

*Connecting the Cognitive and the Cultural:
Artificial Minds as Methodological Devices
in the Study of the Sociocultural*

Robert N. McCauley
and
E. Thomas Lawson

I. Introduction

The focus of this chapter is overwhelmingly methodological. We aim to make a case for applying theoretical strategies that are familiar in the cognitive sciences to the study of sociocultural systems. We suggest that the specific strategy employed in theoretical linguistics (which we shall refer to as the *competence approach to theorizing*) of constructing idealized, artificial minds in the study of natural language will prove useful in the study of other sorts of systems that are standardly presumed to fall within the domain of the social sciences.¹

We tout this theoretical strategy in linguistics not because it has yielded unequivocally successful results. The relevant linguistic theories have proved as vulnerable to criticism and revision as theories in any other science—perhaps even more so (McCauley 1986 and 1987). The basis for our interest in the competence approach rests, instead, on two other considerations.

First, the competence approach to theorizing has been successful in spawning theories concerning an object of study (natural language) that resides at the border between the cognitive and the cultural. Moreover, these competence theories have generally proved *plausible* enough to be readily *testable* as well. Proposals of theoretical depth in the study of the sociocultural rarely possess both of these properties at once. It is an indisputable advantage of competence theories that they do.

Proposals in the social sciences (such as correlational studies) that are

these anthropologists now endeavor to interpret alien cultures in order to understand them better (Geertz 1973). In a world where neutrality and objectivity are nearly always convenient fictions, these anthropologists prefer to identify with the oppressed rather than with the oppressors.

We are completely sympathetic with these anthropologists' moral convictions. Nonetheless, the connection they see between scientific aspirations for anthropological research and collusion with imperialism is not a necessary one. The two issues are completely independent logically. These anthropologists would toss the scientific baby out with the collaborationist bathwater.

The proper course is not for cultural anthropologists to abandon explanatory theorizing in favor of either hermeneutic circling, idiographic research, or even detailed ethnography, but rather for them to take a more active role in influencing the disposition and use of the knowledge they produce. Producers who disseminate their products in the public domain can never completely control how those products will be used. No one can rightly expect them to. If they engage in ongoing reflection and exchange about the moral implications of their labors and their labors' fruits, and they make consistent efforts in good faith to encourage their proper and constructive use, then such producers are not automatically suspect morally. These cultural anthropologists are correct to maintain that anthropological scientists and scientists in general have far too often failed to assume these responsibilities, but it hardly follows that the optimal response in such circumstances is to forsake science!

This trend away from explanatory theorizing in cultural anthropology (and in the comparative study of religion) has had one consequence that is both troubling and somewhat ironic. Having repudiated their scientific pretensions, these cultural anthropologists have surrendered all claims to scientific respectability to the biological anthropologists. Inadvertently, they encourage the sorts of reductionism that both they and their brethren in the study of religion so steadfastly reject!

Section 2 briefly examines the standard problems that arise in the study of the sociocultural and the standard strategies that scientists have employed to address those problems. Section 3 explores both the specific strategy Noam Chomsky has introduced in theoretical linguistics—the "competence approach to theorizing"—and the exclusively psychological interpretation he imposes on its results. In section 4 we argue for the promise of the competence approach to theorizing in the study of other sorts of sociocultural materials, specifically what we call *symbolic-cultural systems*. As we have already indicated, the symbolic-cultural systems of greatest interest to us are religious ritual systems. We shall briefly outline how a competence theory in this domain might look.⁴ Finally, we shall

suggest that it is precisely the utilization of such broadly cognitive strategies in the study of the sociocultural that will likely provide the best means for considering the actual contours of sociocultural systems.

II. Problems and Proposals in the Study of the Sociocultural

Although philosophers in the last half of the eighteenth century had already conceived of studying the behaviors of individuals and groups scientifically, conspicuous among the philosophical debates of the twentieth century have been objections to the very possibility of social science. The persistence of social scientific research in this century suggests that none of these objections has presented any *principled* barriers to that enterprise; however, the persistence and prominence of methodological debates in the social sciences suggest that plenty of *practical* problems continue to impede it. The study of the sociocultural seems to present a number of special problems that are either less remarkable or wholly absent in the natural sciences.

Many of these problems arise out of our bewilderment about the ontological status of the sociocultural. Sociocultural systems, forces, and mechanisms are not the sorts of things that we easily perceive. This is simply to report that we have few penetrating models of the relevant phenomena that render them perceptually manifest (McCauley 1987b). However easy it often is to see their parts (e.g., individual human beings), neither sociocultural systems (such as religions), sociocultural forces (such as nationalism), nor sociocultural mechanisms (such as markets) are the sorts of things on which we can readily fix. Nor in locating such phenomena do we ever do much more than point out some of their parts (or, in the case of sociocultural forces, their manifestations).

