

DIRTY ROTTEN
STRATEGIES

*How We Trick Ourselves
and Others into Solving the
Wrong Problems Precisely*

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1

SCREWING UP ROYALLY

An Introduction to Errors of the Third and Fourth Kinds

When you have assembled what you call your “facts” in logical order, it is like an oil lamp you have fashioned, filled and trimmed, but which will shed no illumination unless first you light it.

—SAINT-EXUPERY, *The Wisdom of the Sands*

It is the nature of an hypothesis, when once a man has conceived it, that it assimilates every thing to itself as proper nourishment, and, from the first moment of your begetting it, it generally grows the stronger by every thing you see, hear, or understand.

—LAURENCE STERNE, *Tristram Shandy*

ERRORS OF THE THIRD KIND

A fundamental concept underlies this entire book: the Error of the Third Kind.

John Tukey, one of the most famous statisticians ever to have lived, once said, “Better a poor answer to the right question than a good answer to the wrong question.”¹ Tukey is also reputed to have said (we paraphrase), “I suspect that most failures occur because we attempt to solve the wrong problems in the first place, and not because we fail to get the right solutions to the right problems.” Failures occur

because first we get the right solutions to the wrong problems, then we fool ourselves into believing we have solved the right problems to begin with, and finally we stick doggedly to our guns.

Taking Tukey's idea one step further, eminent Harvard decision theorist Howard Raiffa labeled the error of "solving the wrong problem precisely" the Error of the Third Kind, or the Type Three Error (others have worked on the concept of the Type Three Error as well as well)². Raiffa chose this terminology because Type One and Type Two Errors were already well established terms within the field of statistics.

As we elaborate on later, the most general definition of the Error of the Third Kind is trying to solve old and new problems with the assumptions, mindsets, and institutions of the past. A Peanuts cartoon from the 1960s says it well. Frustrated by his repeated failures to learn "the new math," Charlie Brown cries out in despair, "How can I learn 'the new math' with an 'old math' mind?" The elementary school teachers who tried to teach the new math were equally frustrated. They too learned painfully that they couldn't teach the new math with an old math mind.

TYPE ONE AND TYPE TWO ERRORS

The basic ideas behind the Type One and Type Two Errors are easy to grasp. Suppose one is interested in testing whether a new drug is better than an old one at treating headaches. In the process of giving the new drug and the old drug to two evenly matched groups (of comparable ages, educations, incomes, jobs, and so on) of, say, a hundred people each (a sample), two errors can be made. First, one can conclude wrongly that the new drug is better than the old one when actually the old one is better or equal to the new one. This is known as the Type One Error, or E_1 . (In formal statistics, the Type One Error is generally designated as Type I and the Greek symbol α , but for reasons that will become apparent, we're calling it E_1 for short.) E_1 is akin to saying that there is a meaningful difference between the two drugs when there is not. Second, one can also conclude wrongly that the old drug is better than the new one when in fact the

new one is better. This is known as the Type Two Error, or E_2 .³ E_2 is akin to saying that there is *not* a meaningful difference between the drugs when there is.

There is a natural variance in how people react to particular drugs. Depending on the circumstances, some people react more strongly than others. (Think of the familiar bell-shaped curve.) The results from the tests can therefore be misleading and hence lead to false conclusions.

For instance, suppose that, purely by chance, on a particular day a majority of the people taking the new drug are unusually responsive to it and a majority taking the old drug are unusually *un*-responsive to it. We would then conclude, purely by chance, that the new drug is better than the old one when it may not be better at all. (This might happen, for example, if we pull an unrepresentative sample of people from the *upper* end of the bell-shaped curve to test the new drug and an unrepresentative sample of people from the *lower* end of the same bell-shaped curve to test the old drug.) If on other days we use other groups to compare the drugs, we might get completely different results.

Statisticians design testing procedures that attempt to control for both kinds of errors. Because it is generally impossible to minimize both errors simultaneously—one error typically increases as the other decreases—one has to choose which error is more important to minimize in a particular situation. For instance, it may be more important to keep using a trusted and tried drug in which one has high confidence than to replace it with a new one that has potentially serious and unknown side effects, such as Vioxx. Thus, it may be more important to say that the old drug is better than the new one in terms of controlling for side effects, whereas the new one is actually better in treating some conditions. In other words, in this case it may be prudent to be conservative and to side with the old drug until it is conclusively proven to be inferior. One is thus willing to tolerate larger Type Two Errors than Type One Errors. (Remember, we commit a Type One Error if we conclude wrongly that the new drug is better than the old one when in fact the old one is better.

Conversely, we commit a Type Two error if we conclude wrongly that the old drug is better than the new one when actually the new one is better.)

Although the Type One and Type Two Errors are taught in virtually every course in statistics, no matter how elementary or advanced, the Type Three Error is almost never discussed. The reason is that the Type One and Type Two Errors involve only a technical knowledge of statistics, while in contrast the Type Three Error demands wisdom—the ability to be aware of and rise above our biases and passions. In short, it requires the ability to exercise critical thinking, to be aware of and challenge our basic assumptions. Even though critical thinking is supposed to be the fundamental purpose of education, it is rarely taught, let alone in statistics. In this sense, the Type Three Error is not only beyond the field of statistics, it also comes prior to it. Indeed, it is prior to every field of knowledge.

Another way to put it is to say that managers and technicians focus on Type One and Type Two Errors, and leaders focus on Type Three Errors. Famed management consultant and theorist Peter Drucker put it as follows: “Managers and technicians do known things right; leaders ask what are the right things to do.”

