

**Everyday Irrationality:
Implications for Record-Keeping by Organizations
Owen Ambur, July 30, 2002**

In the preface to his book entitled *Everyday Irrationality: How Pseudo-Scientists, Lunatics, and the Rest of Us Systematically Fail to Think Rationally*, Robyn Dawes suggests that it is not just schizophrenics who reason according to the “Von Domarus principle.” Indeed, he demonstrated in his doctoral dissertation that normal people “distort newspaper-like stories in ways consistent with the principles of psychotic reasoning.” Dawes says the basis for reasoning according to this principle can be analyzed in terms of “reaching a conclusion by considering a deficient number of alternatives.” Moreover, he asserts the problem is simple and can be summed up in two points:

First, these types of illogical reasoning involve just ignoring obvious categories. (We are not overwhelmed by a myriad of possibilities.)

Second, these types are common to all of us. They happen to become salient depending upon the nature of the beliefs involved ... and they may well be encouraged by emotional need or distress. (pp. xi - xiii)

Such reasoning is facilitated by the lack of records that make categories, alternatives, beliefs and conclusions salient. Making allowances for the possibility of ill will, Dawes argues:

... even if we accept that ... people are deviously neurotic rather than outright irrational, we still must specify exactly how they believe that the rest of us can be fooled by them... I ... assert that they are urging us (and themselves) to “associate but not compare” ...simple associations ... generally lead to a deficient specification of the categories necessary to reach a rational conclusion.¹ (p. xiv)

Dawes distinguishes between conclusions that are irrational versus those that are merely poor because they are “ill-considered ... not in accord with our purported best interests, or ... simply dumb.” He defines irrationality as “conclusions or beliefs involving self-contradictions.” (p.1) He suggests: “If the thinking process yields an irrational self-contradiction when followed to a natural conclusion, then this process is irrational as well.” (p. 2) And he emphasizes that the conclusions generated by such processes are “always false, because conclusions about the world that are self-contradictory cannot be accurate ...” With respect to the cause of such conclusions, he suggests they “result from a failure to specify ‘obvious’ alternatives and consequently a failure to make a comparative judgment involving more than one alternative.” (p. 3) Furthermore, he suggests:

¹ For a discussion of the records management implications of the psychology of deceit, see my paper on Charles Ford’s book entitled *Lies! Lies! Lies! The Psychology of Deceit*, at <http://ambur.net/lies.pdf> Ford says lies are pervasive and the most important lesson is how we use lies to deceive ourselves.

Specifying as many clear alternatives as possible yields another general principle: We can generally recognize important alternatives and hence correct irrational conclusions when these alternatives are made clear. The problem is the we ourselves often do not generate enough alternatives and hence do not reach the rational conclusion. Thus, a failure of rationality is what can be termed a performance problem, not a competence one. (p. 3)

Failure to generate enough alternatives and failing to make them clear are both enabled by the lack of records that are effectively managed and shared. “Specifying alternatives” clearly so that they can be effectively analyzed and compared means documenting them in records having the four attributes outlined in ISO 15489, the international standard for records management. Those attributes include: Integrity, Usability, Authenticity, and Reliability.

Dawes makes a related point when he says, “... there is a gap between a belief or decision that is irrational and one that is simply not very good – as defined by failure to achieve implicit or explicit goals in an optimal or satisfactory manner.” (p. 4) Practically speaking, to make information explicit means to document it in records. His point is that even goals that are made explicit may generate poor conclusions. However, it is important to note that implicit goals are especially prone to irrationality, because the fact they are “hidden” protects them from comparison to other alternatives. That is true even if they are perfectly communicated, which seems highly unlikely so long as they remain “implicit”.

In order to solve problems, including those leading to physical and social disasters, Dawes points out that they “must be compared with ... situations and behaviors in which no problem occurred.” Yet, he notes: “This type of analysis is rare ... No one investigates what happens when no problems occur ... Disasters are analyzed at great length and depth, but to understand disasters rationally, we must compare them with the situations in which no disaster occurs – or when something appeared as if it might go wrong but didn’t.” (pp. 9 & 10)

Again, practically speaking, such comparisons cannot be made unless adequate records are created and maintained during the routine course of all business and industrial processes. Fortunately, we live in the information age, when information technology automatically creates traces (records) of human and machine behavior, as well as natural processes like the weather, stream flows, earthquakes, etc. The question is how well, which is to say how intelligently, we human beings are willing and able to apply those records toward the generation of rational conclusions.²

Dawes suggests that we may be more interested in simply “telling a good story” than in seeking the truth and drawing logical conclusions from it:

² There are psychological, ego-centric reasons why people may not wish to keep, manage, share, and access good records enabling us to make well-founded comparisons and reach rational conclusions. For discussions of some of those reasons, see <http://ambur.net/MemorySins.pdf> as well as <http://ambur.net/lies.pdf>.

