Event Sequencing as an Organizing Cultural Principle

Naomi Quinn

Abstract One common cultural organizing principle is event sequencing. This article describes and illustrates two widespread examples of this kind of organization, cultural routines, and cultural templates. Cultural routines organize recurrent activities in time and space. Cultural templates rely on causally linked sequences of more abstract events to support reasoning and narrative. Why should so much of culture be organized thusly? My argument rests on evidence from childhood development and evolutionary history. Recognition of discrete events and their sequencing in routines occurs early in childhood. Although event sequencing is an ancestral trait in humans, it is the full-blown human capacity to understand how the events in such a sequence are causally linked, including intentionally linked, that finds its way into the organization of cultural templates. In taking advantage of event sequencing and causality, culture has piggybacked on human cognitive capacities. It follows that a full accounting of human culture requires recognition of the way both world and brain are organized. [event sequencing, cultural routines, cultural templates, causality]

Over the past decade or so, colleagues and I (D’Andrade 1991, 1992; Strauss 1992; Strauss and Quinn 1994, 1997) have developed a theory of culture as shared cognitive schemas (see also Bloch 1992; Westen 2001). Culture in this theory includes regularities in the humanly created world, both material and social—and hence regularities in the experiences people have who live in this world. Out of these shared experiences are built shared schemas. We take our notion of schemas from cognitive science. Within that discipline, schemas can be understood as networks of neuronal synapses that fire together. These neurons have come to fire together, and even, in the latest neuroscientific understanding, to grow new synaptic connections, as a result of the recurrence of similar experiences (Bailey and Kandel 2004), especially emotionally arousing ones. It is through these recurrent and arousing experiences that schemas build and strengthen in individual brains. “Culture,” in our neuroscientific understanding of it, is nothing more than what happens when some group of people, having shared the same or similar experiences come to share the same or similar cognitive schemas. These experiences include, not only those that are first hand but also what people learn from what others tell them. Thus, the experience of any group is informed by its entire preexisting inventory of shared schemas.

Up to now, however, cognitive anthropologists have not thought much about the organization of these shared schemas. In this article I argue that one common strategy for organizing cultural schemas is through event sequencing. I describe two widespread examples of this kind of organization, cultural routines, and cultural templates. I draw on
earlier insights of Charles Frake, based on his research among two Filipino groups, to illustrate the former, and my own work on American marriage to illustrate the latter.

I consider why so much of culture should be organized thusly. My argument rests on evidence for the evolutionary history and the childhood development of event sequencing in humans. In terms of evolutionary history, the understanding that certain events follow other events in sequence is an ancestral trait. The principle at work is that, as it developed, culture piggybacked on existing cognitive capacities. Cultural evolution, like its biological cousin, takes advantage of what is already there. From the fact that event sequencing is an ancestral trait, we can suppose that this skill was readily available to humans as their capacity for culture emerged.

That event sequencing, and the causal relations that link such sequences, are basic human cognitive capacities is supported by developmental evidence. I introduce experimental research showing that infants are able to parse human action into events. Then I describe other psychological research demonstrating that an understanding of the world composed of event sequences is an early and fundamental capacity supporting the development of children’s later cognitive skills.

I also introduce evidence showing that, while primates and other mammals share the human ability to sequence events, compared to humans, our nearest primate relatives have limited understanding of the causal mechanisms that link one event to another. It is the full-blown human capacity to understand, not just event sequencing, but how pairs of events are causally linked, that finds its way into the organization of culture. Notable is that this capacity to understand causality extends to the realm of human action and intention.

Demonstrating a relationship between the organization of culture and properties of human cognition is key to the understanding of culture itself—its origins, its properties, and its ways of interacting with other aspects of human existence, including social life. The explanation of culture is, or should be, cultural anthropology’s signal contribution to the social sciences. It is perhaps a reflection of how far anthropology has yet to go in explaining this, its raison d’être, that culture is such a badly neglected variable, rarely integrated into research design, and typically only added as an afterthought or paid mere lip service, in most contemporary social science. This defining human capacity has been left wholly unexamined, if not downright dismissed (see Strauss and Quinn 1997:24–36), by the field of cultural anthropology today. I hope with this article to persuade anthropologists and other social scientists that culture is not a mere figment of anthropological imagination, but a real-world phenomenon like any other, the explanation of which can eventually be wrestled to the ground. What follows is a modest contribution to this explanatory effort.

**Cultural Routines**

I begin my examination with routines, which are, for adults as well as children, perhaps the simplest use of event sequencing in the cultural world. The ubiquity of such conventional
routines as part of adult cultural knowledge was recognized several decades ago by the anthropologist Charles Frake, who produced a series of descriptions of routines followed on social occasions, in two different groups in Mindanao, the Philippines—the Subanun and the Yakan. Routines described by this talented ethnographer ranged from indigenous Subanun disease diagnosis (Frake 1961) to Subanun religious rituals (Frake 1964a), to the recipe for making a fermented beverage central to Subanun life (Frake 1964c), to Yakan litigation settlement (Frake 1972), to the everyday etiquette of “How to Enter a Yakan House” (Frake 1975) and the more ceremonial occasion described in “How to Ask for a Drink in Subanun” (Frake 1964b). In this last routine (Frake 1964b:130–131), for example, competitive drinking in Subanun begins when the supplier of the jar of beer invites someone to drink from it, followed by the invitee squatting before the jar and asking (and receiving) permission from the other participants to drink. After this man drinks, he invites another person to drink, and so on. As the occasion continues, asking permission recedes in importance, overtaken by “jar talk” about the quality of the beer being drunk. The topic of discourse changes next to trivial gossip, proceeding then to more important subjects of current interest, and, finally, in many cases, arriving at pending litigation or conflict resolution. If drinking continues long enough, the focus of the talk shifts once again, to verbal display.

Frake (1977:7) made clear that these culturally shared routines “are proposed interpretations of what is happening at some time and place,” each “a conceptual unit whereby we organize our strips of experience in formulating accounts of what is happening, or memories of what has happened, and our predictions and plans for what will happen.” Too, he (1977:7) stressed, such conceptual routines are not fixed in practice but call for improvisation and continual revision. I would add that such sequences of events may contain embedded within them schemas for the execution of tasks required in the course of the routine. Although routines are typically linked by sheer convention or at times by the logical necessity of what must follow what, the event sequences that compose these schemas for task performance may be linked by more than convention. In the Subanun routine just described, for example, who is invited to drink first or who elects to display his verbal virtuosity may be a matter of complex judgments concerning local ideas of rank and relationship. Likewise, a routine for disease diagnosis or a recipe for beer making may depend on local expertise regarding what medical condition or what chemical reaction causes what.

Summing up his research program, Frake clearly saw the significance of how routines like those he identified were organized:

Every situation in life, as it is experienced, can be defined by reference to one or more events that can be construed to encompass it and to lend meaning to what occurs within it. We account for our lives as sequences of eventful chunks of experience. [1977:6]

Frake viewed his work as charting one kind of culturally recognized event sequence: routine social occasions and the concepts that societies provided “for planning, staging, and performing” (Frake 1977:5) these social routines. Their performance, as for instance in
Subanun drinking competitions, required a setting, certain provisions and paraphernalia, an array of participants (sometimes supernatural) with different roles, and successive stages of the routine to be followed, some of which were recursive and many of which were named. Frake (1977:5) argued that “by attending to the way occasions are contrastively defined, classified, distributed among settings, scheduled, and linked by planning sequences,” his and related approaches had “begun to reveal dimensions of cultural structure that do promise to give overall views of a culture’s conceptual landscape.”

Frake’s work sat uneasily among the componential analyses of kin terms and taxonomic analyses of botanical, color, and other terms that characterized the ethnoscience (later known as ethnosemantics) of his day. Although he took pains to describe the taxonomic and paradigmatic relations among the settings, paraphernalia, and roles that entered into routines, his overall framing of social occasions as event sequences remained unconnected to the semantic theory of lexical sets. In the present day context of cultural schema theory, however, we can see that Frake was onto something. Routines are indeed a substantial part of all cultural knowledge.

But routines are far from the whole story—far from revealing “overall views of a culture’s conceptual landscape.” Instead, routines capture the simplest cultural application of event sequences. And, being highly planned and so frequently public and performative, they are one of the easiest types of cultural schemas for anthropologists to recognize and reconstruct. It was insightful of Frake to identify routines as an important chunk of culture. He was mistaken, however, in imagining that an ethnography of all the cultural routines practiced by members of a given society would amount to a complete rendition of that people’s culture. There is at least one other type of cultural schema, besides conventional public performances and other routines, that relies equally heavily on event sequencing. Before going on to consider this further type of cultural schema, I want to say more about routines and their basis in human child development.

