery and depravity as necessary consequences of some grand plan that must be optimal. Eventually, his pupil, Candide, learns the first lesson, when he overcomes Dr. Pangloss’s teachings and sees reality, defining optimism as “the mania of maintaining that all is well when we are miserable” (Voltaire 1981, 61).

Voltaire was an Enlightenment thinker. His predecessors, such as Newton and Descartes, had been formulating what we now know as the scientific method. Scientists, such as Kepler, Harvey, and Lavoisier, had been refining and applying this methodology in physics, medicine, and chemistry. His contemporaries and successors, such as Locke, Rousseau, and Smith, were applying it to politics and economics. Observation is integral to the scientific method. It is a characteristic that is common to each of these thinkers and scientists, and is a second lesson from Candide.

A third lesson is the dangers of inverting the causative relationship, calling a sufficient condition the necessary consequence, as Dr. Pangloss does. Although he would say that they do explain, what spring rain does for crops does not explain why it rains in spring, and, that eyeglasses fit nicely on noses does not explain why we have noses. In other words, inferring a cause after observing an event does not allow one to logically conclude that this causative event necessarily occurred.

A fourth major lesson is intellectual hubris or arrogance, which prevents one from admitting a mistake or changing strategy. At the end of Candide, Dr. Pangloss had been exiled from the castle, hung nearly to death, and enslaved in a ship’s galley, “but having once maintained that everything was wonderful, he still maintained it and believed not a bit of it” (Voltaire 1981, 99). Such intellectual hubris leads the decision-maker to discount the veracity of data that contradict theory, and to fail to search for other possible causes of observations. Consequently, the decision-maker does not consider other possible courses of action, holding strongly to the current plan.

An individual who has intellectual hubris and considers observation to be
unimportant, lacks intellectual curiosity. He becomes so self-assured of his conclusions, that he does not need to spend time or effort observing the world, testing his ideas or thoughts. Consequently, if his conclusions are incorrect, a disconnect with reality will emerge, as the individual fails to alter his actions. This disconnect and Panglossian view are all too apparent when examining President Bush’s decisions.

2 Scientific and Religious Mindsets

2.1 Scientific Mindset

A scientific mindset is one that uses logic and observation to describe events and reason causative relationships. A scientific theory is a coherent set of principles that make testable implications about the world. Any such theory requires that there exists some set of laws. Discovering these principles is then an exercise in inference; based upon observations, scientists hypothesize potential causes. These causes are the sufficient conditions, and the testable implications are the necessary consequences, of the theory. This same analysis is applied in the physical and social sciences, but clearly is more questionable in the latter sphere.

In explaining an event, there are often several theories that are consistent with the observations. A particular theory has more credibility, engenders greater confidence of its accuracy, if it explains several events, especially when those events are independent of each other. Additionally, because there may be several plausible scientific theories, the scientific mindset is intellectually curious, ready to test a theory and prepared to jettison a theory that is seen to contradict reality more and more.

Importantly, when data contradict the theory’s predictions, either the data are inaccurate or biased, or the theory is incomplete or incorrect. Sometimes, the contradictions are due to the former, but without further observation and measurement, this cannot be determined. If the latter, then scientists adjust the theory so that it better explains the data, much as Candide eventually learned to dismiss Dr. Pangloss’s excessive optimism and faulty logic. Any adjustments must still generate a coherent set of principles that yield testable implications.

Dr. Pangloss’s logic follows what philosophers call teleological explanations, presuming the existence of some being with power and intent, or some set of universal laws that generate a system that is ‘optimal’ in some sense. He asserts that everything is made for a purpose, and therefore, everything is made for the best purpose. Consequently, he continues, illness, death, treachery, and the like are all necessary, as part of the greater good that is the present state, for this present state must be the best of all possible worlds.

It is not that Voltaire dismisses teleological explanations, but rather Dr. Pangloss’s misapplication of these explanations to society. Because humans have free will, they do not always act in the best interest of society, or even, occasionally, themselves. Yet, Dr. Pangloss resolves the seeming contradiction of man having free will with his mantra that all is for the best and could not have been otherwise, by reasoning that “free will can coexist with absolute necessity, for it was necessary that we should be free” (Voltaire 1981, 27). Presuming that some being with power and motives must have created society, thereby guaranteeing, by virtue of the power of this creator, an optimal outcome, leads
2.2 Religious Mindset

In order to characterize the religious mindset, it is worthwhile to first analyze religious thinking. Simply, religion is based upon faith, not reason. Because it uses teleological explanations, applying logic to religion opens a Pandora’s Box of complications. For example, once, science could not explain the rising and setting of the sun, the existence of the seasons, or the movements of the planets. Religions attempted to fill the gap, but the explanations that they proffered, we now place in the realm of mythology.

Nevertheless, religion still tries to explain observations, such as in biology, that are best determined by logic and observation – i.e., by science. If one accepts as a logical conclusion that some intelligent designer exists because life could not have been created otherwise, then a natural extension would be to ask what created that intelligent designer. If, on the other hand, such an intelligent designer has existed for eternity, then it is also possible that the laws of Nature have also always existed, without an intelligent designer.

