

Two Ways of Knowing

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Introduction

A few years ago, I heard two children talking on a playground. The big sister (who looked about five) addressed her younger brother in a tone I would expect from the Peanuts character, Lucy. “Don't ask me how I know that,” she said. “I just know it. That's all.”

Unlike this big sister, we can identify many of the ways we acquire knowledge. One common way is inductive reasoning – inferring general principles from specific cases. It's the opposite of deductive reasoning – starting from general principles and drawing out either other general principles or specific applications. For example, we might eat two or three times at a particular restaurant and enjoy each of the meals. We conclude that this restaurant consistently serves good food. We have used inductive reasoning. That is, we have inferred a general principle – this restaurant consistently serves good food – from a few observations.

We all use inductive reasoning frequently. The difficulty with induction, however, is that it provides no guarantees of the correctness of the principles we infer – it always involves an “inductive leap” from the specific cases we have observed to a general principle we cannot directly observe. So it is very easy to err in using induction. Statistics is a systematic method for carrying out inductive reasoning. It helps us identify and avoid common errors people make in reasoning inductively; furthermore it helps us assess how much confidence we can have in the general principles we induce. So statistics is not something new or foreign to our thinking; rather, it is a refinement of something we all do naturally.

Thinking of statistics as a means to obtain knowledge immediately confronts us with some critical questions: What kinds of knowledge can be acquired by this means? What cannot? When should we be skeptical of conclusions drawn by using it, when trusting? What other ways are there of acquiring knowledge? Could knowledge obtained by using statistics conflict with knowledge obtained in other ways? If so, what should we do?

These are questions we encounter as individuals. But they are embedded in a larger context. In fact, statistics is a major component of a battle over what constitutes knowledge that has engaged Western culture for close to 400 years. For most of that time, the principal form this battle has taken is a conflict between science and religious faith. The methods of science depend on formulating theories, careful observation, and testing hypotheses suggested by these theories. As statistics has developed since the late 1800s, it has become the principal means for exploring

data and making inferences in both the natural and social sciences. Religion, however, depends on revelation. Thus one window into the science – religious faith conflict is to look at it as an argument over appropriate ways of knowing – the methods of statistics on one hand versus the methods of religion on the other.

For example, here's a formulation of the issue from the perspective of a person who finds religion and science incompatible:

- *Scientific statements are hypothetical, fallible, and tentative, while statements of religious faith are dogmatic, ideological, and fideistic;*
- *Scientific thought is always open to critical evaluation, justification, or falsification, while religious thought goes against the facts and often defies empirical evidence;*
- *Scientific thought delights in critical dissent and constructive criticism, while faith more often than not depends on massive consensus and uncritical commitment;*
- *Scientists therefore seem to base their beliefs on evidence and rational argument, while religious beliefs seem to be founded on 'faith' only;*
- *Scientific rationality is thus revealed as not only a very manicured and disciplined form of human reflection, but as also incommensurable with, and vastly superior to, religious faith and theological reflection.¹*

This perspective has been the predominant one for many (perhaps most) scientists for the past century or so. Thus we need to consider it carefully. In the rest of this paper, I will argue against this perspective and for a position that affirms the legitimacy of both methods. I will do this by attempting to show that both statistics and religion are legitimate approaches to knowledge with different methodologies, different purposes, and different criteria for validity but which occasionally overlap.

Before continuing, though, I need to clarify what I mean by “knowledge.” I'm going to use a definition given by a Christian philosopher, Alvin Plantinga, that knowledge is “warranted true

¹ As presented by J. Wentzel Van Huyssteen in *Duet or Duel? Theology and Science in a Postmodern World*, Trinity Press International, Harrisburg, Pennsylvania, 1998, p.9. The formulation originates in *Biblical Faith* by Gerd Theissen, SCM Press, London, 1984.

belief.”² That is, knowledge is a form of true belief – something we hold to be true that in fact is true. But true belief is not necessarily knowledge. It could be just a lucky guess – I might believe that the total snowfall in Grand Rapids this winter will be less than twenty-five inches. But if it turns out next May that I am correct, my belief would not have been knowledge because I have no compelling basis or *warrant* for such an assertion. Thus an important dimension of our discussion below will be the kind of warrant each of the two approaches to knowledge provide.

