

BUILDING PROCESS THEORY WITH NARRATIVE: FROM DESCRIPTION TO EXPLANATION

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Narrative is especially relevant to the analysis of organizational processes because people do not simply tell stories—they enact them. Narrative data have surface features that are useful for description, but explanatory process theories must be based on deeper structures that are not directly observable. To address this problem and to facilitate better process theory, in this article I use concepts from narrative theory to create a framework for analyzing structural features in narrative data.

Explanation is essential to theory and practice. If we see an organization doing well, we want to reproduce the success; if we see one doing poorly, we want to prevent failure. Either way, we need a theory—an explanation of what is causing the observed outcomes. As Sutton and Staw argue, explanation is the core of good theory; it is "the answer to queries of *why*" (1995: 378). In this article I adopt what DiMaggio (1995) calls the "theory as narrative" view: an explanation is a story that describes the process, or sequence of events, that connects cause and effect (see also Einhorn & Hogarth, 1986). In this view, good stories are central to building better theory.

The quest for "better stories" touches on a theme raised in an earlier AMR special forum on theory building, where Eisenhardt (1989, 1991) and Dyer and Wilkins (1991) articulated competing views on the apparent tradeoff between "better constructs" and "better stories." Dyer and Wilkins (1991) criticized Eisenhardt's (1989) approach to building theory with multiple case studies as sacrificing context and deep structure—in a sense, ruining the story—in favor of building constructs that could be used in traditional variance models. Eisenhardt (1991) coun-

tered that better stories and better constructs are not mutually exclusive; if journal page limitations were less strict, one could have both.

In this article I argue that one can indeed have better constructs and better stories, because in the domain of process theory stories are constructs. More precisely, stories help explain the relationships between events in a process or a narrative (Bal, 1985; Barthes, 1977; Chatman, 1978; Rimmon-Kenan, 1983). In the same way that a survey contains indicators for the underlying constructs in a variance theory, narrative text contains indicators for an underlying process theory.

In process theory typical patterns of events, such as variation and selective retention, are core theoretical constructs (Van de Ven & Poole, 1995). These archetypal stories are used to explain surface patterns that we observe in our data. In narrative theory these underlying narrative structures are stories (Chatman, 1978; Rimmon-Kenan, 1983) or *fabula* (Bal, 1985). They reflect the deep structure of a narrative, and they are used to explain and interpret the surface structure, which is the *text* or the *discourse* (Rimmon-Kenan, 1983). Usage of the term *construct* has been honed by years of training and experience with variance-based research (Mohr, 1982), so some readers may find this claim surprising. Nonetheless, to say that stories are constructs is not just a play on words. In narrative theory stories are abstract conceptual models used in explanations of observed data.

I also argue that we can build better process theory, and better explanations in general, through the use of narrative data and structural

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methods of narrative analysis. The argument begins with the simple observation that narrative encodes all kinds of data that are relevant to a wide range of organizational phenomena. But narrative does much more than just mirror the social world. It is a kind of cognitive and cultural ether that permeates and energizes everything that goes on (Czarniawska, 1997). Participants not only make sense of their world in narrative terms (Scott & Lyman, 1968; Weick, 1995) but they proactively plan and enact narratives that are consistent with their expectations and values (Czarniawska, 1997). Stories are like ruts in the road that people follow and thereby re-create. For this reason, narrative can be a particularly valuable source of insight about organizations. Process explanations that draw on narrative data are particularly close to the phenomena they purport to explain.

Unfortunately, the data we collect are always limited to the surface. We have no direct access to the underlying structure of the phenomena we want to explain. Thus, a critical challenge in organizational theory is **how to move from surface structure to deep structure, or how to recover a single, objective account from multiple, partial, subjective, and even conflicting accounts**. For traditional variable constructs, like those described by Eisenhardt (1989), this is the familiar problem of ensuring validity and reliability (Cook & Campbell, 1979). For process constructs (i.e., explanatory stories) we have no established procedures or tests.

But narrative theory provides some important insights to the general problem: Given some telling of a story, what was the true underlying pattern of events? This is a basic question in narrative theory, and as organization theorists, we are also interested in the underlying process that gave rise to those events. In general, the answer to this kind of question depends on the concept of structural levels from narrative theory (Bal, 1985).

Here, I introduce a framework for understanding structural levels in narrative that integrates current concepts in narrative theory with recent developments in organization theory. As we move from our surface observations toward the underlying structure, we move from description to explanation (Simon, 1992). In doing so, we move toward better theory.

NARRATIVE AS DATA

Narrative data have properties that provide the basis for many kinds of organizational theories. As Reissman (1993) points out, narrative is an overarching category that takes on many different forms and that has been defined in many different ways. I focus here on the *properties* of narrative that any set of data (in whatever form) might have in varying degrees. The purpose of this section is to demonstrate how each of these properties can be mapped onto many familiar kinds of theoretical problems. The definitions and examples provided set the stage for the main argument concerning the relationship between narrative, process, and explanation.

At a bare minimum, a narrative text must describe a progression or sequence of events (Rimmon-Kenan, 1983). But most narrative includes a great deal more than just sequence.