Not only does religious thinking applied to scientific questions generate absurdities, but similarly, because science cannot rank a priori the relative values of different outcomes, scientific reasoning applied to questions of morality and interpersonal relationships cannot reach a resolution. Thus, neither should religion attempt to substitute for science, nor science try to substitute for religion.

Another defining characteristic of religion is its strict adherence to previously reached conclusions. Its power and influence being based upon faith, there is a fear that an admission of error in one area can have a domino effect, causing followers to doubt the veracity of statements and the beliefs that follow consequently, in other areas.\(^3\)

And because it cannot argue logically, when confronted by one who avers statements that contradict a religion’s tenets and conclusions, the religion’s leaders attempt to undermine the credibility of the messenger, or attack his virtue, or create a penalty system that ostracizes him. This latter has the pernicious effects of not only penalizing those who challenge conventional wisdom, but also both dissuades the individual from even publicizing his thoughts, and, in more extreme circumstances, through indoctrination, makes it difficult for individuals to think independently, and thereby conjure such thoughts.

Thus, religion is at its best when it answers questions that are universal to the human condition, proper eternally and universally. Such questions are orthogonal to the questions that science answers. Politics, however, adjusts its answers as circumstances change. Or at least, politicians should observe reality, accumulate data, evaluate theories and beliefs, consider other possible causes and policies, and adjust their plans.

More broadly, a religious mindset is one that holds fervently to a set of tenets and is unwavering despite new information that contradicts those tenets. It cannot alter its framework, and it is too often slow and intransigent, missing opportunities or failing against challenges that it could not foresee or explain. A religious mindset is also unwilling to admit fallacies or mistakes in the beliefs

\(^3\)Of course, such a fear can grip the mind of anyone who holds fervently to some ‘ism.’
and tenets. Intellectually, it tends to dismiss challenges out of hand, or to attack the messenger rather than the message.

As such, the religious mindset can govern atheists, agnostics, or the a-religious. Additionally, many religious people do think scientifically and logically; they comprehend and distinguish between the sphere in which observation, experiment, data, theory, and logic operate effectively, and the sphere in which these offer little, if any, aid in making decisions.

It is not that a religious mindset is dangerous or bad, per se, but that when it cannot distinguish the sphere of properly scientific questions from that of properly religious questions, the resulting recommended policies are suboptimal. They do not maximize social welfare, or effectively implement the collective preferences of the citizenry. They might, for a brief period, but once circumstances change, the religious mindset applied to such situations will dismiss these changes or fail to incorporate them, or merely hold steadfastly to policies. Consequently, what was once optimal, no longer is, but remains the governing policy. In Candide (1981), Voltaire makes plain and obvious the misery that can result from a religious mindset inappropriately applied. Within the castle walls, Candide thought that Dr. Pangloss’s positivist philosophy was coherent and sound; however, as he traveled beyond and observed the misery and depravity and treachery, he learned that such a positivist philosophy was discordant with reality. When in South America, his Panglossian reasoning inverts the causative relationship when he states that had he not killed his love’s brother, he “would have been eaten without mercy,” (Voltaire, 1981 51) but his response to Dr. Pangloss’s positivist best-of-all-possible-worlds reasoning at the novella’s end is “that is well said ... but we must cultivate our garden” (Voltaire, 1981, 101).

In the political realm, that all people should enjoy liberty and freedom, nations should have the right to self-determination, and the rights of individuals should be protected, are answers to questions that are fundamentally philosophical or religious. What policies to implement and how, in order to achieve those goals are answers to questions that are fundamentally scientific. With religion, when the consequences of a leader’s prescriptions and proscriptions in one area are inconsistent with the religion’s values and tenets, the verity of the leader’s claims in other areas is cast into doubt, and possibly also those very values and tenets that form the religion’s foundation. Similarly in Iraq, President Bush’s steadfast adherence to his Wilsonian vision and goals have been laudable, but his intransigence in implementing those goals has been disastrous, not just for Iraq and Iraqis, but also for the U.S.’s ability to promote those goals elsewhere, and even for the esteem of those goals.

3 Analysis

3.1 President Bush’s Panglossian Venture in Iraq

Turning to the debate over the justification of the Iraq war, Iraq was a country ruled by an autocratic dictator who exercised considerable authority in much of the country. That he had certain objectives, and what those objectives were, there is little argument over. Additionally, there was, a few months before the

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4For example, some staunch environmentalists dismiss immediately the notion that liquid coal may be a possible clean energy source.
war began, nearly universal acceptance that this ruler, Saddam Hussein, had weapons of mass destruction (WMD).

This wide acceptance began to diminish in late 2002 and early 2003, after the U.N. weapons inspectors had been combing much of Iraq for several weeks. They found no evidence of WMD but left – after the Bush administration concluded that regime change had to occur – before they completed their investigation. Certainly, Hussein deserves much of the blame for the invasion and devastation, since his behavior led the world to believe that he possessed WMD. Additionally, the sanctions regime was, if not collapsing, at least causing the U.S. and U.K. to incur the enmity of much of the Islamic world for supposedly causing the deaths of hundreds of thousands of Iraqi children through starvation. Nevertheless, the decision to invade at that time commits logical fallacies that Dr. Pangloss also commits, namely failing to incorporate new information, being excessively optimistic, being intellectually hubristic, and being unable to comprehend either other possible explanations for the observations or other potential policies to undertake.

