The Veils of Clio: Dimensions of a Behavioral Narratology

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This paper outlines a behavior-analysis approach to the field of narratology, the study of the narrative or story, with emphasis on nonfiction stories and the processes by which such stories distort the world they describe. Stories are described in terms of (a) a behavior-analysis adaptation of Todorov's (1977) analysis of the plots of stories in terms of states of equilibrium/disequilibrium and (b) Grant's (2005) analysis of the structure of stories in terms of establishing operations and escape contingencies. These two sets of concepts are applied to understanding how and why stories lead to distortions of the events they report.

Key words: narratology, nonfiction, stories, establishing operation, steady states, transition states, history, biography.

Nonfiction stories have plots and other features that share a great deal with fictional works (White, 1978). Writers of nonfiction look for an angle, a way of plotting the story to make it interesting and appealing. News commentators try to spin a story, to emplot the story to serve some purpose, often to portray a central character as either a hero or villain. Most people have had the experience of being called upon to judge a conflict in which the same set of events is describable in terms of two or more different stories, each with a different plot. These considerations suggest that nonfiction stories are not faithful mirrors of reality but interpretive emplotments of past events. Even the way we refer to "true" stories, as nonfiction, implicitly suggests that we make room for an interpretive aspect of historical description. Historians, who have struggled with the story as a unit of analysis and as a vehicle for describing the past, have come to recognize and accept the interpretive nature of nonfiction stories, or narratives, as an inevitable consequence of attempts to describe the past (Danto, 1985; Klein, 1997; White, 1973).

The expressive processes of emplotting a story and the receptive processes of understanding a story are behavioral processes in which behavior analysis principles are useful in clarifying the underlying contingencies and functional relationships. The present paper is concerned with conceptually analyzing these contingencies in nonfiction stories in much the same way as it is possible to analyze the analo-

gous contingencies in fictional stories (Grant, 2005). Special attention is paid to the way in which nonfiction stories distort the events reported and the undesirable consequences of these distortions. What emerges from this analysis is a behavioral approach to the field of nonfiction narratology, the study of nonfiction narratives or stories.

STORY STATES AND CONTINGENCIES

Todorov (1977) has analyzed minimal story plots in terms of states of equilibrium and transition that are akin to the steady states and transition states (Johnston & Pennypacker, 1993; Sidman, 1960) examined in behavioral research:

The minimal complete plot consists in the passage from one equilibrium to another. An "ideal" narrative begins with a stable situation which is disturbed by some power or force. There results a state of disequilibrium; by the action of a force directed in the opposite direction, the equilibrium is re-established; the second equilibrium is similar to the first, but the two are never identical. (p. 111)

Todorov's sequential set of states is accompanied by an associated set of contingencies that operates on the behavior of the reader (Grant, 2005). Story states and events include (a) baseline equilibrium; (b) a disruptor event; (c) a conflict between the disruptor and an antidisruptor; and (d) a final equilibrium.

Baseline Equilibrium

Plots of stories normally include an initial state of baseline equilibrium in which the char-

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acters engage in a stable pattern of routine behaviors. The state of baseline equilibrium serves as an anchor of stability that, by contrast effects, heightens the impact of the ensuing drama of the story. Examples of baseline equilibrium in fictional stories include conditions in Hamlet's Denmark before the murder of the King, Hamlet's father, and Sherlock Holmes and Dr. Watson's activities before they learn of a crime. Examples of baseline equilibrium in nonfiction includes the functioning of the Nixon administration prior to the Watergate break-in, the activities aboard the Titanic before it struck the iceberg, and the lives of aboriginal peoples in North and South America prior to the European discovery of the American continent.

The Disruptor Event

A disruptor in a story is an event that challenges the existing order and initiates a conflict or dilemma. For the characters in the story, the disruptor, functions as a force for change and turns the state of baseline equilibrium into a state of disequilibrium as stable patterns of behavior are overthrown as the characters respond to the disruptor. The characters in the story, for example, alter their allocation of time in order to respond to the disruptor. For the reader of the story, the disruptor event functions as a conditioned establishing operation (Michael, 1993) or conditioned motivating operation (Michael, 2004), that functions as an aversive stimulus that creates uncertainty regarding the plight of the characters and the outcome of the story. The reader/viewer of the story can terminate the aversive stimulus by completing the story to see how it is resolved. Grant (2005) referred to the aversive function of the disruptor event in a story as a *story establishing operation* (or story motivating operation as consistent with Michael's [2004] usage). The story establishing operation sets up reinforcement for the behavior of the reader

by means of termination of the aversive stimulus associated with the disruptor event (Grant, 2005).¹ Examples of disruptor events in fictional works include Paris's abduction of Helen in the *Iliad* and Professor Burris' discovery of the utopian community in *Walden Two*. An example of a disruptor event in nonfiction was the signing of the Declaration of Independence, which upset the baseline equilibrium of colonial America.

