

## Chapter 7

### The Cognitive Culture System

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#### 1 INTRODUCTION

This chapter outlines a cognitivist analysis of the transmission and maintenance of culture.<sup>1</sup> **Cognitivism** indicates that cultural patterns exist primarily because of the cognitive organization in each of the individuals collectively making up a society. This analysis arrives at particular positions on the issues of what is universal across cultures and what varies, of what is innate and what is learned, and of how the individual and the group are related. This cognitivist view of culture disputes several other theoretical positions, such as the position that culture has mainly or solely an autonomous existence beyond the cognition of individual humans. Our aim here has been, first, to array arguments and evidence for an individual-based cultural cognitivism in a way that consolidates this position, and, second, to lay out a framework in which further research could amplify, complement, or emend this position.

##### 1.1 Overview of Cultural Cognitivism

Our general perspective is that there has evolved in the human species an innately determined brain system whose principal function is the acquisition, exercise, and imparting of culture. This system for cultural cognition encompasses a number of cognitive capacities and functions, most of which are either weak or absent in other species. This system does not operate solely through a few simple forms of algorithmic processing applied broadly and iteratively. Rather, it processes culture as a highly differentiated, systematic, and structured complex that includes certain categories of phenomena but not others. The content of this structured cultural complex pertains both to conceptual-affective patterns and to behavior patterns. Aspects of the cognitive culture system's functioning are accessible

to consciousness, but it seems probable that consciousness is not a necessary or automatic concomitant of many operations of the system.

This view that a cognitive system specific to culture has evolved contrasts with a generally held assumption—itsself not always articulated—that human culture occurs simply as a concomitant of other cognitive faculties, such as general intelligence or perhaps language. Some assume further that culture is not an especially coherent structure but a collection of particulars arising as a by-product of more basic cognitive operations. The view advanced here, however, is that culture is a highly organized cognitive construction, and that little in cognition of such a complex and systematic character “just happens” without specific neural provision for it.

The cognitive culture system operates in each individual in accordance with its innately structured program. As stated above, the functions of this system are the acquisition, exercise, and imparting of culture. These three functions can be given the following introductory sketch.

In its acquisition function, the cognitive culture system within an individual assesses the conceptual-affective and behavioral patterns that it sees others exhibit, as well as attending to instruction on such patterns, and internalizes what it has abstracted from this assessment and instruction. It performs the process of assessment in a highly structured way. The process includes determination of the outside groups most relevant to the self, abstraction across the members of each such group, attention to only certain categories of phenomena manifested by those members, and resolution of conflicts among the patterns of different groups. While this acquisition function may operate most extensively and internalize patterns most deeply during the individual’s childhood, it can remain in operation throughout the individual’s lifetime, processing cultural changes or transpositions to new cultures.

In its second function of exercising culture, the cognitive culture system implements the cultural patterns it has acquired, both to produce them and to comprehend new instances of their production by others. In the case of production, the system generates a conceptual-affective pattern in the individual and directs the individual in the performance of behavioral practices in accordance with the cultural structure it has acquired. In the case of comprehension, the system guides the individual in the perception and interpretation of ongoing cultural manifestations by others, also in accordance with the cultural structure it has acquired.

Third, in its imparting function, the cognitive culture system can direct the individual in the performance of certain practices, such as teaching, that facilitate the acquisition of culture by others.

The issue of cultural universals—as well as of cultural differences—must in our view be approached within the perspective of a theory of cultural cognition. One factor that, with certain qualifications, is universal is the innately determined processing program of the cognitive culture system itself (as this will be characterized below). This system does exhibit some range of variation across individuals, for example, as to the particulars of the processing program, the system's accessibility to consciousness, or the system's degree of adaptability. But in the main, the functioning of the cognitive culture system is uniform. Accordingly, while cultures differ in many respects, they appear to have a commonality in the way they are structured and in the types of phenomena involved in this structuring, a commonality that can in our view be traced to the inherited uniformity of the cognitive culture system in the brain. To be sure, some universals of cultural patterning may be due to common conditions affecting human groups or to the operations of innate cognitive systems other than that of cultural cognition. Still, the proposal here is that the cognitive culture system accounts for much of what is universal across cultures. And, in a complementary fashion, much of what varies across cultures involves phenomena with respect to which the cognitive culture system is not constrained.

To provide an orientation to cultural universality at the outset, we offer Murdock's (1965) list of 72 cultural universals—that is, of phenomena present in all the cultures of which he had knowledge. Though much of Murdock's work is now considered outdated by many anthropologists, the investigation of cultural universals has on the other hand not been an active agenda in anthropology in the intervening years, so that it is appropriate to reconnect with that older work here as a renewed starting point. As we noted, cultural universality can arise from a number of causes and is not ipso facto proof that a phenomenon plays a structural role in culture. Accordingly, without further evidence, we accord no significance for cognitive structure to any particular items on the list. Nevertheless, it is likely that enough items on the list tend in the direction of having structural status to serve as an indicator of what universals of cultural structure might consist of. In addition, this list will serve as the basis for a subsequent contrast with universals of linguistic structure (see

section 3.5.1). Here then, in its original alphabetical order, is Murdock's list (1965:89).

age-grading, athletic sports, bodily adornment, calendar, cleanliness training, community organization, cooking, cooperative labor, cosmology, courtship, dancing, decorative art, divination, division of labor, dream interpretation, education, eschatology, ethics, ethnobotany, etiquette, faith healing, family, feasting, fire-making, folklore, food taboos, funeral rites, games, gestures, gift-giving, government, greetings, hair-styles, hospitality, housing, hygiene, incest taboos, inheritance rules, joking, kin groups, kinship nomenclature, language, law, luck superstitions, magic, marriage, meal times, medicine, modesty concerning natural functions, mourning, music, mythology, numerals, obstetrics, penal sanctions, personal names, population policy, postnatal care, pregnancy usages, property rights, propitiation of supernatural beings, puberty customs, religious ritual, residence rules, sexual restrictions, soul concepts, status differentiation, surgery, tool making, trade visiting, weaning, weather control

## 1.2 Parallelisms between Cultural Cognition and Linguistic Cognition

Many of the characteristics here proposed for the cognitive culture system evidently parallel characteristics of the cognitive language system as this was posited in the Chomskyan tradition—the so-called “language acquisition device” or “LAD” (Chomsky 1965). The parallelisms include the following. In the Chomskyan conception, the language system, too, is believed to be an innately determined brain system that has evolved to its present state in the human species. It directs the acquisition of language, the production and comprehension of language, and some might say also the facilitation of language acquisition by others. It also includes “universal grammar”—that is, the complex of requirements, constraints, and parameters that underlie most of the structural commonalities present across languages.

However, in pointing to a parallelism, we do not mean to imply that all the assumptions in the Chomskyan tradition pertaining to the LAD apply as well to the culture system, or even that they are all true of the language system either. There is much to challenge in the autonomous modularity that the Chomskyan and Fodorian traditions ascribe to the language system, and any extension of this attribution to the putative culture system would require even greater challenge. In fact, it is assumed here that both the language system and the culture system are much more greatly integrated and interpenetrated with connections from other cognitive systems than is envisioned by the strict modularity notion generally associated with the LAD concept (as in Fodor 1983). Thus, to express its distinctive

conception, cultural cognition is here termed the cognitive culture system, rather than, say, the “culture acquisition device”—or, presumably, the “CAD.”

Some of the parallelisms between the linguistic and the cultural cognitive systems may arise from their evolutionary history. Our assumption is that the cognitive systems underlying language and culture were the last two cognitive systems to have evolved in the lineage leading to humans. In both cases, the characteristics they developed were presumably conditioned by the other cognitive systems already in place, systems such as perception in different modalities, motor control, memory, attention, and inferencing. Further, the two cognitive systems presumably evolved over much the same time period, hence, coevolved, developing their properties interactively. In addition to the language-culture parallelisms cited just above as well as throughout the chapter, we can note here that, of all the cognitive systems, only language and culture extensively exhibit the pattern of a universal abstract structure underlying a variability of instantiation determined by the social group (i.e., various particular languages and cultures). Despite such parallelisms, though, language and culture have evolved as distinct cognitive systems, as section 3.5 argues.

### 1.3 The “Overlapping Systems” Model of Cognitive Organization

In contrast with the modularity model, converging lines of evidence in the author’s research point to the following picture of human cognitive organization. Human cognition comprehends a certain number of relatively distinguishable cognitive systems of fairly extensive scope. This research has considered similarities and dissimilarities of structure—in particular of conceptual structure—between language and each of these other cognitive systems: (visual and kinesthetic) perception, reasoning, affect, attention, memory, planning, and cultural structure. The general finding is that each cognitive system has some structural properties that may be uniquely its own, some further structural properties that it shares with only one or a few other cognitive systems, and some fundamental structural properties that it has in common with all the cognitive systems. We term this view the **overlapping systems** model of cognitive organization (see the introduction to this volume for further details).

In this chapter, to make the case for a distinct cognitive culture system, we emphasize the factors that tend to distinguish cultural cognition from other types of psychological functioning. However, we also identify a number of similarities between cultural cognition and other cognitive

systems, especially noting repeated parallelisms between the culture system and the language system.

## 2 CHARACTERISTICS OF THE COGNITIVE CULTURE SYSTEM

In this section, we examine more closely the functioning of the cognitive culture system within the individual in the acquisition, exercise, and imparting of culture. We then examine what is universal and what is variable in these functions. Finally, we examine how the operation of these functions within the individual can account for patterns at the group level.

### 2.1 The Acquisition and Exercise of Culture

In its acquisition and exercise functions, the cognitive culture system within an individual either includes or helps orchestrate several different clusters of cognitive processing. The cluster largely emphasized in this chapter might be generally termed that of the **assessment** forms of processing. In this section, we go into assessment processes and then briefly discuss other clusters.