3.1.1 Sufficiency of WMD Issue

Note that although there were several reasons to remove Hussein from power, those that made Iraq unique and could have demanded urgency were also those that President Bush touted most vociferously, namely his possession and history of use of WMD, and his ties to al Qaeda. In analyzing the decision to invade, the timing of the invasion is what is least in accord with the scientific mindset, and it is precisely his possession of WMD and ties to al Qaeda that could have compelled immediate action. Therefore, in order to analyze President Bush’s decision-making and mindset, particularly since the evidence of ties to al Qaeda was weak and no additional supporting evidence for such ties was uncovered, it is necessary and sufficient to examine the WMD issue.

At the end of Candide, Candide the student becomes the teacher to his former teacher, Dr. Pangloss. Candide inquires of his former teacher if, after being “hanged, dissected, racked with blows, and rowing in the galleys,” (Voltaire 1981, 96) his philosophy has changed. Dr. Pangloss replies that “I am still of my first opinion; ... for after all I am a philosopher, it is not fitting for me to recant, ... and besides, pre-established harmony is the finest thing in the world” (Voltaire 1981, 96).

Each of the logical fallacies that Dr. Pangloss committed, we argue, President Bush did as well; moreover, each is consistent with him having a religious mindset. He seemingly determined both that there could be no other cause for Hussein’s behavior than possession of WMD, and that the data from the weapons inspectors, if he evaluated it, must therefore be incorrect. Certainly, if Hussein had WMD, then he would behave as he did. Unless one inverts this causative relationship though, it does not necessarily follow from observing his behavior that he had WMD.

3.1.2 March 2003 Invasion as an Example of Poor Decision-Making

There were other explanations for Hussein’s behavior and the (unfinished) findings of the weapons inspectors; moreover, there certainly were solutions other than either invasion or maintaining the sanctions regime, but at the least, there
is no evidence that there was debate within the administration or that other options were considered.

It is difficult to properly assess the benefits and costs of decisions made under uncertainty, but we can list three main strategic costs of the invasion and bungled reconstitution: (i) the U.S. has lost most of its considerable esteem and ‘soft power’ – moral authority, economic assistance, and cultural influence – that it enjoyed following the 9/11 attacks and the subsequent removal of the Taliban; (ii) it has had to restrain its support for the nascent or latent democratic movements – a stated major goal of the Bush administration – in Afghanistan, Morocco, Turkey and a few other states with predominantly Islamic populations; and (iii) the U.S. has lost the ability to threaten regime change in North Korea or Iran due to a lack of credibility and resources.

Because there were other possible causes for the observations and other possible policies that, if Hussein did not have WMD, would have been superior, the decision to invade at that time may have been wrong. In order to show that President Bush has a religious mindset, which led him to that wrong decision, it is necessary to examine the possible causes for President Bush launching the invasion in March 2003.

In order to do this, it is worthwhile to describe the process of decision-making under uncertainty. In this process, a good decision-maker answers the following key questions:

1. what does the decision-maker know and how confident or accurate is that information;
2. what is the decision that would be made at this moment;
3. what is the cost of acquiring additional information;
4. what is the likelihood that this new information alters the decision and what are the consequences of choosing this different action; and
5. what opportunities are lost by delaying action and how irreversible is the decision if made at this moment.

In answering this last compound question, if there are few opportunities lost by delaying action, then the benefits to postponing a decision approximately equal the benefits to acting immediately; while if the decision involves considerable sunk costs, if it is essentially irreversible, then the expected cost to act immediately is larger.

In early 2003, the answers to the first three questions were obvious. Because confidence that Hussein had WMD was high, and it was clear he would not resign, regime change in the post-9/11 world was best for Middle East or global security. But, acquiring more information through the U.N. weapons inspectors was relatively inexpensive.

President Bush’s choice to invade in March 2003 could be deemed right if new information would not have altered the decision. One possible explanation is that the WMD issue was merely a justification, inconsequential even with

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\(^5\) Nye (2004) defines ‘soft power’ as “the ability to get what you want through attraction rather than coercion or payments. It arises from the attractiveness of a country’s culture, political ideals, and policies” (Nye 2004, x).
the supposed ties to al Qaeda, that President Bush employed in an Orwellian manner in order to implement an objective – a Wilsonian, messianic vision of pro-actively changing the world through regime change. Another similar and possible explanation is that President Bush’s ex ante confidence that Hussein possessed WMD and had ties to al Qaeda was so high, that an invasion had to occur before spring, and that while the WMD issue was critical, no amount of evidence the inspectors obtained by March would have dissuaded him. However, there is little evidence to support either explanation, and neither is consistent with other decisions he has made.

Still, in either case, the answer to the fourth question is that further information would not have altered the decision, but may have rendered it politically untenable. And, if either is true, not only is he guilty of extreme arrogance, but then the U.N. weapons inspectors combing Iraq was conducted solely to appease the world.