Following Bruner (1990) and Barthes (1977), one can identify several typical features of a narrative text (or discourse):

1. **Sequence in time.** Narrative should include a clear beginning, middle, and end, although even fragmentary stories can still represent time and sequence. Event sequence is part of the *fabula*—deep structure—of a story. The surface structure of a narrative need not present events in sequence; events frequently are rearranged for dramatic effect (as in murder mysteries, where the corpse is usually found before the killer is revealed). But chronology is a central organizing device. The events or actions referred to in a narrative are understood to happen in a sequence.
2. **Focal actor or actors.** Narratives are always about someone or something. The objects and characters in a story are also regarded as part of the *fabula* (Bal, 1985). There is a protagonist and, frequently, an antagonist as well. The characters may not be developed or even identified by name, but, along with sequence, they provide a thread that ties the events in a narrative together.
3. **Identifiable narrative voice.** A narrative is something that someone tells (Bal, 1985), so there should always be an identifiable voice doing the narrating. That voice reflects a specific point of view (Rimmon-Kenan, 1983). Since multiple points of view are always possible, narrative voice generally is not regarded as part of deep structure.
4. **"Canonical" or evaluative frame of reference.** Narratives carry meaning and cultural value because they encode, implicitly

story
fabula

or explicitly, standards against which actions of the characters can be judged. In fairly tales (and their close cousins—textbooks) the moral is often explicit. It may even have a privileged section that isolates it from the actual events in the narrative. But even without any explicit moral, narratives embody a sense of what is right and wrong, appropriate or inappropriate, and so on. White (1981) argues that this sense of moral context is what distinguishes historical narrative from mere annals or chronicles of events. Like narrative voice, it is not part of deep structure.

5. **Other indicators of content and context.** Barthes (1977) notes that narrative texts typically contain more than just the bare events. In particular, they contain a variety of textual devices that are used to indicate time, place, attributes of the characters, attributes of the context, and so on. These indicators do not advance the plot, but they provide information that may be essential to the interpretation of the events (e.g., knowing that the scene is a wedding changes the significance of the utterance "I do").

It is important to realize that many kinds of data have narrative qualities, regardless of whether they meet a particular definition of narrative in every way. For example, one can collect narrative data as told by organizational members (Boje, 1991), or from published sources (Martin, Feldman, Hatch, & Sitkin, 1983), interviews (Brown, 1998), electronic databases (Pentland & Reuter, 1994), historical records (Abbott & Hrycak, 1990), or student projects (Sabherwal & Robey, 1993). Many different kinds of data embody, to a greater or lesser extent, some aspect of narrative structure. Likewise, any piece of organizational research can be seen as preserving or destroying, to a greater or lesser extent, various aspects of narrative structure.

In the examples that follow, I show how each aspect of narrative data has been used in organizational theory. Not all aspects are equally relevant to every question, and focusing attention on one feature tends to reduce the attention paid to others. Furthermore, adding additional features may increase accuracy, but usually at the cost of simplicity or generality. In this section I explore the broad outline of these tradeoffs by showing how certain features of narrative can be particularly useful as indicators for certain kinds of questions, as summarized in Table 1. Throughout this discussion I use the bare minimum definition of narrative as "pure event se-

quence" as a baseline against which to make tradeoffs and comparisons.

Sequential Structure

Event sequence is the core of narrative structure. It is also an important point of reference for this discussion, because it is frequently the only aspect of narrative structure that is analyzed. Abbott (1990, 1992) has argued, for example, that **narrative and social process are closely linked**—he uses the terms almost as synonyms—but he offers a view of narrative analysis that is limited to sequences of events. The emphasis on event sequence dominates process research in information systems (Shaw & Jarvenpaa, 1997), innovation research (Van de Ven & Poole, 1990), and organization theory in general (Mohr, 1982; Van de Ven & Poole, 1995).

For example, Sabherwal and Robey (1993) used Abbott's method of optimal string matching to discover typical sequences in software development projects. Using teams of specially trained students, they collected a set of 57 stories. They coded their stories in terms of a set of 14 kinds of events and analyzed the sequences of these events within each narrative. They then clustered the resulting sequences of events to find the typical ones prevalent in their sample. This is a valuable and interesting study because it provides an empirical generalization about actual patterns of action in a significant number of different projects. Among other things, it debunks the textbook myth of the software development life cycle.

At the same time, this study exemplifies the sequence-only approach to process analysis that Abbott (1992) calls "narrative positivism." To facilitate comparison, raw narrative data are

TABLE 1
Relationship of Narrative Properties to Organization Theory

Narrative Property	Indicator for
Sequence	Patterns of events
Focal actor(s)	Role, social network, and demographics
Voice	Point of view, social relationships, and power
Moral context	Cultural values and assumptions
Other indicators	Other aspects of context

coded and reduced to their lowest common denominator: sequences of objectively coded events. In the coding process other aspects of narrative structure are systematically removed. It is difficult to discern a focal actor, for example, because the events are framed as "occurrences," rather than actions. To the extent that there is one, the focal actor is a generalized "implementation team." The coding process eliminates narrative voice as well and substitutes the objective standard of interrater reliability. There is no particular effort to recover or explore the details of the moral context that gives the events meaning for the participants.