Statistics

Let’s consider a concrete example first, and then generalize. Suppose we want to determine which of two methods of teaching reading comprehension is more effective with first and second graders. How would we proceed?

Validity and reliability are two critical properties statistical tests may or may not possess. Validity means that a test actually measures what it says it’s measuring – in this case, reading comprehension. Reliability means that a test yields consistent results in repeated applications. So as our first step, we would select a standardized test of reading comprehension, one that has been carefully tested for validity and reliability. Next we would select two random samples of first and second graders that are large enough that lurking variables such as class size, teacher skill, race, economic background, and so forth shouldn’t bias the results. We would typically stratify sample selection (that is, build the random sample up out of subsamples that include representatives of different races, ethnic groups etc. in the appropriate proportions) to control for lurking variables we know could pose problems. Then, before the students had studied under one of the methods, we would test their reading comprehension at the same points in their education. If the “before” score was the same for both groups, we would also test them after studying and calculate the increase in score under each method. We would then compare the means of these increases using a standard statistical test and see if there is a significant difference between the two groups. That would complete our statistical analysis. Nevertheless, one more step remains – teachers or school administrators may use our results to decide which of the two methods to adopt for their children.

² In *Warrant: The Current Debate* and *Warrant and Proper Function*. These are the first two books of a trilogy on epistemology. Oxford University Press published all three, these two in 1993.

What kind of knowledge can we expect from this approach? Logicians use the name *proposition* for statements that are unambiguous and are either true or false. Thus statements like “John is tall” are not propositions since there is no precisely defined height that separates tall people from people who are not tall. Also metaphorical statements like “All flesh is grass” are not propositions. Statistics yields propositions that give information about observable phenomena. What does it mean to say that a proposition is “true”? Truth here means correspondence with reality, that is, that the statement corresponds to the way things actually are.³ In short, statistics aims to provide propositions that faithfully represent observable phenomena. It never claims to provide 100% confidence in their truth, but it does aim to provide a basis for assessing how much confidence we can place in a claim that a particular proposition is true. Hence in our example, a statistician's aim would be to affirm a claim such as “At the 95% confidence level, the mean increase in reading scores for North American first and second graders is greater under method A than method B.” Stated in non-technical language, this means the statistician is pretty confident that method A was more effective than method B for the entire population being considered and not just for the particular sample. This is a very strong claim and could substantially influence the lives of millions of children, their teachers, the developers of the teaching methods, and (conceivably) many lawyers and politicians. So let’s carefully examine each step in the process that leads to such a claim.

- *The use of a standardized test* Reliability is easier to test than validity. We can test reliability by carefully controlled, repeated applications of a test. However, to test validity we have to show that the results of our test are consistent with some other way of assessing reading comprehension. That other way must itself be tested for validity. In order to avoid an infinite regress, at some point validity testing necessarily involves a subjective human judgment. Furthermore tests such as these have been criticized as culturally biased. Test developers typically work hard to eliminate such bias. But there could be lurking variables that were missed. Critiques at this level can be summarized with the acronym GIGO – garbage in,

³ Postmodern writers often use the word “truth” in a different sense than this, referring to an individual’s or a community’s unique experience. For example, such writers would say that a patriotic statement such as “America is the land of the free, the home of the brave” might be true for some ethnic and racial groups but false for others. They express this emphasis on diverse personal experience by saying, “Each person has their own truth.” But this is not the sense of the word “truth” as used in statistics.

garbage out. That is, no matter how careful our statistical analysis of the data might be, if the data do not accurately represent what we are studying, our results will be wrong or misleading.