3.1.3 Explanations for Invasion Consistent with Religious Mindset

If neither is the case, if President Bush did not mislead U.S. citizens and the world about his intentions, if additional information could have altered President Bush’s decision, then three plausible alternatives to willful deception remain: the first is that President Bush did not have accurate information. This would result if he ignored accurate estimates or was uninformed of such, or the intelligence and analysis agencies colossally overestimated the U.S.’s abilities and underestimated the morass, the imbroglio, that would ensue from the power vacuum.

As Fallows (2004) documents, several different government agencies had forecast many of the problems that have beset the U.S. and its coalition in the reconstruction of Iraq, but it seems that President Bush ignored or entirely discounted these forecasts. Together, they predicted that toppling Hussein would unleash latent animosities, thereby rending Iraq and creating spillover effects. Without significant numbers of troops, proper and complete planning and coordination among the militaries and aid organizations, removing Hussein from power would create a tempest.

Moreover, by the time the U.N. weapons inspectors had entered Iraq, the reconstruction effort in Afghanistan had stalled. The U.S. could plainly see that its capabilities to build a nation-state and maintain order were not great; taking on the responsibility of another such would seem unthinkable. It is difficult to believe that President Bush could have incorporated this information and these analyses, and still severely miscalculated the costs and capabilities.

Thus, if the problem were with the information, then he either did not seek or evaluate this information or he dismissed this information as inconsequential. The former could arise if either he was cocksure of his conclusions and so felt new information was wasteful, or he simply lacked intellectual curiosity; the latter could arise if he was excessively optimistic.

When Candide and his friend Cacambo are about to be boiled or roasted, Candide ponders what Dr. Pangloss would say if he observed this raw state of nature. He surmises that his former teacher would essentially ignore the evidence and merely state “all is well, so be it” (Voltaire 1981, 50).

In this vein, President Bush is unlike Dr. Pangloss, who merely accepts all that occurs as necessary and so is passive rather than active. More deeply, how-
ever, both are passive and intransigent in adjusting policy. One could almost envision President Bush thinking that “all is as I expected, or all will be well, so let us not adjust the course of action.” President Bush, like Dr. Pangloss, either failed to incorporate new information or he did but was excessively optimistic. However, even if he did fail to accurately incorporate new information, then either his advisors also did, in which case there is gross incompetence, or he ignored the analyses and counsel of his advisors; i.e., he was intellectually hubristic. Such unwillingness to admit errors, such intransigence, or such arrogance as to override the recommendations of experts, constitute a second alternative. These are also indicative of how a religious mindset operates.

A third alternative to willful deception is that Bush does not think scientifically. That is, the decision to invade was due to a lack of logical, scientific thinking – confronted with data that were not only inconsistent with the theory that Hussein had stockpiles of WMD, but contradicted this theory, scientific analysis would have asked if there were other possibilities. Moreover, such analysis would have understood how the changes in the strategic environment affect the consequences of different actions and how to alter the action to achieve the greatest expected benefits.\(^6\)

### 3.1.4 Evaluation of Decision to Invade in March 2003

Although these explanations are not mutually exclusive, if one is considered true or correct, it becomes more difficult to determine whether the others are also true or correct. To summarize, there are four possible explanations of invading Iraq before the weapons inspectors had completed their investigation:

- President Bush intentionally misled U.S. citizens and the world;
- he did not seek, he ignored, or he discounted new information that contradicted his preconceived theories;
- he was intellectually arrogant, unwilling to change his decision despite counsel to do so; or
- he could not logically think and comprehend other possible sufficient causes for observed events, and how those explanations affect the optimal policy.

If the first explanation is true, then President Bush may have a scientific mindset but misled because his preferences were grossly misaligned with those of the U.S. citizenry. This differs from prevarication that results from a religious mindset in that, if he has a scientific mindset, he would only mislead if it serves a

\(^6\)A strategic environment is characterized by the capabilities of different players, the information that each player knows, and what each player believes the other players know. For any such strategic environment, a given action yields different outcomes with different probabilities. Each of these outcomes has an associated value, which is a level of happiness or social welfare of the citizenry. Thus, an action yields not a specific outcome and level of welfare, but rather a set of possible outcomes and welfare levels, and a resulting average (expected) welfare level. This expectation can incorporate attitudes toward risk. Essentially then, for each strategic environment that might arise, a good decision-maker evaluates the various possible outcomes, the levels of happiness or social welfare of the citizenry that result, and their different likelihoods, and selects an action such that it maximizes the social welfare of the citizenry.
purpose of furthering his own goals rather than jeopardizing his authority. The evidence in other decisions supports the theory that he has a religious mindset, not the theory that President Bush habitually prevaricates and intentionally misleads. While we cannot rule out this possibility, or that he acquired some information in the fall and winter of 2002-3 that led him to act urgently, the other explanations are all indicative of a religious mindset – being excessively optimistic, intellectually hubristic, failing to see other possible causes of events, and generally lacking intellectual curiosity.

To be complete, a final possibility remains, namely that when the weapons inspectors entered Iraq, President Bush believed that they might acquire information that would prove valuable and possibly consequential, and that he could wait, but that by February 2003, he (somehow) learned that delaying action would be imprudent. In this scenario, some information would have arrived stressing the immediacy of acting, and that, with weapons inspectors in Iraq, Hussein could and would have either employed WMD or sold them to al Qaeda.