This method provides a powerful way to generalize across dozens of case studies to find sequential patterns, but the resulting taxonomy is purely descriptive. This suggests an interesting kind of tradeoff: focusing on event sequence may enhance descriptive generalization, but it may limit our ability to generate meaningful explanations because it systemically excludes the features we need to create such explanations.

To see how this is so, consider how the other features of narrative could be used in building explanatory theory.

Focal Actor or Actors

Characters are also part of deep structure. Characters tie events in a story together and provide a thread of continuity and meaning (Rimmon-Kenan, 1983). Stories can be about individuals, groups, projects, or whole organizations, so from an organizational studies perspective, the focal actor(s) determines the level and unit of analysis used in a study. Stories of mergers and acquisitions, for example, are commonplace. In these stories whole organizations are personified as actors (e.g., "Compaq acquired Digital"). But these macrolevel stories usually are not told from the perspective of the macrolevel participants, because whole organizations cannot narrate their experience in the first person (e.g., Digital cannot say, "I was acquired by Compaq"). The personification of a whole organization is a textual device we use to make macrolevel theories more comprehensible.

A purely event-sequence approach abstracts away from the particular actors and from traditional notions of level of analysis. This is important both methodologically and theoretically,

because stories differ depending on who is enacting various events. We cannot simply replace one role with another, because the identity of who performs an action can be a relevant part of a story (consider the difference between murder and suicide, for example). Most processes are performed by more than one individual; the question of who does what is certainly relevant to the participants and would figure prominently in any stories they might tell. For instance, Salancik and Leblebici's (1998) restaurant grammar includes five basic actions in a food service transaction (order, cook, serve, pay, eat), but it explicitly accounts for who performs each action. Does the waiter bring the food, as in a full-service restaurant, or do the customers serve themselves, as in a cafeteria? Increasingly decentralized processes, and the increased prevalence of processes that include significant components performed by suppliers or customers, make it particularly important to understand who is doing what.

More generally, data concerning the identities and relationships of the characters in the story (participants in a process) are required, if one is to understand role structure and social networks in which that process is embedded. This is no surprise, because social networks enable and constrain a wide range of human activity (Wasserman & Faust, 1994). Likewise, roles define who does what. If a particular role is missing, for example, certain processes cannot proceed. Narrative data contain important indicators of character, role, and social structure, but methods that focus on events encourage us to abstract away from actors and their relations.

Narrative Voice

Every story is told from a particular point of view, with a particular narrative voice, which is not regarded as part of the deep structure (Bal, 1985; Rimmon-Kenan, 1983). The way a story is told can provide additional insight into the social world, such as the tellers' point of view and their relationship to their audience, among other things (Rimmon-Kenan, 1983). For example, the use of first names (versus honorific titles) can indicate social relationships, such as ingroup membership or status difference. Purely event-based methods eliminate voice to gain objectivity, but there is a great deal of insight to be gained from a careful analysis of the same story

from multiple, subjective points of view (e.g., Brown, 1998).

Stories vary depending on who is doing the telling (Boje, 1991), and therein lies one of the great strengths of narrative as a source of data: the details of how a story is told can speak volumes (Reissman, 1993). At the same time, variability raises questions about truth. If stories change depending on who is telling them (and when, where, and to whom), how can we have any confidence in them? Ethnographers attempt to meet this challenge by adopting realist styles of writing (Golden-Biddle & Locke, 1993; Van Maanen, 1988). The impression of objectivity is created and sustained when researchers tell their stories in their own scholarly voice, rather than letting their research subjects do the talking.

Narrative voice, if used carefully, can analyze power and politics as explanatory constructs, as illustrated in a study by Brown (1998). This study provides a clear example of using what narrative theorists would call "surface structure" (multiple accounts of the same underlying story) to indicate important aspects of social structure (not just story structure). Like Sabherwal and Robey (1993), Brown (1998) analyzes software implementation, but he focuses on a single project instead of many. For this one project he provides a set of three different narratives, one from each of the major groups involved in the implementation of a medical support system: the patient ward, the lab, and the system developers. Each group tells its own story of the implementation project, in its own voice. These narratives are reconstructed from interviews, but Brown retells them in the members' own voices. Brown (1998) then uses these data to compare each group's interpretation of the events that transpired.

Brown's (1998) study makes an interesting contrast to Sabherwal and Robey's (1993), because he reports the full text of three different stories about the same project. Sequence is obviously present, as are the particular focal actors. More important, however, is the role of perspective and voice in the analysis. Each group sees the project differently and engages in a considerable amount of finger pointing at the other groups. The differences in perspective can be traced, in part, to differences in the goals and values of the groups. The technologists emphasize the technology, whereas the medical staff emphasizes patient care and convenience.

Brown (1998) discovers that each group's narrative privileges some voices and silences others, and he analyzes this silencing as an exercise of power. Selective silencing is an unavoidable feature of narrative (Bal, 1985; Reissman, 1993; White, 1981), and finding the silent voices and revealing the sources of power in a narrative constitute one purpose of deconstruction (Martin, 1990).