- *Random sampling* Random sampling is relatively easy for samples from a small, well-defined population. In other situations, however, obtaining a random sample of an adequate size may be prohibitively expensive or technically impossible. Even when properly collected, random samples may be atypical simply due to chance. Furthermore, even if one obtains a sample perfectly representative of the population, gathering data is often difficult. Also, dealing with people involves obstacles that don't exist when dealing with impersonal entities. While first and second graders are usually pretty cooperative, adults may refuse to participate or may lie. Hence in situations where adequate random samples of reliable data aren't available, statistical analysis can never be fully separated from prior assumptions and subjective judgments.

- *Application of the test* In conducting research, we aim for uniformity in application. In our example, this means that similar groups of children would be tested at precisely the same point in their education and in settings that are identical. The goal here is that the only difference between the two samples is the teaching method. In practice, achieving identical settings is impossible; but researchers aim to make differences as small as possible.

- *Analysis of the data* A typical null hypothesis for a question like this would be that the two methods don't yield different results. If the beginning means are similar, statisticians would then use a t-test to see if the difference after instruction is large enough to justify rejecting this hypothesis. However, extremely small differences can be statistically significant if the sample sizes are large enough. Hence researchers may have an alternate hypothesis in mind, such as "The difference is at least 2.0" (or some number they regard as evidence of a difference having practical significance). Choice of the alternate hypothesis is subjective.

- *Statistical conclusions* I said above that statisticians typically aim to conclude with statements like "At the 95% confidence level, method A was more effective than method B," but stated in more precise language. Note that this does not mean there is a 95% probability the assertion is correct! Rather the confidence level is a description of the methodology. That is, the "95%" means that one of two things are true – either (1) A and B really are different or (2) A and B are the same and an unlikely event occurred. Thus, if this method is correctly applied, 19 times out of 20 it will yield a statement that is correct. This approach does not provide us with a means to quantify our confidence in any particular statement. This may seem like a petty

difference, but keeping it in mind helps us remember that statistics is quite forthright in acknowledging that its inferences may be completely wrong. Furthermore, few researchers are willing to recommend actions based on one statistical test, no matter how high the confidence level is in its conclusion. Science requires that independent researchers replicate the results. In situations where random sampling is fairly easy, such replication can lead to a very high level of confidence in conclusions. When unlimited random sampling is not possible, though, confidence in results will be much lower.

- *The underlying mathematics* A fair amount of mathematics, notably the theory of probability, underlies the steps in this statistical process. This includes concepts such as random variables, independence, the Central Limit Theorem, and the normal distribution. Much of the warrant that statistics provides is a result of the confidence people have that propositions proven mathematically really are true.

The work of a statistician typically ends with the statistical conclusions. Nevertheless, the process is not done – after completion of any statistical work, actions are often taken based on the result. Such decisions typically require the application of values and principles that cannot be discovered statistically. In our example, method A may show greater improvement in reading comprehension than method B, but may be more expensive. Deciding whether the gain is worth the cost requires a value judgment. Or method A might achieve higher scores by a program of rewards and punishments that decision-makers judge unethical. Thus in practice, statistics can never be completely decoupled from ethical and value judgments that depend on principles that cannot be discovered by observations and inductive reasoning.

All of these aspects of the statistical inference process have been widely debated over the past one hundred years or so with the objective of developing a warranted method of inference.⁴ In spite of the pitfalls the method can fall into, we can reasonably conclude that the architects of the method have been largely successful. That is, scholars have made the process, its capabilities, and its limitations quite clear. If we are doing research ourselves, we can be careful to avoid the pitfalls described above. If we are assessing the results of our own or another's research, we can use our awareness of the limitations of the method to make a well-considered

⁴ You can find a very readable sketch of these discussions in *A Lady Tasting Tea* by David Salsburg published by the Mathematical Association of America, Washington, DC, 2001.

judgment as to how much confidence we can place in a particular claim. And frequently, we can in good conscience place quite a lot of confidence in claims.