What is the specialized work of cultural routines? In functional terms, cultural routines are shared solutions dedicated to a specific kind of task: that of organizing recurrent activities in time and space. As the name suggests, they function to simplify life greatly, freeing up cognitive attention for other, less predictable aspects of experience. Often the social activities so organized are facilitated by being routinized because they require extensive coordination among diverse personnel as well as substantial preparation in the way of advance planning and accumulation of resources.

The event sequences that organize routines are fundamental in two senses. First, this capacity to remember, act in the knowledge of, and anticipate sequences of events is well established in evolutionary terms. Nonhuman primates, and indeed mammals more generally, share this understanding (Donald 1991:153–157; Tomasello 1999:22–23). As Michael Tomasello (1999:22) puts it, this is the ability to understand “basic antecedent-consequent event sequences,” a cognitive skill that nonhuman primates exhibit for relations between physical objects and events as well as social ones. Secondly, events—goal-directed or other-
wise meaningful chunks of experience—and the sequences into which these events are organized, are among human children’s earliest way of making sense of their experience. I next briefly review some key research in child development that supports this latter claim.

Events and Their Sequencing in Child Development

I start with the development of knowledge of single events. Much clever design is currently going into experiments that explore how the child gains an understanding of others’ intentions or goals, the rudiments of which capacity develop in human infants by at least 12 months of age (see Baldwin 2005:124; Woodward 1998:3–4). It would be tangential to the argument I am making in this article to review these studies comprehensively here. I mention just one line of research, the investigation of what has been called “action parsing,” that bears directly on infants’ knowledge of one important kind of event—others’ intentional actions—and the fundamental role this event knowledge is conjectured to play in the eventual development of a fuller understanding of others’ intentions. I illustrate with a key experimental study in this tradition (Baldwin et al. 2001).

In this study, 10- to 11-month-old infants, presumed at that age to be “nearing the cusp of genuine intentional understanding” (Baldwin et al. 2001:710), were familiarized with videotapes in which an adult in a kitchen performed an ordinary everyday intentional action (noticing a towel on the floor, picking it up, and placing it on a towel rack; or noticing a container of ice cream on the counter, picking it up, and grasping the freezer door preparatory to putting it in the freezer). Then the infants were shown the same videotapes altered in one of two ways. In one (the “completing”) condition, pauses were inserted at intention boundary points—for example, just as the actor grasped the towel; in another (the “interrupting”) condition, pauses were inserted midstream in the intentional action—for example, in the middle of stooping down and reaching for the towel. Under the “interrupting” condition, but not under the “completing” condition, infants showed renewed interest in the videotape (as measured by looking time). This effect indicates that the interrupting condition violated the infant’s expectations about how these sequences will be divided. The authors favor the interpretation that infants are sensitive “to the structured sequences of motion coinciding with an actor’s pursuit of intentions,” without having yet developed “any conceptual appreciation of the intentions themselves” (Baldwin et al. 2001:714).

The best guess as to how infants accomplish action parsing is that they detect two kinds of structural regularities in their environment, configurational and statistical. The first of these provides predictable clusters or sequences of features within the motion stream that also happen to coincide with the movements linking the actor’s initiation and completion of goals, such as the change in gaze direction that precedes both direction of movement and contact with the new object targeted by gaze; while the second provides patterns of recurrence among highly specific motion elements such as the motion of grasping a knife always preceding that of slicing vegetables (Baldwin 2005). In the action-parsing task, infants may also be scaffolded by adults’ use of “motionese” (an extension to motion of motherese, a term
coined for the way adults talk to small children). Baldwin and colleagues (Brand et al. 2002) have shown that middle-class American mothers, at least, asked to demonstrate a novel toy to their 6–8-month-old or 11–13-month-old infants, did so in closer proximity, and with greater enthusiasm, a higher level of interactiveness, greater repetitiveness, and movements that were larger and simplified, compared to another group of mothers who demonstrated the same toy to an adult partner. The researchers conclude (Brand et al. 2002:80) that this highly intercorrelated bundle of features “helps infants detect structure in action, and derive meaningful units within the motion stream for further analysis.”

Dare Baldwin offers the following summary of this cognitive development:

Even infants possess inferential skills (such skills are also often termed “theory construction” abilities) that enable them to construct over time abstract notions about goals and intentions as hidden, non-obvious causes for action. Children’s initial intuitions about goals and intentions may be fairly global—that is, they may not understand much about the diverse kinds of goals and intentions underlying different kinds of actions—but become increasingly refined and nuanced as they gain knowledge over time about objects, people, and how people related to objects across differing contexts. Put another way, infants’ theory-construction mechanism operates on segments and categories of action that initially may be largely structurally derived—via sensitivity to configural and statistical structure, for example. It takes these initially structural elements and generates explanations about the hidden, underlying causes of individual acts and of distinct classes of actions. Our assumption is that right from the start of infants’ development, this inferential mechanism is working to “make sense” of the structural entities that arise from infants’ processing of the complex, dynamic motion stream. That is, we suspect there is no point at which infants’ action processing should be described as solely structural in kind, because as soon as structural regularities are registered by infants, their theory construction system will attempt to interpret those structural regularities in deeper, causal terms. At the same time, on this account early sensitivity to structural regularities is essential because it is what gives the theory construction mechanism useful data to “mine” for hypotheses about underlying factors such as ideas about intentions and goals. [2005:135]

Although nonhuman primates and even other mammals may share the capacity to identify intentional actions and other events from their structural features, certainly they do not share the “theory construction mechanism” of human infants (nor is it likely that they benefit from anything like “motionese”). Of course, this distinctively human mechanism for inferring the causes of others’ actions is itself complex, and requires deconstruction into further subtasks. For the purposes of my argument, the important point is that knowledge of how a motion sequence is to be segmented into its intentional parts—its action events—precedes and “bootstraps” (Baldwin 2005:125) the subsequent development of intentional understanding. These experiments illustrate just one kind of event, in which others’ actions must be parsed into intentional units. Presumably, though, children are using configurational clues and statistical patterns of recurrence and caretakers’ cues and theory construction to assist them in discerning other kinds of events, such as physical-world events not involving humans, as well.
This understanding of discrete events allows children to make further sense of sequences of these events. As Katherine Nelson (1986:x) has summarized her position, she and her colleagues “work from the premise that event schemas are the initial form by which children represent experience to themselves, and that more abstract structures may be derived from these schemas over time and with development.” Further, “general event representations are the ‘basic building blocks of cognition’” (Nelson 1996:84). This basic form of representation appears early: “at least from the last quarter of the first year the infant’s organization of knowledge is based in routine events” (Nelson 1996:96). Indeed, in Nelson’s view, this cognitive capacity is “built in”:

The basic thesis is that the child begins to build representations of her world based on her experience in it. These representations, or models, are no doubt constructed according to principles that are “built in” to the human cognitive system, that is, that have an evolutionary, biological basis. For example, it is a premise here that events are parsed as sequences of actions through time and in space, that this is a basic characteristic of human cognition (and may be true of all mammalian cognition). [1996:5]

The particular shape of the event sequences that the child learns is susceptible to cultural variation in the following way:

It is a further premise that what is important to the infant are the events that she partakes in, with particular attention to those that lead to comfort (feeding, soothing, sleeping, socializing) and discomfort (pain, hunger, noise, cold). Primary caretakers—parents or others—play the most important roles in these events, and their habitual activities as displayed to the infant can be expected to enter as major constituents of her models. [Nelson 1996:5]

Over time and with experience and development, children become capable of more abstract event schemas, and acquire other capacities, such as categorization, hierarchy, and conditionality, that augment the more basic representation of event sequences (Nelson 1986). Children’s later emerging ability to tell stories, for another example, is supported by their understanding of event sequences.

Nelson describes how children are first passive participants in routines arranged by adults—in her research, the caretaking routines of middle-class Americans—and gradually come to be actors in these events:

These routines are at first completely under the parent’s control. But by the middle of the first year the child begins to respond to the reciprocal demands of the routine, playing an increasingly participatory role. Parents tend to institute signals, explicit and implicit, that provide guidance to the child’s anticipation and participation. For example, a mother may routinely ask, “Do you want lunch now?” before heading to the kitchen, or, “How about a bath?” as the accustomed hour draws near. Babies toward the end of the first year respond to these verbal, and nonverbal, signs, typically following or even preceding the parent in the expected direction. Parents often find that their young children begin to demand a part in the action, even before they can successfully carry through; such demands are strong indicators that the child has internalized the social
routine and knows the roles to be played. These observations are commonplace among parents and caretakers generally; their significance for the child’s growing knowledge schemes cannot be overstressed. What the child has come to represent is not simply some equation between the word “bath” and the event BATH, but a representation of an entire event sequence that incorporates the word as well as the props and the sequence of actions that constitute the event. [1996:97]

Of course, children’s baths and their timing and location and associated props are a cultural routine familiar to Americans, susceptible to variation across households, to be sure, but having many recognizably shared features. Nelson does not consider what verbal or nonverbal signs, from what caretakers and other persons in their immediate world, assist children in other societies in picking up that society’s cultural routines. The assumption is that whatever these routines, however standard or variable they be, and however children learn them, they are among the earliest knowledge that children everywhere are equipped to acquire.