To some extent, this is a function of scale. Some entities are so large, so complex, and so difficult to take in that we have no well-formulated ideas either about what these things are or about what we might do with them. This feature of (some) sociocultural phenomena is not unique. Some physical systems (and their study) present comparable problems. The plainest illustration is the weather—and its study. Here, as in the study of the sociocultural, scientists have produced some generally reliable principles. However, the interference of any of a vast array of (relatively unpredictable) variables can undermine those principles' straightforward application.

Further complicating matters is the fact that, whatever and wherever they may be, sociocultural entities are hard to individuate. Scholars in each

of the social sciences regularly face problems of ascertaining where one language, one economy, one polity, one religion, and so forth, ends and another begins. Usually lacking much principled guidance, they face the further problem of distinguishing genus and species. Is Creole a dialect of French or a separate language? Is Mormonism a version of Christianity or the quintessentially American religion? Typically, the testimony of participants is not helpful, because their own intuitions about such matters frequently conflict and those intuitions are often driven by theoretically extraneous factors. On this front, see Chomsky's discussion (1986, 15–16) of the relation of Dutch and German. In addition to this amorphousness, the constituents of sociocultural systems, if not the systems themselves, are regularly ephemeral as well. These systems' principal parts are temporary, changing, distributed—even diffuse (see Rappaport 1979, 57).

Finally, sociocultural systems present special problems, because their study requires that we downplay what is psychologically salient in our apprehension of the sociocultural world: namely, the diversity and the *idiosyncrasy* of the individuals with whom we deal. This aspect of social science research is perplexing because these features of human beings seem so important in our understanding of their behaviors, yet these features so consistently frustrate causal analysis.

Jointly, these considerations raise fundamental problems for social scientific research. Not only do they not fit into laboratories, they may not even be plausibly approximated there—in light of, among other things, the issues of scale mentioned a few paragraphs back. Sociocultural phenomena are rarely susceptible to much systematic control either for the purpose of increasing our knowledge or improving our world. With regard to the former, it is difficult enough in *any* science to isolate and control potentially relevant variables in the laboratory, let alone in the “real world” with which the social sciences (at least as narrowly construed) must nearly always deal. With regard to the latter, this list of difficulties in conjunction with a dearth of useful theories ensures that we also do not know much about how to control these systems in order to bring about our ends.

The apparent diversity in the social sciences notwithstanding, all of the most effective methods scientists have developed for addressing these many problems involve a common feature. All⁵ involve, to some appreciable extent, the construction and evaluation of hypotheses about idealized, artificial minds—whether by utilizing a statistical strategy or by utilizing what we shall call a *normative judgment strategy*. Studying *minds* that are both *idealized* and *artificial* has a number of advantages.

Although minds as objects of study seem relatively remote from the work of the natural sciences, they are neither more remote nor more unwieldy for scientific research than sociocultural systems. Indeed, the

development of the cognitive sciences over the past two decades indicates, if anything, that the mind is more empirically (and experimentally) tractable than is the sociocultural (directly).

This shows that minds may well be easier to study, but it does not show that they are appropriate things to study. That connection comes with the recognition that human minds are the repositories of extensive knowledge about, at least, some sociocultural systems (see section 4 below). This general approach holds that, if these sociocultural systems are so reluctant to submit to scientific analyses, then the next best place to look for evidence about their structures is in the minds of the participants in those systems. Now, if all the critical knowledge were conscious, then only the job of organizing it theoretically would remain. Most of the pertinent knowledge, though, is not consciously entertained. From a methodological standpoint, the various social sciences (broadly construed) differ, primarily, in the strategy (a statistical versus a normative judgment strategy) they implement to tease out this knowledge and assess its form and in the level of analysis at which they advance its theoretical representation (personal versus subpersonal).

That the minds social scientists study are idealized is a virtue of their approaches, because all theories in science formulate idealized accounts of their objects of study. This is what it means to theorize about something. Theoretical formulations abstract away from the myriad details of particular instances to offer an account of what is significant generally. Theoretical depth is a function of the conceptual distance of those formulations from the way the world appears. Idealization is inevitable for effective theorizing.

The pivotal advantage of such idealizations here is precisely that they neutralize the diversity, intentionality, and idiosyncrasy that a comparative study of actual individuals' minds would introduce into social scientific research. Unlike the minds of actual participants in sociocultural systems, the minds of idealized participants do not manifest such troublesome idiosyncrasy.

Such idealization is of a piece with the artificiality of these minds. Studying idealized, artificial minds ensures that the resulting formulations possess the *generality* that theories in science require. It is not obvious that *social scientific* theories (in the less inclusive sense) must plumb any further. This is in contrast to the situation in the psychological and cognitive sciences. There researchers also assume responsibility for, among other things, illuminating individual variability in theoretically interesting ways.⁶

Generally, social (and cognitive) scientists have operated with one of two strategies in formulating their hypotheses about the idealized minds they study. They either devise and evaluate models on the basis of statistical appraisals of data about the performance of a sample of subjects

or on the basis of an account of participants' normative judgments about acceptable functioning within sociocultural systems.