Religion

Now let's turn our attention to religious knowledge. It too has been widely debated and for a longer time than statistics. Nevertheless, there is less consensus both on what it is and on how one attains it. I will use here a recent model of what religious knowledge is and how it is acquired proposed by Alvin Plantinga in *Warranted Christian Belief*.⁵ Plantinga's main concern in this book is to demonstrate the intellectual acceptability of Christian belief. Thus he presents his discussion of religious knowledge as a "model" because he is not claiming that his description of religious knowledge is perfectly correct. Rather he is claiming that it is a plausible account that shows that religious knowledge can be warranted. Nevertheless, he asserts that if indeed commonly held Christian beliefs are true (and he believes they are), then something close to his model is likely to be an accurate description of how religious knowledge is acquired.

What is religious knowledge? A skeptic would regard the phrase "religious knowledge" as an oxymoron. That is, for an atheist, religious statements can't be knowledge because they can't be true; for an agnostic, such statements can't be knowledge because they can't be warranted. But let's set the skeptics' objections aside and look at religious knowledge from the perspective of a Christian believer.

Although some theologians and some religious communities might disagree, the historic Christian perspective is that religious knowledge consists first of all in a number of propositions. The most basic of these is "The person that the Bible calls God exists." However, there are many more. In response to challenges from groups such as the Gnostics (who claimed access to mysterious knowledge that could only be known by special revelations), the early church fathers attempted to codify the principal facts that all Christians believe in creeds such as the Apostles' Creed and the Nicene Creed. More recently, communities such as the Roman Catholics, the Lutherans, and the Calvinists have written catechisms summarizing what they regard as the most important truths of Scripture in propositional form. These creeds and catechisms include

⁵ Oxford University Press, 2000. This is the third book in Plantinga's trilogy.

assertions about God's omnipotence and authorship of creation, about Jesus' life, death, and atonement, the Holy Spirit, the church, forgiveness of sins, eternal life, and more.

But religious knowledge consists of more than propositions. For example, Martin Luther writes,

...there are two ways of believing. In the first place I may have faith *concerning* God. This is the case when I hold to be true what is said concerning God. Such faith is on the same level with the assent I give to statements concerning the Turk, the devil and hell. A faith of this kind should be called knowledge or information rather than faith. In the second place there is faith *in*. Such faith is mine when I not only hold to be true what is said concerning God, but when I put my trust in him in such a way as to enter into personal relations with him, believing firmly that I shall find him to be and to do as I have been taught...⁶

Jonathan Edwards also makes the distinction Luther makes, between a purely cognitive knowledge and a knowledge that involves affective dimensions:

There is a distinction to be made between a mere notional understanding, wherein the mind only beholds things in the exercise of a speculative faculty; and the sense of the heart, wherein the mind doesn't only speculate and behold, but relishes and feels. That sort of knowledge, by which a man has a sensible disposition of amiableness and loathsomeness, or of sweetness and nauseousness, is not just the same sort of knowledge with that, by which he knows what a triangle is, and what a square is. The one is mere speculative knowledge, the other sensible knowledge, in which more than the mere intellect is concerned; the heart is the proper subject of it, or the soul as a being that not only beholds, but has inclination, and is pleased or displeased.⁷

⁶ From *Luther's Catechetical Writings*, as quoted by Plantinga, *op. cit.*, p.293.

⁷ *A Treatise concerning Religious Affections*, ed. John E. Smith, Yale University Press, New Haven, 1959 (first published 1746), p. 272. Also quoted by Plantinga, *op. cit.*, p.294.