The Cultural Template for American Marriage

Now we turn from a consideration of routines to a consideration of another widespread kind of cultural knowledge that depends on event sequencing. I myself first noticed the role of event sequencing in the organization of cultural knowledge when I was reconstructing, from interview discourse about marriage, what I then simply thought of as the cultural schema, but now wish to rename the cultural template, for American marriage.

Throughout this article, I refer to the cultural template for American marriage. My own research was not designed to investigate in any systematic way how widely distributed this schema is in the United States. However, as far as I have been able to ascertain through inquiry and reading (see, e.g., Bellah et al. 1985:85–112; Cherlin 2009), it is not just widespread but was at the time of my research in 1979–80 and still remains—in spite of some gradual historical change—the dominant way of thinking about marriage among Americans. There are certainly groups within the United States, such as religious fundamentalists or first-generation immigrants, who hew to variants of this cultural schema or depart from it altogether. However, any American would appreciate, and presumably even these fundamentalists and recent immigrants would agree, that theirs are not the standard way of thinking about marriage in the United States. For the sake of brevity, I do not mark this cultural schema as the “dominant” one every time I refer to it, but this qualification should be understood. I describe this template as “American,” using that descriptor to refer to residents of the United States of America in distinction to our North American neighbors. That is, I am using it at the same taxonomic level as “Canadian” or “Mexican,” and not more inclusively to refer to all of North (and South) America.

My interviewees in 1978–80 were 22 husbands and wives in 11 marriages, recruited from the residents of a middle-sized Southern town and its environs. All were legally married (which also meant, in those years, that none were gay or lesbian), and in first marriages. All were native born and English speaking. In terms of diversity, interviewees were roughly

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representative of the ethnic, religious, regional, class, and educational make-up of this town—except that they were slightly more highly educated than average, and weighted toward those who had grown up in the South. Specifically, both spouses in three of the marriages identified as African American or black. The marriages themselves ranged from 1 to 27 years in duration. With regard to cohort, seven individuals in these marriages were born in the 1920s and 1930s, seven in the 1940s, and the remaining eight in the 1950s.

Spouses were interviewed separately, and were encouraged—starting with the ordinary question, “How did you and your husband/wife meet?”—to take control of the conversation and to tell everything they thought was worth telling about their marriage. To this end, at roughly weekly intervals for roughly an hour each time, these married Americans were interviewed until they had nothing more to say—ranging from a taciturn 11 hours to a garrulous 28. Interviews were tape recorded and transcribed. I have been analyzing and writing and thinking about them ever since.

I use interview material from this study to take discussion of the cultural use of event sequencing beyond such sequencing in cultural routines. The event sequence that sits at the core of the cultural schema for American marriage that I identified differs somewhat from many cultural routines of the sort Frake described, in being more abstract than the sequence of events that composes a typical routine, with its on-the-ground setting and concrete provisions and paraphernalia. Nevertheless, this schema for marriage can readily be understood in terms of Frake’s definition of routines as “conceptual units,” albeit abstract ones, for organizing experience and interpreting “what is happening.” For instance, in the schema for marriage I have reconstructed, some key events are compatibility between the spouses, and the difficulty that achieving such compatibility poses for a marriage. In the longer sequence of such happenings that surround compatibility (or incompatibility) each event leads to the next. Typically, each causes the next—for example, lack of compatibility causes marital difficulty.

Although spousal compatibility and marital difficulty are abstractions, for most married people, concrete instances of them can readily be recalled or imagined. Different couples, as we shall see, can define a compatible marriage in different ways—like a husband to be quoted shortly, who rejects compatibility based on minimizing differences between spouses, in favor of compatibility based on fostering the autonomy of each spouse. Likewise, different people can experience different kinds of difficulty in marriage, including but hardly limited to the suspicion of marital infidelity that preoccupies a wife also to be quoted. Even the more specific spousal autonomy and marital infidelity are not concrete, on the ground, occurrences. Rather, they are cover terms for concrete events, often summaries of a series of repeated such events. When interviewees talk about these matters, and especially when they tell stories about them, the abstract components of the model often assume concreteness—a specific occasion, say, when the suspicion of a marital infidelity arose. As the material I next reproduce shows, the way my interviewees reason about marriage and narrate stories about it demonstrates that they command knowledge of the abstract conceptual units that compose the American cultural schema for marriage on which they are relying, the different
kinds of events that can count as cases of these concepts, and concrete instantiations of each of these kinds in actual or hypothetical experience.

As I have reconstructed this cultural schema from interview discourse (see Quinn 1996, 1997a, 2005), most Americans believe that one falls in love and gets married. I identified three strong expectations of marriage: that it will be shared, mutually beneficial, and lasting. A shared marriage involves living together and sharing various experiences, including a marked degree of intimacy, however a couple defines these. Mutual benefit requires the fulfillment of each others’ needs, which may also be variously defined—and as we shall see in one case to be described, can sometimes be cast—negatively—in terms of the cost to a spouse of not having those needs fulfilled. Finally, a lasting marriage is, simply put, one that does not end in divorce.

The two imperatives of mutual benefit and lastingness entail different views of marriage, and the two can, and often do, conflict. On the one hand, marriage is viewed contractually. If, in spite of all effort to overcome marital difficulties, a marriage turns out not to benefit both parties in the sense of being fulfilling to both, Americans understand that it should be ended. On the other hand, it is viewed in what would seem to be a historically older way, as an unbreakable bond—as reflected in the traditional marriage vows. By this view, marriage should never end (except on the death of a spouse). Undoubtedly, the model I am describing, and the conflict it poses, still frame many if not most contemporary American marriages. But, even though I am simplifying by casting my description in the present tense, the more traditional view of marriage as a contractual agreement that the spouses will assume designated roles may be gradually losing ground nowadays to the newer view of marriage as a matter of self-fulfillment for both (Cherlin 2009). In 1980, when my interviews were taken, the conflict between traditional roles and self-fulfillment was perhaps at its historical heyday.

The resulting cultural model of marriage forges an accommodation of sorts between the two conflicting views. Once entered on, marriage conceived of in this way shortly and virtually inevitably encounters difficulties. It is typically begun with little forethought (falling in love being so precipitous a phenomenon. With computer matchmaking, this feature of marriage may also be lessening today.) Because of this lack of forethought, unanticipated incompatibilities shortly emerge. It is also recognized that incompatibilities can arise later in marriage, if spouses change in such a way that their needs are no longer met within the dynamics of the existing partnership. It is these unforeseen incompatibilities that stand in the way of fulfilling partners’ needs. Indeed, spouses may not even know, at the outset, what each others’ needs are or how to meet them. Marital difficulties ensue. How to resolve marital difficulty to have a mutually beneficial marriage, one that fulfills both spouses’ needs, so that it can last? Most Americans meet this challenge when it arises in a classically American way, by making the effort to overcome marital difficulties so that the marriage can endure. That difficulties can only be overcome by effort, that of each spouse and of both collaboratively, is widely understood by Americans to be a general approach to all manner of difficulties encountered in life. It is how to succeed. Applying this parlance to marriage, Americans typically equate a lasting marriage to a successful one.
Besides their abstractness, another distinctive feature of cultural templates like this one I have outlined for marriage is that the events in the sequence are typically linked, not just by convention or logical necessity, but causally. I am using “causality” loosely to cover any kind of explanation for why one event should be predicated on another, other than sheer convention (the informant’s classic response to the anthropologist’s query why—”It’s the custom”), or logical necessity (one is conditional on the other). Interviewees sometimes do speak in a shorthand that seems to reduce causal relations to those of identity. For example, discussing how he and his wife are compatible in terms of having complementary strengths and weaknesses, a husband concludes, “These are the assets that have been very good for us” [6H–4], implying an identity between compatibility and marital benefit.10 Immediately, however, he continues,

And I suppose what that means is that we have both looked into the other person and found their best parts and used those parts to make the relationship gel, and make the relationship complete. [6H–4]

Here he makes clear his assumption that one condition, compatibility, causes the other, benefit, expressing this relation of causality as used x to make y.