Disruptor versus Antidisruptor

According to Todorov (1977), following the occurrence of the disruptor event, which is a force for change, there will be an opposing force to restore the original conditions of equilibrium (i.e., baseline equilibrium) that prevailed at the outset of the story. Story plots are essentially the description of a conflict between the force of the disruptor, which seeks to upset baseline equilibrium, and the antidisruptor, which seeks to restore baseline equilibrium. The conflict between the forces of disruptor and antidisruptor are said to keep the reader in suspense. But suspense is due to the reader's history of exposure to stories in which the disruptor sometimes wins, the antidisruptor sometimes wins, and the side the reader favors sometimes wins and sometimes loses. This outcome unpredictability effectively makes story reading an intermittent schedule of reinforcement, although the outcome of the story is only one of many reinforcers for reading fiction (Grant, 2005). An example of the process of conflict between the disruptor and antidisruptor in fiction is seen in crime fiction novels in which the disruptor event, the crime, upsets baseline equilibrium and is opposed by an antidisruptor, the actions of a detective character who seeks to restore conditions of baseline equilibrium by bringing the criminal to justice. An example of this conflict in a nonfiction story is the American Revolution, in which the disruptor, the actions of the revolu-

¹One suggestion is that the reader can terminate the aversive stimulus associated with a story establishing operation event simply by stopping reading the story. However, if one simply ceases reading after the author has presented the story establishing operation, this fails to reduce the aversive uncertainty of the outcome of the story, only to leave it in a state of suspension. The aversive features of a story establishing operation are not the flow of words on the page but the abstract stimulus property of the uncertainty of the fate of the characters and the outcome of the story. Once the author has successfully created this uncertainty, stopping reading does not alter this uncertainty and instead only delays or prevents reinforcement provided by learning the outcome of the story. See Grant (2005) for a more detailed consideration of story establishing operations, including their aversive features and their ability to punish reading.

tionaries seeking independence, was opposed by the antidisruptor, the British forces seeking to restore the baseline equilibrium in which the American colonies were a part of the British empire.

Final Equilibrium

By the end of a story, an outcome occurs in which the forces of the disruptor and antidisruptor play themselves out and a new equilibrium is established. Final equilibrium brings the story to a close in which the characters engage in a new set of steady state behaviors. For Todorov (1977), the new equilibrium is never the same as the initial baseline equilibrium. Even if the hero is triumphant, his or her behavior is altered due to the contingencies described in the story; we say the hero gains wisdom and experience. In popular-culture fiction in which a sympathetic hero triumphs, the state of final equilibrium is often a reinforcer for the reader or viewer of the story because a favored outcome is realized. In more serious literature however, the story components work together to edify the reader, and under ideal conditions this edification functions to reinforcer the reader's behavior independent of whether the story has a happy or sad ending (Grant, 2005). An example of final equilibrium in a nonfiction story is the outcome of the American Revolution in which the British colonies of North American gained their independence.

THE UTILITY OF NONFICTION STORIES: WHAT ARE STORIES FOR?

Portraying a story in terms of states of equilibrium/disequilibrium describes the progression of events in a story but does not help us understand why stories are both popular and useful. During the 19th century many historians viewed their task as studying the past to discover *the one correct way* in which to represent those events (White, 1978). This monolithic view has generally given way to an appreciation of the narrative, the story, as a flexible means of representing past events such that different stories, plotted in different fashions, can be used to describe the same historical events and understand those events from diverse perspectives. (See Klein [1997] for a review of the change in the quasi-scientific as-

pirations of historians to the modern acceptance of the story as a unit of analysis.) For example, Danto (1985) succinctly explains:

To ask for the significance of an event, in the *historical* sense of the term, is to ask a question which can be answered only in the context of a *story*. The identical event will have a different significance in accordance with what different sets of *later* events it may be connected. (p. 11)

White (1973, 1978, 1987) has carried this line of thinking furthest, maintaining that historical accounts have plots in much the same way as fictional literature does, and classifies different styles or modes of emplotment such as romance, tragedy, comedy and satire:

Providing the "meaning" of a story by identifying the *kind of story* that has been told is called explanation by emplotment. If, in the course of narrating his story, the historian provides it with the plot structure of a Tragedy, he has "explained it" in one way; if he has structured it as a Comedy, he has "explained it" in another way. Emplotment is the way by which a sequence of events fashioned into a story is gradually revealed to be a story of a particular kind. (White, 1973, p. 7)

The raw data of the past, which White (1973) called the *unprocessed historical record*, consists of separate facts, records, quotations, film clips, etc. that are often organized chronologically but not further than that. Similarly, the raw data of the news, which we might call the *unprocessed news record*, consists of analogous data associated with unfolding news stories. Responding to unprocessed records is difficult. Doris Kearns, biographer of Lyndon Johnson and others, described the daunting task of being faced with a set of unprocessed biographical records:

The search after "the whole man" is the biographer's dream. We rummage through letters, memos, pictures, memories, diaries, and conversations in an attempt to develop our subject's character from youth to manhood to death. Yet, in the end, if we are honest with ourselves, the best we can offer is a partial rendering, a subjective portrait of the subject from a particular angle of vision shaped as much by our own biography—our attitudes, perceptions, and feelings toward the subject—as by the raw materials themselves. (Kearns, 1979, p. 91)

In summarizing unprocessed data the historian, biographer, or news reporter is ultimately compelled to turn the data into a packaged and emplotted story. From the perspective of behavior analysis, a story (a) connects separate events together in plausible causal (functional) sequences, thereby organizing the raw data in the form of a plot; (b) motivates the audience to take an interest in the organized data through the use of the story establishing operation that temporarily creates tension (i.e., aversive stimulation) and a sense of drama; and (c) provides intermittent reinforcement to the audience in the form of the outcomes of stories, at which points the tension is released and the theme of the story emerges. The data organization, drama creation, and audience reinforcement functions of stories all work together in the unified package we call a story or a narrative.

In technical terms, *stories are inventions that format unprocessed records into contingency units that are conducive to the execution of operant behavior with respect to the content of the records*. Stories format the content of unprocessed records into story-establishing operations, which motivate behavior with respect to the events in the story and the outcome of the story intermittently reinforces responding. In nontechnical terms, stories are pitched or spun to us so that our interest is raised and we are, in a good story, kept in suspense for a period before we know the outcome of the story. Although we generally think of stories as being about the people and events described in the story, the motivational and other functions of the story make them as much about the behavioral processes of the reader and storyteller as they are about the events described in the story. Kearns's quote, above, illustrates this with respect to the storyteller.

DISTORTIVE EFFECTS OF STORY CONTINGENCIES

The advantages of stories in organizing unprocessed records, motivating the audience, and providing for audience reinforcement are offset by concomitant disadvantages. In order to realize the advantages of the built-in contingencies associated with stories, there is always an incentive to artificially manipulate events so that they appear to fit the pattern of a story. There is also a tendency to ignore events that either do not participate in a story or partici-

pate in relatively weak stories. The differential selection of data and events that contribute to story establishing operations distorts the world reported on by stories. In fiction writing, this differential selection of data is an asset because it gives the writer a free hand in casting attention on plot elements that contribute to the theme of the story or that otherwise suit the writer's purposes. However, in nonfiction this type of differential selection can artificially restrict the audience's attention to specific aspects of the world at the expense of others.

The veils of Clio refer metaphorically to the distortions that story contingencies produce. Clio is one of the muses of Greek mythology. She is the muse of history, and in that capacity is the mythological deity most closely associated with storytelling. Metaphorically speaking, stories relate the past to us, but in doing so they partially obscure and distort the past, like a veil. Viewing past events through the metaphorical veils of Clio provides us with an account of those events, but one that is distorted and obscured in varying degrees by the necessity of turning unprocessed records into stories.

There are several ways in which story-based distortions can occur. These include: Inventing or exaggerating the reported conditions of baseline equilibrium, exaggerating the degree of tension associated with the disruptor event, neglecting events that do not participate in stories, and packaging stories such that key events are obscured.

Exaggerating Conditions of Baseline Equilibrium

This disruptor event of a story will create more tension if it is superimposed on a stable baseline with few or no major disruptors than a baseline with variability due to disruptors. So, for example, a violent crime is more effective as a disruptor in a community in which very few violent crimes have ever been committed relative to a community in which violent crime is frequent. Those who report on events often exaggerate the invariance of the equilibrium state during baseline to make a disruptor event appear more dramatic. For example, in what he calls the "ruined fairy tale myth," Radford (2003) maintains that news media often exaggerate a person's life as full of joy and success in order to maximize the

impact of some disruptor event like a violent crime, a spouse's adultery, or a fraudulent financial transaction. People in such stories frequently do not lead ideal lives prior to the problem event, but it makes for a more dramatic story to portray their former lives as uniformly happy, or at least placid and carefree in order to maximize the dramatic contrast with the disruptor.

Inventing or Exaggerating the Intensity and Impact of the Disruptor

The disruptor event of a story will create more tension if it has greater intensity. This in turn sets up the possibility of a more reinforcing outcome of the story due to escape from the greater tension. Many news stories report on events that are genuinely horrific, but events are sometimes fabricated or embellished to make them more aversive to the reader or viewer than they would otherwise be. One method of increasing the apparent intensity of the disruptor event is simply to fabricate it. For example, in 1992 the NBC *Dateline* program commissioned a consulting firm to do crash tests of a General Motors truck that had a gas tank some suspected was defective (Crossen, 1994). The commissioned researchers strapped rockets to the bottom of the truck to produce a fire, creating an artificial story establishing operation.