This is not only unlikely, especially as the information that the U.N. was acquiring indicated that, rather than urgency, delaying action was prudent, but also it contradicts President Bush’s statements in autumn 2002. Then, his extreme disinterest in verifying the accuracy of the information on which he based his beliefs and policies evinced a lack of intellectual curiosity.

However, being merely statements, not actions, it is possible that his bluster was a part of a strategy, implemented along with Secretary of State Powell and Prime Minister Blair, a good-cop-bad-cop game, employed to intimidate Hussein. It could also have been a political maneuver, to increase his Republican strength in Congress just before the midterm elections. That is, in autumn 2002, he may not have believed that urgent action was required. Thus, this stated threat to attack without acquiring more information can be said neither to support him having a scientific mindset nor a religious mindset.

Judging Decisions Under Uncertainty

When the outcome of a decision depends significantly on uncertain factors and subsequent actions, it is difficult to accurately assess whether the initial decision was right or wrong. It is then worthwhile to evaluate a decision from two perspectives: ex ante and ex post. The uncertain factor may be some exogenous state of the world, beyond the decision-maker’s control, that is unlikely to be unfavorable. Additionally, subsequent actions that are implemented by the decision-maker or others may be either wrong decisions or implemented erroneously. Thus, in expectation (ex ante), the decision-maker may have made the right decision, but regrets it when the outcome is realized (ex post). If he’d known that the uncertainty was going to be resolved in this unfavorable, and relatively unlikely, way, or that errors in judgement or implementation of subsequent actions would be made, then he’d have chosen a different action initially. A poor outcome can make a right decision appear to have been bad.

The decision to invade Iraq was necessarily made without complete information. The outcome is a consequence not only of the decision, but also of both the resolution of uncertainties and the prosecution of the reconstruction. As such, it is improper to judge that initial decision by evaluating ex post, based upon the realized outcome.
Only the timing of the decision can be truly evaluated and judged, for although President Bush could not control how the various uncertainties were resolved, he could control both the timing of the decision to invade, and the prosecution of the reconstruction. Thus, whether or not the decision to invade at that time was the right decision, will forever remain unknown. It is possible that it was the right decision for that time, but has turned out poorly because the Bush administration did not implement a strategy that could prevent or respond to the problems that the various government agencies had forecast. By acting in March 2003, when the cost of acquiring information was seemingly small, the likelihood of acquiring consequential information significant, and the implied policy prescriptions yielding starkly different outcomes, President Bush’s decision evinces that he has a religious mindset. He ceased the process of inquiry and data acquisition, even though it contradicted his beliefs. Instead, if he had a scientific mindset, he would have delayed acting in order to acquire more information.

3.2 Ignoring Contradictory Information: The Reconstruction of Iraq

Similarly, in the reconstruction of Iraq, President Bush’s decisions have contradicted several precepts of a scientific mindset. The reconstruction of Iraq – as a state, as a society, as an economy – has had numerous bumps and roadblocks. Excessive optimism and the failure to adjust theory to new data and information, have yielded failures and deaths. If the way is tough, some might call this adherence to policy, perseverance or steadfastness; however, when there is no improvement, when the outcomes are always worse than the predictions, such adherence is obstinacy or intransigence. For more than two years, Bush administration officials, including President Bush and Vice President Cheney and Defense Secretary Rumsfeld, seemed to ignore the magnitudes and effects of events, and thus failed to adjust their tactics accordingly. Each significant attack was deemed a last gasp, desperate attempt. Initially, Iraqis were just blowing off steam, then there were only few insurgents.

Candide reiterates a lesson of Dr. Pangloss’s to a learned abbé who states that the world is in a state of eternal warfare, with one group after another pitted against still others. Candide states that Dr. Pangloss would call these ubiquitous battles and death, “shadows in a beautiful picture” (Voltaire 1981, 74).

Here, President Bush conflates correlation with causation. If one event causes two consequent events, it is not necessarily the case that either consequent event causes the other. For example, in the fall, birds fly toward the tropical zones, and a few months later, people go skiing, but there is clearly no causative relationship between these two events. Such a logical implication is even less likely when one of the consequent events involves human choice. When Dr. Pangloss notes that Columbus brought from the Americas a pox that spread through Europe and eventually cost Dr. Pangloss an eye and an ear, he states that it was necessary for people to get the disease in order to discover the Americas. From this, it follows, according to Dr. Pangloss, that “the more private misfortunes there are, the more all is well” (Voltaire 1981, 24).

In both the decision to topple Hussein and the reconstruction of Iraq, the
decisions of President Bush relied not only on observations, but also on an underlying theory of both how nations behave, and what motivates principal actors, such as Hussein and Zarqawi. Political science supposes the existence of universal laws of how nations and governments act and respond. But, it does not seek to answer why those laws exist or why they are as they are.

### 3.3 Cause-and-Effect Reversed: Intelligent Design

It is much the same in biology. Science presupposes the existence of universal laws. It does not ask why these laws exist or how they came into existence or why they are the way they are. Science cannot answer those questions. Philosophy and religion can.

But ‘Intelligent Design’ (ID) does not seek to answer those questions, nor even to infer the laws of Nature. Instead, it commits the logical fallacy of attempting to apply deductive reasoning to an inferential problem. It certainly is possible that some intelligent designer, a being that has certain capabilities and motives, does exist. But, science is about observation and inference. The existence of an intelligent designer is only one possible cause.