Although the statistical strategy is employed in many of the social sciences, it is in psychology that we have some confidence that the results of such research disclose a real system: namely, our cognitive system. That confidence is grounded in well-known causal connections between subjects' performance and their brains. In the case of the social sciences (in the narrower sense of the term), though, no such easily located and well-integrated mechanism is obviously available as the ultimate object of those disciplines' statistical research. (This is why most standard survey research in the social sciences seems to lack much theoretical depth.) The sense in which social scientific research of this sort involves the construction of an idealized, artificial mind is the least substantial of the options under consideration. Here the "artificial mind" in question is simply a conglomeration of the central tendencies of a population as indicated by the appropriate statistical measures, and it is idealized *only* in the sense that it is artificial.

The second strategy for constructing artificial minds takes its inspiration not so much from subjects' performance as from participants' normative judgments about satisfactory operation within the systems in question. The statistical strategy scrutinizes subjects' behavior, whereas the normative judgment strategy focuses on participants' knowledge about normative standards within various sociocultural domains. Even though this latter strategy attends to participants' grasp of normative standards within particular sociocultural systems, the theories that result are primarily descriptive. Such theories provide idealized accounts of functioning within the pertinent domains. The crucial assumption behind all applications of this normative judgment strategy, from microeconomics to theoretical linguistics, is that real participants' judgments (and behaviors) approximate sufficiently closely those attributed to the idealized participant that the theory describes to justify the theory's descriptive presumptions. Certainly the hope and, typically, the presumption are that real participants' judgments do not diverge from the theory's idealized account frequently or substantially. Consequently, that account offers a "measure" of the central tendencies of the population in question that is no less penetrating than those that statistical analyses of subjects' performance supply.

Cross-indexed against the alternative levels of analysis at which the social sciences (broadly construed) operate, the distinction between these two strategies provides a useful typology of the relevant disciplines. In characterizing the crucial levels of analysis, we take our inspiration from Daniel Dennett's discussion of types of intentional psychology. Dennett distinguishes between analyses at the "personal" and "subpersonal" levels

(1981). This distinction will prove equally effective in dividing up the social sciences.

The personal is the higher of the two levels in the tiered system of the sciences. This amounts, among other things, to saying that inquiries carried on at the personal level take as their basic units of analysis whole persons. This is in contrast to subpersonal analyses, which look at systems (generally, cognitive ones) that contribute to personal functioning. According to Dennett, at least two sorts of analyses arise, then, at the personal level. In addition to our relatively unsystematic folk psychology, what Dennett (1981, 50) calls *pure intentional system theory* is also carried out at the personal level.

Both enterprises involve the attribution of intentional states to the systems they study.⁷ For pure intentional system theory, as for folk psychology, "the subject of all intentional attributions is the whole system (the person, the animal, or even the corporation or nation) rather than any of its parts" (p. 51). The purity of pure intentional system theory is a function of the quasi-teleological character of such theories. In pure intentional system theory, analyses of the behaviors of the systems under scrutiny (be they persons, animals, etc.) arise on the basis of a normative account of the connections between intentional states in an idealized, artificial mind *that is out to achieve some end*. Theorizers chart idealized accounts of the cognitive states of a participant who has some *goal* in mind. All of this is just to say that pure intentional system theory involves the application of the normative judgment strategy at the personal level of analysis. The ideally rational participants that populate theories of economies, decisions, and games best illustrate the sort of social scientific research relevant here.

Dennett locates (most of) cognitive psychology at the subpersonal level. He describes subpersonal cognitive psychology as "a concrete micro-theoretic science of the actual realization of those intentional systems" employed in inquiries carried out at the personal level (p. 50). This is the major respect in which subpersonal inquiries occur at *lower* levels of analysis than those at the personal level. Subpersonal cognitive psychology is devoted to "discovering the constraints on design and implementation variation, and demonstrating how particular species and individuals in fact succeed in realizing intentional systems" (p. 53). Dennett surely has standard experimental work in cognitive psychology and cognitive neurobiology principally in mind.⁸

These examples do not exhaust the possible options. It is also possible to enlist the normative judgment strategy at the subpersonal level. This is the profile of competence theories in linguistics. Competence theories in linguistics invoke the normative judgment strategy in virtue of the fact that

they are beholden to information about participants' abilities to detect and, to some extent, even locate syntactic and semantic irregularities in linguistic strings. Nonetheless, competence theories must be placed at the subpersonal level. Normally, much of the pertinent normative knowledge that the participants possess is not explicit. For example, participants are rarely capable of either proposing or pronouncing upon purported grammatical principles. Such principles are usually not objects of our conscious, intentional states. Instead, researchers elicit participants' judgments about particular cases (both real and hypothetical ones) and use that information to shape their hypotheses about the language's underlying grammatical principles. These judgments play a role in theory assessment, since they are a source of evidence for the evaluation of competing hypotheses. These normative judgments also bear on the process of theory development, because participants' ability to generate them is one of the key phenomena to be explained.