How do believers acquire religious knowledge? Plantinga's model begins with an idea common to both Thomas Aquinas and John Calvin, that human beings have "a sort of instinct, a natural human tendency, a disposition ... to form beliefs about God under a variety of conditions and in a variety of situations."⁸ Calvin calls this the *sensus divinitatus*, and writes,

There is within the human mind, and indeed by natural instinct, an awareness of divinity. This we take to be beyond controversy. To prevent anyone from taking refuge in the pretense of ignorance, God has himself implanted in all men a certain understanding of his divine majesty.⁹

Plantinga comments on Calvin's statement:

Calvin's idea is that the workings of the *sensus divinitatus* is triggered or occasioned by a wide variety of circumstances, including in particular some of the glories of nature: the marvelous, impressive beauty of the night sky; the timeless crash and roar of the surf that resonates deep within us, the thunder of a great waterfall. But it isn't only grandeur and majesty that counts; he would say the same for the subtle play of sunlight on a field in spring, or the dainty articulate beauty of a tiny flower, or aspen leaves shimmering and dancing in the wind. 'There is no spot in the universe,' he says, 'where you cannot discern at least some sparks of his glory.'

Plantinga is not saying that we reason inductively from such experiences to the proposition that God exists. Rather, these beliefs just arise within us. He says, "They are occasioned by the circumstances; they are not conclusions from them ... In this regard the *sensus divinitatus* resembles perception, memory, and *a priori* belief." Thus a belief in God that arises in this way is basic – it is a starting point for our thinking, analogous to the axioms of Euclidean geometry. Furthermore, such a belief is warranted because "This capacity for knowledge of God is part of

⁸ Op. cit. p.171. The subsequent Plantinga excerpts below follow immediately after this one.

⁹ *Institutes of the Christian Religion*, I, iii, 1, p.44, quoted by Plantinga, p.171

our original cognitive equipment, part of the fundamental epistemic establishment with which we have been created by God.”

Nevertheless, the *sensus divinitatus* can become dysfunctional due to the impact of sin. Furthermore, the kind of knowledge it yields is still far short of full-blown Christian belief. Thus Plantinga proposes an extended Aquinas/Calvin model. In this model, human beings were created in the image of God and with knowledge of his glory. However, we fell into sin, a calamity that broke our relationship with God. God then instituted a plan of salvation including Christ’s life, death, and resurrection. But then God had to communicate knowledge of his actions to us. Plantinga continues his previous comments:

No doubt he could have done this in many different ways; in fact, he chose to do so by a three-tiered cognitive process. First, he arranged for the production of *Scripture*... [which has] a central theme and focus...the gospel, the stunning good news of the way of salvation God has graciously offered. Correlative with Scripture and necessary to its properly serving its purpose is the *second* element of this three-tiered process: the presence and action of the Holy Spirit promised by Christ himself before his death and resurrection...it is by virtue of the activity of the Holy Spirit that Christians come to grasp, believe, accept, endorse, and rejoice in the truth of the great things of the gospel...According to John Calvin, the principal work of the Holy Spirit is the production ... of the third element of the process, *faith*... Faith therefore involves an explicitly cognitive element; it is, says Calvin, knowledge – knowledge of the availability of redemption and salvation through the person and work of Jesus Christ – and it is revealed to our minds. To have faith, therefore, is to know and hence believe something or other.

I’m going to accept Plantinga’s extended model as substantially correct. With this framework in place, then, we have a basis for comparing statistical knowledge with religious knowledge.

Comparing the two approaches

Note that the *process* of acquiring religious knowledge begins with an innate capacity that is stimulated by concrete experiences. Subsequently, God’s Holy Spirit leads us to trust that his

revelation to us in Scripture is reliable. Thus knowledge is obtained by understanding Scripture. But the warrant for it is an inward response to God that believers sometimes call “the witness of the Holy Spirit.” Such a process is not inconsistent with deductive reasoning (such as is used in mathematics) or inductive reasoning (as in statistics). In fact, understanding Scripture often involves the application of both kinds of reasoning. Nevertheless, the process of acquiring religious knowledge depends on a type of warrant that is distinct from either of these modes of reasoning. If indeed this account is accurate, the process does lead to knowledge – warranted true belief – but by a very different process than we use when we acquire knowledge of propositions about observable phenomena by statistics.