We can give a summary overview of the assessment processes. In general, in its range of operations, this cluster directs the attention of the self in a systematically differentiated way to the surrounding individuals. Specifically, it assesses the surrounding society for the groups that make it up. It concludes which of these groups the self is a member of. In accordance with certain structural criteria, it abstracts a schematic pattern from across the behaviors manifested by the members of each group. It reconciles any conflicts among such schemas. It internalizes the results of these operations as the major part of the individual's understanding of the social world. And it helps shape the individual's own practices and conceptual/affective manifestations in relatively close accord with the schemas abstracted from the self-identified groups.

**2.1.1 Ascertaining Groups Relevant to the Self and Assessing Their Patterns** To recapitulate, the present analysis posits that there is a specific cognitive system innate in humans that is involved with the acquisition and maintenance of culture and that functions in the following way: It directs the individual, particularly the developing child, to preferentially attend to and observe certain aspects of the behavior of the people most directly interacting with that individual, and to assess these observations

for certain kinds of regularities, patterns, and norms. The behavior observed in this way includes not only others' overt physical actions but, crucially, also the referential and psychological content—the ideas, affect, and so on—that they select for expression or otherwise manifest. The term “behavior” throughout this chapter will be used in this broad sense to cover both practice and discourse, including all the thought and affect thus manifested or represented. Our use of the term “behavior” is specifically not intended to evoke any associations with the tradition or descendants of behaviorism.

As already noted, this cognitive system for assessing group behavior concomitantly assesses which groups of people around the individual are the relevant ones across which it will abstract its generalizations. Thus, exposed to a complex enough society, the cognitive culture system may partition its surroundings into what it will see as several distinct groups of relevance to it, say, a family group, a gender group, a peer group, an ethnic group, a religious group, a group based on class or other social status, and a national group (and at the broadest level, as will be discussed below, an “entity” group, namely, that of humans as against animals or objects).

For example, in a boy from a Chinese family recently emigrated to America, the operation of his cognitive culture system can assess as relevant to him such groups as his immediate kinsfolk for his family, males for his gender, youngsters of roughly his age for his peer group, Chinese people for his ethnicity, Buddhists for his religion, working people for his class, and Americans for his nationality.

Given the appropriate circumstances, the cognitive culture system can conclude that several groups at the same level of organization, such as two ethnic or peer groups, are relevant to the self. For example, the daughter of a Jewish father and an African-American mother can feel herself to belong to two ethnic groups, both among Jews and among African-Americans, while a high school boy who is on the football team and in the science club can feel himself to be a member of both those two different peer groups.

The cognitive culture system can generate certain identity-related experiential categories built on its assessment that a particular group of individuals—call them *Xs*—is relevant to the self. Thus, the culture system can generate the experience that the self is a “member” of the *Xs*. Further, it can generate the experience that, as part of its identity, the self “is” an *X*. And perhaps still further, it can generate the sense that there

is an abstractable essence of *Xness* that the self “incorporates” as a characteristic.

It is likely that the culture system in an individual also attends to and abstracts patterns across other groups in his surroundings that the system assesses as groups to which the individual does not belong. These assessments, however, are not made with any design for their eventual execution by the self. Rather, the functions served by such assessments are the increase of knowledge about the surrounding social structure, and the refinement of the patterns of behavior involved in membership in his own groups in accordance with the encounters that these do or will have with the other groups. Such assessments may also serve the function of clarifying other group behaviors as a “negative model” for what the self will strive to avoid resembling, so as to more clearly consolidate and signal his own group memberships. On identifying the groups to which the self belongs, the cognitive culture system probably causes the individual’s attention to be directed more intensely and minutely to the patterns of behavior exhibited by the members of these groups—given that the self will need to emulate them closely—than to the non-self-identified groups. There may even be some active disattention to such other groups, perhaps with a concomitant experience in consciousness to the effect of “I need not or should not know about that group because I am not one of them.”<sup>2</sup>

We have so far discussed two of the processes in the assessment cluster within the cognitive culture system: ascertaining the particular groups relevant to the self and ascertaining the particular patterns of behavior manifested across each such group. But these forms of processing cannot operate independently of each other or in strict sequence. Rather, as with much else in the organizing of cognition, they interact and co-determine each other.

**2.1.2 Types of Accommodation to Incompatible Patterns** The cognitive culture system can conclude that there are incompatibilities or conflicts between the patterns it detects in two or more different groups assessed as relevant to the self, whether these groups are at the same or different levels of organization. For example, the boy in the earlier immigrant family can experience a conflict between the patterns of his family’s Chinese culture and those of the surrounding American culture. The girl may experience incompatibilities arising from her mixed ethnic parentage, and the high school boy from his dual social affiliation. In such circumstances, the



culture system can adopt one out of a set of available accommodations or resolutions to the incompatibilities. Accommodations of this sort can include focusing on one pattern to the relative exclusion of the other patterns, developing a distinctive blend of two or more of the patterns, and developing psychologically compartmentalized forms of each of the patterns. Each of these types of accommodation is next considered more closely. We can here note in addition that the cognitive culture system can also address conflicts through various combinations of these accommodation types applied in various proportions.

**2.1.2.1 Accommodation by Selecting One of the Incompatible Patterns over the Others** One type of accommodation—what could be termed the **selection** type of resolution—consists of a focus on and the adoption of one of the competing patterns to the relative exclusion of the others. A culture system may settle on this form of resolution because it is more consonant with the individual's other cognitive traits, giving it preferential attention as well as a greater sense of relevance and meaningfulness to the individual.

For example, the immigrant boy might settle on adopting the Chinese cultural patterns of his family—perhaps because he associates it with warmth and intimacy, which figure importantly in his particular cognitive configuration—and take the home worldview, values, behaviors, and even language into his dealings with the macro-culture. Alternatively, he might adopt the patterns of the surrounding American culture—perhaps because the need for acceptance by his peers and a desire to move freely in the larger world figure more importantly in his cognitive configuration—so that he brings the new worldview, values, behaviors, and language into his family home.

**2.1.2.2 Accommodation by Blending the Incompatible Patterns** Another form of accommodation to assessed incompatibilities—what can be termed the **blending** type of resolution—consists of the development or construction in the individual of a distinctive hybrid mixture of components from two or more of the conflicting cultural patterns, or indeed the creation of some novel fusions. For example, the immigrant boy might develop a single, approximately homogeneous personal pattern manifested equally in the home and outside, but a pattern that blends together aspects of both the Chinese and the American worldview, values, behavior, and so on.

**2.1.2.3 Accommodation by Separately Compartmentalizing Each Incompatible Pattern** A third form of accommodation—what can be termed the **compartmentalization** type—involves the individual's acquisition of both or all of the conflicting patterns, but with each pattern maintained separately in a relatively intact form close to its source character, and manifested mainly in its corresponding context. The individual switches back and forth between the different cultural patterns in the course of shifting between contexts. This accommodation rests on our more general psychological capacity to compartmentalize, maintaining alternative patterns side by side.

In the case of the immigrant boy, an accommodation of this type would entail his experiencing and manifesting Chinese worldview, values, behavior, and so forth when at home or in other Chinese contexts, while switching to the American pattern when in a macro-cultural context.

**2.1.2.4 Linguistic Parallels to Cultural Accommodation Types** Linguistic parallels to these different accommodations to cultural conflict can appear in an individual exposed to two or more distinct languages or dialects. For example, paralleling accommodation by selection, a young woman who moves from Texas to New York may retain her original dialect intact—or, alternatively, she may acquire the new New York dialect rather fully and retain it even when visiting Texas. Or, as with the blending accommodation, she may develop a distinctive blend of the two dialects that she uses both when visiting her Texas relatives (who think she has lost her Texas accent) and when she is with her New York friends (who think she still retains her original Texas accent). Or, as with the compartmentalizing accommodation, she may learn to control both dialects and switch between them as she shifts between the corresponding contexts.

**2.1.3 The Structural Character of Cultural Cognition** To set up foils for comparison so as to put the actual properties of the system into greater relief, we note that the operation of the cognitive culture system in assessing groups and their behavior is not comparable to setting up video-audio recording equipment in the midst of a group setting. Nor can the cultural patterns of behaving and cognizing that a child develops be explained solely as resulting from some relatively simple algorithmic process of averaging or of norm formation across some undifferentiated body of percepts. Rather, such patterns show dependence on organized structure that governs both the observations made and the cognitive forma-

tions created. The culture system is innately configured in such a way as to analyze out only certain aspects of behavioral phenomena, and to process these aspects not simply to produce statistical norms but also to generate conceptual structures that are articulated and compounded in specific innately determined ways.

Presumably as functions of its innate design, the cognitive culture system imputes or discerns a particular structure in externally observable phenomena and selects certain aspects of that structure for internalization and reproduction. This structure includes the categorization of surrounding entities at different levels of granularity for the purpose of selective modeling, the differentiation of distinct behavior patterns within any such category, the schema-based abstraction of a behavior pattern from across a range of exemplars of the pattern by different individuals, and the distinguishing of a behavior pattern from the personal mannerisms of its execution by any one individual. We next examine these forms of structuring in order. The existence of such complex and extensive structure is one of the arguments for the existence of a specialized cognitive system that is tailored to it.

***2.1.3.1 Categorization of Surrounding Entities for Selective Modeling***  
Beginning with the individual's categorization of external entities and looking first at a coarser level of granularity, we note that the child will form the cognitive categories of people, animals, and inanimate objects (among others). He will select the behaviors exhibited by people for acquisition but will ignore the activities of the other two categories for this purpose.

For example, the child will pick up on the movement patterns of the people around him with respect to the way they get food into their mouth, perform toilet functions, keep clean, and get from one room into another. But the culture-acquiring child does not internalize and reproduce the movement patterns of, say, the family's dog or cow performing these same activities (unless imitating them for humor or the like). Thus, the child does not lap up water or move his mouth to where the food is instead of bringing it to his mouth with his hands, he does not lift one leg to urinate against a tree, he does not lick himself to get clean or rapidly twirl his torso left and right after immersion in water to dry off, and he does not trot on all fours to get to the next room.

Comparably, the child does not internalize and reproduce the movement patterns of inanimate objects in their manifestation of analogous

functions (again, except as imitation for humor or the like). Thus, the child does not imitate the patterns of a grinder receiving meat in its hopper, of a sponge when it is squeezed and liquid emerges from it, of a shirt in a washing machine or of the washing machine itself, or of a ball rolling from one location to another. However apparent, observations like these cannot be taken for granted if the aim is to limn out the foundational structural properties of cultural cognition.