Perhaps a better candidate for a relation of identity is that between marital lastingness and marital success. For example, a wife observes that there isn’t any sign right now “that our marriage isn’t going to be a successful one in terms of lasting” [9W–10]. To be considered successful, a marriage must be lasting. (Joking remarks like “I had a very successful marriage for the three years that it lasted” actually validate this relation by violating it; that’s the joke.) Contrariwise, a lasting marriage need not be successful. As another wife says of some marriages, “It’s good enough to stay in it. You’ve got your kids, you’ve got your house, that kind of thing.” She then goes on to describe how hard it is to achieve a meaningful relationship in which “you actually like being together” [5W–1]. Lastingness is a necessary but not sufficient condition of marital success. I do not insist that all links in the event sequence that composes a cultural template need be causal; but causal relations predominate in such templates.

Adult humans appear to have an extensive and flexible ability to understand the causal relations that pertain between events, a capacity imported into culture. Thus, in the case of the cultural template for marriage, they understand, why incompatibility leads to lack of mutual benefit, why such a lack of benefit is the cause of difficulty, why the difficulty can only be overcome by effort, why overcoming marital difficulties by effort leads to a lasting, successful marriage and, conversely, why not addressing or meeting these difficulties can lead to divorce and marital failure. Cultural schemas like this one are full of such causal assumptions, although these are usually left implicit in everyday talk, being unnecessary to a point at hand, and distracting from the felt urgency and rhetorical limitations of explaining a decision or telling a story. Thus, these cultural schemas encapsulate, not sequences of events alone, but an enormous amount of knowledge about the way these events are connected, and especially about the human psychology—including not just thoughts, but also emotions and motivations—that underlies these connections.11
By adulthood, one has learned many, many such cultural schemas. Culturally shared event sequences like that for marriage serve as fundamental, bare bones templates for thinking with, which is why I have chosen to term them cultural templates. By contrast with routines, that function to organize time and place, cultural templates are more abstract schemas that support at least two specific cognitive tasks. These are tasks that require not just knowledge of the sequencing of events but also knowledge of how these events are causally linked. Whether all cultural templates are organized as causally linked event sequences, as I argue is the case for the one I am exploring here, I cannot say at this time, although I am guessing that this organizing principle is widespread. Nor do I have much to say, presently, about other kinds of cultural schemas, beyond routines and cultural templates, that may employ event sequencing.¹²

Next I illustrate reasoning and narrative about marriage, to show how both of these ordinary everyday cognitive tasks are supported by this widely shared event sequence, the American cultural template for marriage. I have not previously published on the narratives in these interviews, and the examples of reasoning I present here are new.

**Reasoning about Marriage**

My interviewees’ reasoning about marriage is sometimes about their own marriages, sometimes about the marriages of others whom they know, and sometimes about what they think is happening to American marriage more generally. Like all reasoning, thinking through marital issues sometimes serves to resolve one’s own views for oneself, but perhaps even more often it is intended to communicate these views to someone else, the listener (here, the interviewer). The reasoning being done may even be worked out on the fly as it is being communicated. Whatever the case, the reasoning Americans do about marriage is underpinned and supported by their cultural template for it.

Here is a series of four examples of interviewees’ reasoning, that illustrate how each event in this cultural template is strung together and causally linked with the next. Another more extended example, illustrating several different ways of rendering causality in English, is analyzed in Quinn 1987. A number of other examples are provided in Quinn (1996, 1997a:167–175).

In the first of these passages, a husband, Lee, reports on his wife’s realization that participation in this interview project has made her reflect on the soundness of their marriage. He compares their own situation to that of other married people for whom incompatibility causes difficulty:

That ours is not a mercurial kind of relationship at all. That it’s relatively stable expectations of each other, relatively consistent, and our expectations don’t change much. I think that can be a problem too with some people. It’s one thing to say, “Alright we’re on an even keel right now,” but if your expectations change over a period of time and your partner doesn’t keep up with that or doesn’t feel the same way then there’s potential for conflict. [7H–6]
The argument with which Lee closes this passage is that, over the course of time, a growing lack of compatibility (here, changing “expectations” on the part of one spouse that the other does not “keep up with” or “feel the same way about”) causes marital difficulty (the “problem” that people can encounter, and the resulting “potential for conflict”). Such people, falsely secure in the belief that they are “on an even keel right now” (Lee favors sailing metaphors) may be taken by surprise by this change. His own marriage, with its stable expectations, does not face this difficulty. Causality between some other people’s spousal incompatibility and marital difficulty is rendered explicitly in this passage in the formula, if \( x \) then \( y \).

The next passage illustrates reasoning about the relation between marital difficulty and marital benefit. A woman who shall here be named Myra succinctly sums up the state of her marriage:

But, you know, for the most part I think we’ve—we’ve resolved the problem or problems, enough so that I think we are happy with each other. To me there are a lot of couples that are not—I don’t think they’re happy with each other. I mean that’s the only way I can really describe it. \[8W–5\]

Marital difficulties get in the way of marital benefits. Overcoming the difficulties (“resolved the problem or problems”) in this case has allowed the marriage to be beneficial (“we are happy with each other”). Interviewees not infrequently used the emotion state, happiness, to stand for a beneficial marriage, because it is understood that the spouses so benefitting are happy, and the marriage thus a happy one. In this passage, causality is expressed in the construction, \( x \) so that \( y \).

Consider, next, a passage illustrating the link between marital difficulties and marital last- ingness. The speaker, Irv, muses about the times in his marriage when one particular difficulty might have been decisive in ending the marriage:

The kinds of occasional trials and tribulations in regard to sexual relations that I suspect is—pretty typical, and I can easily see that there have been times where, if I had been inclined for other reasons, then this would have been—put me way over the top in regard to wanting out. \[10H–8\]

The “trials and tribulations in regard to sexual relations” of which this man speaks are marital difficulties in this realm. Left implicit is that these difficulties arise out of sexual incompatibility, and lead to unsatisfactory sexual relations, sex often being viewed by these interviewees and other Americans as a key benefit of marriage. Irv reflects that, had these sexual difficulties been compounded with “other reasons”—presumably he is thinking of other incompatibilities, other difficulties, or lack of other benefits—the additive effect would have led him to seek divorce (“wanting out”). Causality, once again, is expressed grammatically as if \( x \) then \( y \).
The final excerpt comes from an interview with Harlan, who is talking about the divorce of close friends. That marriage ended after many years in which the wife “had been sort of suppressed so much as a person that there was a need to break out and just run away from this whole thing” (8H–3). The speaker goes on to draw a contrast to his own case, in which his and his wife’s efforts to achieve mutual benefit led their marriage to last:

Maybe seeing that marriage and what happened to it sort of reaffirms the fact that maybe it’s worth it to kind of struggle along and allow each person to be kind of what he wants to be. And it could be that, you know, over the long haul, that may be putting a little bit more cement in our own relationship than maybe I kind of gave it credit for doing earlier. [8H–3]

Harlan reasons that because he and his wife did “struggle along,” they achieved, “over the long haul,” the level of autonomy that allowed them each to find self-fulfillment in their marriage. Having thus found a way to “allow each person to be what he wants to be” accounts for the “cement” in his marriage. Or, in my analytic terms, once again, effort (presumably, to overcome difficulties) enables mutual (“each person”) benefit, which in turn causes (or at least makes a critical contribution to) a lasting marriage (for which cement is a metaphor). Causality between effort and benefit is expressed by the order of events, in the phrase “to struggle along and allow each person to be what he wants to be: x and y. As Charlotte Linde (1987:347) explains, English speakers routinely make “the assumption that the order of a sequence of sentences or main clauses matches the order of events.” Further, “the natural order of English is post hoc, ergo propter hoc.” That is, the order of events supports a further assumption that the earlier event has caused the later event. Causality between benefit and lastingness is signaled in the phrase, “may be putting a little bit more . . . “ That is, x is contributing to y.

If I were to speculate, I would guess that using reasoning as a guide to action, and being able to do this every day reasoning relatively effortlessly and quickly—at the speed of speech production—was the impetus for the evolution of cultural templates (see Quinn 1997a:164–167). Most often, as in most of the instances just quoted, speakers are intent on reasoning about just one causal relation, from one event to another. They may, as some of these speakers do, leave prior or intervening events implicit. Sometimes, as in the last case, they reason across two (or more) links in the sequence of events.