Evaluative Context

Perhaps more than any other kind of data, narrative can provide a window onto the values of a cultural group. From myths we learn what is sacred and profane (Levi-Strauss, 1968). From anecdotes around the water cooler, members learn what is valued in their organizations (Wilkins, 1984). One could argue that the analysis of culture is, to a large extent, an exploration of the moral dimension of the narratives of a culture. Trice and Beyer (1993) offer a helpful survey of the ways in which various forms of narrative have been used to analyze organizational cultures.

Explicit attention to the evaluative dimensions of narrative data allows us to examine the ways in which culture guides action, among other things. Martin et al.'s (1983) analysis exemplifies the way that evaluative context can drive a process, enabling and constraining certain choices and key events. These authors analyzed a large number of published narratives using script theory (Schank & Abelson, 1977). They identified seven kinds of stories—structural categories of story—based on the plots of the narratives they analyzed. Within each kind of story, they found "positive" and "negative" versions. They also found that stories had similar kinds of plots, which they attributed to the existence of pervasive structural tensions in organizations: equality versus inequality, security versus insecurity, and control versus lack of control. The stories reveal how different organizations deal with these tensions. In some organizations asking the "big chief" to follow the rules gets you fired; in other organizations it makes you a good citizen.

Careful attention to evaluative context also can be used to show how unstated assumptions can influence apparently "rational" managerial thought. For example, Boland and Schultze (1995) use a simplified form of Chatman's (1978)

technique for narrative analysis to "unpack" Cooper and Kaplan's (1988) famous and influential story about activity-based costing. This is the story of two ball-point-pen plants—one that makes only blue pens and one that makes a variety of colors. In a brief and compelling parable, Cooper and Kaplan (1988) show that measuring costs in the "right way" helps managers make the "right decisions." There is a clear moral to this story: activity-based costing is the only valid basis for managerial control.

By carefully applying the structural techniques of narrative criticism, Boland and Schultze (1995) are able to show how this story works. They reveal the moral and evaluative context of the story, as well as the key structural elements that make it effective. Then, using the same elements, they are able to rewrite the story to create alternatives, with very different outcomes, that reflect different possible worlds (Bruner, 1986).

One of their most interesting variations includes the "Executive Jacket"—an electronic system worn by all executives that monitors their activities so that they can be added to the cost structure of the firm on a minute-by-minute basis (after all, executive time is expensive, so we need to measure it carefully). The executives soon discover that whenever they devote time to a particular product line (especially in a large meeting), that product's cost goes way up, and it starts to look unprofitable. Suddenly, the same basic story (i.e., one makes the best decisions by allocating the costs of activities to specific products) starts to look silly. Their analysis is, in a sense, a deconstruction (plus a clever reconstruction) that reveals the (il)logic underlying the design of a widely used kind of organizational control system.

Other Indicators of Context

Narrative usually includes a range of other indicators that can be used to identify other important constructs. As Barthes remarks, narrative is "simply there like life itself" (1977: 79). And, like life itself, it can contain references to just about anything. What the narrative theorist may view as textual embellishment (Barthes, 1977), the organization theorist often views as critical data on anything from personality to social structure. For example, the story of the Mann Gulch disaster, analyzed by Weick (1993),

includes indicators of physical setting (an intense fire in a remote location), the psychological states of the participants (surprise, fear, and disorientation), the demographic characteristics of the participants, and so on.

These kinds of indicators are present in nearly any narrative, and they form the raw material for a number of different qualitative techniques for textual analysis. Miles and Huberman (1994) provide an extensive set of techniques for coding, collating, categorizing, and presenting textual indicators. Eisenhardt's (1989) discussion of case analysis can be viewed as a prescription for how to use such indicators to create theoretically relevant constructs. Also, we can construct synthetic measures (aggregates, scales, and so on) that are widely used in theoretical explanations. It is interesting to note that we usually do not collect this kind of data in narrative form. Surveys, for example, are an efficient way to collect the "other indicators," without the sequences of events that surround them.

Narrative Is More Than Just Data

Clearly, narrative provides a wealth of information that is available and codable using familiar techniques. But narrative does more than simply indicate features of the social world. It is constitutive of the social world. Readers familiar with sociological symbolic interactionism will recognize this as a central tenet: actors construct interaction in ways that are sensible to themselves and others (Orbuch, 1997; Scott & Lyman, 1968).

People do not just tell stories, they *enact* stories, and these stories provide legitimacy and accountability for their actions (Czarniawska, 1997, 1998). As a result, stories do not just reflect processes, they shape them (Orr, 1995). This is because our expectations for appropriate service, management, decision making, and so on can be characterized as typical "stories" (good and bad), which guide our understanding of the situation (Mandler, 1984). As Weick (1995) and many others have argued, stories give meaning to the events, actions, and objects in our lives (Orbuch, 1997; Scott & Lyman, 1968).