The process of categorization at a finer level of granularity has already been discussed. Thus, in addition to selecting one out of the preceding three broad categories, the child differentially selects for cultural acquisition from among various more finely delimited categorial alternatives, such as those pertaining to gender, peer group, ethnic group, and social status. The main point earlier was that the cognitive culture system assesses which groups (coarse or fine) the individual belongs to. The point here is that, on the basis of this structured assessment, the cognitive culture system largely sets these groups as the domains over which to exercise its processes of abstraction for behavioral patterns.

**2.1.3.2 *Differentiation of Distinct Behavior Patterns*** Each category of individuals that the cognitive culture system of the child establishes manifests a great range of behaviors. If the culture system functioned by assessing across this full range without first differentiating them, the result would be a blur of superimposed movements. Instead, the culture system distinguishes particular behavior patterns at all levels of granularity and determines the ways these patterns nest one within another or otherwise relate.

For example, at their headquarters in Jerusalem, the Gerer sect of Hassidim perform a number of distinct rituals during Sabbath day observances. In one ritual, the Rebe—spiritual leader of the sect—sits against one wall, and the men and boys form a large circle that moves clockwise in front of him. The greater part of the circle away from the Rebe's location is tight, pressed, and slow moving, whereas along the stretch of the circle before the Rebe, the members suddenly space out and move very rapidly. In another ritual, the Rebe sits at a table behind a stout banister. The men and boys exchange the fresh outer garments they had been wearing for old worn ones and suddenly gather in a large group pressing up against the banister with great physical exertion. Some individuals not in this press pass water bottles forward into the group for the participants to drink from in their exertions, while other previously free

individuals run with some force into the outer boundary of the group and penetrate into it a short distance before their momentum is absorbed. The concept in both rituals is that the expression of a straining to reach the Rebe is a representation of striving toward God. In a third ceremonial activity, a small group of men forms into a choir to sing part of the liturgy.

Our point here is that the cognitive culture system of a child in this setting would have to perform operations of segmentation on the continuum of activity so as to emerge with separate schemas for the different rituals, as well as for the component parts of each ritual. That is, the culture system has to analyze the flow of occurrence with great sensitivity to its structure. If it were otherwise, a child's cultural learning might emerge not with differentiated rituals, but with an amalgam or *mélange*—in this case, maybe the conception of a dense pack of people singing and wearing both old and new garments that rotates clockwise and through which a sparser pocket moves.

### ***2.1.3.3 Schematic Abstraction across Exemplars of a Behavior Pattern***

The preceding subsection dealt with the structural nature of the cognitive culture system in its segmentation of the flow of activity into behavioral units. But each such behavior pattern is manifested in different ways by different members of the culture, or even by a single member of the culture on different occasions. Thus, the cognitive culture system here must further assess the culturally relevant structure embedded in these differing manifestations—that is, determine what the underlying schema is—and abstract only that as its model.

To illustrate, consider a Sabbath service in an orthodox synagogue of the East European Ashkenazic Yiddish-speaking tradition (see Zborowski and Herzog 1952). In the course of conducting their prayer activity—*davenen*—the men exhibit certain variations. While reading from the prayer book, all sway rhythmically (*shoklen zikh*), but some bend their torsos forward and back, some rotate their torsos right and left, and some alternate between the two. Some limit the forward-back swaying to a slight head nod, while others bend energetically at the waist. All utter the words of the prayers, but some mumble with barely moving lips, while others speak out loudly. Some sit, while others stand or alternate between the two. Though most orient their bodies roughly toward the front, different individuals face different directions. Some locate themselves in particular spots within the synagogue on a regular basis, while others move about, praying as they walk.

In observing this variety of manifestations of the behavioral unit known as *davenen*, the child must abstract the structural delineations that are criterial for the davening activity as culturally recognized. The child cannot “average” across all this variety without emerging with a blur. What, after all, is the average of walking, sitting, and standing? To be sure, certain averaging processes must go on and have their proper place. For example, each synagogue may have its own range in the magnitude of the swaying movements, and the child will assimilate this range and remain within it. Even here, though, the child might observe structural correlations between different degrees of swaying and, say, categories of age and personality type. Thus what the cognitive culture system of the child is mainly involved in here is the determination of structural schemas and their abstraction from across a variety of executions.

**2.1.3.4 *The Distinguishing of a Behavior Pattern from Personal Mannerisms of Its Execution*** Any adult’s execution of a cultural behavior pattern is inevitably enmeshed within and shaped by the personal mannerisms of that individual. Such mannerisms include the physical and nervous control characteristics of the individual’s body, her personality and idiosyncrasies, and her shifting moods. In assessing the behavior of another individual, part of the structural functioning of the cognitive culture system in someone acquiring a culture is to discriminate the abstract schema of the behavior pattern from personal mannerisms in order to select the one but not the other for internalization and reproduction.

For example, a Mexican child will learn to tear off a piece of tortilla, fold it into a particular configuration, and use it to scoop food off her plate and carry it to her mouth. But she will not adopt the slow, awkward, and jerky movements of her arthritic grandmother as she eats her food with tortilla pieces. Nor will she adopt the crude quick ripping movement that her mother uses to remove a piece from a tortilla when she is angry. Comparably, she will not adopt her father’s limp and stoop as he comes to the dinner table to eat.

**2.1.3.5 *Structural Selectivity*** Obvious as the preceding series of observations may be, they should not be taken for granted. Presenting them together like this forces one to ask why they are as they are. Evidently, the cognitive culture system assesses the surrounding environment for its structural characteristics and selects certain aspects of this structure for assimilation while rejecting other aspects. This characteristic of the system can be termed its **structural selectivity**.

Thus, in particular, the cognitive culture system is geared to assess the category of entities relevant to it—humans, rather than animals or objects—as the model for its behavioral abstraction. Within this category of people, it discriminates different groups and selects those of relevance to it for modeling. Among all the behaviors manifested by any such group, it segments out the patterns relevant to the culture, keeps these patterns sorted out for separate internalization, and disregards the rest of the behavior for any assimilation. Across a variety of individual exemplars of any particular behavior pattern, it discerns an abstract schematic formation that it selects for assimilation. And the cognitive system recognizes aspects of behavior that can be attributed to an individual's personal or idiosyncratic characteristics so as to reject them as material appropriate for imitation. Instead, it seeks only the abstraction embedded within the complex of that individual's total behavior that could represent a metapersonal cultural pattern.

**2.1.4 Further Clusters of Cognitive Cultural Processes** This discussion of the individual's acquisition and exercise of culture has so far dealt only with the cluster of cognitive processes termed the assessment type. But the cognitive culture system includes or helps orchestrate some further clusters of processes.

**2.1.4.1 Learning from Teaching** A further possible cluster of cognitive cultural processes would seem to comprise an active response to teaching from others. This is not simply "learning," a term that too generally refers to all forms of change in an individual's cognition due to encounter with the environment. Rather, it is specifically **learning from teaching by others**. Such teaching may be explicit, as in formal instruction, or inexplicit, as in the narration of tales with moral or informational implications.

Further, on hearing the content of such recitations, the developing child does not simply catalog the concepts in some intellectual memory store—as an adult might do on hearing comparable recitations from a member of another culture. What is noteworthy in the cognitive processing of the developing child, rather, is that it will largely direct the processed conceptual contents of the recitations further on to the child's deeply internalized store of conceptual-affective patterns and practices, where they will be assimilated as part of the child's cognitive cultural structure.

These processes may have little linguistic parallel. Though adults in many cultures try to give their children instruction and correction on the

adult use of the native language, such efforts appear to have little effect—outside of a few pockets of usage—on what the children would do.

**2.1.4.2 The Approval/Disapproval Response** A further probable cluster of cognitive cultural processes could be termed the **approval/disapproval response**. The child is largely pleased by approval and pained by disapproval from most adults and especially from the adults that it is close to. This cluster essentially amounts to a feedback system. In its developmental phases, the child manifests certain behaviors in accordance with the cognitive culture structure that it has assembled to that point. Approval by others will generally work to fix a particular behavior pattern in the child's cognitive culture structure, whereas disapproval will work to eliminate the pattern and to send the cognitive culture system in search of a more adequate pattern.

**2.1.5 Interaction of the Acquisition and the Exercise of Culture** The cognitive culture system assesses group behavior patterns not solely for the purpose, say, of enabling the self to subsequently recognize those patterns in others. Rather, it does so as well for the purpose of enabling the self in turn to produce these very same behavior patterns—or else to produce the accommodations settled on to resolve conflicting patterns.

Further, these two cognitive processes—the assessment and the production of cultural patterns—take place neither independently of each other nor in strict sequence, but rather interact. Thus, during a child's development, both functions of the culture system presumably become progressively more elaborated and refined, with each function contributing to and partially determining the changes in the other. Thus, the pattern-assessment function must progressively inform the behavior-producing function with its updates. At the same time, the succession of behavior patterns that the developing individual comes to execute improves the individual's culturally relevant cognitive skills, and this sensitizes the ascertainment function for further and finer determinations. These manifested behaviors also evoke reactions from other group members that are used by the assessment function to refine its schemas.

## 2.2 The Imparting of Culture

The functions of the cognitive culture system pertaining to the acquisition and exercise of culture that have been the topic of the discussion so far have necessarily been in operation in every unimpaired individual, and



robustly so. But the cognitive culture system may also have a third function, that of imparting culture to others. This imparting function facilitates the acquisition of culture by others through any of several processes, including clarification, exposure, and implicit or explicit instruction. The imparting function—though probably also innately provided for—can perhaps lie relatively dormant in some individuals or may vary more greatly from weak to robust operation.