Where ID departs from science is in its predictive power. It has none. It makes no testable propositions. It is based upon faith.

Although current scientific biological theory cannot explain everything, data do not contradict its predictions. It is not that the current scientific biological theory is incorrect, merely incomplete. ID tries to correct biological theory by completing it, but instead of posing additional principles that yield testable implications, it presupposes the existence of a being with certain motivations and then is able to state a cause after observing the effect. Much as Dr. Pangloss proved that “there is no effect without a cause,” (Voltaire 1981, 16) ID thinks its supposed cause is the only possible cause.

President Bush’s averred support for the teaching of ID in high school science classes evinces that he considers ID to be a scientific theory. That it is not, thus evinces that he conflates scientific methodology with religious thinking processes, testing and observation, with faith: i.e., that he cannot distinguish the sphere of scientific questions from that of religious questions.

### 3.4 Consequences of a Lack of Intellectual Curiosity

An individual who lacks intellectual curiosity will make a decision that is not necessarily based upon evidence. He might listen to advisors, and formulate a policy that accords with some combination of counsel, analysis, preference, morality, and possibly emotion. However, in analogous situations, the relatively stronger influences of (possibly different) advisors and personal preferences, morals, and emotions, can easily lead to a policy that is logically inconsistent with the policy in the former situation.

If the individual is intellectually curious, he is more likely to base his policies on rigorous analysis and thereby arrive at consistent policies. In his decisions on clemency, this did not happen. Also, an intellectually curious leader is more likely to see the parallels between situations and thereby implement more consistent policies. His policy vis-à-vis global warming is logically inconsistent with his policy regarding Iraq.
3.4.1 Clemency Reviews

When President Bush was governor of Texas, he reviewed 153 appeals for clemency of death-row inmates, upholding all but one.\(^7\) This statistic stands in stark contrast: to his predecessor and successor in Texas; to his contemporaries in Louisiana and Mississippi;\(^8\) and to the remainder of the U.S. The ever-growing use of DNA evidence that has exonerated death-row inmates across the U.S. is an example of how courts and governors incorporate new information and alter previously reached conclusions that the new data contradict.

Excluding inmates who die of natural causes or are killed by fellow inmates or guards, leaves a population of inmates who are removed from death row by a state action; e.g., the overturning of a conviction by a U.S. Court of Appeals or a granting of clemency, or an execution. Consider these state populations of inmates removed from death row by some state action. During then-Governor Bush’s tenure, 1995-2000, in Texas, fully 90 percent of those who left death row by state action were executed; whereas, in Louisiana and Mississippi, the figure is merely 10 percent, and in all states other than Texas, 65 percent. For the two years preceding and following his governorship, the figures are 77 and 83 percent, respectively.\(^9\)

Certainly, it is possible that all 152 cases he approved he could not have found justification to stay or commute. This is unlikely, as the disparity of the statistics in the previous paragraph evinces. There are, then, two likely, and not mutually exclusive explanations: first, that he lacks the intellectual curiosity, characteristic of the scientific mindset, to investigate whether there is cause for doubt, not just of guilt, but of due process; or second, that he does not realize that his purview and viewpoint as governor differ from that of a jury and courts of appeal, that his duty as governor includes not only enforcing the laws, but also correcting possible miscarriages of justice – e.g., when defendants were represented by incompetent public defenders or there was racial discrimination in sentencing or jury selection, or when defendants have shown remorse, had been sexually or physically abused, or were mentally retarded.

A third possible explanation is that he is too timid and weak-willed to exercise such authority; however, given his other decisions and willingness to trail-blaze a path that is unpopular, this is most unlikely.

Candide, though instilled with Dr. Pangloss’s ‘wisdom’ did not shy from the travels and exploring that were initially foisted upon him. He exhibited intellectual curiosity, willingly observing reality and ready to put his beliefs up for attack in a search for truth. President Bush, on the other hand, exhibits little of such intellectual curiosity, holding steadfastly to previously reached conclusions, even if they merit investigation.

More recently, his commutation of I. Lewis “Scooter” Libby’s sentence evinces

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\(^7\) The lone exception was Henry Lee Lucas, who had been sentenced to death for a murder that occurred in Texas when he was not present there. Two state attorneys general concluded Lucas had been wrongfully convicted. Then-Governor Bush commuted his sentence to life, the sentences for other murders of which Lucas had been convicted.

\(^8\) The Fifth Circuit Court of Appeals has jurisdiction over these two states and Texas.