If the Type One and Type Two Errors hadn't already been invented, it is clear that Raiffa would have labeled the Error of the Third Kind the Type One Error, or even more fundamental, The Type Zero Error. The choice is more than one of terminology alone. Calling the Type Three Error the Type One, or Type Zero, Error would have made it perfectly clear not only that Errors of the Third Kind *come before* Type One and Type Two Errors, but also that Errors of the Third Kind are *more fundamental*. After all, Type One and Type Two Errors can be determined only *after* one has already defined the problem.

Raiffa's whole point was this: What good does it do to minimize or control for Type One and Type Two Errors if the problem one is attempting to solve is wrong to begin with? This is precisely the question that good leaders ask.

For instance, instead of posing the problem as one of determining whether a new drug is more efficacious than an old one in relieving

tain, suppose the problem is how to develop a cheaper, generic version of the old drug. Of course ideally one would like to do both, that is, produce a generic version of a new drug that is *both more effective and cheaper* than the old one. Because in principle the two problems are not exactly the same, the Type Three Error forces us to ask, and thereby to decide, which is more important to obtain: a newer and more effective drug, or a cheaper version of an old one.

Even more basic, the Type Three Error, or E₃, forces us to ask whether the problem is not one of taking a cheaper or better drug but rather one of making changes in lifestyle and diet.

ERRORS OF THE FOURTH KIND

As important as the Type Three Error is, we believe that a far more serious and potentially dangerous type of error needs to be addressed. This is the Error of the Fourth Kind, or the Type Four Error.

The Type Three Error is the unintentional error of solving the wrong problems precisely. In sharp contrast, the Type Four Error is the intentional error of solving the wrong problems. Although Tukey and Raiffa clearly foresaw the Type Three Error—they literally invented it—they did not clearly distinguish between Type Three and Type Four Errors. In other words, they conflated both errors. In this sense, they did not foresee the Type Four Error. Although the two types are often connected (Type Four Errors are often the direct result of Type Three Errors), they are not exactly the same; thus they need to be distinguished from each other.

The Type Three Error is primarily the result of ignorance, a narrow and faulty education, and unreflective practice. In contrast, the Type Four Error is the result of deliberate malice, narrow ideology, overzealousness, a sense of self-righteousness, and wrongdoing. As we shall see repeatedly, every Type Four Error is invariably political or has strong political elements, in both the broad and narrow senses of the term; but then so do the Type One and Type Two Errors, even if their political elements are more hidden and therefore more difficult to see. For example, saying that a Type One Error is more important than a Type Two Error is often

the result of political decisions or elements. It certainly is affected by organizational politics.

The Type Three Error occurs when to *our* detriment *we unintentionally fool and trick ourselves* into solving the wrong problems precisely, *but we don't necessarily force our definitions on others*. In sharp contrast, the Type Four Error occurs when, to *their* detriment and for *our* gain and benefit, *we intentionally force others* into solving the wrong problems precisely. That is, in the Type Four Error we force and trick others into solving *our* definitions of problems.

In brief, we *unintentionally* mislead *ourselves* when we commit a Type Three Error, whereas we *intentionally* misled *others* when we commit a Type Four Error, or E₄.

Notice that there are no absolutely certain, precise, or fixed differences between E₃ and E₄. It is a natural tendency to want to convince others that the problems we are working on are the correct ones. In this sense, every E₃ has within it the potential to become an E₄. The differences between E₃ and E₄ are thus matters of degree, not of kind.

It would seem logical that once one has committed an E₄, it is then impossible to commit an E₃ in regard to the same problem. In other words, it would seem that the arrow of causality goes from E₃ to E₄, but not from E₄ to E₃. Once one has *intentionally forced* on others the wrong definition of a problem, it is then impossible to claim that one has *unintentionally* solved the wrong problem. The trouble with this line of reasoning is that people and organizations do not reason according to the dictates of pure logic. People and organizations are perfectly capable of believing and doing the most outlandish and outrageous things. Another way to put it is to say that people and organizations are perfectly capable of switching back and forth, or sliding, from intentional to unintentional states of belief, actions, and so on, and vice versa, often without full or conscious awareness.

The upshot is that a single person, organization, or society cannot by itself determine whether it is committing an E₃ or an E₄. The nature of the error must be determined by *at least one* other person

or organization that does not share the same belief system as the person, organization, or society that is committing the error.

The differences between E₃ and E₄ are most pronounced and therefore most easily observed when accepting a particular definition of a problem has important consequences for large numbers of people. Although all of us will make many Type Three Errors over the course of our lives, not all of them will rise to the level of Type Four.

Finally, as the following examples show, both individuals and organizations (and certainly whole societies) are capable of committing E₃ and E₄. Neither error is the sole or exclusive province of one or the other.

A CASE STUDY OF THE FAILURE TO THINK CRITICALLY: THE BELGIUM COCA-COLA CRISIS

In mid-1999, after a huge outcry of negative public opinion and the adverse decision of the health minister of Belgium, Coca-Cola was forced to recall about thirty million cans and bottles of its products (Coke, Fanta, and so on).⁴ Not only was this the largest product recall in the company's 113-year history, but for the first time ever the entire inventory of Coca-Cola products was banned from sale throughout Belgium.

The ways in which Coca-Cola mishandled the Belgian crisis was not only one of the worst public relations disasters in the company's history, but also one of the biggest textbook examples of how *not* to do crisis management. The crisis resulted not only in the loss of millions of dollars for the company, but also in the eventual firing of Coca-Cola's CEO, Ken Ivester. Like most crises, the story has a number of elements, or subplots, most of which are examples of E₃ and E₄.