Perhaps the predominant means by which culture is transmitted is simply by virtue of adults going about the business of exercising their cultural patterns and of children using their cluster of assessment processes to abstract these patterns from observation. But the adults may also employ their culture-imparting capabilities in ways that will abet the children's cognitive culture system in its acquisition function. In several of these forms, a co-evolution of the imparting and acquisition functions of the human cognitive culture system may have taken place, so that the operations of the two functions are well tailored to each other. We next characterize the several forms of the imparting function noted above and the ways these might dovetail with different forms of the acquisition function. Though further attention and research will need to be directed to the issue, it may be that most of the forms described either do not appear in nonhuman primates or appear in weak or precursor forms.

First, the imparter can execute his cultural behavior more slowly, more distinctly, in a simplified form, and with repetition in interaction with a child. The greater distinctness can involve spacing out the components of the behavior, demarcating them more crisply, and performing them more exaggeratedly. The simplification can consist of the omission of the subtler or less basic components. This **clarification** form of the culture-imparting function operates both in physical practices and in the contents of communication. This particular form of the imparting function may have no specific counterpart in the child's acquisition function. The child still uses her usual cluster of assessment processes, but now they simply have an easier time of performing their assessments.

There may be a linguistic parallel to this clarification form of the culture-imparting function. Our language system seems to be innately programmed to execute certain different "registers" of communication that ease the task of an imperfect language user. "Parentese" is the collection of language shifts that an adult makes in addressing a child (see Gallaway and Richards 1994). It includes all the same properties as just presented for cultural imparting. Thus, the adult speaks more slowly, with

words pronounced more distinctly, with exaggerated intonation patterns, with simplified syntax, lexicon, and overall content, and with repetitions (plus additionally raising the pitch level). Similar shifts are often made in adopting a register for talking with adult nonnatives. Again, it seems likely that we come to this mode of speaking innately, triggered by the knowledge that we are interacting with a child or less competent adult.<sup>3</sup>

Another form of the imparting function is to take actions that ensure that the child will be exposed to behaviors it will need to acquire. Examples might be an adult taking a child along in hunting or fishing, or seating the child alongside while weaving. The child can be engaged as a helpful participant in these activities. Often undertaken without explicit instruction, this **exposure** form of imparting again may have no specific counterpart in the acquisition function, but it does feed directly into the standard cluster of assessment processes.

Further, though, the imparter can instruct, whether through implicational narrative or through explicit explanation. This **instruction** form of the imparting function would seem to correspond directly to the form of the child's acquisition function described earlier as "learning from teaching" and presumably co-evolved with it.

Finally, an adult can show approval or disapproval to a child in a way that helps shape the child's behavior. This **approval/disapproval** form of the imparting function clearly corresponds to the "approval/disapproval response" form of the acquisition function in the child, as described earlier, and presumably also co-evolved with it.

### 2.3 Universality and Variation in the Cognitive Culture System

Cultural universals have two main sources: the innately determined cross-individual commonalities of the cognitive culture system, and the commonalities of environmental circumstances that all cultures must accommodate. The environmental exigencies may account for most of the substantive cultural universals—that is, those that are more perceptually palpable or conceptually contentful—such as the ones enumerated by Murdock (1965) (see above). The cognitive culture system may also be responsible for some substantive universals. But, for the most part, we see the universality in this system as functional, consisting of an abstract program of procedures for certain forms and targets of observation and for certain forms of assessing and processing the results of this observation. This universalist functioning of the cognitive culture system, then, leads not so much to explicit universals of substantive cultural practices.

It leads more to implicit universals of abstract cultural structuring, a “scaffolding” that runs in common across cultures.

This characterization of the cognitive culture system may largely parallel the nature of universality in language. Linguistic universals are rarely substantive particulars—they are usually abstract patterns and relationships, procedures and processes, principles and constraints. In fact, the history of universalist studies of language has included many cases of a certain theoretical sequence. In this sequence, researchers first posit a substantive universal, then are alerted to a language that disobeys the posited formulation, and consequently change their theory by positing a more abstract principle or relationship. Continued investigation of cultural universality may follow the same theoretical sequence. As it stands, though, we would hold that many of the structural properties that appear to run in common across cultures can be traced to the characteristics of a cognitive culture system along the lines laid out in this chapter.

Outside of these forms of universality, everything else about culture can vary. We can divide this variation into two types. One type is the cultural variation that the standard operation of the cognitive culture system allows or promotes. The other type is cross-individual variation of the cognitive culture system itself—that is, forms of variability outside its relatively stable core characteristics that are the result of genetic as well as environmentally caused differences across individuals.

**2.3.1 Variation Countenanced by the Standard Operation of the Cognitive Culture System** The standard operation of the cognitive culture system can be seen to function in two ways with respect to cultural variation: ascertaining it and promoting it. In its ascertainment function, it is precisely the differences of the cultures in which children develop that constitute the subject matter of observation by the cognitive culture system in the first place, and the assessments of which continue differentially through the systems processing. Such differences between cultures can be large, can affect virtually every domain of behavior, and can involve the finest filigree of conceptual-affective structure and physical practice. The assessment processes and other processing clusters of the cognitive culture system allow the child to acquire the particular form that his surrounding culture takes amidst the great range of possible variation.

The engagement of the cognitive culture system’s ascertainment function with such cross-cultural differences may have a significant consequence: a differential effect on the neurophysiology, as well as on the

somatic physiology, of the individuals in a culture. The reason for such an effect would be that the greater quantity or elaboration of a behavior in one culture relative to another may engage the capacities for plasticity in the brain and the body to accommodate to the greater demand. The possible effects of behavior on somatic physiology are no doubt more amenable to investigation. For example, it might turn out, and instrumentation may exist to show, that the anatomy of the knees of individuals in a culture with the practice of sitting on one's legs folded under one differs on the average from that of individuals in a culture with the practice of sitting on chairs.

In a similar way, if a culture emphasizes certain forms of cognition through its discourse and practices, it may be that the systems of the brain that most deal with those forms of cognition will develop more greatly (say, will develop a greater density and intricacy of neural connections) and will become more determinative relative to other brain systems than in the case of cultures without such emphases. The forms of cognition whose emphasis may lead to an increased development of brain systems can be perception based, as perhaps in cultures with a practice of hunting prey that is difficult to spot, or with a practice of maintaining awareness of one's orientation relative to compass points. Or such forms of cognition may involve affect or values and lead to the elaboration of the brain systems that undergird those forms. Examples of such forms of affect and values that cultures can emphasize to different degrees include a sense of personal honor and the value of revenge as against a *laissez-faire* attitude; neighborliness and friendliness as against suspicion and hostility; a sense for the easy expression of anger as against the valuing of civility; the valuing of intelligence and knowledge as against disregard or suspicion of them; and a sense of communalism as against a sense of individualism. Thus, with respect to such cultural differences, the thesis here is that the cognitive culture system of an individual ascertains the emphases of its culture, and, as the result of its directing the individual to behave in accordance with these emphases, the brain and somatic systems of the individual that underlie such behavior increase in capacity, elaboration, and determinative power within the total ecology of the individual's brain and body.

As noted, the standard operation of the cognitive culture system not only ascertains cultural variation but also promotes it. The nature of the cognitive culture system's operation and of the recycling phenomenon (see below) promotes a certain degree of variation in the course of cultural

acquisition and may have so evolved to facilitate cultural accommodation to changing circumstances. The explanation is that the behavioral manifestations generated by an individual's culture system are not in lockstep with the behavior patterns observed in others. One reason for this variation is that the behavior-assessing system in the individual does not have sole control over all the individual's behavior but, rather, interacts with other cognitive systems in the same individual, including systems involved with individual personality. A second reason for variation is that the assessing system's abstractions and generalizations were made across people who themselves already differed from each other in various respects as the very result of their own intracognitive interactions.

**2.3.2 Variation in the Cognitive Culture System Itself** Another locus of variation in the process of culture acquisition is the genetic blueprint for the cognitive culture system itself, which, like all genetically controlled structures, exhibits some individual variation. But it seems that different brain systems admit different degrees of variability across individuals. Some systems have a high degree of consistency—that is, have very similar characteristics—from individual to individual. Examples might be visual processing in humans or control of flight in a bird species. While our supposition is that the characteristics of visual perception vary across individuals more than is generally recognized, systems like perception and flight presumably must operate within relatively narrow tolerances to function well enough to confer a selective advantage. Other cognitive systems, however, may not be under such tight tolerances and would then be more subject to the selective pressures for variation across a population. Perhaps examples of this sort in humans are the cognitive systems for affect, memory, and general motor control. It seems probable that the cognitive system for assessing and executing cultural patterns similarly exhibits substantial variation across individuals.

The parameters of genetic variation in the cognitive culture system can involve the accuracy of its assessments as well as the fidelity of its executions. They can also involve the strength or dominance of this system relative to other cognitive systems performing different kinds of assessments in the same individual. In addition to these, the parameters of variation that we will treat next are the accessibility of the system to consciousness, the system's propensity to generate an overall integration, and the system's adaptability to new cultural conditions.

**2.3.2.1 Access to Consciousness** One can observe differences between individuals in their metalinguistic or metacultural capabilities that can be attributed to differences in the degree to which the processing products of their cognitive culture or linguistic system are accessible to their consciousness, and how actively they have employed that access in the course of their lives. Thus, field linguists and anthropologists find that contacted individuals range from being poor consultants to being excellent ones, able to indicate the structure of their language or to articulate the structure of their culture. In my own linguistic field experience with Atsugewi, a California polysynthetic language (i.e., one with an extreme degree of affixation), the first speaker I worked with was unable to identify any of the component morphemes or meanings within the multiaffixal verb. But the second speaker, on being asked how to say a particular phrase in her language, spontaneously volunteered a series of utterances that varied in just a single morpheme slot of the verb. She thus revealed a segment of the verb's semantic and grammatical structure in an analyzed array. It is a possible explanation that in the second speaker, or in a comparably adept informant for cultural descriptions, the cognitive systems for linguistic or for cultural analysis have in the course of their lives functioned more actively and with greater accessibility to consciousness than in the general population.