A further cognitivist hypothesis always accompanies this sort of analysis in Chomsky's work. This is the hypothesis that something very like the resulting system of grammatical principles (whatever it may be) must be represented in the heads of real speaker-listeners. The shape competence theorists' hypotheses take is a description of a unified set of grammatical principles that constitute the linguistic competence of the ideal speaker-listener. It is the system of grammatical principles attributed to the (artificial) mind of this idealized participant that is the embodiment of the linguist's theory. It is real speaker-listeners' robust ability to render such judgments about candidate linguistic strings, as well as their abilities to produce and comprehend such strings themselves, that undergirds the claim that some such system of principles must be represented in their heads.⁹

To return to the general issue of the resulting typology of research strategies in the social sciences, though, we offer figure 5.1. Each cell of this figure contains within it an example of a discipline that meets the relevant criteria. So, for example, the first cell represents those social sciences, such as statistical sociology and similar work in political science, that employ the statistical strategy at the personal level. Surveys collect information about beliefs and other intentional states attributed to whole persons. Researchers in these areas of sociology and political science then apply to that data various statistical measures to find indications of central tendency as well as relations that appear both improbable and systematic.

The examples supplied in the figure are, by no means, the only ones available—except, perhaps, for the final cell. Different programs of research in artificial intelligence fall in various of the figure's cells. Much work on expert systems, for example, would fall in the third cell, whereas some connectionist modeling of cognitive processes would seem to fall in

	Personal	Subpersonal
1	Statistical sociology	2 Experimental cognitive psychology
3	Microeconomics (pure intentional system theory)	4 Theoretical linguistics
Normative judgment strategy		

Figure 5.1

the second—at least with respect to the *assessment* of connectionist models (see, for example, Sejnowski and Rosenberg's [1988] discussion of NETtalk's manifestation of the spacing effect).

The methodological recommendation we wish to develop in the remaining two sections of this chapter is that instead of opting for the statistical strategy at the personal level or, as so many cultural anthropologists have done, opting out of the science business altogether, scholars concerned with sociocultural systems should more seriously consider imitating theoretical linguistics by exploring the use of the normative judgment strategy at the subpersonal level. Although the fourth cell of figure 5.1 has the fewest instances, we maintain that other areas within the sociocultural may fruitfully submit to the competence approach to theorizing.

Before exploring that suggestion, however, we must examine Chomsky's use of the competence approach to theorizing in linguistics. In section 3 we shall discuss the grounds for his insistence that competence theories in linguistics should receive an exclusively *psychological* interpretation and dispel the appearance that this is irremediably contrary to our own position.

III. Idealized Artificial Minds and the Competence Approach to Theorizing in Linguistics

Instead of trying to talk about some supraindividual, sociocultural entities (specifically, language), Chomsky proposes that linguists construct theories

about the principles that constrain the representation of grammars within the minds of speaker-listeners. This system of principles constitutes what Chomsky has called *universal grammar*. Producing a theory of universal grammar, though, is a complicated process.

Chomsky does not aim to study actual speaker-listeners' language use directly. Rather, linguists should employ what we have been calling the *competence approach to theorizing*. The distinction between competence and performance is at the heart of Chomsky's entire program in linguistics. The strategy it upholds has remained a constant in that program, the alterations in Chomsky's various claims about the content of linguistic theory over the years notwithstanding.

Chomsky uses the term *performance* in at least two different, but related, senses. Usually, it refers to actual language use, but sometimes he uses it to refer to the cognitive processing that stands behind that language use. By contrast, linguistic competence bears on what speakers must *know* to use their languages as they do. This knowledge is, for the most part, *tacit*, which is to say that speakers' command of the rules of their grammars is largely unconscious. Linguistic competence, then, is the system of knowledge that stands behind the linguistic abilities native speakers manifest. These abilities include the production, comprehension, and creative use of language. The creative use of language involves speakers' ability to produce and comprehend strings that are entirely original in their linguistic experience. Talk of the creative use of language highlights the fact that numerous features of our language use seem relatively independent of current external stimuli. The decisive point is that the limited sample of performance data to which the language learner is exposed is incapable of explaining a native speaker's ability to produce and comprehend completely novel utterances—a fact, Chomsky insists, that demands explanation.

As we indicated in the previous section, though, a further linguistic ability that native speakers possess carries the most significance methodologically. That ability concerns their access to a diverse range of linguistic intuitions about various grammatical features of utterances. This is the respect in which the modeling of the artificial mind of an idealized speaker-listener is grounded in normative judgments. (We hasten to add, again, though, that it does *not* follow that the theory's import is normative.) These intuitions are multidimensional, concerning numerous grammatical features, including the relative acceptability of strings, their constituent structures, and such semantic properties as ambiguity and synonymy.

The set of these intuitions serves as the most significant body of empirical evidence against which alternative hypotheses about linguistic competence can be tested. It is just where the spontaneity of these

speakers' grammatical intuitions intersects with their ability to use language creatively that is pivotal for the testing of linguists' hypotheses. The point, in short, is that native speakers have such intuitions about strings that they have never encountered before. This fact ensures that linguists have a virtually limitless supply of intuitive data against which to check their theories. A not insignificant advantage of the competence approach to theorizing from the standpoint of scientific problem solving is not only that this evidence is readily accessible, but also that it is extremely easy to access (McCauley 1986)!