Often, too, speakers capture events in the cultural template in the metaphors they use, as they do in these last interview excerpts when they speak of “the problem or problems” they have had or consider what their marriage has been like “over the long haul” to convey marital difficulty, or characterize the marriage as being “on an even keel” to mark the current absence of such difficulties; or when they talk about the “cement” in the relationship to capture the lastingness of their marriage, or “wanting out” to express the possibility of the marriage not lasting (see also Quinn 1991, 1997a). In some cases, metaphors not only stand in for single events in the sequence but also actually do the reasoning that links events. I have elsewhere argued (Quinn 1997a:147–148) that metaphors for marriage as a manufactured
product and those for marriage as a journey are so frequently selected to talk about marriage just because they map so obviously across several causal links in the cultural template for it, and hence afford a ready and compelling way of expressing these causal relations. Thus, for example, the manufactured product metaphor can convey how care in manufacture (effort) results in something that fits together well (compatibility) and hence is well made (and lasting). The journey metaphor can convey the hazards and perils (difficulties) of the journey and how, by overcoming these, (through effort), a couple may finally reach their destination (a lasting marriage).

**Narratives about Marriage**

The most obviously cultural narratives are those that are “entextualized”—that is, “relatively fixed, shareable and transmittable” (Hill 2005:n 5) tales told and retold in a community. Before turning to the narratives that my interviewees do tell, let me give a brief illustration, from another society, in which there does exist an entextualized marriage narrative. A fine published example of such, one that highlights the sequencing of events internal to narratives, is the two different versions of the La Llorona tale recorded by Holly Mathews (1992) in a Oaxacan Mexican community. These two versions are told to newly married men and women, respectively, as cautionary tales about the behaviors on the part of each that can endanger their marriages. Event sequencing is evident in even the briefest segments of these stories. For example, one male story goes, in part, like this:

> But then one day she became cold to him and slept away from him. At first he was filled with *tristeza* (sadness) and he did not understand. But then he found another woman and began to visit her. [Mathews 1992:147]

This story segment (Mathews 1992:151) illustrates the sequence of events in which a violation of marital obligations by one spouse leads to an emotional reaction (here, *tristeza*) by the other, and that spouse, motivated by that emotion, then takes some counteraction. As the tale unfolds, this chain of events, composed as it is of a sequence of behaviors, each one perfectly ordinary and believable, ultimately leads to a tragic result—the wife's suicide by drowning. Mathews argues that it is the way these quite ordinary, believable events so inevitably lead, step by step, to this tragic outcome, that lends this tale its moral force.

I know of no entextualized narratives about marriage in common usage in the United States that are anything like this one from Mexico. However, the individualized narratives that Americans tell about their marriages are no less culturally patterned than the folktale from Oaxaca. Narrative, of course, is all about sequences of events. For the American narratives about marriage to be considered next, this is true in two senses. In the most obvious sense, all narratives are internally structured by the sequence of events they relate, their telling depending on the ability to sequence events. But there is another level at which the events told in American marriage narratives are sequenced. As we will shortly see, these narratives are framed by the larger cultural template, a more abstract sequence of events, within which Americans think about marriage.13 Were we to reconstruct other cultural
templates, we would find, I believe, that they, too, framed other narratives as part of a larger sequence of events.

These American narratives about marriage come in two forms: stories and generic or habitual narratives. “Generic narratives” is from Polanyi (1989:16), while Riessman (1990:76–80) terms the same discourse structures “habitual narratives.” Of the two genres, a story recreates a discrete moment in time, while a generic or habitual narrative describes ongoing (either past, present, or even future) states of affairs. Correspondingly, different verb tenses are appropriate to each genre. I use the general term narrative to refer to both stories and generic narratives.

A generic narrative. Let me first give an example of a generic narrative about American marriage. Generic narratives like this one are far more common in this interview material than are stories. Here, Harlan—the same husband quoted earlier about putting a little more cement in his marriage—is ruminating in the same vein in a later interview about the transformation that has occurred in his and his wife’s understanding and enactment of compatibility:

[I]n the early days I think it was more of a concern about trying to please one another and trying to be sort of at one—to minimize differences and to sort of merge into one being, you know, basically wanting to do the same things together kind of thing. And then over the years you kind of realize that, you know, we are different, we do have different interests, we’re very different people. But at the same time, what we sort of realize is that’s not bad, that you’re different and that, you know, this is really a plus, rather than a minus. And, as the years go by I think there is more of a conscious effort on our parts to sort of foster in the other, you know, sort of an opportunity to—to be what it is that they want to be, and not worry so much about, you know, submerging one person or the other. And trying to, you know, achieve some unanimity because, yeah, it just doesn’t work. ‘Cause when you try to do that, things kind of bust out sideways anyway. [8H–10]

Up to this point, the narrative depicts the following sequence of events: “the early days” of this man’s marriage in which compatibility was sought, presumably over repeated failed attempts, through what he characterizes as “minimizing differences” to “merge into one being”; next, a period of gradual realization—”over the years”—that there was another, better, way to think about compatibility; resulting, finally and through “conscious effort,” in their acceptance of their differences, to the point of fostering each other’s needs “to be what they want to be.” This latter kind of compatibility has best met this couple’s strong needs for autonomy; that is, it has permitted the need fulfillment that was critical to this marriage being mutually beneficial. Thus, the generic narrative this husband tells to this end is organized as a series of stages. It allows him to unpack, and relate to his own marriage, two key components, compatibility and benefit, of the event sequence that composes what I have identified as the American cultural template for marriage.
Harlan closes this segment of his narrative with what can be considered, in William Labov’s (1972:366–375) terms, the narrative evaluation—an element in the overall structure of a developed narrative that provides its point. The evaluative point is that one definition of compatibility, “unanimity,” however hard a couple tries to achieve it, leads to “submerging” one or the other spouse. This is ill-advised, this husband reasons in conclusion, “because it just doesn’t work.” That is, it doesn’t result in marital benefit—most obviously perhaps for the spouse who is being submerged, but for both spouses in the sense that both lose the opportunity to define compatibility in a way that is ultimately more satisfying to both. A marriage that is “working” or “not working” is a metaphor commonly used by these interviewees to describe marital benefits or their lack.

The narrative continues, next taking a comparative turn. Harlan goes on to compare his own to other marriages he has known, and in particular to the marriage of close friends, about which he has spoken in earlier interviews. In his second interview, he had reported his shock when that marriage “suddenly broke up,” because “We had no warning. If ever a marriage was nailed in concrete that was the one” (8H–2). Then, in his third interview, he had compared his to this other marriage once again, to produce the piece of reasoning about putting more cement in his marriage over the long haul, analyzed earlier. Once again, in Interview 10, he returns to this same example, to describe in greater detail what he thinks happened in that other marriage. Again, the narrative sequence unfolds in stages. Directly following on “‘Cause when you try to do that, things kind of bust out sideways anyway,” he muses that the other marriage seemed to be “nailed in concrete when it was going along for seventeen or eighteen years.” This was only on the surface, however. In actuality, “one person was sort of being dominated and kind of smothered in the thing.” Then, to the surprise of others, “all of a sudden all hell broke loose.” Ann Swidler, in her study of middle-class Californian marriages notes (2001:124) that among her interviewees, “those who were married used the prevalence of divorce as a cautionary lesson.” Harlan draws just such a lesson from this divorce: “I guess it is important,” rather than one person dominating the other, “that each person sort of have some room to maneuver around and kind of achieve his own identity and personhood” [8H–10]. This comparison of two marriages dramatically restates, and expands on, the evaluative point of the narrative.

It is critical to note, however, that even as marital benefit is being unpacked in this narrative, it is structured by the cultural template that specifies not only the causal relations between effort and benefit, benefit and lastingness, but also those causal relations providing the background to the narrative, explaining the relation between incompatibility and effort.
effort and difficulty, difficulty and lack of benefit. This cultural template frames narratives about marriage as surely as it frames reasoning about it. If the stages that compose Harlan’s marriage and that of his friends supply the sequence of events internal to the narrative, the cultural template for marriage supplies a larger sequence of events within which his narrative is situated, and within which other Americans can make sense of it.