Similarly, it seems further possible that the linguists and cultural anthropologists with a gift for their disciplines are individuals in whom these cognitive systems are innately more active and accessible to consciousness—as well as being individuals who live in a culture that has permitted or fostered the development and exercise of these systems as a professional specialization. (Thus, given the opportunity, the second Atsugewi speaker might have made a good linguist.) It is further possible that the very disciplines of linguistics and cultural anthropology have developed into societal institutions as a cumulative large-scale expression of the activity of the language- and culture-analyzing brain systems in individuals, especially those in whom these systems are particularly dominant.

**2.3.2.2 Integration** The cognitive culture system may exhibit genetic variation across individuals in several further respects. One is the degree to which the system functions to integrate the various aspects of its assessments of the surrounding culture into a single coherent conceptual structure. It appears that the cognitive culture systems in different individuals can vary over a range. At one end of the range, the system easily

allows the co-presence of disparate compartmentalized chunks consisting of the separate analyses of different aspects of the surrounding culture. At the other end of the range, the system labors to accommodate as many as possible of the various aspects of analysis to each other and to reconcile conflicting analyses so as to form an overarching conceptual framework. In the individuals that have a cognitive culture system of the latter sort, the affect experienced in consciousness in relation to this aspect of processing may be a sense of striving to achieve an integration and a sense of pain insofar as it is not achieved.

Whole cultures appear to differ in the degree to which their patterns are integrated, thus achieving a coherent system of symbolism, value, practice, and so on. Many historical factors may account for the rise of inconsistent patterns within a formerly integrated culture. But a subsequent trend toward a new integration is probably the large-scale result of the drive toward integration present in the cognitive culture systems of a critical mass of the members of the culture.

**2.3.2.3 *Adaptability and Affective Attachment*** Another respect in which the cognitive culture system may vary genetically is adaptability. This pertains to the period through the individual's life during which the system remains able to process and accommodate to ongoing changes in the surrounding culture, and the magnitude of the changes that it can thus respond to. The system is clearly most ready to take on new configurations during the individual's youth and would seem to decline afterward. But individuals differ as to whether this decline is early and precipitous or late and gradual. And they vary as to whether the decline precludes only radical transpositions to a new culture or also the ongoing shifts within the native culture (see section 3.2).

A related variable factor is the strength of affect that attaches to the products of the cognitive culture system's processing. Thus, some individuals are motivated to defend to the death their way of life against external threat to its continuation. Other individuals have little emotional attachment to their familiar way of life and are content to have a new cultural surrounding.

## **2.4 The Relationship between Individual and Group**

Given our perspective that culture is foundationally represented in the cognition of the individual, an account must be given for the cultural patterns manifested by groups larger than a single individual. This task is

particularly important, since many theories of culture are wholly based at the level of the group, which they treat solely as a suprapersonal emergent phenomenon. In this section, we outline four processes by which an individual-based cognitive culture system can account for the existence of group-level patterns. These processes are the following: each individual acquiring roughly the same first-order pattern, which thus then appears in the aggregate; each individual acquiring schemas for the structure of complex group events; each individual acquiring a metaschema for the unequal presentation of first-order cultural material to developing individuals; and each individual that is acquiring culture belonging to a group of individuals that are doing the same.

While genuine emergent characteristics may exist at a societal level, it is necessary to distinguish them from those large-scale or group-level patterns that can be traced directly to individually based cognitive structure.

**2.4.1 Individuals' Shared Schema Summated over the Group** For the kind of group pattern in which all the individuals making up the group exhibit approximately the same behavior—for example, all the members of a society using their eating utensils in roughly the same way—there is little difficulty in tracing the relationship between the individual and the group. Each individual simply acquires the behavior, which is then manifested in the aggregate. This form of individual-group relation can be called the **summary aggregate** form, or the form with an **individually shared schema summated over the group**.

**2.4.2 Individuals' Shared Schema for Group Cooperation** More is required, though, to explain the kind of group pattern in which different individuals manifest different behaviors that complement each other and together constitute an integral pattern, as in the case of a wedding or a war.

The cognitivist account here too, though, is still rather straightforward. The cognitive culture system of the developing individual is built with the following two properties (the first of which is simply a further form of the assessment function). It can learn about or observe in the group around it a pattern composed of complementary behaviors by different individuals, and internalize this as an abstract conceptual structure or schema. And it has the concept of itself performing a particular one of these behaviors in interaction with others performing the remaining behaviors in accordance with the schema. Each individual in the society will have acquired



approximately the same schema and can adopt one or more of the roles in it. Thus, a number of such individuals can together enact the full complex of the pattern, because each shares with the others the same overall schema and performs one part of the schema in cooperation with others performing the complementary parts. Each individual may have different degrees of familiarity with any particular role within the schema, from detailed knowledge of its performance, to familiarity with its performance by others, to simple awareness that this particular category of role exists. There may even be some roles in a cultural pattern—which will come to be performed by other members of the society—that the individual is unaware of. But, taken together, this understanding in the individual limns out a relatively complete sketch of the overall schema. This form of individual-group relation can be called the form with an **individually shared schema for group cooperation**.

To illustrate, for a wedding to take place, each participant will generally have a preexisting conceptual schema of the roles and behaviors of all the distinct types of participants. Thus, in a traditional wedding of East European Yiddish-speaking Ashkenazic Jews (see Zborowski and Herzog 1952), the groom will know the roles of himself as groom (*khosn*); of the bride (*kale*); of those who escort the bride and groom to the wedding canopy, usually their parents (*unterfirer*); of the performer of the marriage ceremony, usually the rabbi (*mesader kedushin*); of the four men holding up the ends of the wedding canopy (no special designation); and of the witnesses who sign the wedding contract (*eydes*). The groom will also know the roles of the special figure that combines the functions of master of ceremonies, orchestrator of emotions, and poignant jester (*batkhn*); of the ritual guard who watches over the room in which the newly married couple sit alone together to break their fast (*shoymer*); and of the musicians (*klezmoyrim*). Of these roles, the groom may himself have detailed knowledge of several of them, say, of canopy bearer and of musician, having performed those functions previously; have familiarity with several other roles because he had previously witnessed them, say, with the roles of the rabbi and the *batkhn*; be aware of the category and outline character of certain other roles because of having heard them described or referred to, say, of the witnesses to the contract; and be unfamiliar with the role of the ritual guard.

Our view here thus opposes the view largely maintained in “practice theory” (see Lave 1988). The structure and pattern of progression of a culturally based multi-individual activity is not an emergent phenomenon

arising solely in the process of interaction and whose nature could not be seen or grasped before its actual unfolding. On the contrary, its structure, the pattern of its progression, the types of roles played by participants in it, and the contents of these roles are largely understood beforehand and exist as a conceptual schema in the cognition of each individual who will take part in or witness the event. A participant or witness may be surprised by some novel effects that inevitably arise during interaction, but he cannot be startled at some fresh emergence of an entire complex event, as the characterizations of practice theory might lead one to imagine. Even some role or factor wholly unexpected by a society member would likely not throw that person's understanding or performance into chaos, since the new factor would enter into an already richly furnished conceptual structure. We would maintain that a cooperative and coordinated activity could not otherwise take place.

Similarly, while studies of distributed cognition (e.g., Hutchins 1993) emphasize the distinctness and partiality of the knowledge of any one participant in a collective activity (and analyze these aspects correctly, in our view), we here emphasize the complementary idea that such coordination could not occur if the participants did not already largely share a common conceptual template of the overall activity. However sketchily, such a template delineates the overarching structure of the activity, its constituent parts and processes, and the way these are to relate to each other.

This idea of individual internalization of a cultural schema for cooperative activity has a linguistic parallel in the area of discourse. Each party in a conversation understands both the role of the speaker and the role of the listener, as well as how these two roles are to interact cooperatively. This turn-taking structure of discourse, as described by conversation analysts (e.g., Sacks, Schegloff, and Jefferson 1974), is not an emergent phenomenon whose nature each interlocutor had no inkling of before starting to speak and is amazed to see emerge. On the contrary, each participant can, in full consciousness, understand and manipulate the two roles.

**2.4.3 Individuals' Shared Metaschema of Group Differentiation** We have so far presented the operation of a developing individual's cognitive culture system as if it had open access to all the patterns of behavior present in the whole society around it. In fact, however, adults, both singly and as groups, can to various degrees control the particular cultural

patterns that a developing individual is exposed to. For example, men may present male cultural patterns to a boy that they do not present to a girl. Adult members of a particular totemic affiliation may exhibit their rituals to a youngster of the same affiliation but not to one outside it. In a culture with an apprenticeship system in which specialized knowledge is transmitted to particular individuals, a child apprenticed, say, to a master of canoe building will acquire the detailed lore of this craft, but an unapprenticed child will not. In a society with classes, a higher class will provide a child with more elaborate forms of education and technology, as well as lore in the maintenance of power, that are generally not available to the child of a lower class.

In all such cases, the cognitive culture system of the developing individual still functions as described until now, cross-assessing and abstracting patterns from the behaviors that it observes. The only difference is that the behaviors it is able to observe are partly determined by a cultural **metapattern** that establishes the parceling out of exposure. Further, the approximate overall structure of such a metapattern is itself acquired in a roughly comparable form as a **metaschema** by most children, in a manner similar to that described in the preceding section for the acquisition of a cooperative schema. That is, a child, in addition to acquiring the particular portions of his culture that the adults differentially expose him to, also acquires in schematic form the cultural metapattern that establishes which groups of adults present which categories of first-order cultural patterning to which children. For example, both boys and girls in the gender-differentiated society mentioned above acquire the cultural metaschema that certain practices exist that will be shown to the boys and not to the girls. And the children of both the rich and the poor in the society with classes may acquire the cultural metaknowledge that certain first-order forms of knowledge will be passed on to the children of the rich but not to the children of the poor. In turn, of course, a child grows up and becomes one of the adults that together institute the metaschema in accordance with their own acquisition of it. This form of individual-group relation can be called the form with an **individually shared metaschema of group differentiation**.