The crisis began when children at six schools in Belgium complained that the Coke products they had consumed tasted and smelled funny. Soon afterward they suffered serious headaches, nausea, vomiting, and shivering. The symptoms ultimately led to their being hospitalized. The same week, the governments of France, the Netherlands, and Luxembourg also banned Coca-Cola's

products. The company's Dutch arm recalled all products from its Belgium plant, and 240 Belgian and French citizens, mostly school children, were left ill after drinking Coke products produced at the Antwerp and Dunkirk facilities. How Coca-Cola responded to the crisis revealed not only how deeply flawed its understanding of crisis management was but also how easily and quickly it became trapped in solving the wrong problem precisely. The first response of the company's top executives was to have their quality control engineers run extensive tests on the products in question. The engineers quickly ascertained that there was nothing toxic in the beverages; therefore, from a health standpoint, there was nothing wrong with the products. They tasted and smelled funny only because of the substandard carbon dioxide that was used to carbonate them. As far as it went, this part of Coca-Cola's strategy was OK. They had not yet committed an error of solving the wrong problem precisely.

With this explanation in hand, Coca-Cola's executives thought, naively, that the crisis was over and hence would quickly go away. Given a "rational explanation" for the funny smell and taste of the beverages, the children, their families, and the Belgian health minister would see the products as acceptable, and the ban against them would be lifted. The trouble with this "solution" was that it made things worse, not better. It not only exacerbated the initial crisis but set off a chain reaction of new crises as well.

The executives who were involved in handling the crisis said not only that there was nothing wrong with their beverages but also that the reactions of the children, their families, and the Belgian health minister were due to mass hysteria, that their reactions were merely psychological and therefore should be dismissed out of hand. In this way, Coca-Cola's executives not only attempted to explain the problem away, but also did something far worse. They basically insulted their consumers, their families, and the health minister of Belgium. As a result, not only did sales plummet throughout Europe, but McDonald's, one of Coca-Cola's largest and most important customers, stopped selling Coke in all of its European fast food outlets.

In accepting the definition of the problem as primarily technical, that is, as a problem of quality control and quality assurance, not only were Coca-Cola's executives solving the wrong problem precisely, but they were also violating one of the cardinal rules of crisis management: never, ever insult your customers or key stakeholders, especially children and their parents. Instead, always go out of your way to demonstrate empathy and to convey honest compassion and sincere concern for them.

Without knowing it, Coca-Cola's executives were trapped by a number of forces, many of their own making: a strong corporate culture that reinforced a group mentality (groupthink), the narrowness and similarity of their professional backgrounds and education, their overwhelming concern with profits, and the intense fears associated with the fact that Coke sales had been steadily declining worldwide. All of these factors predisposed them to think alike and hence to define the problem—the crisis—as primarily and inherently technical. Ironically, even though, when it came to advertising, marketing, and sales, outside psychologists and marketing consultants as well as in-house staff played a big role (Coca-Cola's ads and marketing campaigns were regularly touted as among the best in the industry), psychologists or other social scientists were not part of the team when it came to handling major crises.

Other ways of looking at how Coca-Cola defined the problem bring out additional features of the crisis. In responding to the Belgium situation, the company's top executives considered their quality control engineers to be the primary and relevant experts. Indeed, from their perspective, the engineers were the *only* relevant experts and the primary stakeholders. In contrast, the Belgian health minister and the families of the children considered the children to be the primary and relevant experts. The experts were different in each case because each side defined—that is, felt and experienced—the problem differently.

In other words, the Coca-Cola's top executives assumed implicitly that everyone was a quality control engineer, and in contrast the Belgian health minister assumed implicitly that everyone was a

government appointed official concerned primarily with keeping his or her job. How wrong they both were! Nonetheless, Coca-Cola's executives were "more wrong."

What's sad is that in a fundamental sense both definitions of the crisis or problem are correct. As a matter of fact, each is fundamentally incomplete without the other. Like essentially all problems in a complex world, the Coke crisis was not an either-or but a both-and problem. The complete or true definition of the problem was both psychological and technical. In this sense, Coca-Cola's executives were solving only part of the problem. *They were solving the wrong problem because they were not solving the total problem.* The problem was not primarily how to ensure the quality of its products but how to assuage the fears of its primary customers.

But the Belgian health minister was not solving the full problem either. In this sense, he was committing both an E3 and an E4. However, he didn't need to solve the complete problem, because he was responding to and representing the offended parties against an uncaring and unfeeling corporate bully.

Like most executives, Coca-Cola's made a number of unstated and faulty assumptions. First, if the problem was literally not in the Coke, then there was not a real problem. Second, conversely, the problem with or in the children was not real. Third, the reactions of the children could be explained away as mass hysteria. Fourth, and most basic of all, psychological problems are not as important, or as real, as physical ones.

In the end, we rise and we fall by the basic assumptions we make about others, the world, and ourselves. As we shall see, in every case, solving the wrong problem precisely can be traced to a set of faulty, largely unstated, and unconscious assumptions.

The Source and Nature of Coca-Cola's Error

One of the most common and most prevalent reasons that an individual, an organization, or even a whole society commits the error of solving the wrong problem is a narrow belief system. In turn, a narrow belief system is often the product or reflection of a narrow

political ideology or company culture, of a limited philosophical worldview, education, family background, and so on. Whatever the source, a narrow belief system generally leads to a single definition of a problem, a definition that is accepted beyond question and hence staunchly defended.

This is not, however, the only cause of committing the error of solving the wrong problem. Fear, psychological frame of mind, and personality also play important roles. In addition, the inability to exhibit genuine empathy for others is an important factor. Narrowness and strong similarities in educational and professional backgrounds are sufficient in most cases to account for why most people and most groups quickly zero in on a single, preferred, and “natural” definition of a problem. Groupthink is an important mechanism for producing the error of solving the wrong problem precisely.