Kitty (2005) has documented dozens of news media hoaxes in which false stories came to be reported as true because they included such a dramatic disruptor event, along with a reinforcing outcome, that reporters were reluctant to investigate the details of the story carefully for inconsistencies and other litmus tests of fraudulent content. In other cases, reporters padded the story with inaccurate details to augment the reinforcing outcomes of the story. Frequently hoaxes consist of a winner story in which an individual or group heroically overcomes the challenge of a disruptor event after a period of suspense in which the outcome is uncertain. Such stories include a false report of people surviving for weeks under the rubble of an Russian earthquake, a story of a boy badly burned in a fire embellished with the completely false detail that he reentered his burning home to save his younger brother, and a story in which a man escaped from East Berlin by driving a car through a checkpoint accom-

panied by three mannequins dressed in Red Army uniforms (Kitty). Many stories of war-time heroism also lack a sound factual basis because the contingencies of a story are further aided by the aversive consequences of depicting soldiers, who are risking their lives daily in any case, as involved in fraud.

Fabrications are uncovered from time to time in news stories and are routinely used in popular culture venues such as professional wrestling, reality TV shows, confrontational talk shows in which the participants are coached in advance, etc. The artificial creation of story establishing operation is normally more subtle. Even acclaimed biographers can make mistakes in reporting the details of an individual's life and these errors often augment, rather than diminish dramatic tensions. Walter Lippmann (quoted in Epstein, 1975), commenting on William Manchester's *Death of a President*, wrote: "... in the mistakes I know about there is always the same pattern: always the mistake is a fiction which intensifies the drama of the story." (p. 141)

As Boorstin (1961) emphasized many years ago, pseudo-events such as photo opportunities and publicity events seek to manufacture an artificial, preplanned sense of drama in contexts in which there is no underlying substance and no naturally occurring dramatic tensions. Pseudo-events are often highlighted by the appearance of political or entertainment celebrities, who provide drama simply because they are well known, and there is some minor uncertainty about what the celebrity will say or do.

Statistical survey data is often used to inflate dramatic tensions artificially. Murray, Schwartz, and Lichter (2001) illustrated how surveys can overestimate the incidence of problems such as physical and sexual abuse, and child abduction. Depending on how these problems are defined and how the survey questions are posed (Crossen, 1994), the reported incidence of these and other problems can be elevated, artificially adding to the tension of stories based on survey data. For example, a question like "Have you ever been subject to an unwanted sexual advance?" would likely yield high percentages of respondents saying "yes," which could in turn be the basis for a shocking headline reporting rampant sexual abuse, yet neglecting the vagueness of the question itself. Other types of statistical information can be

interpreted to create or exaggerate tensions. Morrison (2005), for example, has documented how media reports inflate the risk and harmful consequences of asteroid collisions with Earth even though no one in recorded human history has ever perished from such an event.

The scientific community makes use of special contingencies, such as the requirement of replicability of experimental results to ensure accurate reporting (Skinner, 1957). Yet, scientific stories can exert considerable influence, especially when they do not hinge on a specific set of experimental data subject to direct and systematic replication. For example, reporting in academics sometimes exaggerates the impact of a disruptor event in order to make for a more interesting story. In reports of the “cognitive revolution” in psychology, the language of revolution suggests an exciting, tension-filled conflict and a plot of heroic triumph, but more dispassionate accounts have portrayed the purported revolution as the mere adoption of a name, *cognitive psychology*, to house relatively prosaic ongoing research united by certain common features (Hergenhahn, 2005). In addition, in order to heighten the dramatic tension, these stories often cite restriction of focus to publicly observable events as a distinguishing feature of cognitive and behavioral points of view (e.g., Howard, 1983), at the cost of accurate reporting. (Reports of the cognitive revolution have also misleadingly portrayed psychology as invariantly behavioristic prior to the supposed revolution [e.g., Howard (1983)], thereby exaggerating the extent of baseline equilibrium.) O’Donohue, Ferguson, and Naugle (2003) have likewise described the rhetorical nature of this historical reporting. The language of revolution, the story of a revolution, and the use of false criteria such as public observability to distinguish behavioral and cognitive perspectives all function as rhetorical devices that create a more effective story establishing operation.