Narratives in various forms (such as stories, sagas, legends, and myths) are also central forms of expression of organizational culture and important vehicles for socialization (Trice & Beyer, 1993). Stories are a safe way for newcom-

ers to be "shown the ropes," without getting thrown on the ropes. And while stories help preserve organizational culture, they can also be used as tools for change (Wilkins, 1984). In psychoanalysis, narratives of personal experience can be constructed and retold to help patients change their lives (Schafer, 1992). When a reorientation is necessary, stories of what is possible, or what other organizations have accomplished, can be useful models for what needs to be done (McConkie & Boss, 1986; McWhinney & Batista, 1988).

The importance of narrative is further reinforced when one considers how prominently narrative thinking figures in some perspectives on individual cognition (Bruner, 1986, 1990) and sensemaking. Weick (1995) argues that sensemaking depends, to a great extent, on our ability to think in narrative terms: to look back, retrospectively, and ahead, prospectively, so as to construct an understanding of events. Bruner (1986, 1990) also emphasizes that connecting events together in the context of a story is critical for understanding. Indeed, our ability to construct accounts of our actions (and the actions of others) is central to social relations (Heritage, 1984; Orbach, 1997). Weick explains the multiple roles of stories:

If accuracy is nice but not necessary for sensemaking, then what is necessary? The answer is, something that preserves plausibility and coherence, something that is reasonable and memorable, something that embodies past experience and expectations, something which resonates with other people, something that can be constructed retrospectively but also can be used prospectively, something that captures both feeling and thought, something that allows for embellishment to fit current oddities, something that is fun to contrast. In short, what is necessary in sensemaking is a good story (1995: 60-61).

To summarize, the significance of narrative data lies not just in their richness and near universal availability, but in the fact that they are the same kind of data that organizational members use to plan, enact, interpret, and evaluate their own actions and those of others. As Weick argues, "Most organizational realities are based on narrative" (1995: 127). Thus, when we analyze narrative, we are starting with raw material that is central to the cognitive and cultural world of our subjects. With this in mind, I turn now to the central topic of this article: building process theory with narrative data.

BUILDING PROCESS THEORY WITH NARRATIVE

Narrative is relevant to a broad range of theoretical concerns, but what is its role in explanation? We are accustomed to thinking of explanations in terms of R-squared, but in this section I want to elaborate on the idea that explanation requires a story and that stories can be understood as process theories.

Because narrative embodies sequence and time, it is naturally suited to the development of process theories and explanations. Indeed, every narrative contains a description of a process (Bal, 1985) or a sequence of events (Barthes, 1977; Rimmon-Kenan, 1983). For this reason Abbott argues that narrative, "in the generic sense of process, or story" (1992: 428), can be fruitfully used to create an alternative paradigm for empirical sociological research, in which processes, events, actions, and agents are at the center of the analysis. Abbott (1990) identifies three categories of questions that one can address: (1) the existence and classification of sequential patterns, (2) the antecedents of these patterns, and (3) the consequences of these patterns. Clearly, these questions can be approached in purely descriptive terms ("What are the patterns? What are the antecedents and the consequences?"). As Abbott (1990) notes, description is an essential first step. But, in the following sections, I want to explore the problem of creating explanations ("Why are there patterns? Why do we observe these antecedents and consequences?").

Antecedents and Consequences

Questions about antecedents and consequences basically are variance questions (Abbott, 1990; Mohr, 1982). For any process one can look for correlations in the conditions that initiate the process and in the consequences of the process. These are fundamental questions in fields ranging from organizational ecology (e.g., "How does density affect foundings and failures?") to organizational demographics (e.g., "How does group composition affect performance?").

Abbott (1992) notes, however, that in a great deal of sociological research, scholars measure correlations between antecedents and consequences and make inferences about the inter-

vening causal sequences of events without actually observing them. Lawrence (1997) makes a similar observation with respect to the "black box" of organizational demography. Demographic characteristics (antecedents) are linked to outcomes (consequences) via a chain of prototypical sequences that are usually not observed or measured. For example, McCain, O'Reilly, and Pfeffer (1983) argue that in the university departments they studied, greater temporal gaps between tenure cohorts led to difficulty in communication, power struggles, and, ultimately, turnover. This chain of hypothetical events connecting antecedent to consequence is a good example of what Abbott (1992) refers to rather pejoratively as a "just-so story," made up to explain an observed correlation between variables.

But it can also be seen as a process theory waiting to be tested. In this case it is a theory about demographics, communication, conflict, and turnover, but many kinds of organizational research have a similar logical structure. Antecedents and consequences are measured, correlations are computed, and results are reported. Yet, as Abbott (1990) points out, a typical data set contains no information on the causal chain of events that explains *why* the variables are related. Sutton and Staw (1995) have argued quite forcefully that it is the responsibility of the researcher to fill in the missing events, because without explanation there is no theory. This conclusion is echoed by Lawrence (1997), who suggests that although examining the intervening processes may be expensive or time consuming, it is necessary if one wants to build explanatory theory. A purely instrumental theory, which posits a connection between variables but lacks explanation, generally is not seen as a theory at all (Lawrence, 1997).