The competence approach seeks a principled account of an idealized native speaker's tacit knowledge of a grammar—avoiding, at least temporarily, a host of barriers that burden attempts to theorize about linguistic performance such as false starts, errors, and the broad range of phenomena captured by the notion of “pragmatic constraints.” Competence theory, according to Chomsky, deals with the representation of a grammar in the cognitive system of “an ideal speaker-listener, in a completely homogeneous speech community . . . unaffected . . . by grammatically irrelevant conditions . . . in applying his knowledge of the language in actual performance” (1965, 3). Competence theories in linguistics, then, address an idealized participant in an idealized linguistic context—a context not only uniform linguistically but also free of the many factors that corrupt linguistic performance (from the standpoint of the *ease of theorizing*, anyway). Competence theories are general, because they consider the mind of an *idealized* participant. Because that generality does not directly depend upon the situations of actual speakers, neither any particular speakers' judgments nor the overwhelming coincidence of many speakers' judgments about any particular case is either unassailable or authoritative.

This approach offers a formal description of a grammar in terms of a system of principles that constitutes a theory about alleged cognitive processes and structures that inform language use. Linguists employ formal means for representing grammatical competence that exclusive analysis of speaker-listeners' actual language use (with its diversity and corruptions) would likely jeopardize. These formal techniques provide precision. Whether the putative processes and structures in question permit description by alternative means or at alternative levels of analysis is not the crucial issue here.¹⁰ Before Chomsky, syntactic studies were largely bereft of proposals with much theoretical depth. Chomsky's competence approach makes the case that behind the relevant linguistic phenomena is a system that is susceptible to fruitful theoretical description.

Linguists have offered a wide range of proposals about the proper way to characterize grammars for natural languages. They have discussed

extensively what sorts of formal devices are appropriate and what sorts of constraints should be imposed on them. Without a doubt, the most important feature of these grammars, though, is that they are *generative*. They employ finite systems of grammatical principles that can account for the syntactic form of all possible sentences in a language. This explains both the creative use of language and speakers' intuitions and insights into the wide range of grammatical features of possible sentences that they, in fact, possess.

Underlying grammars for particular natural languages are the principles of universal grammar. Chomsky has repeatedly argued that the only plausible grounds for accounting for the universality of such specific principles must be that the principles in question have biological origins. Specifying these universal principles of human language and the parameters of their variation, according to Chomsky, delineates the biological basis of language and the initial state of human beings' "knowledge of language" which they possess as part of their genetic endowment. So, bolstering Chomsky's hypothesis about the cognitive representation of grammars in the minds of speaker-listeners are two further hypotheses: (1) about the principles of universal grammar that constrain the form of these grammars for particular natural languages, and (2) about the innate origins of those principles.

Chomsky has advanced two sorts of arguments in support of the second of these hypotheses. The first focuses on the so-called poverty of the stimulus. This argument highlights the contrast between the *complexity* of the cognitive product (i.e., a grammar) that a native speaker acquires and (1) the fact that the linguistic performance that constitutes the input to the language learner is both *corrupt* (from a grammatical standpoint) and *incomplete* (vis-à-vis the creative use of language that mastery of the grammar affords); (2) the *rapidity* with which children acquire grammars; and (3) the *facility* with which speakers generally use their grammars. These three considerations should not only be balanced against the complexity of our grammars. They should also always be judged in the light of the general irrelevance (to them) of intelligence differences among language learners. Chomsky maintains that innate, universal principles constraining the form of grammars for natural languages constitute the best, and perhaps the only plausible, explanation for these phenomena.

The second argument supporting the nativist hypothesis is the modularity argument. This argument maintains that the evolution of our species has resulted in the dedication of a portion of our neural hardware exclusively to natural language processing. The evidence cited in support of this contention is of two sorts. The first is the apparent functional selectivity of neurological deficits. Sometimes after stroke or neural

trauma, victims seem to suffer linguistic deficits only (e.g., aphasias). The second sort of evidence is much more obviously internal to the theory. It concerns the *task specificity* of grammatical principles. According to the linguistic theories in question, grammatical principles have both specific forms and functions. They are not acquired by means of general-purpose inductive procedures, nor are they applicable in nonlinguistic contexts (Fodor 1983).¹¹

Chomsky has made a number of comments that might make it seem a bit puzzling that we would present a case for his methodological views as offering a key to the study of sociocultural phenomena. Most prominently, he has steadfastly and consistently insisted on a thoroughly *psychological* interpretation of competence theories. Nevertheless, we maintain that the competence approach to theorizing may prove as useful for suggesting theories of various sociocultural systems as it is for generating theories about the psychological structures Chomsky claims to describe. In short, we will propose that a productive way to generate penetrating theories about some sociocultural systems is to mimic the competence approach, that is, to theorize about participants' tacit knowledge of those systems. Before defending and developing that view in section 4, we shall review some of Chomsky's claims about language and linguistic research that seem inhospitable to this proposal.