\(^9\) In Texas, 169 inmates left death row by state action, of whom 152 were executed; in Louisiana and Mississippi, 44 left death row by state action, of whom only five were executed; in the 37 states other than Texas where capital punishment was legal, 713 inmates left death row, 461 of whom were executed. In Texas in 1993 and 1994, 40 inmates left death row of whom 31 were executed, while in 2001 and 2002, 60 inmates left death row of whom 50 were executed. Source: ‘Capital Punishment,’ 1993-2003.
inconsistent thinking.\footnote{In the investigation of possible crimes in the leak of a covert CIA agent’s identity, Libby was convicted on four counts of perjury and obstruction of justice and sentenced to 30 months in prison, two years of probation, and a $250,000 fine. In July 2007, President Bush commuted the entire prison term, leaving the probation, fine, and felony conviction.} In this case, he bypassed the standard procedure, effectively obviating the Justice Department and Courts of Appeal. As governor, the clemency appeals he read were narrow in scope, merely short summaries of the case history, rather than including cases for mercy due to exceptional circumstances. In essence, in neither did he appear to delve deeply into the details: in one, he was willing to impose his political judgement (as is the raison d’être of clemency review),\footnote{During the 2000 presidential campaign, in the aftermath of the Lewinsky affair and Clinton impeachment, President Bush set himself a high ethical bar by vowing to return honor and integrity to the White House. Yet, though well within the sentencing guidelines, he found Libby’s sentence “excessive.”} but in the other, unwilling to consider such. That is, his lack of curiosity led him to disparate and discordant conclusions regarding clemency.

3.4.2 Global Warming

An example from a different subject and policy area that also indicates either he lacks intellectual curiosity and is intransigent in the face of new evidence, or that he abdicates his authority and responsibility as a leader of the sole hegemonic state, is his attitude toward global warming. However, this latter explanation is weaker here because his actions in Afghanistan, Iraq, the ‘War on Terror,’ and vis-à-vis various treaties, indicate that he is willing to act, even against international norms. In other words, he does see his responsibility as leader of the sole hegemon to lead the world, and is not timid about exercising his or the U.S.’s power.

A decade after the Kyoto Protocol and six years after the IPCC’s third report, President Bush seems to finally be coming around to accept that global warming is, in part, caused by human activity. Still, his recent (June 2007) policy proposals are hardly commensurate with the body of evidence or the possible catastrophic consequences of inaction. Because it is quite unlikely that he is unaware of his authority or responsibility to lead the world, and as unlikely that he is too timid to lead the world, the lack of movement to combat global warming is almost certainly due to a lack of intellectual curiosity.

Not only does his stance on global warming indicate a religious mindset that is neither intellectually curious nor capable of assimilating new information, but it leads him to two policy decisions that are logically inconsistent. If his mind had thought consistently, he already would have led a worldwide charge to combat a growing threat before it became intractable. Regarding Iraq, possibly in autumn 2002 and certainly in winter 2003, he did not believe it necessary to acquire more information, even though the new information that arrived in that period cast considerable doubt on the veracity of the existing, conventional wisdom. Regarding global warming, he has waited several years for more evidence, before contemplating attempting to combat it.

Moreover, once the weapons inspectors were in Iraq, the urgency to act against Hussein largely diminished. Also, there clearly were more options, on smaller scales, to combat global warming than to contain the threat that Hussein posed. Finally, regarding global warming, there were, far greater evidence that
a disaster might occur, much greater ability to control or mitigate the harm,\textsuperscript{12} nearly universal international support, and much more significant benefits. Nevertheless, President Bush acted dramatically against Hussein but insignificantly, if at all, against global warming.

\section*{4 Concluding Thoughts}

In each of these debates, scientific methodology – the perpetual cycle of developing theory, acquiring data to test its predictions, and adjusting theory – is being incorrectly applied.

The decision to invade Iraq and topple Hussein in March 2003, the prosecution of rebuilding Iraq afterwards, the ID debate, the seemingly discordant clemency decisions, and the almost willful ignorance and ignoring of scientists and scientific consensus regarding global warming, all have one common thread – a leader whose religious mindset applied to political situations causes him to commit logical fallacies: being Panglossian and intellectually hubristic, failing to see other possibilities, inverting the causative relationship, conflating correlation with causation, discounting the veracity of data in order to avoid altering the theory, taking incompleteness to be incorrectness.

Perhaps we should not be surprised that President Bush does not think scientifically. In the 2000 presidential debates against Vice President Gore, President Bush responded that his favorite philosopher is Jesus Christ. But, as Voltaire argues in \textit{Philosophical Letters} (1961, 120), religious leaders appeal to people’s emotions by presuming to speak from God; whereas, philosophers appeal to people’s intellects, if they attempt to do so at all, by presuming to speak from logic.

Sometimes, the tenets that religious leaders preach, may fail when applied in real life. In \textit{Candide} (1981), Voltaire contrasts the Inquisition with the Catholic belief of a benevolent god. The Grand Inquisitor and a Jew rape a young woman daily. An imam orders brutal disfigurations of many women. A friar is not chaste, and lives in a monastery filled with jealousy, rage, and discord. When Candide ventures to the New World, he sees the conflicts between religions which speak peace but practice warfare. There, if Candide had stuck to the principles that Dr. Pangloss had taught him, Candide would have been eaten by cannibals.

Religion is one source of morals, and religious conviction can be admirable. However, religious thinking and politics constitute a combination that yields consequences of the sort that are Greek tragedies or Shakespearean dramas, except that they are real. This is precisely why religion should confine itself to those questions that science cannot answer, such as values and morals. A religious mindset that cannot distinguish which issues are in the realm of religion and which issues are in the realm of politics, when also given power, is likely to cause great harm, affecting the lives of millions.