But what accounts for lack of empathy and remorse for others? Unfortunately, there is growing evidence that those who rise to high positions of authority and power are in far too many cases what are termed *avoidant personalities*.⁵ Avoidants typically do not consider the feelings of others, because they have little need for other people. As a result, they are extremely comfortable ignoring others’ feelings.⁶ That is, they exhibit little or no visible feeling of anxiety when ignoring others. They also exhibit little remorse or guilt in using others to their advantage. (The executives and energy traders of Enron are a classic example of this.)

Now, of course we have no way of knowing for sure whether these factors were operating in the case of Coca-Cola’s executives, but we do know from all of our consulting opportunities over the years that in both the so-called public and private sectors these factors are present in far too many situations, for we have observed them firsthand. We are therefore strongly inclined to bet that they were major operating factors in the Belgium Coke crisis as well. Furthermore, the psychological literature says that in times of extreme stress—which is present in essentially all crisis situations—one’s default way of coping with stress comes to the fore.⁷ The psychological

literature also says that a person's characteristic way of responding to and coping with stress is learned from one's primary caretakers, beginning at birth.⁸ How a person's parents respond to stress is one of the strongest factors in how that person responds to stress. This means that unless one is aware of it and seeks active intervention, one cannot break and change the pattern. It is little wonder, then, that the error of solving the wrong problem precisely is committed so often. Indeed, what requires explanation is why we don't have more such errors.

Actually, like very small earthquakes, such errors occur all the time. However, most of them occur beneath the threshold of the public's and the media's attention. This has the effect of lulling us into complacency so that when a really big one hits (such as the credit crisis), we are generally unprepared to deal with it effectively.

Coca-Cola clearly committed a Type Three Error in Belgium, and throughout Europe. We believe they also committed a Type Four Error, even though they were spectacularly unsuccessful in getting the parents and the Belgian health minister to accept their definition of the problem. Their intention to get others to accept their flawed definition was the critical factor that moved them from committing a Type Three Error to committing a Type Four Error.

The Aftermath

One of the many Web sites devoted to an analysis of the Coke crisis summed up the financial consequences as follows:

Coca-Cola's financial performance suffered a major setback due to the Belgian crisis. The recall had a negative impact on Coca-Cola's overall second-quarter net income in the fiscal year 1999, coming down by 21% to \$942 million. Moreover, the entire operation of removing and destroying recalled products cost Coca-Cola Enterprises \$103 million (£66 million) in 1999 dollars. The recall led to a 5% decline in the bottler's revenues and a fall in cash operating profit by 6%. Coca-Cola's brand image was hit among Belgian consumers; a market that had been one of Europe's most successful for the company."⁹

Crises have the potential to cost big. How we respond to them has the potential to make them cost even more.

ANOTHER EXAMPLE OF SOLVING
THE WRONG PROBLEM PRECISELY: PCBs

Several years ago, Abraham Silvers had the opportunity to work for the Electric Power Institute as a research statistician. Although there was not yet an airtight case, strong evidence had already accumulated to the effect that not only were polychlorinated biphenyls (PCBs) seeping into the environment, but they were posing a serious danger to human health.

At an important meeting of companies in industry, a senior science consultant on the staff of a large utility said publicly that he thought PCBs had to be controlled in order to protect the health of workers and of citizens in nearby communities. He argued that the industry ought to get out in front of the issue and do everything in its power to take responsible action to control its use of PCBs. (Interestingly enough, he was later to become the expert toxicologist for Erin Brockovich in her suit against the giant utility PG&E.)

As soon as the consultant made this statement, someone from another company blurted out, “Right here in front of me, I have a cup filled with PCBs. I am willing to drink it right now to prove that it is not a threat to human health!” Obviously he had prepared well in advance of the meeting. (He might have been correct in the short run, because the danger to his health probably would not have shown up for years.)

Now, we can’t know for sure whether he actually would have drunk the foul stuff or whether he was just bluffing and going for theatrics. The point is that he was willing to commit not only a Type Four Error on others but also a Type Three Error directly on himself! Of course *he* didn’t see it that way at all. *He* didn’t see himself as committing an error. Instead, he saw *others* as the ones who were making a huge error.

If the problem was how to attract maximum attention to his position by doing something overly dramatic, then he was indeed solving

the right problem; but if the problem was how to avoid potentially toxic substances entering the animal and human food chain, and to exercise caution in protecting and serving the greater public good, then he was indeed solving the wrong one.

Naturally the person who volunteered to drink the cup of PCBs was later found to have been supremely wrong, even if he was unable to admit it. As the following example shows, dumb acts and dumb arguments are almost always a fundamental part of all errors of solving the wrong problem precisely.

DON IMUS:

A CASE OF HIGHLY FLAWED ASSUMPTIONS

Recall the case of radio and TV personality Don Imus, who was fired in 2007 for using racially insensitive and slanderous terms to describe the members of the Rutgers University women's basketball team. (He was subsequently hired by another network.) Although we don't know for sure, we bet that prior to Imus's firing, he and his producers assumed something like the following:

1. By virtue of his or her unique occupation and position in society, a comic has a special license (social contract) to attack almost anyone or anything without serious retribution or payback. As part of this special social contract, a comic also has the license to use racially insensitive and vitriolic language. In other words, comics are generally immune and shielded from censure and criticism. (Go tell this one to comedian Michael Richards of *Seinfeld*, who used a racial epithet against black members of the audience who were heckling him at one of his performances, thereby virtually ending his career.)
2. Whenever the members of a particular group (in this case, African Americans) use demeaning language, such as a highly offensive epithet (in this case, "nappy-headed hos"), against the other members of their very own group, then I am warranted in using it as well. In short, the assumption is, if they can do it, I can as well.