A story. Consider, for a final narrative example, a simple story that Kay, a young wife in my study, told about finding a bottle of mascara in her car after her husband had borrowed it. Like all narratives, this story is structured internally as an event sequence—her discovery of the mascara; her call to a girlfriend with whom she had recently gone shopping in the car, to see if it was hers; her growing suspicions of her husband; and a longish series of tense and inconclusive exchanges she has with him about the mascara as he tries to laugh off her worry. The story is punctuated by her thoughts about each of these conversations—each conversation and her analysis of it motivating the next. Here is an excerpt from the middle of this story that illustrates its structure as a sequence of events, which include reported speech:

I finally called her [the shopping friend] and I said, “This is going to really sound strange.” And I didn’t want to go into detail, “But I found some mascara in my car, is it yours by any chance?” She said, “No. I don’t use that kind, Kay.” That was the last hope I had left. I said, “Okay, I appreciate it.” So I called Bobby on the phone and I said, “Bobby, what did you do last night?” I was really calm about the whole thing. He said, “Well Jeff and I went to, you know, to play golf and then we went to Chili’s.” And I said, “Okay.” I said, “Well, I found some mascara in the car this morning and it doesn’t belong to me.” And he said, “Well, it doesn’t belong to me.” And I said, “I know you don’t wear mascara.” And we were really laughing about the whole thing. I said, “I thought maybe it might be one of your friends.” And he said, “I don’t think Jeff wears mascara.” I mean he was so calm about it and I said, “Well, okay.” I said, “Are you sure no one else might have been in the car.” He said, “No, Kay, nobody was in the car.” [1W–2]

Immediately after telling the mascara story, the speaker comments,

I told him, “If you ever want to run around on me I would prefer that you would just leave me temporarily. I don’t care if it’s for a week. Don’t do it while we’re living together.” And I would do the same thing for him. Because, you know, my father ran around on my mother and I saw what it did to her and I can’t do that to somebody. And if I ever got to the point where I wanted to go out with someone else, I would leave him first. I don’t care if it was for a week—moved home for a week and dated somebody else and then came back to him. I would do that before I would do it behind his back. I don’t think I could do that. [1W–2]
This is a somewhat lengthy external evaluation of the story. The point it makes, that the story illustrates, is the unacceptability to this wife of marital infidelity.

The speaker next segues into a long account of why she is obsessed with the possibility that her husband had another woman in the car—providing the personal history of her evaluative concern. It is because her stepfather was an outrageous womanizer, causing many bitter marital quarrels on his return late at night, quarrels that, as a little girl, she overheard, and that culminated, at last, in her mother evicting her stepfather. About the years when her mother let her stepfather run around on her, Kay [1W–2] speculates that her mother may have stayed in the marriage as long as she did, trying and failing to “make it work” because she had already divorced once before, in spite of coming from a family of “country” people who deeply disapproved of divorce. Kay concludes, forcefully, that she herself “wouldn’t let somebody walk all over me like that,” regardless of her mother’s rational: “But still, I mean, husbands treating you that bad, you don’t just sit there and take it.”

Ultimately, it is the harm done, the cost or negative benefit to the mistreated spouse, that is the issue for Kay, who felt such compassion for her mother in this situation: “my father ran around on my mother and I saw what it did to her and I can’t do that to somebody.” The exact nature of this harm is further spelled out later in the same interview, as Kay continues to contextualize the mascara story. She declares that she would prefer her husband tell her if he is having an extramarital affair. Not only does she not want to be made a fool of but also doesn’t want a “false relationship” in which she believes that he loves her when he doesn’t. “I want to know,” she says, “that the whole time together everything is completely real, you know that he’s not pretending to love me while he’s out dating somebody else” [1W–2]. This could not be a clearer statement of what Kay wants in her marriage. This, for her, crucial marital benefit is accompanied by the further expectation, voiced in the earlier excerpt—”And I would do the same thing for him”—that is, that marital fidelity be mutual.

She goes on shortly in the same interview to emphasize a further dimension of this clandestine infidelity, the lack of honesty and truthfulness in such a marriage: “Once you start telling lies to each other about where you’re going to go out and be with somebody else, what’s left? I mean if you haven’t got honesty in a marriage and truthfulness, what is there?” [1W–2]. This metaphor, of a possession that a couple “has” (or doesn’t have) “in a marriage” is a common one for marital benefit.

Finally, adding one last layer to her evaluation of the mascara story, Kay goes on to reason that this “problem” of marital infidelity is the major cause of divorce. That is, lack of the benefit of real love, and the attendant pretense, is a fundamental marital difficulty that ultimately causes a marriage not to last:

I don’t worry about actually getting the divorce. I think I worry about the things that are going to cause the divorce. And that is the running around or whatever your problems might be. The reason you would have a—get a divorce. [1W–2]
Like many of those that people tell about their marriages, this is a story about a marital difficulty and how it is (or, in some cases, is not) resolved. As has often been observed, trouble makes good narrative. And this trouble narrative about the unaccounted-for mascara brings an emotional immediacy to this wife’s assertion that she worries first and foremost about the possibility of her husband running around on her. Told in story form, it is if anything even more dramatic and compelling than Harlan’s generic discourse about how he and his wife figured out how to make their marriage fulfilling to both of them.

But the significance of the story—and the reason for the tension displayed in the taut back-and-forth dialog between its protagonists—is that it raises exactly the kind of difficulty that, in the narrator’s mind, compromises necessary marital benefits and hence is likely to lead to divorce. So this wife’s story is cultural, and hence familiar to Americans, at two levels. Most Americans would recognize it as a description of a familiar marital plight—suspected marital infidelity (as they would likely recognize the not-so-uncommon marital problem described in Harlan’s story, domination of one spouse by the other). Of course, the way this woman defines marital benefit has been determined by salient experiences in her own past that make marital infidelity a key marital cost, and such a salient worry for her. And, with this wife, Americans also recognize, more generally, that this difficulty, like other kinds of marital difficulty, if left unresolved can lead a marriage to end. This wife’s story about the mascara she found in her car, the previous teller’s generic narrative about how he and his wife learned to put more cement in their marriage, and other narratives about marriage make sense to Americans. They make sense because they are pieces of a cultural template that Americans share.

It should now be clear that, in addition to the mammalian capacity to sequence events that routines and cultural templates both exploit, templates like this one for marriage display a further, uniquely human cognitive capacity. This is the capacity to think causally. I now turn to the evolutionary basis for this important piece of the cultural puzzle.

**An Evolutionary Advance in Understanding Causality**

In considering why so much of culture should have come to be organized in the way it is, my argument has been that cultural evolution has taken advantage of the existing cognitive capacity to sequence events. Cultural templates take further advantage of an important newer advance in this capacity. This advance, which begins with nonhuman primates but becomes more fully developed in humans, has to do with comprehension of the causal relation between one event and the next. For example, humans understand the intentions behind others’ actions, a skill that we have seen begins in infancy with the parsing of others’ action events into their intentional units, even before others’ intentions are fully understood. More generally, we are facile generators of hypotheses about why one thing leads to another. Cultural evolution has heavily exploited both the older cognitive capacity to sequence events, and this newer cognitive capacity to comprehend the causal links between pairs of events in such sequences.
Nonhuman primates’ command of this new skill falls short of humans’ in key respects. In one research laboratory where much attention has been devoted to this issue, a key set of experiments has explored these limits (Tomasello and Call 1997:88–99; Visalberghi and Tomasello 1998). The experiments, conducted with chimpanzees, capuchin monkeys, and human children, use a “trap-tube task” that simulates a novel foraging problem. To obtain the food, the subject has to use a stick to push it out of the tube. However, the tube has a trap hole in the middle. To solve the task, the subject must insert the stick into the end of the tube from which it can push the reward out of the tube and not into the trap. Only one capuchin of four and two of five chimpanzees solved the task above chance level, but then only after a great many trials. Moreover, the one successful capuchin proved to be using a purely associative strategy that did not depend on understanding the causal relation between avoiding the trap and getting the food. The two chimpanzees may or may not have come to understand the causal relation that pertained between food and trap. If they did, it was only after repeated trials. Children three years of age (but not younger) succeeded in the task after only a few trials, and were able to explain why they chose one side of the tube and what would have happened otherwise. Moreover, the chimpanzees’ understanding is inflexible in the face of task modification: When the tube is flipped over so that the trap is no longer in effect, chimpanzees who previously solved the task still choose the end of the tube that allows them to push the food away from the (now inoperative) trap. Finally, in a second experiment in which the successful behavior was modeled for the subject, capuchins and younger chimpanzees failed to learn from the model, while older chimpanzees (three and four years old) solved the task in a smaller number of trials if exposed to modeling. Tomasello concludes that nonhuman primates have many cognitive skills involving physical objects and events—including an understanding of relational categories and basic antecedent-consequent event sequences—but they do not perceive or understand underlying causes as mediating the dynamic relations among these objects and events. They thus do not show the kind of flexibility of behavior and understanding of general causal principles characteristic of human children, from a fairly young age, as they try to solve physical problems. [1999:22]

Of course, the trap-tube task is only one problem, and as Visalberghi and Tomasello (1998:200) allow, “in other tasks monkeys do show some very simple causal understanding . . . so it is not the case that they have no causal understanding at all.” In a series of now-classic field experiments, Dorothy Cheney and Robert Seyfarth (1990:280–90) demonstrated that vervet monkeys they studied in the wild were able to make some kinds of causal attributions, but not others. These researchers (Cheney and Seyfarth 1990:289) speculate that vervet monkeys may not have a full understanding of causality, and that their system of visual communication, in particular, evolved to meet social needs and is “ill-suited to solving certain problems outside the social domain,” like problems in which “a visual clue can denote some absent reference” to a dangerous predator. Thus, these monkeys will follow a fresh python track without seeming to realize that it may lead right to the python. Cheney and Seyfarth (1990:277) also suggest that, generally, the monkeys lack “one striking feature of human
intelligence,” that is, “our inclination to accumulate information about the world that is not directly relevant to the getting and spending of daily life” (see also Tomasello and Call 1997:98 for this point). Vervets, by contrast with humans, seem much more narrowly focused on a few features of their environment. Chimpanzees fall somewhere in between in this respect.