To understand what went wrong in a particular situation, we must expand our analysis to include the same situations in which things did not go wrong (preferably in highly similar situations). That involves comparing “this here” situation with relevant alternative situations. What is most natural, however, is to focus on “this here situation and problem,” with the result of “telling a good story of how it occurred.” (p. 10)

By definition, problems cannot be foreseen by those in positions to avoid them; otherwise, barring ill will, they would do so. Thus, even to understand the underlying causes of problems in retrospect, it is necessary to routinely create and maintain records of any processes that may create significant problems. By definition, all businesses processes fall into that category and so do many processes whose aim is merely pleasure, in many instances even that which is derived from leisure (in the sense of inactivity). Dawes hints at the importance of routinely keeping good, comprehensive, and complete records, as follows:

... attempts ... to focus simply on “typical” or “probable” symptoms – as opposed to ones that are good comparative symptoms – can lead to an exclusive reliance on positive evidence at the expense of considering negative evidence. What’s even worse, the negative evidence can be misinterpreted as positive... This “heads I win, tails you lose” result of focus, as opposed to comparison, appears more prevalent in the social realm than in less “personal” realms.” (p. 13)

With respect to the latter point, it should be noted that “tacit” knowledge is, by definition, “personal” and thus highly prone to this dynamic. When experienced with others, another term for this dynamic is groupthink. Dawes addresses a particular form of it with respect to decisions involving previous investments, known as “sunk cost”:

Allowing the investment it involves to lead to inferior choices in the future ... is called honoring a sunk cost. Honoring a sunk cost is irrational... Secondary irrationality can arise when people in business or personal situations believe that others will think ill of them for being indecisive or cowardly if they do not honor a particular sunk cost. In these situations, they may have a certain rationality in preserving their reputation for sticking things through to the end [even if they know the outcome will be poor] ... Given the degree to which our own view of ourselves is often the (imagined) “reflective appraisal of others,” people may even honor ... sunk costs without considering the specific other people who would denigrate them if they don’t. (p. 23)

In other words, sunk costs are irrelevant to the achievement of future goals ... unless the goal is to preserve an implicit image of our own ego, which of course is the primary objective of all of us and the reason that many of us resist the effective creation and use of records enabling ourselves and others to make the appropriate comparisons. Dawes highlights a closely related dynamic:

... the failure of complete specification is a common psychological problem that leads to a great deal of irrationality... When ... people do not automatically think in terms of logical possibilities and consequently reject the dominating strategy, the result is a disjunctive effect [which is] violation of the “sure-thing principle.” (pp. 25 & 26)

Dawes notes that game theorists use the term dominating strategy to describe the adoption of a policy or course of action that “results in some help and simultaneously no harm.” Adoption of such a strategy leads to a “sure thing” in terms of avoiding negative consequences. Considered from the perspective of the individual, maintaining no records of one’s own actions is a “dominating strategy” because it enables us to reconstruct the history of those actions in any manner we choose, so as to foster the achievement of future goals. On the other hand, of course, the result may be of no help and perhaps great harm to others. In other words, from the perspective of the “greatest good for the greatest number,” the lack of records is anything but a “sure thing”. To the contrary, it means that nothing is certain, because everything is subject to the interpretation of the moment, particularly by those in positions of power to impose their will upon the rest of us.³

Dawes observes another of the facets of the power of undocumented “knowledge” as follows:

Words are powerful. The problem is that we must understand the reality to which they refer before endorsing them. Their power extends in part from a tendency ... to believe that whatever we hear expressed verbally is true and only later to question exactly what it means... Our intuition, particularly intuition influenced and expressed by words, can lead us to be flat-out irrational. Words easily distort reality ... The point is not to get carried away by words, but to ask ... what exactly is being conveyed, and then to analyze it in terms of principles of rationality (and justice, compassion, and other good characteristics)... if we believe that slogans and anecdotes are all that will influence people, then these beliefs become self-fulfilling prophecies and irrationality reigns supreme. (pp. 28 & 29)

These observations further attest to the need for records documenting reality. So too does Dawes’ analysis of Bertrand Russell’s writings concerning various forms of fanaticism, such as Nazism, Fascism, and, in more contemporary terms, Talibanism. Dawes notes:

It is the thinking process per se that is flawed ... it can lead to all sorts of nonsensical beliefs ... and these beliefs in turn can create enormous harm – in particular, human death and suffering. We have to search nowhere other than our own reasoning system to understand its own irrationality... That our thinking processes themselves are limited without any interference from noncognitive processes is termed cold cognition in the slang of psychologists. (p. 40)

By “noncognitive processes” Dawes means “unconscious or preconscious impulses” or emotions

³ For a discussion of the bases of social power, see <http://ambur.net/French&Raven.htm>.

that are not recognized or understood in the individual's thought processes. However, his reference to the limitations on our thinking processes without "interference from noncognitive processes" is equally applicable to the notion of encasing our thoughts in a fantasy world that is devoid of reference to documentary evidence faithfully recording salient aspects of reality. From that perspective the term "cold" has the same meaning as "uninformed," such as when we walk into a meeting "cold" (i.e., without any advance warning of the agenda or background information about it). Dawes does not address that angle. However, based upon the meaning of these terms as he uses them, he points out:

The assumption underlying cold cognition in its purest form is that hot cognitive principles and hypotheses should be introduced only when necessary, that is, only when a cold cognitive approach analyzing a problem is insufficient. The reason for not postulating emotion unless it is necessary is that, just like the anatomy of the brain, thinking biases are common to all of us across a wide variety of situations, whereas emotions are either elicited on a transitory basis by situational variables or occur as a result of different predispositions among different people. The basic idea is that whenever they provide a satisfactory explanation of something, hypotheses about variables that are "common" across both different situations and different people should be preferred to hypotheses about variables that vary ... (p. 42)

Expanding on the point, Dawes quotes his colleague Baruch Fischhoff, as follows:

... the thought processes of ... most uninstitutionalized adults are quite similar. The content of those thoughts may be quite different ... The similarities lie in how they deal with those contents when appraising their validity, combining them in order to reach summary judgments, revising them in light of subsequent experience and storing or retrieving them from memory. (p. 42)

Taking Fischhoff's point a step further, Dawes states:

... the thought processes are similar for most institutionalized adults as well, so long as they are not thinking about the particular problems that have led to their institutionalization. For example, many observers have been struck by how blatantly psychotic patients can discuss issues "reasonably," understand rules, or even engage in creative thinking, provided that specific issues are avoided (particularly issues involved in delusional thinking). (p. 42)

In other words, most institutionalized folks are selectively irrational ... and so are the rest of us. We all think and act irrationally at times. The only differences are matters of degree and circumstances.

After considering alternative arguments attributing unpleasant behavior either to stupidity or malice, Dawes concludes that malice cannot account for all such behavior. On the other hand, he notes, "if intrinsic types of irrationality deform our thinking process, then there is little that we can do about it – other than not trust too much our own conclusions!" Rejecting the logic of cold

cognition, he also asserts, “trying to banish emotions from irrationality is a little like trying to banish thinking from behavior.” (p. 43) Again, however, he makes no reference to prospects for relying upon documentary evidence not only to inform our thoughts but also to dampen our baser emotions. With respect to the effect of emotional arousal on behavior, Dawes cites:

... the Yerkes-Dodson law of arousal, which specified that most tasks were best performed at intermediate levels of arousal. Very simple tasks, however, could be facilitated by extreme levels of arousal, which would inhibit performance on complex tasks. Conversely, very complex tasks were best addressed at very low levels of arousal ... (p. 44)

Dawes also observes:

The Yerkes-Dobson law was compatible with the James-Lange theory of emotion, which held that certain cues led to physiological responsiveness – mainly arousal – and that the “experienced emotion” then became the cognitive appraisal of the reason for the physiological response, which came first. (p 44)

However, he also notes:

Another view point under investigation ... is the possibility that specific emotions lead to general ways of attending to the environment. Fear, for example, can make people hypersensitive to all sorts of details ... and therefore can lead to information processing that overweighs unimportant aspects of the environment – because all are attended to. In contrast, anger tends to lead to narrowness of focus and may even lead people to continue focusing narrowly in subsequent situations that have nothing to do with the source of the anger. That is, it is possible to show that making people fearful or angry leads to different information-processing biases on problems completely unrelated to the source of fear or anger. Happiness also has an effect, although it sometimes leads to inattention to negative aspects of the environment ... and at other times leads to over-optimistic assessments of the environment... The effect of specific emotions on specific types of thinking – hence irrationality – is a current area of great excitement. (p 45)

Lest we get too carried away with excitement, though, Dawes highlights:

Another view is that irrationality is systemic, but need not result from a logic (or “psycho-logical”) of disruptive forces. Instead, there are certain automatic ways of thinking that systematically inhibit rational thought. Moreover, rational thought is not impossible when we subject our conclusions to careful intellectual scrutiny. (p. 49)

Dawes points out that most people can understand a simple mathematical or logical argument “when it is presented to us” but that we may not be able to generate the same argument when presented a problem or situation in which it is relevant. Indeed, he notes that complex solutions “... all occur despite the difficulty of generating logically correct conclusions on the spot without careful consideration, and they are all validated by our ability to appreciate a logical argument or

spot a logical flaw in an argument after it is presented...” Dawes suggests that “our frequent inability to generate ... a logical conclusion prevents us from being totally rational” and notes the paradox is that “we are in effect constrained from thinking at our best, by the very way we think.”

On the other hand, he says: “The paradox resolves if we can distinguish between automatic thinking and controlled thinking. Controlled thinking involves careful, systematic investigation of a line of reasoning.” (p. 54) Invariably, “controlled thinking” and “careful, systematic investigation” require documentation of the arguments being made and the conclusions to be validated. Indeed, the more complex the problem, the more documentation that will be required. With respect to those who are able to participate in the solution of complex problems, Dawes says:

What these people had in common was an ability to critique each other’s work and proposals – as a result of the printed page, modern travel, and electronic communication ... Thus, only the arguments that were not self-contradictory, only the empirical observations that could be replicated, only the ideas that were capable of disconfirmation but were nevertheless supported were retained... **The printing press and later modes of communication ... were absolutely critical to this evolutionary process by which potentially feeble attempts at science and rationality could lead to an impressive collective result by retention of good ideas and rejection of the bad ones.** (p. 54, emphasis added)

Moreover, he draws a harsh comparison of the environment in which governmental versus scientific decisions are commonly made:

Now compare the social situation of intense intersubjective scrutiny in science to that of a political leader, who must act often on the basis of minimal information and scrutiny, often because there is real time pressure to reach a decision. On occasion, such leaders may specifically reject the scrutiny of others, who may find themselves in little pieces in a body bag if they are too rigorous in critiquing the logic of the leader... This political system cannot be anywhere near as effective as the technological one, not because there is something intrinsically more stupid about people when they consider politics and society than when they consider physics, but because the “necessity” of scrutinizing ideas and proposals, scrutiny that involves many people and that takes time, is not available... the way in which the “scientific society” works as a collectivity is precisely based on the principle ... involving the distinction between generating a rational argument and appreciating it. (p. 55)

Dawes says there are two thinking processes that lead to illogical arguments: 1) the process of association, and 2) incomplete specification of possibilities. He suggests, “we often have an *incomplete specification of the possibilities* involved in examining a particular situation or problem, but we are unaware of this incompleteness.” (p. 55) Indeed, with respect to irrationality itself, he notes:

The psychology of both inappropriate automatic associations and incomplete

specification is not yet understood, just as the relationship between emotion and irrationality is not yet entirely clear... What automatic association and incomplete specification apparently have in common, however, is that they might both reflect a lazy mind. An individual concludes something on the basis of the first thing that pops to mind in association. (p. 56)

As to why people fails to consider alternatives, Dawes suggests:

... two major causes appear to be selective attention and limited cognitive (computational) capacity. Often, because of perceptual or emotional salience or our own emotional needs, we focus on some possibilities and not others. (p. 56)

That dynamic is supported by the lack of records making those possibilities salient, and the lack of records is fostered not merely by lazy record-keeping practices but also by failure to take advantage of technological innovations that make it very easy to maintain “current and complete” records.⁴ The lack of such records is a form of what is known as an “availability bias,” whereby judgments are made based upon incomplete evidence. (p. 62) Moreover, Dawes notes that so-called experts are far from immune to such biases. Based upon studies comparing statistical versus clinical prediction, he asserts:

There is one overwhelming result from all of these studies: When both predictions are made on the basis of the same information, which is either combined according to a statistical (actuarial) model or combined “in the head” of an experienced clinician, the statistical prediction is superior... Moreover, in the context of psychology, the statistical prediction is better even when additional information – such as an interview – is available to the clinician... Another finding ... is that neither “clinical” nor statistical prediction is as good as our intuition indicates it should be, or as we would often like it to be. (pp. 63 & 64)

With respect to the latter point, our intuition provides incomplete specification and comparison of the logical alternatives, about which Dawes notes there are good and simple psychological explanations:

... irrationality resulting from incomplete specification can be affected by emotions in a very simple way. If the conclusion is consistent with our desires or needs, the specification may not be examined in detail – in particular not examined for its incompleteness... We double-check results that are displeasing to us, but we are much

⁴ 44 USC 3506(b)(4) requires U.S. federal agencies to maintain current and complete inventories of their information resources, including their “major information systems, holdings, and dissemination products.” However, agencies routinely ignore this statutory mandate and agency decision-makers suffer few, if any consequences. Unfortunately, it is American citizens and taxpayers who bear the burden of the consequences of such malfeasance, through inefficient and ineffective public services, difficulty in obtaining government records, and needlessly costly litigation due to the difficulty of “discovery” of evidence.

less apt to double- or triple-check results that we find pleasing. Moreover, we are particularly reinforced for scrutinizing results that we do not like – because occasionally we have made an error or, in the context of reaching a rational conclusion, have failed to specify the possibilities completely, and correcting the error yields a more desired conclusion. Such partial reinforcement is very resistant to extinction ... There is no such reinforcement for double- or triple-checking the conclusions that we like, just punishment, or rather emotional punishment in the short term. (p. 68)

It has been common wisdom that “what we don’t know cannot hurt us.” To the degree that our ignorance involves trivia, it may indeed be bliss. However, with respect to more important matters, characterized by arm's-length, business-oriented relationships, at best, the assertion of ignorance as bliss may be true only for a limited amount of time. At some point, a fair accounting must be made and the price of ignorance will be paid. Another platitude is that “hindsight is 20/20,” which merely serves to highlight the fact that judgement is better in light of all of the relevant facts, some of which may not and perhaps cannot be known in advance, a circumstance which is more the routine than the exception. Thus, we are commonly called upon to render probability judgements in absence of pertinent facts. Of such judgements, Dawes notes:

... probability judgments have one common aspect ... On the basis of what is observed, we are asked to make some inference about what is unobserved, and that inference is uncertain. Sometimes, we make this inference in a very deficient or irrational way. (p. 72)

The amount of information that can reliably be “observed” is highly dependent upon the degree to which good and complete records have been created and preserved. And, just as people do not and may not have appropriate incentives to make and preserve records, Dawes observes:

Unfortunately ... people do not automatically make [good and complete] comparisons. Instead, we often create good stories that make the likelihood of the evidence given our hypothesis high, and we never even search for information about the evidence given the negation of our hypothesis, that is, given the possibility that our hypothesis is false... Simply looking at the likelihood of the evidence given the hypothesis – without making the appropriate comparison – has been termed pseudodiagnosticity. (p. 82)