In Chomsky's view linguistic theory makes manifest the constraints on the form of natural language that an innate, task specific, linguistic module in the mind-brain imposes. According to Chomsky, specifying the innate principles that populate this module (and the parameters of those principles) is the primary task of linguistic research. For Chomsky linguistics is the study of "internalized language" (or "I-language"), which is "a structure in the mind"; and, therefore, "linguistics . . . becomes part of psychology, ultimately biology . . . insofar as mechanisms are discovered that have the properties revealed in these more abstract studies" (1986, 27).

Chomsky holds that the prospects for theorizing about natural languages as *sociocultural entities* are unpromising by comparison. He thinks that construing linguistics as theorizing about an abstract sociocultural object ("externalized language" or "E-language") taken as "a collection (or system) of actions or behaviors" is thoroughly misguided (p. 20). In comparison to theories about I-language, "theories of E-languages," no matter how idealized, "if sensible at all, have some different and more obscure status." Theorizing about E-language raises "a host of new problems . . . [and] it is not at all clear whether they are worth addressing or trying to solve, given the artificial nature of the construct and its apparent usefulness for theory of language" (p. 27). It follows, for example, that "speakers of what is loosely called English do not have

partial knowledge of some English superlanguage, but rather have knowledge of *systems* that are similar, but in part conflict" (1980, 118, emphasis ours).

Chomsky may well have in mind the sorts of problems with studying the sociocultural that we reviewed in the previous section. Even if languages can be said to exist, according to Chomsky, they are so unmanageable that they resist systematic analysis. But, in fact, in Chomsky's view languages, in the everyday sense of the term, probably do not exist. To the extent that our commonsense notion of a 'language' coincides with the notion of E-language, it will likely prove to be a vestige of pretheoretic intuitions, which theoretically informed work in linguistics will inevitably displace. Consequently, Chomsky draws the startling conclusion that 'language', so understood, may have little or nothing to do with what linguistics is about (1980, 90; 1986, 15).

IV. The Competence Approach to Theorizing in the Study of Symbolic-Cultural Systems

His attacks on "externalized language" notwithstanding, Chomsky has never explicitly denied that his general theoretical strategy might be adapted for the study of other sociocultural materials. He has even acknowledged that his general theoretical approach to linguistic phenomena "may indeed be suggestive elsewhere" (1986, xxvi). Nor would it make much sense to contest the proposition that a generative system of rules could constitute the form of a theory of a participant's implicit knowledge of sociocultural systems other than natural languages. There certainly is no principled barrier to such a proposal. Moreover, from claims for the task specificity of grammatical principles it does not follow that the competence approach to theorizing that inspires their formulation will prove applicable to linguistic materials *alone*.

As we proceed to discuss the promise of the competence approach to theorizing for the study of certain other sociocultural systems, it will become clear that we are not thoroughly sympathetic with Chomsky's outright rejection of the possibility of fruitfully theorizing about externalized language (though this is primarily a function of a reconsideration of what *competence theories* can be about). To anticipate a bit, note that Chomsky's nativist claims play a pivotal role here. Without presumptions about a genetic basis for universal grammar, Chomsky would be hard put to offer a plausible account of that notion while simultaneously avoiding examination of externalized language. Furthermore, even if all of his nativist claims were true, that would not preclude the possibility of gaining

additional understanding and possibly even explanatory power from exploring externalized language as well—if, in fact, that can be done. Chomsky provides no principled arguments against the possibility of theorizing about externalized language, but only arguments in support of the preeminence of internalized language and some speculations about the number of problems that theories of externalized language will likely face. If our analogical suggestion about participants' competencies with other sorts of sociocultural systems is on the right track, then, when corresponding nativist assumptions are implausible, the mere fact that those competences are represented psychologically is insufficient to discourage study of those "externalized" sociocultural systems. In such circumstances questions about the origins of these systems of psychological representations will be no less pressing than they are in the linguistic case.

Our suggestion is to apply Chomsky's "shift in focus" from "behavior and its products to the system of knowledge that enters into behavior" to the study of certain other sociocultural systems (1986, 28). This shift has enabled linguists to formulate and test empirically responsible theories against a virtually unlimited body of linguistic evidence. Although over the years it has not seemed that the available *extralinguistic* evidence has obviously favored the specific proposals Chomsky has advanced, the simple fact that such evidence can also be brought to bear on these linguistic hypotheses indicates that Chomsky's claims about the place of linguistic inquiry within psychology are well-founded.

We are *not* claiming that linguistic research will never need to look beyond competence theorizing. We are claiming, however, that the competence approach has proved a fruitful strategy for initiating inquiries of unprecedented theoretical depth in the study of syntax, at least. It has generated an entire research program in linguistics that has spawned explanatory theories that connect with a whole range of psychologically interesting phenomena in a field largely bereft of such aspirations before. We concur with Fodor's claim that "a working science is ipso facto in philosophical good repute" (1981, 200).