**2.4.4 Individuals' Shared Schema Acquisition from a Group** Several forms of cultural transmission described earlier—clarification, individual exposure, and implicit or explicit instruction—can take place on a one-on-one basis, from single imparter to single acquirer. But the main form

of cultural transmission that this chapter has treated is cognitively a many-one relation: the partially differing behaviors of many adults are cross-assessed by the cognition of each single developing child. A structural issue, then, is how such a group-dependent process can persist over time if its end product is a matter of individual cognition. The many-one relationship renews itself through the generations in an evident way: Although cultural acquisition is accomplished singly by each developing individual, there are of course many such developing individuals performing the same process of acquisition at the same time. In addition, since they realize this process in partially different ways, they internalize partially different cultural behavioral patterns. In turn, then, these individuals will become the group of adults with partially differing behavioral patterns that will be cross-assessed by the cultural cognition within each individual of a new round of developing children. This form of individual-group relation can be called the form with **individually shared schema acquisition from a group**. The process that takes place in this form—presumably the main process in cultural transmission—can also be termed the **recycling of culture**. This process allows for internal cultural change because of all the previously described forms of variation and of departure or slippage from uniformity that occur in the process.

### 3 EVIDENCE FOR A COGNITIVELY DISTINCT CULTURE SYSTEM

If the cognitive culture system that has been posited here is indeed a distinguishable cognitive system based on a distinct neural system, it is likely to exhibit certain characteristics that other such entities have shown. Thus, it might exhibit developmental phases, sensitive periods, system-specific impairments due to brain lesions or other malfunctions, a weaker form or a precursor or an absence in other species, and relatively little overlap with other cognitive systems that might otherwise have seemed to be closely related. In this section, for each of these categories in turn, we cite existing evidence or suggest kinds of evidence to be looked for in further research. The more such evidence becomes consolidated, the more compelling the argument for a neurally based distinct cognitive culture system appears.

#### 3.1 Developmental Phases in Culture Acquisition

Determining the pattern in which a child acquires his culture can help select among alternative theories as to the cognitive undergirding of cul-

ture. One possibility is that children acquire culture in the same way as used to be believed was the case for their acquisition of language. Namely, they manifest a relatively continuous gradient of learning until achieving the adult form. This learning proceeds mainly by a generic process of imitation, perhaps abetted by some explicit instruction. The child begins by making many random shifting mistakes due to an imperfect ability to imitate and grasp the adult forms, but gradually hones its productions through ever finer imitation until it reaches the adult target.

But several decades of research in child language acquisition (e.g., Slobin 1985) have shown that a child's acquisition of a language occurs in quite another way. It proceeds in a succession of incremental phases, with each phase characterized by its own distinctive "grammar" that remains relatively consistent throughout that phase and that the child persists in despite outside attempts at correction. The phases emerge through the successive introduction of general principles of structure. Each such introduction can entail a general reorganization of the interim grammar to maintain the overall coherence of the system. Further, certain aspects of the phases that a child progresses through seem to be universal, whether they are so because they are dependent on certain other aspects of cognitive development that are themselves universal or because they are the result of innate properties of the language system.

In a parallel way, attention must be given to whether culture acquisition proceeds as a continuum of mistake-correcting imitation or, instead, as a lawful succession of coherent organized structures. And, if the latter, it must be seen whether any aspects of the succession follow universals of structural change. Minoura (1992) presents evidence for the existence of a phase roughly between the ages of 9 and 15 during which an individual interiorizes his culture's pattern for peer relationships. But there is little research of this kind. If further research confirms culture-acquiring phases of this sort, that will constitute further evidence for the thesis that humans have a distinct cognitive culture system.

### **3.2 Sensitive Period for Culture Acquisition**

Something like a sensitive or critical period may exist for cultural acquisition. This possibility is raised not with any thought of a child who grows up in a culture-free environment and is subsequently unable to acquire any culture—an unfortunate situation that could arise only under the most unusual circumstances. Rather, at issue is an individual who has acquired a first cultural pattern as a child but who, on later exposure to a

second culture, is less able or unable to acquire certain of its features. With the sensitive-period notion applied in this way, then, an individual would need to be exposed to certain cultural phenomena, and perhaps also to have the opportunity to put them into practice, within a particular early period of his life for those phenomena to be acquired and remain available throughout life.

An individual's acquisition of particular cultural phenomena is understood here to include at least the following: her ability to recognize the phenomena when manifested by others in the culture and to respond accordingly to them, to think and feel in terms of the phenomena, and to manifest them herself. Such acquisition can be understood as occurring at two degrees of depth: whether a particular cultural feature is acquired at all, or whether it is acquired in its full subtlety, elaboration, and integration with other features. Accordingly, an individual who first encounters such phenomena later in life might be able to discern, comprehend, and respond with some appropriateness to them, perhaps mostly by using her intellectual capacities. But under the sensitive-period notion, she would have had to experience those phenomena during an earlier stage of life for them to have become internalized and interconnected at a more foundational level of cognitive organization.

The posited sensitive period is probably subject to much variation across different individuals and different cultural features or domains with respect to its onset, duration, contour, and severity. Here, "contour" refers to such dynamics as whether the period's onset or cessation is relatively gradual or abrupt, and "severity" pertains to the degree to which a cultural feature or domain might be internalizable outside the sensitive period, from not at all to fairly extensively. Other cognitive systems, perhaps visual perception, appear to have a more clear-cut and severe sensitive period for particular visual phenomena (such as the perception of horizontal stripes). But for the cognitive culture system, the acquisition period for many phenomena may not be so much a matter of all-or-none criticality as of facilitation or enhancement.

For a cross-cultural example, one can consider one's experience with some long-term immigrants to one's country who, though they have learned the new language well enough to get along in it, nevertheless behave, interact, and manifest concepts and emotions in ways that strike one as nonnative. To be sure, some such immigrants recognize certain of the cultural differences and have consciously chosen to retain original customs and values. But immigrants to whom the notion of a cultural

sensitive period would most clearly apply are those who, it appears, have genuinely wanted to assimilate, yet end up not fully able to do so—whether or not they are themselves aware of the cultural shortfall.

Relevant here is Minoura's (1992) study of Japanese children who moved to the United States at various ages and subsequently returned to Japan. Her finding is that the period between ages 9 and 15 is a sensitive period for "the interiorization of cultural meaning systems about interpersonal relationships" (Minoura 1992:333). Children who return to Japan before this period readily readjust to their original culture, but children who return after this period have interiorized the American conceptual and affective patterns of peer relationships to an extent that they have difficulty adjusting to the Japanese pattern on their return.

Another type of example involves a quickly changing single culture. An older member of such a society may well retain various practices, values, and aspects of worldview that were prevalent when she was young—that is, during her sensitive period—but that are no longer broadly manifested. Both she and younger members of the culture may be conscious of the disparity. In accordance with their valuation of the change leading to the disparity, the young might variously see the woman as, say, superior or old-fashioned, while she might see the behavior of the young as a sign of societal advance or decline. The woman can of course have used aspects of cognition outside the cognitive culture system to establish individual practices, values, and beliefs (see section 3.6) and on the basis of these rejected certain potential revisions of her early pattern—in the same way that some young individuals might reject aspects of their contemporary pattern and try to follow the older pattern. Apart from this, though, this woman has not changed her earlier cultural pattern to the new pattern in the respects at issue. The sensitive period theory would explain this fact by holding that, with respect to certain aspects of such patterns, the woman is largely unable to shift because her cognitive culture system is already set for the pattern that it became attuned to during its sensitive period.

The existence of a sensitive period can support the hypothesis of a cognitive culture system given that sensitive periods have elsewhere been found to apply to distinguishable cognitive systems, such as visual perception and language. Consider the linguistic parallels to the cultural sensitive-period notion. An individual acquires certain features and categories of features of his first language, learned during his linguistic sensitive period, whose counterparts he may be unable to acquire at all, or to acquire in full depth, in a second language.

Such failures of acquisition can involve phonology, grammar, or semantics. Phonological examples are the native French speaker who cannot pronounce the English “th” or “r” sounds, and who cannot seem to grasp the relevance of syllabic stress, or the native English speaker who seems unable to appreciate the phenomenon of tone in Chinese. That is, some individuals not exposed to stress or tone in their critical period may emerge, in effect, “stress-deaf” and “tone-deaf” in second-language acquisition. An example for grammar is the native English speaker who cannot later deeply internalize grammatical gender and case in Russian. Rather than fluently producing the appropriate noun and adjective suffixes, such an individual might at best be able to generate them by calculation from memorized textbook tables. Semantically, a native German speaker may never be able to master the English distinction between the simple and the progressive present (*I teach here* vs. *I’m teaching here*).

### 3.3 Cultural Impairments

The hypothesis of a cognitive culture system rooted in some specific neurophysiological system requires investigation into whether any impairments to the culture system exist that can be traced to dysfunctions of the neural system. Considering again the linguistic parallels, the fact that there are various forms of neuronally based language impairments—aphasias and dysphasias—leads one to explore whether any neuronally based impairments exist in an individual’s capacities for cultural acquisition or maintenance, what might be termed “anethnias” and “dysethnias.”

One study that bears on this possibility is Goffman’s (1956) analysis of a culture’s rules of conduct and their abrogation in varying respects and to varying degrees by institutionalized patients on psychiatric wards. The more disturbed patients under his observation would ignore or transgress this culture’s rules of deferential avoidance (to use Goffman’s terminology). They would state their unfavorable views of others’ appearance or dress openly to them; accost any attending doctor for his attention; grab food for themselves in a way that disregarded others’ reaching for food or take the food off another’s plate; curse at others; and touch, grab, hit, or throw feces at another person. Such patients ignored or transgressed the norms of personal demeanor by variously exhibiting slovenly dress and unclean hygiene, emitting loud belches and flatulence in public, and abruptly lurching to and from the dinner table.

Although Goffman did not explicitly address the matter, it appears from his descriptions that many of these patients did not suffer from



wholly general cognitive incapacities of knowledge and attention that simply affected cultural maintenance along with other manifestations across the board. Rather, some functions seemed to be spared while others were disturbed. Although the disturbance presumably did not affect the patient's cultural manifestations alone but at least included their emotional and conceptual systems, the fact that their cultural functioning was selectively disrupted could be part of an argument for the presence of a distinct culture system.