Sequential Patterns

For this reason sequential patterns are critical to explanation. We need a chain of events that connects antecedents and consequences (Einhorn & Hogarth, 1986). Thus, Lawrence (1997) argues that opening the black box requires more attention to processes. For example, although it might be a difficult study to conduct, one can imagine observing and testing the sequence of events hypothesized by McCain et al. (1983). If one had the data in hand, the next step would be

to test for the existence of sequential patterns (Abbott, 1990).

Fortunately, we have some good tools for describing, summarizing, and comparing sequences. For example, Sabherwal and Robey (1993) use optimal string matching and clustering techniques to describe and categorize software development processes. Pentland and Reuter (1994) use a grammatical pattern-matching technique to describe sequential patterns in technical service routines. Colby, Kennedy, and Milanesi (1991) describe additional techniques for grammatical induction, and Corsaro and Heise (1990) describe methods for deriving "event structures" from ethnographic observations.

All of these techniques are essentially descriptive: they allow us to summarize the observed sequences. In doing so, these techniques can provide a base level of theoretical explanation. After all, unless a sequence of events can be identified, any theoretical explanation will be suspect.

Of course, our conceptualization and description of sequential patterns force a classic tradeoff among simplicity, accuracy, and generality (Weick, 1979). For the sake of simplicity, we often describe processes as a fixed sequence ($A \rightarrow B \rightarrow C$). Unfortunately, this typically entails a sacrifice in accuracy, because most real processes cannot be described as a single sequence or narrative. Rather, even relatively simple processes can generate an enormous variety of different sequences of events (Pentland, 1995). Accuracy is improved somewhat if we attach probabilities to the transitions from one event to the next (Mohr, 1982), or if we introduce loops back to prior steps, as in a flowchart. Indeed, one can perfectly model any given set of observed sequences with these techniques, but usually at the expense of generality, because the resulting model will only fit those specific observations.

Regardless of how we choose to make the tradeoff among simplicity, accuracy, and generality, the logic of explanation is the same. We explain the connection between antecedents and consequences by describing the events that connect them (Einhorn & Hogarth, 1986). However, describing patterns of events does not, by itself, explain the underlying process that generated the patterns (Pentland, 1995). Referring again to Simon, an explanation must draw on

the "structural characteristics of the system" (1992: 159). Explanation requires some insight into what Abbott (1992) calls "generating mechanisms" that drive the process.

GENERATING MECHANISMS AND DEEP STRUCTURE

The search for generating mechanisms in organization theory is roughly analogous to the search for deep structure in narrative. In this section I examine the concept of structural levels more closely and show how it can be applied to organizational theory. Van de Ven and Poole (1995), for example, offer a helpful taxonomy of prototypical generating mechanisms—or "motors"—derived from a survey of the literature on change processes in a wide variety of disciplines. They identify four basic kinds of processes: (1) life cycle, (2) teleological (or goal seeking), (3) ecological (variation and selective retention), and (4) dialectical (thesis, antithesis, and synthesis).

These prototypical process models provide a way of classifying and explaining processes. But they also present an interesting empirical problem: How can we tell which motor is running? As Van de Ven and Poole (1995) note, many specific theories of organizational change are combinations of two or more of their basic "motors" (e.g., life cycle plus teleology). The problem is that these deep structures are never directly observed. All we have in empirical research is the "surface structure," as captured in our obser-

vations. Thus, any explanation that relies on these prototypical process constructs requires careful attention to the connection of surface and deep structure.

The problem arises because we are limited to surface observations, yet our explanations require that we identify the underlying structure. Van de Ven and Poole (1995) refer to this as "template matching," but the conceptual problem is similar to the problem of validity and reliability in variance-based constructs: Given some data, what is the underlying construct? Indeed, unless we can discriminate between our constructs in this way, it is hard to see how we can make much progress in explaining organizational processes.

Levels of Narrative Structure

When the construct in question is a story, then the tools of narrative theory provide some important guidance. The basic problem is how to move from surface levels to deeper levels. Figure 1 integrates the three levels commonly used in narrative theory, with an additional level that is implied by the work of Van de Ven and Poole (1995) and Pentland (1995).

At the deepest level we have the "generating mechanism" that drives the process. As conceptualized by Van de Ven and Poole (1995), for example, this contains an abstract process, such as variation and selective retention or goal seeking. As conceptualized by Pentland (1995), it might be a routine work process, like recruiting

FIGURE 1
Levels of Structure in Narrative

Level	Definition	Example
Text	Particular telling of a story by a specific narrator	Actual text of his or her story: "When I showed up at the interview. . ."
Story	Version of a fabula from a specific point of view	A new employee's own version of how he or she was hired
Fabula	Generic description of a particular set of events and their relationships	How a particular person was hired: what happened, who did what
Generating mechanisms	Underlying structures that enable or constrain the fabula	Overall recruiting process: how people in general are hired

Participants' stories

Researchers' stories

or budgeting, that repeats periodically. Pentland (1995) suggests that this level can be described using a generative grammar, since one nominal process (e.g., recruiting) can generate a nearly infinite number of specific variations. One could go "deeper," of course, thereby engaging in an explanatory infinite regress (the five why's gone wild). It is interesting to note that this level is outside the scope of standard narrative theory, which is more concerned with the way specific events are narrated than with explaining why those events occur in the first place.