3. The fact that I have gotten away with outrageous, over-the-top behavior for more than thirty years guarantees that I can get away with it one more time, if not indefinitely. (Notice that not only is this a continuity assumption—the future will be like the past—but the larger the number of times one has gotten away with something in the past, then the greater the guarantee that one will get away with it one more time.)
4. Outrageous behavior sells. One has to be continually edgy in order to attract and keep mass audiences. One has to always push the envelope.
5. If I don't push the boundaries, then someone else will. Hence I'm forced to do it. I have no other choice. It's a dog-eat-dog business.
6. Attacking or making fun of young women is in principle no different from attacking adults who willingly come on to my show to hawk themselves, their celebrity, their books, their political candidacies, and so on. In short, anyone in the public eye is fair game for attack and ridicule.
7. The fact that I contribute large sums of money to worthy causes for extremely deserving children further insulates me from attack.

Although these assumptions—and by calling them assumptions we are being far too kind—may have been true for a long time, Imus's case shows how quickly and completely assumptions can collapse. In short, on the basis of the preceding assumptions, Imus and his producers successfully solved the problem of how to attract and hold a large radio audience for a long time. What they did not solve was what to do if and when their assumptions were no longer valid.

Once again, if there is a single underlying reason that we solve the wrong problems precisely, it is that we are prisoners of a set of assumptions that are deeply flawed, out-of-date, or just plain wrong. We are the prisoners of our assumptions because, more often than not, we don't even know what our assumptions are, and we don't

know that we are making all kinds of assumptions about others, the world, and ourselves. In short, we are unconscious of our basic assumptions.

THREE EXAMPLES

The three cases of Type Three and Type Four Errors that we have considered in this chapter—Coke, PCBs, and Don Imus—are merely three examples of a more general phenomenon. In the rest of this book we look at many more examples drawn from academia, business, government, the media, and religion. In this way we show how widespread the phenomenon is, as well as general strategies for breaking ourselves free from these most problematic errors.

For example, in Chapter Three we discuss how a Type Four Error occurs when the medical system does everything in its power to convince us that health care is just a product that can be bought and sold like any other product, and that the primary objective of the system is controlling costs and not promoting our general health and well-being. It solves the problem of controlling costs by getting others to bear them. It does not solve the fundamental problem of promoting our general health and well-being. A Type Four Error occurs when even those who have medical insurance are denied coverage because to do so makes the system even more profitable. The medical insurance system has a huge incentive to reward handsomely those claims agents and adjustors who are very good at finding ways to deny insurance claims, coverage, and payments. In other words, the system solves quite well the problem of how to deny coverage to those who have paid for it and deserve it—but this is not a problem worth solving, let alone solving well.

A Type Four Error also occurs when the big HMOs and medical insurance companies do everything in their power to convince us that they are justified in making huge profits at our expense. As such, the real business they are in is that of convincing us that the way they define the problem of health care is the true definition of the problem. From their standpoint, the primary problem is holding down costs, not helping us get and stay healthy. Thus, a broad problem—how to

get and stay healthy—is converted into a narrow problem (although one that is important nonetheless).

The book by Jerome Groopman to which we referred in the Preface is primarily about how, when, and why individual doctors are likely to commit Type Three Errors.¹⁰ It is not about Type Four Errors, which arise mainly from the medical system as a whole, and in particular from the dirty tricks and other dirty rotten strategies of the big insurance and drug companies.

To put all of this in perspective, the medical system commits a combination of Type One and Type Two Errors when it says it delivers high-quality care at an affordable price when in fact it does not. In contrast, it commits a Type Four Error when it does everything in its power to convince us that the private enterprise system is the best and only way to solve the problems of health care. In other words, a Type Four Error occurs when the medical system defines the problems of health care mainly on the basis of its own political and philosophical ideology.

A Type Four Error also occurs when big businesses and major corporations use criminal and deceitful tactics to make obscene profits at the expense of the public's health, safety, and well-being. A Type Four Error especially occurs when they try to convince us not only that all of this is acceptable in the name of capitalism, but also that this is the “natural order of things,” that is, that the system is as it should be. For instance, the error occurs when CEOs try to convince us that they are justified in making astronomical amounts of money in comparison to the lowest-paid persons in their organizations. CEOs have learned quite well how to solve the problem of how to earn outrageous sums of money at the literal expense of other people in their organizations.

One of the biggest Type Four Errors of all occurs when we put our enormous energies into developing a virulent form of capitalism that Robert Reich has called *supercapitalism* and Naomi Klein has called *disaster capitalism*.¹¹ Although there is much in Reich's and Klein's work with which we agree, and as bad as they make contemporary capitalism out to be, we think it is far worse than

they have described. On the one hand, *supercapitalism* is too mild a term; on the other hand, although it is much stronger than Reich's term, *disaster capitalism* is not strong enough. We prefer to call contemporary capitalism *sociopathic capitalism*. By this we mean that modern capitalism has a number of the critical characteristics associated with sociopathology, for example, the commission of unethical acts intentionally designed to hoodwink the public; the glorification of unethical behavior, such as unrestrained greed; and little or no guilt associated with deceptive and unethical behavior. Clearly Enron and other major organizations that have been convicted of wrongdoing more than fit the bill.¹²

So do the mortgage companies that tricked people into taking out loans that they had no ability, or intention, to repay. The people who took out such loans are guilty as well. As with most crises, there is more than enough blame to go around. Thus the government regulators who failed to do their job are also at fault; and by failing to pass tougher rules and regulations, Congress must share a large part of the blame. In short, as a society we have solved the wrong problem, that is, how to create an especially virulent and dangerous form of capitalism—sociopathic capitalism.