While psychiatric patients of the above degree of disturbedness presumably have some form of neurophysiological impairment (rather than, say, what may simply be associative neural interconnections that lie within standard variation in the case of neurotic behavior), it remains to be determined whether documentable brain lesions can have selective effect on an individual's cultural structure.

### **3.4 Culture Acquisition by Nonhuman Primates**

If a child's acquisition of his surrounding culture were simply a matter of learning to imitate the visually evident patterns of behavior around him, we should expect that any animal capable of and motivated toward such imitation and reared in the same cultural surrounding would emerge with a behavior pattern similar to that of the human child, if somewhat coarser or slower. On the other hand, human culture acquisition may be a species-specific process orchestrated by an innate cognitive system that includes the specific capabilities to attend to and incorporate certain species-relevant and structurally distinguishable categories of behavior. In that case, we should expect to find that nonhuman animals with some capacity for imitation would be able to exercise that capacity unequally on only some aspects of the behaviors manifested around it, rather than at roughly the same level of competence across the board.

Tomasello, Kruger, and Ratner (1993) have argued for just such a disparity in the chimpanzee Kanzi, reared by humans and taught the use of signs. Kanzi successfully acquired many of the behaviors around him such as drinking from a cup, stirring a pot with a cooking spoon, cutting vegetables with a knife, lighting a fire with a lighter, and loading his backpack to go outside. But Kanzi used the signs he had learned preponderantly in an "imperative mode" to give directives to others to do things that he wanted. He almost never used the signs in a "declarative mode" to show a new object to someone or to direct someone's attention to an object that he had noticed, as if to share the experience. The most

that Kanzi did in this regard was, for example, to press the “ball” button on seeing a ball on television. He did not perform the declarative actions that even very young human children perform, such as holding up an object, alternating gaze between this object and the intended viewer, and exhibiting positive affect. Yet just such behavior was amply manifested by the people around him and presumably was as visually evident as the imperatives given by those people. Nevertheless, Kanzi did not acquire that category of symbolic use.

It could be argued either that Kanzi could not recognize that form of expression or that he could do so but was not interested in producing it. In either case, though, the part of Kanzi’s cognition that directed his communicative interactions clearly differed structurally from the communicative system of humans, since Kanzi’s performance was not simply reduced equally across all categories of human communication but showed qualitatively distinct highs and lows. On the assumption that the cognitive subsystem for communication in humans is part of or at least partially shaped and directed by the cognitive culture system, the specific communicative shortfall evident in a chimpanzee suggests that the cognitive culture system of a human child is so built as to perform the specific functions that the chimp is unable or unmotivated to perform.

Further, Tomasello, Kruger, and Ratner argue that even the forms of imitation that Kanzi did exhibit were amplified from a naturally lower readiness to imitate by contact with humans. Thus, he argues that in its natural social environment, a chimpanzee is little motivated to imitate the behavior of the other chimpanzees around it. What it mostly appears to do is to become attentionally drawn to a desirable circumstance produced by another chimp, and either to employ familiar behaviors already in its repertoire to bring that circumstance about, or to engage in nonorganized behaviors that might happen to lead to the desired circumstance. It seems minimally to observe the behaviors that another individual has used to attain that outcome and to imitate that behavior. Thus, the proposed human cognitive system for culture acquisition may also include an evolutionarily increased capacity and motivation for imitation.

As before, there is a linguistic parallel to this species difference in cultural cognition. Humans appear to be innately wired to acquire a language in its full-blown structural complexity. Of this complex, chimpanzees appear able to perform only certain aspects easily or at all. One interpretation of the human language research with animals is that a chimp has concepts perhaps much like those that humans have. And

it can associate a particular symbol with each such concept—especially visual symbols—so that seeing the symbol evokes the concept, and having the concept can motivate the production of the symbol. It seems further likely that a chimp can manipulate its concepts in forms of understanding and reasoning that may resemble that of humans. But chimps seem unable in anything beyond a rudimentary fashion to manipulate the symbols within structured complexes in a way that could correspond to the formation and manipulation of conceptual complexes of human linguistic structure.

### **3.5 The Independence of the Culture System from Other Cognitive Systems: Language**

Further evidence for the distinctness of a cognitive culture system would be provided by a demonstration of its difference from other cognitive systems that might otherwise have been expected to form a continuum with cultural knowledge and behavior. We can provide such a demonstration with the cognitive system of language.

Developing further a traditional linguistic distinction, chapter I-1 presents evidence that the task of conceptual representation by language is functionally divided between two types of linguistic forms, the open-class forms (primarily the roots of nouns, verbs, and adjectives) and the closed-class forms (including inflectional and derivational affixes; unbound forms like prepositions, conjunctions, and determiners; word order; grammatical categories and grammatical relations; and grammatical constructions). These two types of forms perform complementary functions, respectively, that of expressing conceptual content and that of assigning conceptual structure. Thus, in the total conception evoked by any single sentence of a language, the majority of its content is contributed by the open-class forms, while the majority of its structure is determined by the closed-class forms.

Further, the meanings represented by all the closed-class forms of all languages are highly constrained, both as to the conceptual categories and as to the member concepts within a category that they can ever express. For example, although many languages have noun endings that indicate the number of the noun's referent, no language has noun endings indicating the color of the noun's referent. Thus, the conceptual category of 'number' is among the categories that closed-class forms can express, but the category of 'color' is universally excluded from closed-class expression. Further, with respect to the member concepts within the category of

number, many of the languages that do have number on their nouns have endings for notions like 'singular', 'dual', and 'plural', but no such language has endings that indicate 'even', 'odd', 'dozen', or 'numerable'.

Taking together all the conceptual categories and member concepts that are ever expressed by closed-class forms under their severe semantic limitations, this totality of all closed-class meanings can be understood to constitute the fundamental conceptual structuring system of language. If this system in language is now compared with what can be taken as the conceptual structuring system of culture, only a few correspondences and many differences are found. This fact can serve as a testimony to the distinctness of language and culture as separate cognitive systems.

Two types of comparison of this sort will be used to demonstrate this distinctness, a transverse type and a longitudinal type.

**3.5.1 Cross-Cultural and Crosslinguistic Comparison of Conceptual Structure** For the first demonstration, we make use of Murdock's (1965) list of cultural universals, already enumerated in section 1.1. The noteworthy observation about this list is that out of its 72 apparently universal cultural categories, only eight have any representation in the closed-class conceptual structuring system of language, and of these eight, only some three or four have extensive representation. One of the most extensively represented categories is "status differentiation," which, for example, is represented in the familiar versus the formal forms of the second person in many European languages, as well as in the elaborate pronominal and inflectional forms of Japanese. Related is the Murdock category of "etiquette," which is grammatically represented by various markers and constructions for requesting as against commanding (*Could you please speak up?* vs. *Speak up!*), for suggesting as against directing (*Why not go abroad?* vs. *You should go abroad*), and for many other forms of politeness (see Brown and Levinson 1987). "Property rights" is perhaps linguistically represented by those closed-class forms that express ownership and transfer of possession. "Personal names," as a subset of proper nouns, have somewhat distinctive syntactic characteristics in some languages. Comparably, a few languages have somewhat special syntax for "kinship nomenclature." And perhaps most, if not all, languages accord special syntax to "greetings," to "numerals," and to "calendar" designations. But aside from these several relatively modest forms of intersection between the conceptual structuring system of language and that of culture, there is remarkably little correspondence between these two systems. This

finding is an argument for the status of culture and of language as distinct cognitive systems.

**3.5.2 Single-Culture and Single-Language Comparison of Conceptual Structure** This same line of argument can be pursued for the language and culture of a single people. A comparison here falls in the domain of the Sapir-Whorf hypothesis. This hypothesis proposes that much parallelism exists between the conceptual structure manifest in the grammatical system of a language and that in the culture of the people who speak the language. In his work on the language and culture of the Mparntwe Arrernte, an Australian Aboriginal group, Wilkins (1988, 1989, 1993) has gathered together all that he could discern of the grammatical forms in the language that seem to reflect aspects of cultural structure. There are several such forms, almost all of them involving kinship relations and totemic affiliations for both people and places, intense cultural preoccupations in Aboriginal Australia, as documented by Heath, Merlan, and Rumsey (1982). Nevertheless, the number and extent of these forms is minute compared to the entire grammatical system of the language. And even here, several of these cases involve no novel grammatical categories but only certain special applications of familiar categories. We describe most of the six or so cases that Wilkins has found for Mparntwe Arrernte. This demonstration is significant—and thus accorded some space—because of its challenge to the prominent Sapir-Whorf hypothesis and its relevance to cognitive theory pertaining to culture and language.<sup>4</sup>

Mparntwe Arrernte has a “switch-reference” system—common enough in languages around the world—by which the verb in a dependent clause takes inflections that indicate whether its subject is the same as or different from the subject of the main clause verb. For example, consider a sentence referring to two geographically distinct locations: *Location A became defiled, when location B broke apart*. Usually the verb for *broke apart* would be inflected for ‘different subject’. But if the two locations have the same totemic affiliation, and this fact is pertinent to the meaning of the sentence, and the speaker wishes to foreground the fact, the verb can be marked with the ‘same subject’ inflection.

For a further example of the same phenomenon, consider the sentence that can be translated as *The little boy cried, as they walked along*. In general, the speaker can inflect the *walk along* verb for either ‘same subject’ or ‘different subject’ depending on whether the boy is considered part of the group or distinct from it. But, to take the latter case, if the grounds

for considering the boy distinct from the group pertain to their social relations, the only permissible interpretation is that the boy is of a different “harmonic generation” from that of the rest of the group. (Ego and Ego’s grandparents and grandchildren are in the same harmonic generation; Ego’s parents and children are in a different one.) Thus, it is not a permissible interpretation that the boy is of a different family or friendship circle. While a switch-reference grammatical system per se reflects no cultural patterns, therefore, its application in this language does reflect the culture’s emphasis on and specifics of totem and kinship.

For another case, in Mparntwe Arrernte all dual and plural pronouns in all three persons come in three distinct forms. One form refers to two or more people who are members of different patrimoieties. A second form refers to people of the same patrimoiety but of different generations, while the third form refers to people of the same patrimoiety and of the same generation. Thus, where English would just use *we*, *you*, and *they* without regard to any characteristics of the groups referred to by these pronouns, this Aboriginal language pronominally distinguishes such groups with respect to kinship relations of relevance to the culture.