Our claim is that the competence approach to theorizing will offer the comparable promise of simplifying and clarifying the problem scholars face when they undertake the study of some other sociocultural systems (religious ritual systems, in particular). We should emphasize that our goal is *not* to settle the methodological agenda of the social sciences, but rather to encourage new avenues of inquiry. Methodological imperialism is not our game (see, for example, McCauley and Lawson 1984). The point is that the competence approach to theorizing has proved an effective strategy for generating testable theories about aspects of the human cognitive system—aspects that seem to bear on some of what we do, which, in turn,

seems to bear on what we intuitively take to be (the corresponding) socio-cultural systems.

Approaching the sociocultural by way of the cognitive has the important advantages of studying the minds of participants (which are relatively accessible when compared to the overarching sociocultural systems). Of course, as we stressed in section 2, this approach examines the contents of an idealized, artificial mind, because this is the best way we have both to avoid drowning in oceans of detail and to ensure the generality of the resulting theories by making sense of a *representative participant* in the corresponding sociocultural system.

Now, it is no news that anthropologists have long recognized the value of linguistic models for the study of other sociocultural systems. Among such systems natural language has always proved the most amenable to theoretical analysis. Linguistically inspired, cognitivist proposals for approaching other cultural materials are at least as old as the structuralism of Lévi-Strauss. Lévi-Strauss maintains not only that fixed structures of the human mind determine the character of myth, but also that myth ultimately *refers* to those cognitive structures—"myths signify the mind that evolves them" (Lévi-Strauss 1969, 340–41). Structuralists (and Lévi-Strauss in particular), however, have long been criticized for confining their discussions to investigators' intuitive insights¹² about structural features of cultural forms without attempting to bring order to those insights by means of a unified set of theoretical principles. Moreover, participants' creative use of symbols remains essentially unaddressed by structuralism. Structuralists offer elaborate lists of structural relations, but no account whatsoever of the principles according to which the cultural forms in question arise. In short, structuralist analyses lack generative mechanisms.

We agree with Dan Sperber, one of structuralism's more sympathetic critics (1975 and 1985), who has argued that progress in anthropology awaits the formulation of theories that supply the principles, perhaps even universal principles, that underlie not only the possible variability within systems of cultural symbols, but participants' tacit knowledge of those systems as well. Here, too, the general strategy is to ground the variability of cultural forms in the uniformity of cognitive principles.

From the outset we have indicated that we are not arguing for the applicability of competence theories to all types of sociocultural systems. The two previous paragraphs as well as periodic comments about religion offer clues about the restrictions we have in mind. As expected, the competence approach to theorizing will apply most readily to those socio-cultural systems that most closely resemble languages, that is, to systems of cultural symbols, to both their generation and use. We are concerned, then, neither with all sociocultural systems nor with all symbolic activities.

Sperber has argued (1975) that systems of *cultural* symbols should be distinguished from individual symbolism like that employed in literary works. The crucial point is that the cultural forms involve a shared symbolic currency that mediates transactions between human beings. Individual symbolism may achieve that status, but it is just when it does that it becomes cultural symbolism. It is what Sperber calls *cultural symbolism* that interests us.

We have introduced the notion of "symbolic-cultural systems" to cover the pertinent cases (Lawson and McCauley 1990, 2–3). These are socio-cultural systems:

1. that involve symbolic phenomena,
2. that, unlike civil law, are usually not explicitly codified,
3. the forms of which are relatively restricted both in their use and transmission (hence, individual participants' idiosyncracies usually affect the fate of their forms hardly at all),
4. about which explicit instruction is, *at least sometimes*, completely absent, and
5. about which, therefore, participants must have some form of *implicit* knowledge revealed by their acquisition of and successful participation in the systems and their judgments about real and possible uses of the symbols within the systems.

In addition to religious ritual systems, symbolic-cultural systems include systems of etiquette, institutionalized ceremonies, and social games. (With regard to the latter, see Isbell and Fernandez 1977.)

Note, for example, how religious ritual systems parallel natural languages on these fronts. Participants possess a competence with their religious ritual systems comparable to that in the linguistic case. That competence involves familiarity with the numerous constraints on religious ritual form. Generally, this mastery arises through mere exposure to the rituals of a participant's religious community. This is not to ignore either the extensive commentaries on rituals in many religious systems or the extensive instructions that participants sometimes receive; it is only to emphasize that frequently individuals participate in and acquire a mastery of their religious ritual systems with little or no explicit instruction. Of course, the clearest evidence of this competence is participants' general facility with their religious ritual systems. The ready availability of a (relatively consistent) set of intuitions about a wide range of features concerning the form of their ritual acts exhibits participants' command of these systems as well. Participants have quite robust intuitions about the well-formedness of ritual acts within their religious systems. They have

such intuitions not only about actual ritual acts but about hypothetical ones as well (see Lawson and McCauley 1990, 60 and 113; and Staal 1979).