Thus, narrative theory begins at the next level up—the *fabula* (Bal, 1985)—which refers to a specific set of events, actors, and their relationships (e.g., who does what, in what sequence, and so on). In narrative theory this level is hypothesized to encode those aspects of a story that are preserved under translation between languages, between media, or simply from one telling to the next (Rimmon-Kenan, 1983). We are intuitively able to recognize stories as "the same," even though the surface details vary enormously (e.g., "the book" versus "the movie"). Thus, a *fabula* encodes an objective version of the basic events and characters required to uniquely identify a particular story. For example, a *fabula* might describe the process by which a specific person was hired. It is important to note that *fabula* are also generative, in the sense that one underlying event structure can be reproduced in many different texts, translations, books, or movies.

The next level concerns the point of view—or focalization (Bal, 1985)—with which the events in the *fabula* are perceived and narrated. This is the level at which narrative voice and evaluative context enter into narrative structure. Focalization inherently introduces subjectivity. To the extent that we strive for objectivity, focalization is a threat to validity, because it is a selective, value-laden rendering of events. In a hiring process, for example, the perspective of the new employee might be very different from that of the human resources department or the hiring manager. As in Brown's (1998) implementation project, one would expect these stories to differ even though they are recounting the same underlying events. Of course, researchers also focalize subjects when choosing what to measure and what to report.

Finally, at the surface we have the specific text of the narrative as told. This is the level at which people account for and make sense of their own actions and those of others. This is also the level at which we generally collect data. Boje (1991) reminds us of the fragmented, elliptical, situated, and strategic nature of this discourse. Even with a specific point of view, there are still infinite ways to actually tell a story. Indeed, enormous variation is possible at each of these levels. A single process can generate many different performances (*fabula*), each of which can be seen from many different points of view and can be narrated with nearly infinite variety.

Stories Can Be Generative

In addition to outlining these four structural levels, Figure 1 suggests that the stories we use to account for and make sense of the world can contribute to the generating mechanisms that produce specific *fabula*. When we explicitly plan our actions to reproduce a familiar story, scenario, or event schema (Mandler, 1984), narrative helps shape the ruts in the road that we experience as organizational routines (Pentland & Reuter, 1994). Of course, many other factors enable and constrain processes, such as technology and organizational structure (Pentland, 1995). To the extent that stories play an active role in shaping our interpretations, expectations, plans, and actions, they are a particularly salient factor. It is important to distinguish, however, between various ways that narrative (re)enters the picture.

For example, we can identify the effects of participants' own stories on their actions. This is the main sense in which I have been discussing the phenomenon. Of course, participants can seek to replicate or avoid any given scenario, and they may focalize it in unexpected ways (e.g., identifying with a different role). But researchers also tell stories—we focalize and narrate the events we study. In the case of macrolevel phenomena, there may not even be real agents capable of narrating their own experiences. Unless researchers are also agents in the process being studied, it is not clear what causal role our narratives could have in generating the actual events. But our existing body of narrative has an obvious and powerful influence over how we focalize and narrate events

that are generated by others. Our explanations can find their way into the discourse of agents who do have a significant role in generating events. Former students may remember an idea from a class, for example, or may read a practitioner-oriented publication that articulates an explanation. The idea of activity-based costing, discussed earlier, provides a fairly strong example of this phenomenon.

The inclusion of researchers' theoretical stories in Figure 1 is a natural outgrowth of a perspective that reveals our own theorizing as a narrative product. We do not just observe events, we focalize them and create stories to explain them. For any particular phenomenon (*fabula*) there may be many alternative theoretical accounts. If nothing else, these accounts should be subject to the same scrutiny as those of our informants. But my purpose here is not to restate the inherent subjectivity of the social sciences; that has been done more eloquently and convincingly elsewhere (e.g., Clifford & Marcus, 1986; McCloskey, 1985; Nelson, Megill, & McCloskey, 1987; Van Maanen, 1988, 1995). Rather, my purpose is to suggest that narrative accounts serve to enable and constrain further action and further accounting, regardless of who produces them.

DISCUSSION

In organizational research we generally have data from the surface (text, discourse, or something equally superficial, like a survey). In terms of the levels in Figure 1, these data are quite distant from the objective story (*fabula*), let alone the underlying generating mechanism. As mentioned above, our traditional concern with validity and reliability (Cook & Campbell, 1979) can be seen as an effort to identify an objective version of the *fabula*. Thus, when confronted with conflicting indicators in our surface-level data, for example, we compute an interrater reliability, or we attempt to "triangulate" with other data sources. When we arrive at a defensible interpretation, we add our version of the story, in our own narrative voice, right alongside all of the other possible versions and voices.

The subjectivity inherent in the research process has generated an enormous amount of effort and debate, with some researchers hoping to eliminate it and others celebrating it. Although stimulating, these debates tend to ob-

scure the really important epistemological problem at the next level down. This is the central problem in creating explanatory theory: Even if we can correctly, objectively identify the *fabula*, how can we identify the generative mechanism? How do we tell which motor is running?