Without the comparisons of the evidence *given various hypotheses*, the evidence is itself useless, that is, not diagnostic. Nevertheless, the search for confirmation by finding other “consistent” evidence is a common strategy. (p. 88)

The self-serving search for confirmation is also very well attended by the philosophy that it is incumbent upon people to “declare” what is and is not to be considered part of the “record” – which has been commonly accepted dictum in the records management community. In short, records managers have endeavored to absolve themselves from responsibility for the failures of their organizations to create and maintain good records, by asserting that it is someone else’s responsibility to determine when any bit of evidence of the organization’s activities should be submitted to and managed within the organization’s record-keeping system. Such dictum calls into question the competence and performance of records managers. Dawes distinguishes

between “competence in understanding rationality and performance in actually making rational judgments.” With respect to the latter, he notes:

The more transparent the problem is, the more we will be able to use our competence, because such transparency tends to transform a problem from one primarily of generating a rational conclusion to one of *recognizing* one. (p. 91)

In many instances, making a problem “transparent” means exhaustively *documenting* its facets in records having the characteristics outlined in ISO 15489. Indeed, to the degree that part of the problem is complexity, it may be beyond the capacity of the human mind to maintain all of the relevant information in memory, much less to analyze it and make the necessary comparisons.

Dawes observes another dynamic that is closely related to the need for documentation and leads a particular kind of irrationality – *irrefutability*. Of this dynamic, he notes:

... a good scientific theory should be refutable. At least in theory, there should be some evidence that at least would lead us to doubt or reject the theory. If all evidence is simply interpreted as supporting it, then it is termed irrefutable, which is the hallmark of pseudoscience, not of science. (p. 96)

It is also a hallmark of tacit knowledge, which by definition is irrefutable unless and until it is made explicit, preferably in records whose integrity can be assured over time. Also related to the lack of good and complete records is *availability bias*, which comes into play in probabilistic reasoning, when frequencies are estimated. Dawes points out:

The problem is ... that the set of instances available to us might form a very biased sample of the set to which we wish to generalize when we make our frequency estimates. This *availability bias* is quite common and robust... worse yet, the generalization may be based on memory, which itself may be a distorted sample ... (pp. 99 & 100) Vivid instances – events, people – are more easily remembered than pallid ones... Even people who “know better” often find it difficult or impossible to ignore their own experience in favor of more valid statistical conclusions. (p. 102)

Moreover, Dawes notes:

Availability biases provide a very important source of belief aside from that involved in estimating frequencies. When we are familiar with something, that is, when it is easily available from memory, we tend to believe it is real... Familiarity leads to availability and *often* to accuracy as well; hence, availability is used as a cue to accuracy. The problem is that mere assertion and repetition also leads to availability, whether or not this assertion and repetition involve reality, as familiarity usually does. Thus, the “big lie” of Nazi propaganda minister Joseph Goebbels was based on the idea that if something is repeated often enough, people will believe it – in large part simply because they have heard it before.

Interestingly, Dawes points out that the human and institutional sources of information are not particularly relevant to the establishment of beliefs:

Goebbels apparently believed that providing a credible source, for him the German national government, was a critical component in having the repeated statements believed. Subsequent *research has shown that the credibility of a source is not a necessary condition to develop beliefs...* Spinoza ... unlike Descartes, proposed that *whenever people hear a verbal assertion, they immediately believe it and only later analyze it with enough precision to decide whether to reject it...* Work summarized by Gilbert (1991) supports the position of Spinoza. For example, *interference with people's ability to analyze statements consistently enhances belief in their validity*, rather than simply creating confusion about what the statements mean. Worse yet, *mere repetition ... can also make people confident of their own decision making in the absence of any feedback that they have made a good decision.* (p. 105, emphases added)

Dawes notes that so-called experts who are called upon frequently to make decisions may be particularly good at deceiving themselves⁵:

Einhorn and Hogarth (1978) presented a formula which directly implicated familiarity as a determinant of the “illusion of validity.” Confidence in one’s decision is monotonically related to the number of decisions one had made, irrespective of the accuracy of those prior decisions. In other words, if one has familiarity with decision-making in a domain, one is confident in the validity of one’s decisions in that domain. (p. 106)

Thus, experts may have a particular disincentive to maintain and use good records, since they may have little to gain and much to lose in terms of confidence and reputation. Moreover, regardless of expertise, Dawes observes, “... under the impact of strong emotion ... we are all susceptible to irrationality.” (p. 107) Strong emotions lend themselves to good stories, and turning to the dynamics of storytelling as a contributing factor to irrationality, Dawes notes:

The structure of a story is that it consists of a *single* sequence of events, often linked by a set of *hypothesized* causal influences... Considering the single sequence of evidence and possible explanations as hypotheses, we immediately see a problem with the use of stories to prove, demonstrate, or even illustrate a conclusion... Stories do not involve comparisons. Only one sequence of events occurred. Even if we are careful to attempt to evaluate multiple hypothetical causes and treat the sequence of the story as a bit of evidence ... we are stuck with what actually did happen, as opposed to a comparison of what actually happened with what could have happened but didn't. (p. 112)

Actually, the case is even worse than Dawes asserts – because *no* story can truly relate *exactly* what happened. Even if multiple witnesses agree on every detail of the story as written, the dynamics of groupthink may have affected the report. Moreover, by practical necessity, any story

⁵ With respect to lying, Charles Ford suggests the most important lesson we can learn is how we use lies to deceive ourselves.” See <http://users.erols.com/ambur/lies.pdf>.

must leave out myriad facts simply because it is impossible for human beings to capture the essence of every detail of any physical, chemical, social, psychological and other processes. Thus, the best that can be done is to record as accurately as possible *on a routine basis* the observable aspects of *all important processes*, so that the totality of the evidence can be analyzed not only when things go wrong but also when they do not.