It is also clear that the *kind of knowledge attainable* by revelation is typically quite different from the kind of knowledge that can be obtained by inductive reasoning. As we have seen, statistics is primarily concerned with observable phenomena. However, most of Scripture is not facts about observable phenomena but (1) stories and explanations of God’s interaction with human beings, and (2) assertions about values, purposes, and meaning. None of these is accessible to empirical verification. For example, the statement “Better a meal of vegetables where there is love than a fatted calf with hatred”¹⁰ expresses a value. Paul’s statement “...speaking the truth in love, we will in all things grow up into him who is the Head, that is, Christ. From him the whole body, joined and held together by every supporting ligament, grows and builds itself up in love, as each part does its work”¹¹ expresses God’s purposes and our purpose. As for meaning, much of Scripture provides a “metastory” – a large story in which each individual’s smaller story can find meaning. For example, I know a single mother whose only child was tragically killed in an automobile accident. She was so filled with grief and anger at God that she stayed away from church for five years. She finally allowed herself to join a Bible study on John’s gospel. In reading the story of Jesus’ crucifixion, she focused on the feelings of Jesus’ mother as she watched her son die. She felt for the first time since her own son was killed that she was not alone in her loss and she found a way to begin to deal with her grief. Scripture served as a metastory within which her own suffering found meaning.

¹⁰ Proverbs 15:17, NIV

¹¹ Ephesians 4:15-16, NIV

To a large extent we can resolve the religious faith - science conflict by pointing out that we have two very different approaches to acquiring knowledge based on different sources, different purposes and yielding different types of knowledge. This resolution will not satisfy an unbeliever who either denies the existence of God or that he has revealed knowledge to human beings. However, for a Christian believer, it suggests that both approaches are legitimate. Nevertheless, they differ substantially. We have seen four major ways. First, statistical knowledge comes by observation and inference whereas religious knowledge comes by a complex process involving innate capacities, divine inspiration, and trust. Second, statistical knowledge is propositional, whereas religious knowledge is both propositional and affective. Third, one provides knowledge about observable phenomena and the other knowledge about spiritual things that are not observable (for example, the existence of God) as well as statements about value, purpose, and meaning. Fourth, the relationship of the method to the knowledge it aims to provide is quite different. The goal of statistics is the acquisition of facts and theories about phenomena. The goal of Christian knowledge is building the kingdom of God. This includes the development of virtue, deepening of trust in God, establishing justice, exercising stewardship over creation, and the building of a community of people who love God and love and support each other. Nevertheless, the two approaches complement each other well. As we saw earlier, statistics indeed has the capability of providing knowledge about observable phenomena in the physical world; however, using that knowledge to make decisions requires the introduction of values and principles that cannot be discovered statistically. Religious knowledge provides the kind of framework of meaning, values, and purpose needed in applying statistical knowledge. But when making decisions about the physical or social world, it does not provide the information to which that framework is applied.

When the approaches conflict

It would be nice if we could stop here. Unfortunately the two approaches to knowledge can conflict. This occurs in at least two ways. First, people may start with incompatible presuppositions. Naturalists presuppose “that the universe is a closed system that operates

entirely according to natural laws.”¹² However, Christian thought does not see the universe as a closed system. It affirms both the existence of God and that natural laws originate in him and are subject to him. Thus a naturalist excludes religious insights out of hand; unfortunately, some scientists identify science with naturalism. The conflict between the Christian and the naturalistic perspectives is irreconcilable.