This article suggests three kinds of answers. First, we need to pay attention to all aspects of narrative—not just sequence. Although event-sequence data are central to process, they are insufficient to tell a whole story. Other aspects of narrative, such as focal actors, narrative voice, evaluative context, and other indicators of context, are needed. Second, we need to be aware of the fact that stories may be their own best explanation. That is, agents may be actively attempting to reproduce particular templates of action that arise from their culture, their education, or their own experience. Third, regardless of what approach we take to creating it, we need to understand that an explanation is basically a process theory—a hypothesis about a causal sequence of events. As Lawrence (1997) suggests, we need to open the black box and take a look inside.

So, in concluding this article, I emphasize some key points. First, it is unlikely that we can escape the tradeoff among simplicity, accuracy, and generality in creating process theories. Indeed, if one values simplicity, one might conclude that it is better to skip process explanations completely. But the fact is that we have not done much empirical work here to test where the tradeoffs really occur. For example, Van de Ven and Poole (1995) offer some extremely simple, general process models. One would expect that such models are probably not very accurate when applied to any particular situation. However, there may be examples of real processes that fit these models quite accurately.

This is an empirical question. One source of optimism in the search for simple, general, and accurate models lies in the power of grammatical models to represent a complex, potentially infinite set of patterns with a finite, simple set of rules (Pentland, 1995). This insight has been highly influential in the structural analysis of narrative, where any given story can have an infinite number of surface manifestations. Conceptualizing a process as a grammatical model, rather than a fixed sequence, clearly represents some loss of simplicity. Empirical research is needed to test whether any possible gains in

accuracy and generality can be realized as a result.

Second, although process and narrative are closely connected, some aspects of narrative data seem more relevant, depending on what one is trying to accomplish. In particular, to describe a process, one needs event sequences. But to *explain* a process, one needs to identify the generative structures that enable and constrain it. Although I have argued that, in principle, the necessary data are available in narrative form, this may not be the best or easiest form to analyze. For example, Brown (1998) was forced to reconstruct the stories he analyzed from bits and pieces, because he was unable to collect the whole story from any of his informants. Based on his experience, research that depends on having dozens of whole narratives describing a particular process may be quite difficult to conduct. Nonetheless, Reissman (1983) reviews a number of studies that do just that, and several of the studies described here do as well (e.g., Sabherwal & Robey, 1993).

Fortunately, one can collect indicators of antecedent and contextual factors with all kinds of methods. While narrative itself is a plausible source for such data, there is no particular reason to think that, in any given study, it would necessarily be the best source (most valid, reliable, and cost effective). Researchers in the field will always have to contend with practical tradeoffs as well.

Third, although explanations rely on deep structures, all we ever observe is surface structure. It would seem that reliance on unobservable constructs should be cause for concern, for how can we base explanations on things we cannot observe? But, in fact, the situation is not much different from in other organizational theories that rely on psychological constructs, such as "motivation" or "satisfaction." We are routinely forced to use indicators for constructs we cannot observe—hence, the importance of validity and reliability in our methods. Unfortunately, this points directly to a set of questions that are beyond the scope of this article. How do we measure validity and reliability of process constructs? To the extent that we are forced into tradeoffs among simplicity, accuracy, and generality, as discussed above, our representations cannot all be equally valid. Furthermore, if the constructs in question really are appropriately conceptualized as generative structures (rather

than fixed sequences, for example), the possibilities for misrepresenting them seem enormous.

The unobservability of structure has been, of course, one of the main criticisms of structuralist thinking, especially in the domain of narrative theory (Rimmon-Kenan, 1983). Those with the poststructuralist view assert, among other things, that there is nothing beyond the text itself and that deep structure is a myth. Although legitimate points can be made on both sides of this issue, the perspective I take here is clearly structuralist. Knowing that this is an unfashionable position, I believe it worth pointing out that while I am drawing concepts and analogies from narrative theory, the actual subject matter here—organizational process—is much more concrete. It seems reasonable to suggest that technology, for example, really does enable and constrain our actions, giving rise to routinized patterns of action (Barley, 1986). By comparison, Levi-Strauss's (1968) claims about generative combinations of "mythemes" (semantic units of myth) seem unbelievably abstract. Yet, all of this occurs under the big tent of structuralist thinking. The reader is encouraged to look beyond the label and exercise his or her own judgment.

Finally, although it is a lot of fun to debate the merits of structuralist thinking, we care about its role in explanation because of our need to take practical action. We want to know how changing X will affect Y. Our literature is filled with statements about relationships between constructs that claim to offer an explanation (e.g., "this regression model explains 30 percent of the variance in Y"). But the explanation lies in the story that connects X and Y—not the regression model itself. Knowing that the relationship between X and Y is mediated by a complex, generative process that we cannot directly observe is an interesting and humbling insight. I think this insight is especially valuable when one is considering interventions to change or improve a process. If one conceptualizes a process as a fixed sequence, like a piece of videotape that gets played over and over, one might be tempted to try splicing in a new segment. This is also a kind of "surface-only" perspective. If one conceptualizes a process as a set of interacting roles and subplots that just happen to produce a typical pattern in their current configuration, then there is no tape into which one can splice. But that's another story.

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