A Type Four Error also occurs when government uses disinformation and misinformation to get us to accept ill-conceived and disastrous policies that trample on civil rights, privatize social security, mistreat gays, and send the children of the poor to die in illegitimate and poorly conceived wars. A Type Four Error occurs when the legislative branch of government fails to exercise its checks and balances on the executive in order to, for example, provide proper oversight on the conduct of the Iraq war. That is, a Type Four Error occurs when the legislative branch does not solve the problem of how to provide effective oversight. A Type Four Error occurs when instead of curbing terrorism, the war in Iraq actually furthers and strengthens it.

As we show later, one of the most prevalent forms of the Type Four Error occurs when we assume wrongly that increasing without limit something (such as actions or means) that is good in small

quantities always leads to good outcomes (ends). Beyond a certain point, more does not lead to more; instead, it turns back on itself so that more leads to less. For example, in fighting conventional wars, larger armies are generally superior to smaller ones; but in fighting unconventional wars, bigger is not always better, let alone best.

A Type Four Error occurs when the media knowingly and willingly go along with illicit government policies, when they abdicate their role as critics and checks on the abuses and powers of government. Although many journalists (mainly print) were of course critical of the Iraq war from the very beginning, the system as a whole failed to do its job. Indeed, the Iraq war is a case study in the failure of almost every system that was supposed to protect us from such follies.

A Type Four Error occurs when the media invent and use the cleverest and most technologically sophisticated forms of unreality that not only distract us but actually diminish our ability to deal with ever-growing, complex forms of reality. Unreality not only makes the unreal look as real as reality, but it also makes it look better than and thus preferable to reality. The result is that not only is it increasingly difficult to distinguish between what's real and what's not—between what's true and what's false—but we no longer care to distinguish between them, assuming that we still could.

A Type Four Error occurs when the media feed, nurture, and intensify the public's insatiable need for pseudo celebrities, and then turn around and argue that they are just fulfilling a pent-up, already existing and natural demand, not creating an artificial one. The truth is that the media both create new needs and wants and meet and fuel old ones.

A Type Four Error occurs when our colleges and universities abdicate their primary role of teaching us how to think critically, that is, when they do not teach us about Type Three and Type Four Errors and how to lower our chances of committing them. Such errors occur especially as the result of carving up the world into disciplines that are no longer suited to the problems we face. In other words,

colleges and universities are largely wedded to an outmoded, largely nineteenth-century solution for the organization of knowledge.

A Type Four Error occurs when special-interest groups over-emphasize the uncertainties in scientific research on, for example, global warming and thereby deliberately distort and downplay the widespread agreement that exists in the scientific community.

Karen Armstrong has pointed out masterfully that the major religions of the world are the products of a long-gone Axial Age.¹³ They are the “solutions” to the economic, social, and spiritual problems of five thousand years. They no longer work as complete solutions to today’s problems. Instead of continuing to solve the problems of a bygone age, and hence committing Type Three and Type Four Errors in the name of religion, we need new conceptions of God that are better suited to the problems of our times.

CAN WE EVER KNOW FOR SURE?

Can we ever know for sure that we are solving the wrong problems? How can we determine that others are attempting to force us into solving the wrong problems precisely? These are just two of the important questions that we address in this book.

The short answer is that we can never know for sure that we are committing a Type Three Error, but there are nearly always strong indicators and signals that we are about to commit one. Although they are not perfect, there are ways of assessing whether we or others are committing Type Three and Type Four Errors, and there are ways of avoiding them. Nonetheless, we do not assume that even if we could detect such errors everyone is equally concerned with avoiding them.

Before we end this chapter, we explore the concepts of the Type Three and Type Four Errors a bit more by means of an instructive joke.

A DEATH-DEFYING LOGIC

A man walks into a psychiatrist’s office.

The psychiatrist asks, “What’s your problem?”

The man says, “I’m convinced that I’m dead, but I’m having trouble persuading anyone else.”

The psychiatrist says, “OK,” and agrees to work with the man.

After six months, the psychiatrist turns to the man in frustration and asks, “Look, if I can prove to you that you’re not dead, will you give up the belief that you are?”

The man says, “Of course!”

“Well, you don’t believe that dead men bleed, do you?”

“No, of course not; that’s impossible!”

With that, the psychiatrist takes out a small pin from his desk drawer, reaches over, and pricks the man so that a tiny drop of blood appears on his arm.

The man looks down at the blood and exclaims,

“Why, I’ll be damned! Dead men do bleed!”

Humans are truly amazing creatures. They have an incredible ability to fabricate and shape reality to suit their needs. If someone is deeply committed to an assumption or a belief, then all of the evidence and arguments to the contrary are often of little use in causing the person to abandon them. Jonathan Swift put it best of all: “It is useless to attempt to reason a man out of a thing he was never reasoned into.”

As the joke demonstrates, evidence and arguments to the contrary—such as deliberately showing a person that he can bleed—can even cause a person to hold his or her beliefs more strongly. (Witness President Bush and how he reacted to the “fact” that the intelligence agencies confirmed that for the past few years Iran was not developing a nuclear weapons program.) Evidence and arguments that are disconfirming for others are confirming for the person who holds a particular belief.

We especially resist that which threatens our basic sense of who and what we are. Thus, in the joke just presented, in order for the man to give up the belief that he is dead he would have to know the fundamental purposes it serves. In brief, what is he getting out of it? If he believes that he is already dead, then perhaps he also believes

that he can never die—in short, that he is immortal. Does his belief thereby allow him to evade normal human responsibilities such as walking the dog and taking out the trash?