Neglect of Events and Data that Do Not Fit a Story Pattern

A good story requires an effective story establishing operation that creates tension, a period of time of suspense when the tension is unresolved, and a story outcome that resolves the tension. Unfortunately, much data does not

fit conveniently into this functional story template, which acts to suppress such data from dissemination. An example is the bias against publishing studies in psychology in which the independent variable has no effect on the dependent variable, especially when this occurs in the form of a failed replication (Davison & Nevin, 2005). An experimental research report is a type of largely unpersonified story in which, in the introduction, the author creates tension and interest in the independent variable as a candidate for influencing the dependent variable. Should the independent variable not have an effect, the tension is not dispelled and the reader is left to wonder what does influence the dependent measure. In this event, negative findings are analogous to a crime mystery that unsatisfactorily ends when the sleuth is able to eliminate one suspect from consideration, but leaves the perpetrator at large. Such an ending fails to dispel the dramatic tension. As Davison and Nevin maintain, negative results nonetheless represent aspects of nature in the same way as positive results do and often merit dissemination. However, because only positive results participate in a complete story, there is a bias in favor of publishing them.

The bias in favor of positive results also occurs in nonacademic media reports (Crossen, 1994). Koren and Klein (1991) examined media reactions to two published studies of the effect of nuclear radiation exposure on cancer that were published adjacently in the same issue of the *Journal of the American Medical Association*. One of the studies showed that employees at the Oak Ridge National Laboratory were more likely to contract leukemia than average people. The other study showed that people who lived near nuclear reactors had no greater likelihood of getting cancer than average. They found that 19 newspapers covered the studies. Ten newspaper stories covered both studies, nine covered only the positive study, and none covered only the negative study.

In writing histories there is a general bias toward the tension-inducing events that are part of story establishing operations that are interesting and unusual rather than prosaic, which gives us an unrepresentative view of the past. DeGroot (2001) writes:

The past is what actually happened—including the way people lived their often

mundane lives. History, on the other hand, focuses on the extraordinary—the often bizarre events which disturb normality. Great events are like fireworks displays on the 4th of July—loud, colorful, and exciting, but very brief disturbances to the quiet calm that surrounds us. Visions of the past are distorted because bizarre events are given disproportionate attention. Since history is one of the building blocks of personal and national identity, we end up with a warped image of ourselves. (From *The Journal of Mundane Behavior* which is an all-online journal that publishes its articles on unnumbered HTML pages.)

Unfortunately, the mundane represents only one class of events neglected due to their lack of participation in story-establishing operations. The bias in favor of tensions of the threatening and unusual also works against the reporting of any events that fail to produce sharp increases in tension, such as those that are difficult to understand, those that produce only small immediate incremental tensions, and those that involve protagonists who are dissimilar to the audience.

Many people are predisposed to accept supernatural events, conspiracy theories, and reports of extraterrestrial aliens because they participate in dramatic story establishing operations, whereas natural or rational debunkings deactivate such operations. Reports of the sighting of a ghost, for example, immediately induce the tension of a story establishing operation. The history of the location of the sighting is examined for a suitable deceased protagonist, and people at the site become players in the drama, with suspense arising from the unpredictability of the next anticipated sighting. Anyone offering a natural explanation of the phenomena has to work against the built-in reinforcers of an exciting ghost story. A similar analysis can be applied to sightings of extraterrestrials, events that support conspiracy theories and the like: All provide the dramatic tension-inducing fuel for story-establishing operations that allow believers to become actors in the drama and to participate directly in the suspense of an unpredictable outcome in progress. This in turn gives the story a life of its own and often effectively lowers the threshold of evidence for conclusions that contribute to the suspenseful story relative to evidence that diminishes the story. People believe weird things (Shermer, 1997), often be-

cause those things participate in story contingencies, and fail to believe natural explanations because they either do not contribute to a story or contribute to a more difficult-to-understand story that requires prerequisite scientific knowledge. Scientific research is often strongly propelled by story establishing operations, though largely unpersonified, in which evidence provides dramatic tension-inducing clues to unlocking mysteries, but the story establishing operations become effective only with prerequisite disciplinary preparation, which effectively removes this genre of mystery from existence in popular culture.

One type of neglect of important events occurs with respect to stories in which tension is not maintained for an appreciable length of time so as to create a period of suspense. For example, many people believe that homicides are more frequent than suicides, but the reverse is true. In 2002, for example, in the United States suicide was responsible for 79% more deaths than homicide (National Center for Health Statistics, 2005). Radford (2003) maintains that the reason why many people believe that homicide is more frequent than suicide is that homicides make for better stories and are therefore reported more frequently:

If a person is found killed by another, the story has only just begun: The police must look for the killer, determine a motive, find the weapon, arrest the killer, put him or her on trial, and so on. But when the killer is the victim, the story is over as soon as it starts. (p. 71)

One possible harmful consequence of this kind of differential reporting is a lack of focus on suicide prevention relative to frequent law and order campaigns to reduce homicides.