Obviously, there are practical and economic limits on the degree to which many processes can or perhaps even should be recorded, particularly those that are purely social or recreational in nature. However, to the degree that important business processes are conducted by electronic means, the amount of “documentation” can be vastly magnified at relatively little cost. Furthermore, highly significant meanings that are ignored or glossed over in the “stories” that human beings concoct may reveal themselves under the brute force of analysis by computers acting upon records that document with very high fidelity exactly what occurred during processes conducted by electronic means.

With respect to stories Dawes concludes, “The limitation of the story to a single sequence and the essentially ad hoc nature of causal attributions calls into question the whole procedure of using stories as evidence, and of thinking that they establish causality or patterns of reasons.” Speaking of conferences at which psychological clinicians gather, he observes that “such conferences consist of nothing but stories and anecdotes that end up *substituting* for coherent analyses of patients’ problems.”⁶ In addition, he notes, “Because stories generally have impact, the source of the story tends to be ignored, so that everybody at the conference is treated (and enjoys being treated) as if they had equal expertise about psychiatric matters.” (p. 113)

As Dawes’ points out, the social dynamics of conferences tend toward egalitarianism, which in and of itself is a good thing, at least for those of us who buy into the notion that “under God, all men (and women) are created equal.” It is fun to participate in such well-intentioned netherworlds, where each of us can act not merely as king but even god for the day, constructing reality as we see fit. However, even the judgement of the most learned experts among us is fallible. In short, what is common to all of us is that the measure of the value of our judgements is the degree to which the *entirety* of the evidence – not merely a selective and inherently biased set of evidence – supports our hypotheses.⁷

Dawes explains the fallacy of relying on good stories for drawing conclusions and making

⁶ To the degree that personal anecdotes may have any value, it is my observation that conferences and stories are commonly used means by which many government officials *avoid* coherent analyses of problems of a *public* nature as well.

⁷ The expertise of authors and reviewers has been highlighted as an important issue by the Office of Management and Budget in its guidelines on the quality of information disseminated by U.S. government agencies. Those guidelines have been posted at http://www.whitehouse.gov/omb/fedreg/final_information_quality_guidelines.html. My comments on a draft version of them are at <http://xml.gov/documents/completed/OMBinfoquality.htm>.

rational decisions, using airline accidents as an example:

The basic problem is brought about by the flexibility in *searching* for antecedents once consequences are known. In contrast, the problem with doing statistical analysis is that to do it well, we must distinguish between crashes and safe landings, where a safe landing is basically a *nonevent*. We would have to study the landings that occur without incidents with the same careful scrutiny that we study the crashes. (p. 118)

With respect to the perceived “causes” of a specific set of airline crashes, Dawes notes:

Any of these antecedents could have been connected with different consequences – in particular with many scenarios involving safe landings. What we have done [in identifying these “causes”] is a creative act, but the problem is that we do not really know what the *general* relationship is between these antecedents and the important consequence of whether the landing is a crash or a safe one; in fact we *cannot* do so by observing a single “story” of a crash. At the least, we would have to compare this story to additional stories involving safe landings... This comparison is made rather difficult, however, by the decision of the Federal Transportation Department to erase tapes following uneventful landings so that these tapes can be reused. Thus, critical comparisons are lacking in the story model of causality. The story model is compelling, but its compelling nature is essentially illusory. (p. 121)

We will never know what patterns we are failing to perceive and what knowledge we are failing to glean so long as organizations persist in destroying records documenting factors that may be relevant and necessary for drawing the required comparisons. Thus, by default or design, Dawes notes:

... we often do not have ... hard evidence, but instead must rely on memory. Two biases of memory, however, tend to enhance the illusory nature of our retrospective “understanding” of our own lives and others’ lives. The first is that we tend to overestimate specific events relative to general categories of events. The second is that we tend both to recall specific events and to interpret them in ways that make sense out of our current situation – “sense” in terms of our cultural and individual beliefs about stability and change in the life course. Thus, memories, which appear to be beyond our control as if we are observing our previous life on a video screen, are like anecdotes in that they are often (inadvertently) “chosen for a purpose.” The result is that they will tend to reinforce whatever prior beliefs we have, just as anecdotes tend to reinforce the points they are meant to illustrate. (p. 127)

In short, it serves our egocentric purposes to take steps to ensure that records that may challenge our preconceived notions are not allowed to persist. The lack of definitive, authoritative records enables us to recall the past as we see fit. Moreover, with respect to recall, Dawes observes:

We have all had the experience that certain environmental cues or certain questions remind us of events in our lives; thus, the superiority of cue-assisted memory to unassisted memory is not surprising. But the important implication is that the frequency of specific events may be overestimated relative to the frequency of general events, and this differential estimation can lead to irrational conclusions. Irrationality occurs because more general events *must* be more frequent than specific ones... Thus, the facilitative effect of cues on memory can lead to judgements of frequency that are *inversely* related to the actual frequency of events in our lives. (p. 128)

A second important bias of memory that leads to irrational conclusions is that its distortions often tend to “make sense” out of our lives, or even of the world in general. We are unaware of such distortions, because the experience of recalling something from our lives is that of “being there” ... Unlike suspected exaggerations, the distortions brought about by “sense making” are often subtle and difficult to spot – unless they are absurd... The result of this bias is that memories are often similar to anecdotes in that they are chosen to make a point... Our present state and our generalization related to it ... can often be the “cause” of the memory, rather than vice versa. (pp. 128 & 129)

In challenging the validity of “good stories” while acknowledging their memorability, Dawes notes:

There is ... one very clear virtue that stories might have: They suggest hypotheses for subsequent, more systematic investigation... The problem is ... that ... we tend to “stop here” once we have developed the story... Unfortunately, good stories are so compelling ... that we do not realize that at best they constitute just a starting point for analysis. (pp. 137 & 138)

Instead, he asserts:

... we often substitute a good (internally generated) narrative or story for a comparative (“outside”) analysis when we attempt to understand something unusual. We often substitute pure association for comparison. This reliance on coherent “explanations” provides what is really an illusion of understanding, rather than understanding... even when we have a perfectly valid statistical explanation for a phenomenon, we may ignore it because no “good story” accompanies it to persuade us that we should believe it. (p. 141)

Moreover, operating under the illusion of good stories and the lack of explicit evidence to the contrary, Dawes observes, “Many people operate as if there are two separate and equal sources of information – the self and others, where the number of others is irrelevant.” (p. 148) On the other hand, he notes that we may falsely believe our thoughts to be unique and thus fail to act upon them:

When many people in concert suffer from the assumed dissimilarity attribution problem – that is the assumption that people behaving the same as others do not experience the same

motivations and feelings as others do – the results can be what is termed *pluralistic ignorance*. Taking their cue about the nature of a particular situation from how other people overtly behave, people may believe that their internal feelings are unique – and hence not worthy of leading to action. (pp. 151 & 152)

Janis (1982), in the classic book *Groupthink*, argued that pluralistic ignorance was a major factor in the decision early in the Kennedy administration to attempt to invade Cuba at the Bay of Pigs. Each person interviewed claimed ... that he ... had severe qualms about the invasion, but thought that he might be the only person present with such hesitation, because everyone else appeared confident as well. (p. 152)

In other words, none of those present understood that others may have been acting confidently despite their reservations, just as he himself was. Needless to say, assumed dissimilarity attribution and pluralistic ignorance both rely upon implicit knowledge, which is to say the absence of explicit knowledge, particularly that which is documented in reliable records. So too does another dynamic contributing to self-doubt, as highlighted by Dawes:

... repeated questioning may easily convey to [a] child that he or she said something incorrect and must therefore be “wrong” ... just like adults, children may talk themselves into believing something that is absolutely untrue. (p. 166)

This dynamic is enabled and fostered by the character of memory, as Dawes points out:

Memory is reconstructive... we are where we are now – not where we were at the time and place we are trying to remember. Thus, our recall is an active effort that involves what might be called “searching and sense making.” This active process tends to influence both the traces of events in our memory and our interpretation of their meaning. The active reconstruction can result in vivid “recall” of experiences that never actually occurred ... (p. 176)

Dawes notes that memorability in the sense of vividness also affects current perceptions with respect to what is deemed worthy of attention and analysis:

The Gestalt psychologists of the 1930s used to talk about figure versus ground, pointing out that what is figure to one person is ground to another – or that it is sometimes desirable to make a conscious switch... The ... distinction between figure and ground is mirrored in modern computer parlance about default values versus entry values. If nothing strikes us as unusual, we return to the default value... [However, w]hat we consider to be figure (i.e., in need of explanation) versus ground (i.e., assumed without explanation) can have a powerful effect on what questions we ask. (pp. 182 & 183)

Dawes addresses the impact of “framing effects” and prospect theory on decision-making. Framing effects concern varying definitions of problems and solutions that lead to the same outcomes, but that are perceived differently because of the way they are presented or “framed”. Dawes notes that prospect theory is “... based on the idea that people evaluate gains or losses

from some neutral or status quo point, an assumption that is consistent with the adaption-level findings that occur not just in perception but in virtually all experience. That is, we adapt to a constant level of virtually any psychological dimension and find it to be neutral.” Thus, Dawes asserts, “since choice varies by framing it as a gain or loss, it cannot reveal [true] underlying preferences.” Alternatively, he suggests:

Another approach is ... to try to ask people directly what their goals are in order to examine their behavior, or to attempt to elicit their utilities for certain outcomes through a series of often rather complex questions. The problem with this approach is that it assumes that people have more insight into what they want than they apparently do. For example, it assumes that the estimated utility or value of something at the time somebody is making a choice is identical or at least close to its utility or value when experienced. But there is a lot of evidence that this is not ... found empirically... One ubiquitous problem is that people do not understand how quickly they adapt to new situations. (p. 195)

Adaptability has obvious advantages for mental well-being as well as physical survival. However, taken to illogical extremes its impacts can be highly pernicious and become maladaptive. Although Dawes limits his definition of irrationality to thoughts and deeds that are internally incoherent, and excludes others that are generally maladaptive, he asserts that there are still “a distressing number of them in our lives and in our society.” Moreover, he reiterates that “they arise from incomplete specifications ...” Yet he hastens to add, “just as I do not wish to argue that all maladaptive thinking and behavior is an instance of irrationality, I do not argue that all incomplete specifications are instances of irrationality.” (p. 195) Be that as it may, Dawes notes:

Most of us can recognize rationality and irrationality when it is pointed out to us. That does not mean we cannot be fooled on occasion by a clever debater or someone wishing to convince us of something self-contradictory. That is as true of our intellectual system as of our perceptual system. (p. 196)

But how do we recognize the difference? We “scrutinize” and compare each assertion with a baseline which is already known, e.g., a ruler in the case of linear measurements. In other words, we use existing records as the baseline for comparison. In the case of experiments to discover new information, subjects are assigned randomly to the experimental group(s) and to a control group, so that there are no significant differences among the groups other than the treatment applied to each group. The control group provides the baseline against which the experimental group is compared. As Dawes notes, randomized trials provide “a comparison about what would have happened to ... the experimental group if they had been assigned to the control group.” (p. 198) Indeed, to the extent that differences are observed despite efforts to control all relevant variables, he points out:

Then there must be some unobserved variable ... The irony is that the degree to which we control statistically for observed factors, the more assured we are that there is some factor that we did not evaluate ... [The] point is that ... randomized trial evaluation, which is ...

the gold standard for making comparisons is not something we [do] automatically... however, when the problems of simply observing whether something happens or not and attempting to control “statistically” for confounding factors are pointed out, most people accept the logic of randomized trials. (p. 202)

But how can we be assured that no significant factor has been excluded if we fail to capture and maintain with high fidelity records of all potentially observable events? While there are practical limits to how much information can be observed and recorded, to the degree that processes are being conducted by electronic means, computers can easily capture and maintain for analyses and comparison huge volumes of data at relatively little cost. Moreover, computers can rapidly and accurately scan for and recognize patterns and differences that escape human perception and exceed our mental capacities to analyze.

While acknowledging differences of opinion within his discipline, Dawes sums up his treatise with the following observations:

We do not automatically make rational comparisons, which means that we do not automatically think in a rational way. When ... appropriate comparisons are pointed out to us, however, we generally appreciate their virtue... Not all cognitive psychologists agree ... that even the most brilliant human being is subject to irrational conclusions before attempting to clarify the reasoning leading to them and sharing this reasoning with others... [Some] are quite impressed by highly personal expertise and turn to it to define human intellectual insight, if not rationality per se. The goal is often the same as mine, which is to make the implicit explicit, for example, by building artificial intelligence computer programs that simulate the thinking involved. The major divergence is whether we look at particular experts, or particular groups of experts, or whether we take an “outside” view of the problem. In an outside view, we attempt a statistical or logical analysis of the problem per se and the important outcomes and predictors and then later subject this analysis and our conclusions to expert scrutiny (or even the scrutiny of people with ordinary expertise in statistics and logic who may not be unusually intelligent). (p 204)

Finally, he concludes with assertions about the potential as well as “the necessity and value of a free society”:

When we scrutinize arguments, we often do so in a collective way. We debate whether conclusions are logically valid. We write about our opinion concerning validity, whether it is in a letter to the editor or an entire book. Views can be shared, and other people’s views studied for their consistency and compatibility with supporting or refuting empirical evidence.

The invention of the printing press accelerated this logical comparison process. Subsequent inventions of telegraph, telephone, computers, and fax facilitate such interactive scrutiny, provided that the society is free... constraint ... implies that irrational conclusions will go unchallenged, and ... because irrationality implies impossibility, that

lack of challenge in turn implies belief in false conclusions... it is no mere coincidence that free societies, namely, those whose people are free to scrutinize and criticize and perhaps are even encouraged to do so, work better than constrained societies. (p. 213)

We have the competence to be knowledgeable and rational, especially when we interact freely with each other. (p. 214)

However, interacting “freely” is not necessarily the same as interacting intelligently, logically, or rationally. It is easy to envision a rough-and-tumble, free-wheeling form of interaction that is largely based upon emotions and associations, with relatively little basis in reality and comparison of alternatives identified and specified in documentary evidence. Indeed, many human interactions are characterized by such behavior, perhaps necessarily so in light of the natural constraints of time and human mental capacity. On the other hand, to the degree that we form governmental (as well as business) structures, it is imperative that they be grounded in reality and rationality lest they exist, as so oft has been the case throughout history, primarily as a means of serving their own interests rather than those of “We the People.”