Humans have believed even stranger and wilder things than this, and we should not automatically rule them out just because they may seem odd, if not crazy, to us. But there are even deeper reasons that we often resist the truth. Take the case of Galileo. Is anyone really naive enough to believe that the Church Fathers should have *immediately* given up fifteen hundred years or so of sacred dogma just because someone claimed to have observed something strange and wonderful through a small metal tube with two pieces of glass at either end? What's a small metal tube compared to the majesty of Church dogma that by definition cannot be “directly observed” by the naked eye? One sees sacred objects with the soul, not with the senses.

We say this having doctorates—Ian Mitroff's in engineering science with a minor in the philosophy of social science, and Silvers' in pure mathematics. Both of us therefore believe deeply in rationality and science, but we also believe in psychology and philosophy. Even though we generally do not side with the Church in matters of belief, we can nonetheless see the Church's point in the case of Galileo. The Church was not wrong to resist, *in the beginning*.

Although it is unreasonable to expect anyone to give up his or her cherished assumptions and beliefs immediately,¹⁴ it is not unreasonable to expect a person to give them up after “sufficient evidence” to the contrary has accumulated. If we were required to give up our assumptions and beliefs at the first signs of disconfirmation and doubt, then we would be forced to give up virtually all of our assumptions and all of our beliefs all of the time. Such a world is completely untenable. There would be little if any continuity. No one could function in it.

To a degree, but only to a degree, hanging onto our basic assumptions and beliefs is rational;¹⁵ but when evidence to the contrary has not only accumulated but is overwhelmingly against our basic beliefs and assumptions, then hanging onto them is not only

irrational but a sign that something is seriously wrong in ourselves and our body politic.

For instance, the following example from the field of national politics is as dangerously close to *Dead Men Do Bleed* as one could ever hope to find:

[Karl] Rove, [President Bush's chief political advisor,] suggested, as Bush repeatedly has, that history will ratify the decision to invade Iraq. "You know, the Bush doctrine—'Feed a terrorist, arm a terrorist, train a terrorist, fund a terrorist, you're just as bad as a terrorist,'" he said. "It's going to remain our national doctrine, and it's going to be very difficult, I think, if not impossible, to dismiss this, just as it will be to dismiss the doctrine of preemption. In the future, the country is not going to let the dangers fully materialize, and we're not going to allow ourselves to be attacked before we do anything about it. The question was, did we have the right intelligence about Saddam Hussein? No. Was it the *right* thing to do? Yes."¹⁶

Even after they are long gone from the public stage, what, if anything, could possibly disconfirm and thus cause President Bush and Karl Rove to abandon their belief that the invasion of Iraq was "right"? Apparently, nothing. *Dead men do bleed* after all. (We cannot emphasize too much that even when it was revealed that Iran had not been pursuing a nuclear weapons program as the administration had repeatedly contended, this served only to strengthen President Bush's belief that Iran might develop one someday.)

The point of the preceding example is not to call attention to whether or not the reader shares our political beliefs—our biases, if you will—but to show once again that fundamental differences in views are required to determine whether an E₃ or an E₄ is being committed. In other words, the views of those who are determining whether an E₃ or E₄ error has been committed must obviously be different from the views of those who are committing the errors, for if they shared the same views, they would agree that there are no errors. As a matter of fact, the determination of E₃ or E₄ can never be completely unbiased, because it depends fundamentally on the belief

system and values of whoever is making the determination. For this reason we would not expect everyone to come to the same conclusion. In fact, the real purpose of E₃ and E₄ are often to elicit differences in values and beliefs. This flips E₃ and E₄ on their heads. That is, once one has committed E₃ and E₄ errors, if one is reflective and thus able to see and admit one's errors, one can then work backward using E₃ and E₄ to pinpoint differences in underlying values.

To be fair, Type Four Errors span the entire ideological and political spectrum. No single party or point of view has a monopoly on them. For example, during the 2008 Democratic primaries, many of the criticisms leveled by Senators Clinton and Obama against each other were clearly disingenuous. To say that both candidates were guilty of committing E₃s and E₄s is putting it mildly.

We would not be honest if we did not admit openly that we share a particular point of view or bias. Both of the authors are progressives in a basic sense that is made abundantly clear by George Lakoff.¹⁷ We believe that the protection and empowerment of those who are less fortunate are two of the fundamental moral duties of government. For this reason, if we are more critical of conservatives, it is because along with Lakoff we believe that in the past thirty years conservatives have so dominated the political landscape and skewed our political vocabulary that a correction is long overdue. In our terms, a correction of Type Four Errors is needed.

Nonetheless, Lakoff also helps to pinpoint critical defects in liberal or progressive thinking. Liberals and progressives are trapped by the general assumptions of the Enlightenment. They believe that people are moved and persuaded primarily by rational arguments that are devoid of emotion. In doing this, they are often oblivious to the fact that people are moved by emotion, not by cold, hard facts and logic alone. This does not mean that reason and logic are irrelevant (if they were, then why write this book?); but unless they are accompanied by the "right" appeals to emotion, then they fall mainly on deaf ears and minds.

No better example of the failure of liberals to comprehend the importance of emotions in politics could be given than the July 21,

2008, cover of the *New Yorker*. On the cover is a cartoon of Barack Obama dressed as a Muslim extremist and his wife, Michelle, dressed as an Angela Davis-type terrorist touching their fists in a parody of their spontaneous celebration after winning the Democratic nomination. Off to the side is a partially obscured but nonetheless clearly recognizable picture of Osama bin Laden hanging on the wall while in the fireplace an American flag is burning.