Another type of neglect of data occurs when data participate in a story, but in which the variables contributing to the effectiveness of the story are relatively weak. For example, when the protagonists are dissimilar or unfamiliar to the audience, this is likely to lessen the effectiveness of the story establishing operation and the outcome of the story as a reinforcer (Grant, 2005; Jose & Brewer, 1984). This works against foreign news coverage, especially in countries like the United States that are relatively isolated. Moeller (1999) provides a chilling sort of subjective generalization gradient to illustrate this:

It is difficult to find news in the media about sub-Saharan Africa, for example, unless the United States is involved or something horrific has happened. It isn't called the "Dark Continent" for nothing. The newsroom truism goes: "One dead fireman in Brooklyn is worth five English bobbies, who are worth 50 Arabs, who are worth 500 Africans." "There is a certain arbitrary number game we play," admitted Gwertzman from *The New York Times*, "How many have to get killed before its news?" (p. 22)

Weak story contingencies also work against the relative acceptance of Darwinism relative to supernatural explanations of biological evolution. Evolution by natural selection occurs so slowly and over such an extended time frame that at no point in the story is substantial tension or suspense created that makes for a powerful story establishing operation. People lack any personal history or any frame of reference for stories that play out over millions of years (Dawkins, 1996) and that have no specific outcomes other than adaptation and survival. In contrast, nonscientific accounts of creation make for dramatic stories that take place over a comprehensible time period, in which a personified being or beings bring about biological existence with a dramatic gesture or incantation.

The Divergence of the Reported World and the World Reported On

The exaggeration of data and events so that they function as story establishing operations combines with the neglect of data which do not participate in effective story establishing operations to skew reported reality. News reports that effectively induce tension most effectively and participate in a potential story are covered disproportionately, such that there is a bias in favor of bad news and against good news (Murray, et al., 2001), resulting in constant depictions of pernicious threats that promote a culture of fear (Glassner, 1999). Sharp tension-inducing events such as increases in the frequency of diseases and the appearance of new viruses are reported frequently, while incremental increases in life expectancy are relatively neglected (Glassner, 1999). Trials of celebrities gone bad are enthusiastically reported, whereas individuals who are role models for artistic and scientific accomplishment go unreported. Part of this works to maintain

audience participation: Bad news induces the audience to continue following the bad-news story, while any good news, if reported at all, may resolve a previously initiated story but does not induce the audience to follow the story further.

Even among reports of bad news, story establishing operations that sharply induce tension in large increments (or without any delay) are favored over those that increase tension in small increments (or in the future), even if the sum of the small increments over time represents more aggregate harm than the sum of the sharp increases. For example, plane crashes involving multiple deaths are always prominent news stories, whereas fatal automobile accidents, if reported at all, receive far less coverage. Yet, up until 1999 for example, the sum of *all* commercial airline accident fatalities since 1914 was about 14,000, which is roughly one third the number of automobile accident fatalities in one year in the United States (Glassner, 1999). In reporting only events that act as rapid tension-inducing story establishing operations, news reports fail to provide the audience with any notion of the relative frequencies of the events described because this would diminish, rather than contribute to the dramatic tension of the story. There are many harmful consequences of this skewed portrait of reality, one of which is that people are not properly motivated, for example, to work for development of mass-transit alternatives to automotive transportation, a development that would have many advantages in addition to fewer vehicle accident fatalities (Kay, 1997; Nevin, 2005). A similar problem exists with the preponderance of crime stories in local news broadcasts (Lipschultz & Hilt, 2002). Dramatic reports of crime incidents, even in a milieu of diminishing crime rates, have displaced many other forms of less tension-producing news including, ironically, reports of methods to reduce crime.

Another manifestation of the differential coverage of stories with powerful story establishing operations is a tendency to cover adversarial stories in which two or more sides are in competition with one another and the final outcome is in suspense. There is a tendency to cast stories in this pattern even when dramatic adversarial tensions are lacking, as illustrated earlier in the case of the cognitive revolution. Commenting on televised news,

Henry (1981) stated this in the form of a general principle:

Every story ought to have a dramatic unity, a clear line of conflict, with definable antagonists (reduced ideally to Homeric epithets) and a tangible prize at stake. Television is a medium of drama, whether in thirty-second commercials or two-hour movies. It is a branch of performed literature. Like all other performed literature, it is less concerned with the narrative voice or metaphysics than with the story. It never lets ideas exist in the abstract. Ideas belong to people who fight for or against them. Ideas belong to groups whose lives will be enhanced or threatened by them. All of life is a struggle, and a zero-sum game. Except in scattered dogooder stories—mostly about life in small towns or their microcosm, nuclear families—no one can win without making someone else lose. (p. 145)

Competition and adversarial relations exist in most arenas of human behavior, but story contingencies tend to exaggerate these conflicts and lead to the underreporting of less conspicuous efforts that incrementally improve the quality of our lives without any dramatic confrontations. The type of activities most practicing behavior analysts perform, in which children, students, and other clients are left a little better off at the end of each day, are usually not dramatically emplotable in the formulaic patterns that make news, but are ultimately equally or more important than the winners and losers portrayed in news stories. These contingencies may also have harmful effects in fundamentally distorting our sense of the way in which progress and advancement occurs in any field: Whereas tension-inducing stories tell us that gladiator-like figures who dispatch opponents are important agents of societal and disciplinary advancement, actual improvements often occur slowly, quietly, behind the scenes, where striking dramatic tension is lacking and patience and endurance come to the fore. A culture that characterizes itself in terms of conflicts that inevitably leave winners and losers provides a distorted reflection of itself and is less viable than a culture that values progress and advancement in whatever form it occurs, dramatic or not.