For a third case, Mparntwe Arrernte has two distinct sets of singular possessive pronominal suffixes to express meanings like ‘my’, ‘your’, and so on. Most nouns can take the general set, but all kinship terms take only the second set. Thus, this second set indicates not only that one individual bears a relation of ‘possession’ to another, but that this is a kinship relationship. By itself this grammatical phenomenon may reflect the cultural salience of kinship. In addition, though, this second set of suffixes can be used with two further nouns in a way that shows the cultural identification between kinship, land, and totem. The noun *pmere* has a meaning range that covers the senses ‘place’, ‘camp’, ‘home’, ‘country’, ‘land’, ‘shelter’, and ‘Dreaming site’. But with a second-set suffix, it can only refer to land one is responsible for and bound to by Dreamtime law. Comparably, the noun *altyerre* includes the senses ‘a dream’, ‘Dreamtime’, ‘Dreaming country’, ‘a totemic ancestor’, and ‘the law’. But with a second-set suffix, it can only refer to a person’s Dreaming country, or a person’s totem. Thus, the application of this special set of grammatical inflections reflects the cultural importance of kinship and of its identification with land and totem.

Finally, Mparntwe Arrernte has three sets of grammatically distinct noun classifiers. One set consists of four classifiers with the meanings ‘man’, ‘woman’, ‘child’, and ‘place’. Each of these four can, for example,

be put in construction with the noun for 'kangaroo' to refer to a man, woman, child, or place of the kangaroo totemic affiliation. The fact that place is grouped formally with people here again reflects the cultural association that brings kinship, land, and totemism together.

While the above examples and perhaps several further cases do seem to reflect a cultural penetration into the grammar of Mparntwe Arrernte, these few cases represent the full extent of such penetration. The vast remainder of the language's grammatical system manifests conceptual categories widely represented among the languages of the world, regardless of their cultural contexts. It might have been expected that progressively more of a culture's conceptual structure would enter into the conceptual structuring system of the language the longer that continuous forms of the language and the culture coexisted for a single people. Certainly, this Australian group is an instance of such a people. Nevertheless, their language and culture reflect little of each other. Apparently, each of these two cognitive systems follows principles of organization that, presumably due to their innate determinedness, remain largely independent of each other. Thus, the Sapir-Whorf hypothesis, at least in this site of its testing, seems not to be borne out.

### **3.6 The Independence of the Culture System from Other Cognitive Systems:**

#### **Personality**

The collective profile of individual psychological characteristics that vary from person to person within an otherwise culturally or subculturally coherent group is what is generally understood under the notions of "temperament" or "personality." As suggested by growing research, including studies on separated identical twins, much of personality evidently has an innate basis in an individual's neurophysiology. Whether or not it should be concluded that personality constitutes a distinct cognitive system, it seems necessary to distinguish aspects of individual personality in a person from the functioning of that person's cognitive culture system. One may observe apparent disparities between an individual's personal propensities and the cultural patterns of the society that the individual is in. The existence of such disparities is further evidence of the distinctness of the cognitive culture system within an individual's total cognitive organization.

Disparities of this sort seem to be at work in the following three cases of different types. First, the legal systems apparently possessed by all societies take sanctions at least in part against an individual's trans-

gressions against cultural patterns. But if an individual's behavior were solely determined by the predominant cultural patterns, no deviations from those patterns could ever arise. The mere fact that such deviations do occur—deviations that in fact are recognized as such by the local culture and against which the culture includes a system of legal sanctions—is evidence that an individual's behavior can be governed by forms of cognitive organization outside that of the cognitive culture system.

For a second kind of disparity, we note that there may be a number of periods in an individual's lifetime during which he experiences himself at variance with his surrounding cultural or familial expectations. The concept of the "midlife crisis" current in our own culture rests on an understanding of a conflict of this sort. In this concept, a midlife crisis is typically the culmination of a situation in which a person has had individual characteristics different from those valued by the culture but who, throughout his earlier years, tried to mold himself in accordance with the external precepts. The idea is that gradually, his own individual characteristics incrementally grew and came unto their own until they finally challenged the outside expectations. This semifolk concept may well reflect a genuine phenomenon of cognitive structure and process, though we suspect that such conflicts between personal characteristics and internalized cultural expectations can manifest during many periods in an individual's life (not just during midlife) and do so with a range of intensities (not just as a crisis).

For a third kind of personality/culture disparity, we note that interviews with different members of a single subcultural group often reveal different attitudes toward the patterns of that subculture. For example, some of the women sequestered in some Muslim cultures will personally enjoy this practice, perhaps feeling that they are being especially cared for, while other women will experience the practice as a constraining barrier to their desire for social mobility.

This last kind of disparity pertained to different personality types having different degrees of fit within a single culture. Its corollary is that the same personality type would have different degrees of fit within different cultures. For example, an individual with an introspective bent might well have a generally happy life if born into a culture with respect and institutions for an introspective lifestyle, while that same individual might lead a troubled life if born into a culture that valued active outgoing behavior and denigrated internality. Or a very aggressive individual might be



esteemed in a culture with a concept of boldness and bravery in battle but might be regarded as a pariah in a pacific culture.

Patterns like the ones just cited distinguish cultural cognition as a system relatively separate from other individually based cognitive activity.

However, these two portions of cognition may also interact. Consider first that, as in the preceding discussion, a culture may hold up one particular personality type as an ideal. Or it may set up a different ideal type for each of several categories within the culture, say, one for men and another for women. But a culture can also recognize a certain set of different personality types as alternative models for individuals to adopt. Such a set of models can either replace an ideal or be ranked next below it (whether a whole-culture or a category ideal). Such personality models might include a forceful type and an easygoing type, an outgoing type and an inward type. Cultures differ from each other in the set of personality models they recognize, as well as in their particular realizations of an otherwise shared model. Thus, the concept of a tranquil balanced type of person might be accorded a standard niche in one culture but not even be recognized in another. And while the concept of an inward type of personality might be equally recognized in two different cultures, it might be associated with introspective wisdom in one of the cultures but with an unsociable withdrawn character in the other. A child growing up in a culture with such a range of available personality models may tend to adopt for himself the model with the fit closest to his own experience of himself. Now this arrangement points to an interaction between the two cognitive components—the cognitive culture system and the individual personality—whose independence this section has otherwise argued for. This interaction has two main opposite directions. On the one hand, the personality models that a culture recognizes ultimately derive from actual personality tendencies that individuals exhibit. On the other hand, a child growing up in a particular culture may tend to shape her personality predisposition in accordance with the closest specific model presented by the culture.

#### **4 COGNITIVISM CONTRASTED WITH OTHER VIEWS OF CULTURE**

The cognitivist position on culture that has been outlined in this chapter is often at variance both with beliefs that form part of a culture's own lore, and with beliefs that form part of the theoretical structure of some

academic disciplines. Such beliefs often view the nature of culture as a quiddity that is transpersonal and pervasively resident in the group. (A culture's lore may go on to view this quiddity as pervasive throughout the space of the group's territory and as integrated into still more encompassive beliefs about deity and cosmos.) For example, to a great extent, sociology in general and ethnomethodology (e.g., Garfinkel 1967) as well as conversation analysis (e.g., Sacks, Schegloff, and Jefferson 1974) in particular maintain the view that the structure and principles of culture and communication reside not in separate individuals concurrently but pervasively over a group as a whole or, seemingly, in the interstitial space between the members of the group. Thus, works in the tradition of conversation analysis give the impression of holding that the principles of conversational structure exist in the space between the interlocutors, as if the latter were mere secondary elements that plugged into receptor sites in the interstitial medium. Holding a related version of such views, the "culturology" or "cultural criticism" in some European thought maintains an ontology in which a culture exists autonomously in the form of an abstracted structure, perhaps as a kind of Platonic ideal.

The cognitivist perspective faults the preceding views on the grounds that there is no substantive reality to their extrapersonal, interstitial, or Platonic-type conceptions of causal efficacy, whereas there is substantive reality to neurophysiology and neural activity, together with a presumptive causal link between these and the contents of consciousness. This cognitivist basis does not deny the existence of emergent effects arising from the interaction of a number of distinct nervous systems with each other and with environmental events. In fact, an expanded version of this chapter would directly characterize such emergent effects so as to distinguish them from large-scale cultural patterns that can be traced to the activity of individual cognitive culture systems. The emphasis of the present chapter, though, is on the great extent to which such cultural patterns can in fact be traced to a cognitive culture system resident in the individual.

### Notes

1. This chapter is a substantially revised and expanded version of Talmy 1995a.

An early version of this chapter was prepared for a May 1991 workshop on the topic of "Rethinking Linguistic Relativity," organized by John Gumperz and Stephen Levinson and sponsored by the Wenner-Gren Foundation.

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Quinn, Barry Smith, Claudia Strauss, Michael Tomasello, and David Wilkins. Much of the view set forth here may have been inspired by the thought of the psychologist Theodore Kompanetz (*olev hasholem*).

The framework outlined in this chapter seems largely consonant with a developing cluster of views in anthropology, psychology, and linguistics, such as those put forward by Boyer (1994), Hamill (1990), Jackendoff (1992), Keller and Lehman (1991), Minoura (1992), Quinn and Strauss (1993), and Tomasello, Kruger, and Ratner (1993).

2. In some circumstances, it may be that the possibly more crude, spotty, or distorted assessments that the self has made of some nonself group can nevertheless subsequently be tapped into for a more or less clumsy enactment. For example, a widowed father of a young daughter may tap into his memories of how his own mother attended to his sister when they were children so as now to enact such behavior to his daughter.
3. Parentese seems to be used to little or no extent in some cultures (see Schieffelin 1979, Heath 1983). But since its characteristics are largely similar in the cultures where it does appear, one may conclude that parentese is at least in part innately determined and is suppressed in the exceptional cultures rather than formed afresh in each culture that possesses it.
4. This demonstration was not the aim of the Wilkins papers but our use of his findings.