Secondly, scientists see the study of observable phenomena as the purview of science. However, Christians cannot cede the study of observable phenomena entirely to science. Scripture speaks of God as the origin of all observable things and thus, for Christians, the study of observables cannot be fully separated from one’s understanding of God. A scientist who does not adopt naturalistic presuppositions still has to reconcile scientific data about natural processes such as those that guide the development of stars, species, and human beings with the idea that God is creator and may at times override natural laws. I’m not going to attempt to address the content of the particular scientific disciplines involved in these matters here; these will be addressed in courses in those subject areas. But we can articulate some general principles on how to proceed when faced with such a conflict. Here are some principles we can apply:

- Scientific reasoning based on statistics is a gift of God given to help us be stewards of creation. For example, several years ago, biologists observed that the populations of birds of prey were dropping drastically in North America. They made careful observations, gathered data, analyzed it, and finally concluded that the source of the problem was the insecticide, DDT. Since birds of prey are at the top of their food chains, they consumed a lot of DDT and it caused their eggshells to be too thin. Thus the birds were not reproducing successfully. Since DDT has been banned, these populations have largely recovered. In this situation, human beings used the analytic gifts God gave them to carry out their stewardly responsibilities.

- Since scientific reasoning is a gift of God, it ought not be feared or dismissed when it appears to conflict with revelation. Nevertheless, we should not accept all claims based on

¹² *101 Key terms in Philosophy and their Importance to Theology* by Kelly James Clark, Richard Lints, and James K.A. Smith, Westminster John Knox Press, Louisville, Kentucky, 2004, p.55

statistical analysis uncritically. We can critique them. We saw several ways earlier that the statistical process can lead us astray if it is misused.

- Religious knowledge also involves uncertainties and can be misused. Sin distorts our understanding; in spite of the Holy Spirit's leading, our understanding of Scripture is deeply influenced by our presuppositions, culture, and experience.

- The evangelist, Billy Sunday is often quoted as having quipped, "When the Word of God says one thing and scholarship says another, scholarship can go to hell." However, the situation is not that simple. Christians have always affirmed God's consistency and the reliability of his revelation. Hence they insist that there can never be any ultimate contradictions between Scripture and the facts of nature. Nevertheless, we may misunderstand Scripture or misapply it. We can also err in data collection and analysis or in interpreting a statistical result; we may import philosophical assumptions such as naturalism into science. When conflicts arise, the key is humility toward both perspectives and a willingness to live with some issues unresolved.

Discussion questions

1. Think of two or three instances where you have used inductive reasoning in the past few days. How likely was it that you made an incorrect inference? Why? What would have been the consequences if you had?
2. Select a specific example of a situation in which statistics was used to gain new knowledge. If possible, use an example from another course, but if not, use one from earlier in this course. Apply each of the steps on pages 4-6 to your case and identify the possible ways statistics could have yielded a possibly incorrect inference in this situation.
3. On page 6, the paper asserts that the architects of the statistical method have been largely successful in developing a warranted method of inference. Does this claim seem right to you? Why or why not?
4. Describe a situation in which you have experienced the *sensus divinitatus*.
5. In Plantinga's model, religious knowledge is not acquired by either inductive or deductive reasoning. How is it obtained and how does this method differ from inductive and deductive reasoning?
6. On page 12, there is a brief summary of four ways in which statistical and religious knowledge differ. Do you agree that they really do differ in all four of these ways? Why or why not? Are there other ways that were left out?
7. The last sentence of the paper asserts that when conflicts arise between religious faith and science, "...the key is humility toward both perspectives and a willingness to live with some issues unresolved." Is this just an excuse for avoiding hard problems? Why?
8. Take a concrete example of a conflict between religious faith and science, perhaps one from biology, physics, or psychology. How would the attitude expressed in the last sentence of the paper shape the way one would approach that conflict?
9. How do the two different approaches to knowledge discussed in this paper affect not only the answers but also the questions being asked? In your answer, consider how a person deeply steeped in one approach might find it hard to communicate with someone steeped in the other approach.