Although Henry's observations, quoted above, were in connection with television news, they also often apply to reporting within the scientific community, especially at the

nonexperimental level of textbooks that encapsulate disciplinary histories. Complex and precise discussions of underlying ideas are forsaken in favor of plots in which scientific figures battle, like Achilles and Hector, for heroic supremacy. For example, contemporary discussions of Skinner's *Verbal Behavior* are mostly limited to stories in which Chomsky's review of the book is portrayed as an epic victory of cognitive psychology over behaviorism, without a discussion of the ideas, concepts, and principles involved. Such a content-focused discussion would lead many to the conclusion that the story of the victory is essentially a hoax, but because the story is presented in terms of personalities, the underlying concepts and ideas are effectively obscured.

The emphasis on stories that produce immediate tensions has made the news more entertaining, but at the cost of making it superficial and trite. As Nash (1998) observes,

The challenge for journalists is not only to recognize the public's thirst for diversion, but also to recognize its need for substance in the news. The answer is to make the important interesting, not to make the merely interesting seem important. The task for those of us in the news business is to strive continually to provide a fair reflection of reality so people can understand and cope. (pp. 9–10)

Stories that are more difficult to understand, such as events in distant foreign countries that require knowledge of history and cultural traditions, are often a source of inherently fascinating tensions, but only after the audience is educated. Similarly, science news, which requires some understanding of mathematics, biology, physics, etc. is much more interesting than the personal lives of errant celebrities, but appreciating its tensions also requires education. A better understanding of the functions of story establishing operations may be useful to journalists, biographers, and historians as a means of bringing out tensions in complex subjects, providing audience motivation to learn rather than merely be entertained.

The Packaged Nature of the Story

Events in real time, including behavior, flow continuously and without interruption, whereas stories do not reflect this continuity but instead consist of a package of baseline equilibrium

→ disruptor event → conflict between disruptor and antidisruptor → outcome. Although this plot structure facilitates the reader's motivation, it should be recognized as a device invented to capture and maintain the reader's interest. White (1973), describes the way in which chronologically ordered data are transformed into a story as follows:

First the elements in the historical field are organized into a chronicle by the arrangement of the events to be dealt with in the temporal order of their occurrence; then the chronicle is organized into a story by the further arrangement of the events into the components of a "spectacle" or process of happening, which is thought to possess a discernible beginning, middle, and end. This *transformation of chronicle into story* is effected by the characterization of some events in the chronicle in terms of inaugural motifs, of others in terms of terminating motifs, and of yet others in terms of transitional motifs. An event which is simply reported as having happened at a certain time and place is transformed into an inaugurating event by its characterization as such: "The king went to Westminster on June 3, 1321. There the fateful meeting occurred between the king and the man who was ultimately to challenge him for his throne, though at that time the two men appeared to be destined to become the best of friends. . . ." (p. 5)

The transformation of chronicle into story often leads to artificiality in the composition of the story and to the illusion that the events in the story have been brought to a state of inertia, final equilibrium. In fiction, this appropriately leaves the reader with a sense of closure or artistic completeness, but in nonfiction stories, the reader can obtain a false sense of final equilibrium. Writing with respect to television news, Epstein (1981) describes this as follows:

A fourth assumption made by news producers is that stories are more likely to hold viewers' attention if they are cast in the form of the fictive story, with a discernible beginning, middle, and end. One NBC vice-president suggested to news producers that all stories should have rising action, a climax, then a falling action, and a seeming resolution. According to analyses done by NBC's audience research experts (see Epstein, 1973, p. 263), this form would "lock" the audience into the news story. Since the film is generally

reedited by the producers, it is relatively simple to cast most happenings in this fictive form. The net effect, however, is that reality is reconstructed into a series of events that never actually happened in the form in which the audience witnesses them. Events do not necessarily begin, build, and resolve themselves in terms of the visual data that are available to a television news team. Yet all the behind-the-scenes oscillations, twists, and contingencies of reality are neatly ironed out. (pp. 129–130).