In defending the cartoon, the magazine used the excuse that it was merely a “satire” of the innuendos and outright lies of conservatives that Senator Obama was really a Muslim extremist. The intent, therefore, was to bring those lies to the surface by parodying them. (The cartoon was entitled by its creator, Barry Blitt, “The Politics of Fear.”)

Although we naturally defend the rights of the editors to print anything they choose, and furthermore we recognize that satire is never popular or timely, we think that at best the editors were extremely naive if they believed that satire could ever be justified by rational arguments alone. We also don’t believe that satire can ever be fully decoupled from the charged emotions of the times, but then it is precisely the purpose of satire to provoke strong emotions on both sides. If that was indeed the intention of the editors, they succeeded admirably; but they also succeeded in giving conservatives the best iconic image they could have for spreading further damaging lies against Senator Obama. Were they thereby solving the right or the wrong problem precisely? We leave it for the reader to judge.

Interestingly enough, a few days later the Sunday, July 20, 2008, edition of the *New York Times* reprinted a counter satire by Patrick O’Connor of the *Los Angeles Daily News*. It was a parody of the cover of the *New Yorker*. It showed President Bush and Vice President Cheney dressed in the same costumes as Barack and Michelle Obama. However, in this cartoon a picture of Richard Nixon replaced that of Osama bin Laden, and a burning copy of the U.S. Constitution replaced the American flag. Obviously which cartoon one finds offensive depends on one’s political point of view.

Are the two cartoons thereby equal? We don't believe so. The *New Yorker* cartoon is offensive for portraying what has been *falsely implied* about Barack and Michelle Obama, not to mention for the racial and ethnic stereotypes it employs, while the Bush and Cheney cartoon is offensive because of the *actual deeds* of President Bush and Vice President Cheney. Instead of dispelling the lies about Barack Obama, the *New Yorker* cartoon inflames them—but then this is the charge that is typically leveled against satire. Of course supporters of President Bush and Vice President Cheney can contend the same.

More important, however, is that by exploiting and inflaming our emotions, both of the cartoons divert us from the real problems facing America: the need for deep structural changes in the system as a whole. In a word, we need to change the underlying rules of the game.

Finally, as we argue at the end of Chapter Five, the original *New Yorker* cartoon may not actually qualify as satire in that it did not go far enough. In short, it was not outrageous enough. It was merely an example of stereotyping.

CONCLUDING REMARKS

Two very strong conclusions emerge already from our brief introduction to Errors of the Third and Fourth Kinds:

1. Never, ever trust a single definition or a single formulation of an important problem. If anyone promises or offers you a single definition of an important problem, then if you can, run as fast and as far way from that person, organization, society, and so on as you are able. If you can't run, and if you are able, then make a strong stand and fight. Do everything in your power to resist the definition.
2. A single person or organization by itself cannot determine whether it is committing an E₃ or E₄.

If we are never to trust a single definition or a single formulation of an important problem, then it is clear that our basic notions of strength and leadership will have to change drastically, if not

radically. We will have to learn not merely to tolerate but to relish having our most basic beliefs and assumptions challenged. We will have to accept the notion that presenting more than one agreed-upon definition of a problem is a strength, not a weakness. We will have to see it as a fundamental attribute of leadership.

Needless to say, we are far from such an ideal. None of the current candidates for president in the last election would have survived for long by implementing such a principle. Still, because of his personality and training as a law school professor, President Obama is more inclined than most to tolerate and practice such a principle.

We will also have to revise our notions of what it means to be objective. The fact is that the determination of what are Errors of the Third and Fourth Kinds is not and could never be fully ethically and politically neutral, that is, acceptable to everyone no matter what their political persuasion and belief system. We can never expect everyone to agree fully, or even partially, with our determinations. (As we show later, this is not true even in science.) But if we can show that this fact in itself is a strength rather than a weakness, then we will have accomplished one of our most important aims. We will have elevated our disagreements to a higher level, not necessarily removed them. In this way we can learn from our disagreements, not dismiss them out of hand.

To lessen our natural, inborn propensity to commit Errors of the Third and Fourth Kinds, we will also have to mature far beyond our current state of human development and evolution.

Whether we eventually mature or not, one thing is clear: our ability to survive, let alone prosper, in a complex and dangerous world depends more and more on our ability to know and challenge our basic assumptions, and hence to solve the right problems precisely:

At least five of the eight suspects in the failed terrorist attacks in London and Glasgow, Scotland, were identified as doctors from Iraq, Jordan, Lebanon, and India, while staff at a Glasgow hospital said two others were a doctor and a medical student.

“It sends rather a chill down the spine to think that people’s values can be so perverted,” said Pauline Neville-Jones, former head of the Joint Intelligence Committee, which advises the British government.

“It means obviously that you can’t make any assumptions, or have any preconceptions about the kind of people who might become terrorists. It does mean that you widen the net, obviously,” she said on BBC-TV.¹⁸

We couldn’t disagree more. Of necessity, one can’t help but make all kinds of assumptions. The world is too complex to know everything for certain before one acts, including this very statement. Instead, what we need to do is speed up the recognition and critique of our basic assumptions and not assume that we can get away with making no assumptions at all. The assumption that you can’t make any assumptions is itself too big, too general, too powerful, and too wrong an assumption to make.

An article in *TIME* magazine on the Virginia Tech massacre put it even stronger:

Detectives and military people have a saying about their line of work: “Assumption is the mother of all f___ups.” . . . Students told police a gunman had been going from room to room looking for his girlfriend. *Assuming* they were dealing with a lovers’ quarrel, police secured the murder scene and began gathering evidence. The crime was over, the investigation begun, or so they thought.¹⁹

THE ASSUMPTIONS WE MAKE are literally a matter of life and death.

We can’t solve old and new problems with the assumptions, mindsets, and institutions of the past.