Nonhuman primate research on this topic is still ongoing and debated. Much attention has been focused on social or psychological, as distinguished from physical, causality: the understanding of how conspecifics work. Humans, clearly, do attribute causes to others’ actions (although their particular theories of specific others’ intentions and goals can certainly be erroneous). The question is whether and to what extent chimpanzees, for example, can infer or intuit such inner states of conspecifics.

Tomasello, Call, and their colleagues (e.g., Tomasello et al. 2003; Call and Tomasello 2008) have most recently concluded that chimpanzees do understand something about the goals and intentions of others. Chimps monitor the gaze direction of others (apparently noticing direction of the head more than direction of the eyes, which, unlike human eyes, do not have whites). Call and Tomasello (2008:191) observe, for example, that, in competition for food, a chimpanzee watching a dominant conspecific knows when that other chimp has not seen the placement of the food and is therefore ignorant of its location. Thus, the chimp in the know will expect its dominant competitor to get other food that it has watched being placed, and itself will go first after food of which its dominant competitor is ignorant. More generally, Tomasello (1999:17) asserts that, “while all mammals recognize individuals and form relationships with them, only primates understand external social relationships in which they themselves are not directly involved.”

However, there are limits to chimpanzee ability to understand other chimps. A subordinate chimp cannot fathom, in particular, instances of so-called “false belief”—that is, when the dominant competitor has been misinformed. Such conditions are produced in the laboratory, for example, by moving food from one location, known to the dominant chimp, to a second location when the dominantchimp is not present to observe the move. The dominant chimp falsely believes the food is still in the original location. The subordinate chimp is unable, under this condition, to predict where the other chimp will look for the food. These researchers argue, provisionally, that chimpanzees

understand others in terms of a relatively coherent perception-goal psychology in which the other acts in a certain way because she perceives the world in a certain way and has certain goals of how she wants the world to be. [Call and Tomasello 2008:191]

Possibly, they speculate, other nonhuman primate species and some bird species also possess such understanding. However, Call and Tomasello stress,
Tomasello and his colleagues (Tomasello et al. 2003:156) conclude, from yet another series of experiments, that chimpanzees do appear to be able to gauge “such things as effort and frustration and satisfaction [expressed, in these experiments, by the human experimenter] as signs of what the other person is doing or is about to do next.” They go on to suggest, more generally,

But at the same time it is clear that chimpanzees do not have a full-blown human-like theory of mind. For example, in contrast to human children chimpanzees may not understand in visual perception such things as attention (understanding that others may attend to different things within the same gaze direction) and perspective (imagining how things appear from different viewing angles). And again in contrast to human children, chimpanzees may not understand in behavior such things as prior intentions (not easily perceptible) and communicative intentions (intentions towards others’ psychological states). And there is no evidence anywhere that chimpanzees understand the beliefs of others. It would thus seem that at some point in recent evolution human beings found a way to comprehend and deal with a much wider variety of psychological states than their nearest primate relatives—perhaps involving cooperative/communicative/cultural aspects (based on an appreciation of self-other equivalence). [Tomasello et al. 2003:156]21

Obviously, the full evolutionary account of this cognitive difference between humans and other primates is yet to be told. Even the differences between humans and chimpanzees that have been posited to date are not conclusively established, but await new, more clever experimental designs (Kaminski et al. 2008:233). (For the most recent summary of this line of research at the time of this writing, see Tomasello and Herrmann 2010.) It does appear that what Visalberghi and Tomasello (1998) have captured in the phrase, “the explanatory attitude,” is much more highly developed in humans than in nonhuman primates, including chimpanzees. The “perception-goal psychology” that defines the limits of chimpanzee understanding of psychological causality presumably provides leverage for a more full-blown understanding of intention, and, ultimately, “a fully human-like belief-desire psychology.” Thus, human children even as young as three to four years of age incorporate causal relations into their verbal accounts (Nelson 1996:17) and are able to explain causal mechanisms (Povinelli 2000:83–100).22

Preschoolers’ verbal accounts of their routines include causal relations between routine events, although causal links are less frequently mentioned than simple spatial-temporal relations—that is, changes in the location of the action (Nelson 1986:64). Nelson (1986:68) cautions, however, that “even if younger children perceive causality in events, this does not mean that they necessarily perceive causal relations based on a full understanding of causality.” They are less flexible than older children, she points out, in performing tasks that depart too much from a known event sequence.23

Children’s knowledge of event sequences is developmentally prior to their construction of narratives and, indeed, is the scaffold on which they build their skill at storytelling. Nelson (1996:183–219) assembles a number of studies, including her own work, to show in impressive detail how children’s ability to use the American English narrative genre begins
with the more fundamental ability to sequence events, and develops over time, as the child learns and becomes adept at successive linguistic and other cultural rules and stylistic variations for narrating stories. Even very young children use connectors such as *and, and then, so,* and *because* (Nelson 1996:206). By four years, one study showed, children structure narratives that involve negative emotions (scared and mad)—but not happy stories—”around a plot in which actions were causally structured with a climax involving the emotion and an identifiable theme such as success, escape, or trickery” (Nelson 1996:200). By five years, “children tell stories and narrate events organized in terms of goals and plans” (Nelson 1996:214). As Nelson (1996:205) concludes, “basic event knowledge not only appears to provide an important part of the macrostructure, but also supports the development of the microstructure of narrative.” Comprehension and use of causal relations, then, develops fairly quickly over the first years of children’s lives.

What is evident is that by the time they are adults, humans are facile at comprehending and making all manner of causal arguments. As my illustrations of Americans’ reasoning and narratives about marriage show, cultural templates like the schema for American marriage I have reconstructed take advantage of the fully evolved human capacities to understand not only sequences of events, and quite abstract events at that, but also the underlying causes that link one event to another. And cultural templates that incorporate psychological causality, like that for marriage, rely heavily on an understanding of the particular kind of causality represented by “a belief-desire psychology”—such as, in the case at hand, one’s spouse’s desires, beliefs, and communicative intentions about such matters as felt marital fulfillment, the effort one’s spouse is perceived to be putting into fulfilling one’s needs and in resolving attendant difficulties, or a judgment as to whether one’s spouse, if despairing of ever getting his or her needs fulfilled, might consider divorce.

**Conclusion**

In this article, I reviewed earlier work by one ethnographer on routines, one pervasive kind of cultural knowledge that is organized sequentially. I then illustrated how a different kind of cultural schema, the template for reasoning about and telling narratives about American marriage, is also organized as an event sequence. The events that comprise cultural templates such as this one are more abstract than routines, and are typically linked by causality, rather than, as is the general case with routines, by sheer convention or logical necessity. I believe that causally informed event sequencing of this kind will be found to be the organizing principle for a great many other such cultural templates.

The larger argument motivating my series of illustrations has been that cultural evolution has drawn heavily on the mammalian capacity to sequence events, and the distinctively human capacity to think, with considerable facility, about how events in such sequences are intentionally motivated and otherwise causally linked. In illustrating this argument, I have considered the planning and executing of public performances and more mundane everyday routines alike; the everyday reasoning done in speech; and the telling of culturally
meaningful narratives. Tasks depending on event sequencing and causality may not be limited to these, and other kinds of tasks bear investigation as to whether, and how, they might draw on these same cognitive capacities (or perhaps others). However, by the frequency with which they arise and their centrality to everyday affairs, the tasks I have examined are crucial to human social life. That cultural evolution draws on existing human cognitive capacities to provide ready-made solutions to these tasks, results in a considerable advantage in terms of cognitive efficiency and human communication.

Naomi Quinn is Professor Emerita of Cultural Anthropology, Duke University.