\textsuperscript{12} History and experience indicate that controlling or deposing powerful autocrats is difficult and predictions are often inaccurate because the societies are relatively closed, thereby generating private information for the autocrats. Additionally, they have idiosyncratic preferences and beliefs over the likelihood of carrying out punishments. Contrast this with reversing the detrimental effects of pollution. In these situations, it is much easier to predict both the response of Nature to changes in human activity and the response of a market, where a kind of law of large numbers applies, to economic incentives and mechanisms.
To be more complete, consider that President Bush has used religion as a tool, in a Machiavellian manner, to motivate a base and gain re-election and power. If he and his advisors have been using religion solely as a means to power, then when religion and conviction became counterproductive tools for gaining power, they would have altered policies. Yet, he directly and overtly inserted religion into both the Terry Schiavo situation and, especially, the confirmation hearing of Harriet Miers. These, along with the administration’s dogmatic adherence to its original beliefs about Iraq, its failure to adjust policy there, and the obsession with discrediting critics rather than responding to their charges, were significant factors in almost costing President Bush re-election and leading to one of the largest Congressional power shifts in U.S. history.

Regarding the decision to invade Iraq, it certainly is possible that President Bush had an ulterior motive, that the WMD issue was a political justification; however, the other possible explanations – excessive optimism, intellectual hubris, inability to incorporate new information, inverting the causative relationship – are characteristics he has displayed previously and elsewhere.

Together, these decisions show that President Bush has a religious mindset and cannot distinguish between the two realms – the one where firm conviction and steadfastness are admirable, the other where flexibility is required. The religious mindset has beliefs, and the behaviors that they imply, which are absolute and stark, obdurate and intransigent. It is one thing to not waiver in one's aims or goals – such as the Wilsonian ideal of self-determination, the American ideal of self-suﬃciency, or the Western ideals of individualism and liberty; however, in achieving these, flexibility is invaluable. Moreover, combined with the conflation of the two realms, such intransigence not only leads to policies that do not advance the goals, but, due to the often consequent devastation, lowers the esteem of those goals.

In Iraq, the profound and ubiquitous misery have retarded the nascent democratic movements in parts of the Islamic world. Rather than shattering the myth that Islam and liberty are incompatible, the inability of Iraqis to establish a stable, democratic government, despite tremendous resources – military, economic, intellectual – has reinforced this myth. It is likely the case that more people are questioning whether liberty, self-determination, and self-suﬃciency are even worthy goals.

These errors have also led him to, effectively, abdicate his position as the leader of the sole hegemon and build a consensus, uniting the major nation-states as the U.S. is best positioned to do, to combat global warming. It is neither that the decision to invade Iraq in March 2003 was necessarily wrong, nor that the decision to acquire more information before acting on global warming was necessarily wrong. Rather, holding both positions is logically inconsistent if the decision-maker cares about the welfare of society.

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13 Shortly after Chief Justice Roberts’s confirmation hearing during which President Bush stated that religion is irrelevant, he tried to bolster Miers’s confirmation by avowing the authenticity and strength of her religious beliefs.

14 For example, in the Scooter Libby trial, it is becoming increasingly clear (see for example Goldstein and Leonnig 2007) that Vice President Cheney’s office was going to considerable lengths to discredit Ambassador Wilson. Wilson’s (2003) criticism about the decision to invade became publicized four months after the invasion, when the insurgency was growing and debate over the decision to invade was akin to arguing over who spilled the milk, or if milk was spilled, instead of cleaning it up.

15 An alternative preference is to get re-elected. There is often an incongruency in the
Two defining and related features of President Bush’s religious mindset are the firmness of his convictions and his lack of intellectual curiosity. As to the former, once he arrives at a decision, only a tremendous amount of information, substantial circumstantial changes, and a relatively long time period, can slightly alter it. For some, such fortitude is reassuring in times of uncertainty and change; for the remainder, such inability to adapt has had profound and disastrous consequences.

Descartes (1984, 19) states perhaps most clearly this central precept of the scientific mindset:

It would therefore have been a major violation of common sense if
I obliged myself to continue to accept a thing I formerly approved
after it ceased to merit approval, or after I altered my opinion of it.

While Candide eventually learned to alter his opinion of Dr. Pangloss’s wisdom, the latter, like President Bush, never could admit his own doubt.

Now that the electorate has taken a candid look at our Panglossian leaders, we can hope that our Panglossian leaders take a candid look at the world.

Finally, as we enter a new presidential election season, it is worth recalling a valuable lesson from U.S. history—often, a president is confronted with a challenge or an opportunity that nobody had forecasted, such as the Great Depression, World War II, the collapse of the Berlin Wall, and, yes, the attacks of 9/11. Some presidents rise to the challenge or seize the serendipitous opportunity before them, others fail. Perhaps a presidential candidate’s most important attribute is how he makes decisions, how he thinks. In evaluating the crowded field of presidential hopefuls, voters should pay more attention to how candidates think and less to what they promise. Politicians and voters might start by reading Voltaire’s novella.

5 Works Cited


preferences of the principals (the citizens) and the agent (the president) regarding long-range problems that incur immediate costs but yield distant and uncertain benefits. The U.S. presidential system is no exception. This is a separate, and important, issue to that which we’re considering.