A key difficulty with stories is that the artificial imposition of a story structure on unfolding events can provide a false sense that a story is over when it is not. This is often seen in political stories. For example, the Vietnam War was treated in the media as a story that was completed with the conclusion of the Paris peace talks in 1973, yet the war effectively continued until the fall of Saigon in 1975, when the outcome was very different from the original story outcome. The incorrect acceptance of the Vietnam War as a completed story led to a kind of collective myopia that made it difficult to mobilize public support, even among hawks, to address the reality that the war was an ongoing event. More recently, the conflict against the Soviet Union in Afghanistan was treated in the Western media and governments as a story that was over with the withdrawal of Soviet troops in 1989. In the void that followed, Afghanistan effectively became a staging area for the training of anti-Western extremists, leading to, among other things, the September 11, 2001, attack on the United States.

In providing an artificial and illusory sense of closure, stories curiously share this disadvantage with certain kinds of psychological theories, which can also prematurely curtail empirical investigation (Skinner, 1950). Once a story has reached an outcome that is accepted, both reporters and readers lose interest in the story because the central tension in the story has been ostensibly resolved. Similarly, once a theory has seemed to explain a set of empirical facts, especially in mentalistic dimensions that give only the illusory veneer of explanation, researchers often lose interest in the area. Stories can also be told in different dimensions than the essential content of the story and have the effect of premature cessation of interest in the content. For example, as described earlier, Henry (1981) pointed out that stories are very often told in the dimensions of personified

winners and losers who take preeminence over the underlying ideas and concepts the individuals espouse.

FINAL NOTE: BEHAVIOR ANALYSIS STORIES

One specific practical advantage gained by development of a field of behavioral narratology is a better understanding of the way in which the advancement of scientific disciplines—and particularly behavior analysis—is influenced by stories. As described earlier, Skinner (1957) described science at the experimental level as a set of self-correcting procedures to insure accuracy in the description of natural phenomena, including behavior and its relationship to the environment. Behavior analysis has been impressively successful as an experimental and applied science, but stories, including the cognitive revolution story and the Skinner-Chomsky story, have skirted and drawn attention away from the empirical and conceptual foundations of behavior analysis. The problem is that stories about a science are not as easily and directly subject to definitive refutation in the same way that experimental evidence can be summarily dismissed or altered by subsequent work. Misleading stories about science insidiously take on the patina of scientific findings when they appear in textbooks alongside experimental findings, even when they are partially or entirely hoaxes and myths. Incorrect stories can be refuted by appeals to evidence, but this process is time-consuming, less immediately compelling than experimental refutation, and difficult, especially when the stories have elements of both truth and falsehood, and the task of separating the two requires that the audience relinquishes the dramatic appeal of the story and pays close attention to details the story obscures or neglects.

Stories should not be seen as things to be avoided. They are indispensable to historical description. A behavioral narratology should lead us to an understanding of the power of stories and how to use them honestly and effectively to advance scientific disciplines through exemplification. Behavior analysis has made progress and acquired adherents due to stories that illustrate the effectiveness of its methods and procedures. For example, the classic story of the three-year-old autistic boy Wolf, Risley, and Mees (1964) worked with has pro-

vided thousands of people with the drama of an intractable behavior problem, with the future of a young child hanging the balance. Understanding the abuses of the rhetorical power of the story should not prevent us from also appreciating how to make effective and honest use of that power to promote and advance behavior analysis.

SUMMARY

Stories, both fictional and nonfictional, have an internal structure in which an initial steady state of baseline equilibrium is disturbed by a disruptor event. This induces a transition state of disequilibrium that eventually restabilizes into a final equilibrium in which the effects of the disruptor event are integrated into the new steady state. Story plots can be interpreted in terms of a conflict between the forces of the disruptor and antidisruptor, such that the story becomes a field of play in which the strength of contingencies favoring resistance to change, represented by the invariance of baseline equilibrium, opposes the strength of the contingencies favoring change, represented by the disruptor event.

Stories should also be understood in terms of the behavior of the audience. In a story, there is a story-establishing operation that consists of introducing a relatively mild aversive stimulus, the disruptor event, which introduces uncertainty that the reader can escape from by continuing to listen or read and learn the outcome of the story, at which point the aversive stimulus is removed in some way. Escape contingencies are the basis of the reader's motivation in a story: The disruptor event introduces an aversive uncertainty about the plight of the protagonists, which can be escaped from by completing the story and learning the outcome.

Nonfiction stories are useful vehicles for the transmission of chronologically ordered information because they organize that information to fit the pattern of a story, which allows the audience to better comprehend the events and motivates the audience to follow the story to its outcome. This useful feature of stories has several associated disadvantages in altering the nature of the reality the story describes. These alterations, metaphorically referred to here as the veils of Clio, include: (a) the temptation to transfigure data and events so that they seem to participate in a story, resulting in the cre-

ation of pseudo stories with artificial tensions; (b) the neglect of important data that do not fit the pattern of a story; and (c) the packaged nature of the story, which gives the event beginnings and endings that are to an important extent artificial.

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