Notes

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1. A graduate student teacher of mine, whose influence stayed with me. Contemporaries of Frake also experimented with the description of routines, although none so systematically as he. See, especially, Metzger and Williams (1963) on Tenejapa ladino weddings. Notably, also, Ward Goodenough (1981) included routines and recipes (blueprints for routines) in his effort to construct a comprehensive listing of “the content of culture.” From a very different anthropological tradition, Victor Turner (1974:33–38) put sequences of social events, with identifiable stages, at the center of his theory of social drama. A much more recent example is Edwin Hutchins’s (1995) detailed account of a routine for ship navigation that is designed to coordinate many separate activities, each involving its own cognitive task. Hutchins shows how everyday routines are distributed across people and artifacts.

2. Frake (1977:7) often referred to an entire routine, such as an academic talk, as an *event*, as it is called in ordinary parlance. I prefer my use of the term *routine* (following Nelson 1996) to label an entire sequence of coordinated activities, and I call each distinct part of such a routine an *event*. Frake also called these social occasions themselves “scenes,” and termed the conceptual units that structured such occasions “scripts” that societies provided “for planning, staging, and performing scenes” (Frake 1977:5). Frake’s “scripts” have much in common with Nelson’s “event representations,” to be considered shortly in this article. The term *script* has since been used in so many disparate ways by different authors that it is a term I tend to avoid using myself. More generally, I am consigning Frake’s various labels to a footnote to spare the reader from overdosing on terminology. I will stick to *routine* and *event* throughout.

3. The “do” in this sentence highlighted the difference between this approach and the more traditional organizing principles that subdivided anthropological monographs: the paragraph concludes,

... that do promise to give overall views of a culture’s conceptual landscape, tying together the fragments of cognitive maps left behind by previous studies. These dimensions provide an alternative to the traditional institutional rubrics of religion, education, economics, politics, law, etc., which serve to divide up the academic world and organize monographs, but, perhaps, do not always reflect how people divide up and organize their own cultural worlds.

4. David Lancy (1996), describing Kpelle children’s routines for make-believe play, games, dances, songs, stories, proverbs, chores, apprenticeship and bush school, argues that in such traditional non-Western societies, routines are even more central to the child’s upbringing because of the primacy of observation and imitation over the more
didactic child rearing practices of Western middle-class parents, bent on actively shaping the child’s behavior. Lancy (1996:16) does allow that even Western middle-class parents “make extensive use of routinized practices to guide their actions and save themselves the labor of constantly improvising clever things to say and do with their children.”

5. See Quinn (1996) for a comparison of my own description of marriage based on research conducted in North Carolina to that of Bellah et al. (1985) based on research conducted by Ann Swidler in California at roughly the same time.

6. These three expectations, I argue, derive psychodynamically from infantile concerns that play out in adult love, on which American marriage is founded (Quinn 1997b).

7. Thus, both sharing and mutual benefit—the latter defined in the case of marriage in terms of need fulfillment—may be regarded, in the terminology commonly used to describe this feature of cognitive schemas, as “slots” in the schema that can be “filled” in various ways.

8. In some common ways of thinking, this bond is unbreakable because sacred.

9. The incompatibilities and difficulties that fill these slots in the schema, just as the ways spouses define sharing and mutual benefit, may be various.

10. The square brackets following each interview excerpt contain the identifying marriage number, whether the speaker is husband or wife (H or W) in that marriage, and the number of the interview, in sequence, from which this excerpt was drawn.

11. Indeed, there are still further, deeper causal relations embedded in such schemas, ones that do not typically surface in discourse about marriage because they are so taken for granted. For example, in contemporary American ethnopsychology, there is a cultural schema for the moral imperative that individuals get their needs fulfilled, that is understood to be the chief benefit of contemporary marriage in the United States. There is another such schema for the cost-benefit analysis of one’s options, including marital options. Both these schemas are assumed but go unstated in most talk about marriage.

12. I will just footnote one other likely principle on which some cultural schemas designed for orienting and wayfinding appear to be based: what are called cognitive or mental maps. This critical skill is surely an evolutionarily early human capacity. Istomin and Dwyer (2009) argue that wayfinding appears to take advantage of two kinds of cognitive skills, mental mapping, and route knowledge. The two are typically used jointly in wayfinding. Route knowledge, of course, relies on event sequencing. For two splendid reconstructions of cultural schemas for navigation, both based on cognitive mapping (and both also incorporating a requirement that events be tracked sequentially over time), see Hutchins (1983) on Micronesian navigation and Frake (1985) on northern European medieval seafaring.

13. This is no less true for the La Llorona tales that Mathews analyzes. As she concludes, in these tales “the actions of the characters make sense, and indeed seem inevitable and rational, in terms of generally held, cultural beliefs about the life goals men and women desire to achieve. These goals are defined by high-level schemas of self which are gender specific and are normally achieved through the institution of marriage” (Mathews 1992:157).

14. This speaker’s switch, in this last passage, from “we” and “I” to the all-encompassing “you”—as in “you kind of realize” or “when you try to do that”—indicates that he regards his narrative as containing a lesson about marriages more generally.

15. Here I treat “doesn’t work” as a metaphor for lack of marital benefit. In a piece of reasoning presented earlier, I took “it worked out well” to be a metaphor for marital success. I have been consistent throughout my analyses in making this distinction between the metaphor of a marriage that is or is not “working”—is beneficial or not—and
one that has or hasn’t “worked out”—has succeeded or failed. However, one cannot ever be completely certain of what the user of the metaphor had in mind.

16. The narrative's dramatic quality has already been enhanced by this speaker's shift, in the middle of it—starting with “and then over the years you kind of realize” —to the present tense.

17. Bruner puts it more generally: “What is narrative? To put it formally, stories are accounts of the intrusion of the unexpected on the expected, they are about violations of the shared ordinary, and about how such violations are resolved” (2008:36).

18. The monkey had adopted the “distance” rule of inserting the stick in the opening farthest from the reward (which happened also to avoid the trap), rather than a strategy of inserting the stick into the end that would avoid the trap.

19. Daniel Povinelli (2000:339) offers the interesting speculation that, because the human system for constructing explanations for “why we (and others) do what we do and why the world operates the way it does” is a later (and presumably semiautonomous) specialization than the primate psychological system, it does not always provide certain (or, I would add, accurate) explanations “about which mechanisms are at work at any given moment in time.”

20. Tomasetto and Call (1997:400) speculate that this skill grew out of an initial adaptation to foraging for patchy but predictable resources, and developed further at a later evolutionary period, when “intergroup competition for those patchy resources led to social organizations and patterns of interaction for some species that encouraged the evolution of complex social strategies relying on an understanding of third-party social relationships.”

21. With regard to causality more generally, Tomasetto and Call (1997:389–90) have also suggested that some nonhuman primates have a better understanding of causality “when they manipulate some object or tool, because this allows them to invoke an extended understanding of the efficacy of their own behavior to produce changes of state in the world, but not when the events are totally external to themselves.” They (Tomasetto and Call 1997:90) point out that human children also have more difficulty understanding causality in protocols “in which all of the events happen independently of the children’s own activity,” by comparison with tool use tasks in which they control the antecedent event themselves. I do not know whether Tomasetto and colleagues still adhere to this account.

Povinelli (2000:335) proposes a different view. Povinelli and his colleagues believe that chimpanzees and orangutans are much more gifted tool users than other great apes because they have evolved kinesic (but, importantly, in Povinelli’s position, not psychological) self-representation, allowing them to “draw a clear distinction between their actions on a tool, and the tool’s effect on the world.” This kinesic self-representation was itself an adaptation to the difficulties faced by large, heavy arboreal animals whose movements through the trees displaced branches. For Povinelli, kinesic self-representation would thus be an earlier adaptation than, and perhaps a precursor to, the psychological representation to which Tomasetto and Call allude when they write of “an appreciation of self-other equivalence.”

22. Tomasetto (1999:182) argues that even earlier, around the age of one, “infants begin to use tools in ways that evidence a dawning understanding of the causal powers of their own sensory-motor actions,” and there is some evidence, based on looking time, that even six-month-old human infants distinguish causal from noncausal relations at least perceptually (Povinelli 2000:95–98). In Tomasetto’s (1999:183–185), developmental account, children gain a larger understanding of causal relations independent of the child’s own action during the second year of life. This understanding of physical causality is founded on a prior, and foundational, understanding of external social-psychological events (Tomasello 1999:183). Children learn a great deal of their knowledge of causality, he adds, once they have language, through adults’ constant “descriptions of specific events in causal terms that they would be incapable of constructing by themselves” (Tomasello 1999:183).
Younger children (i.e., preschoolers and first graders) do sometimes rely on causality more heavily than do older children to remember routines, but this is only because, relative to older children, they lack practice with these routines and experience with variation in them (Nelson 1986:66–67).

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