For the next few steps in the argument the analogy with the linguistic case is relatively tight. Taking the competence approach to theorizing in dealing with symbolic-cultural systems would also involve appeal to the cognitivist hypothesis. Within this sort of domain competence theorists would aim to formulate a psychologically plausible system of principles (represented in the mind of an idealized, artificial participant) that could explain the type of phenomena cited in the previous paragraph. As in the linguistic case, the cognitivist hypothesis holds that within the minds of *actual* participants are representations that at least approximate such a system.

It is the next step where (in the case of religious ritual systems, at least) the *disanalogy* with competence theorizing in linguistics is revealing, because the obvious question concerns the *origins* of these systems of principles that allegedly reside in participants' heads. Chomsky, of course, has taken a nativist line. His enthusiasm for theorizing about internalized language exclusively, his insistence that the competence theories that result directly address our cognitive capacities only, and his repudiation of externalized language (as an object unworthy of our theoretical attention) all rely on the truth of his nativist hypothesis for support. The decisive point, vis-à-vis this analogy with language, is that virtually none of the sorts of considerations that have motivated Chomsky's strong claims about the forms of grammars for natural languages is plausibly applicable in the cases of these other symbolic-cultural systems. Recall that those considerations include speakers' rapid acquisition of and extreme facility with grammars of considerable complexity, the apparent functional selectivity of neurological deficits, and the apparent task specificity of the principles involved.

It is substantially less plausible, on all of the important fronts to which Chomsky appeals, to take a nativist line in explaining why, for example, participants in religious ritual systems have the same sorts of developed intuitions about a wide variety of features of religious ritual form that native speakers have about the syntactic form of utterances. The most conspicuous reason is that, unlike natural language, symbolic-cultural systems such as religious ritual systems are not universally acquired. Not everyone grows up within a religious system.¹³ Nor, if the account we have provided elsewhere is on track, are the systems of principles involved as complex as those that underlie natural languages (see Lawson and McCauley 1990, chap. 5). In addition, although participants' facility with and knowledge of their religious ritual systems is often no less impressive than their command of their natural languages, intuitively, they do not

seem to acquire these systems as rapidly (although it is hard to know precisely how to either measure or compare the acquisition rates in question). So far as we know, no evidence exists for any religious ritual module in the brain. Neurological trauma has never solely impaired victims' abilities to participate in religious rituals! Moreover, whatever principles are involved in this particular sort of symbolic-cultural system, they will almost certainly not be task specific, because most must also be involved in the representation of actions other than religious ritual actions (see Lawson and McCauley 1990, chap. 5). So, it does not seem likely that nativism will prove a viable option for theorists interested in providing an account of the origins of participants' competencies with symbolic-cultural systems other than natural languages.¹⁴

But if the cognitive schemes underlying participants' command of these symbolic-cultural systems are not innately constrained, then what is their origin? And what do competence theories elucidate in these contexts?¹⁵ What and where are the "systems" whose underlying principles these participants have mastered and whose products these participants have cognitively represented? To explain the similarities that seem to unify individual participants' competencies in these domains, by virtue of which we all so effortlessly speak of the phenomena in question as involving *cultural systems*, we seem—given the implausibility of the nativist out—forced to look to other quarters.

If descriptions of human brains or human genomes or even human psyches are unable to account exhaustively for the systems of behaviors in question, then it seems perfectly justifiable to look to the structure of human societies. The relevant uniformities in human behavior and cognition would seem to have something to do with forces that the character and organization of sociocultural systems exert on these participants. The problem is that it now seems as though we have come full circle, because a major reason for initiating this excursion in the first place concerned the many problems presented by attempts to study things like "the structure of human societies" and the "character and organization of sociocultural systems."

What we are arguing, of course, is that escaping this circle at the methodological level, at least, turns on the fact that none of these problems about explicating the sociocultural affects what we have called a *cognitive approach* to these systems. Indeed, we are maintaining that a cognitive approach to cultural materials should prove helpful, no matter what ontological status we choose to accord the sociocultural. If nothing else, the problem of intentionality demands that accounts of participants' representations of sociocultural phenomena play a role in facing many of the pertinent issues, and that is especially true if the *systems* in question

turn out to be cognitive only. However, few grounds, short of dogmatic insistence on metaphysical parsimony, suggest themselves for construing these systems as "cognitive only." Such an approach leaves the question of their considerable uniformity across participants unaddressed. On the other hand, if we throw all metaphysical scruples to the wind and assume that the *systems* in question are substantially social in origin, that assumption would not preclude cognitive analysis either. Indeed, it would be surprising if participants did not have some cognitive representations of the relevant phenomena. In either case, this seems to suggest that Chomsky's renunciation of externalized language may be premature. Whether we are willing to abide extravagant assumptions about the metaphysical status of the sociocultural or not, it would seem that competence theories can contribute.

Our suggestion, in short, is that competence theories about the relevant systems of cognitive representations will advance our knowledge of the systems that are the objects of those representations. Offering such theories about participants' cognitive representations is a means for pulling ourselves up by the bootstraps theoretically from the cognitive to the cultural: study the system of cognitive representations to better understand how the symbolic-cultural systems might be structured. In light of the persistence of the problems that plague inquiry into symbolic-cultural systems, the competence approach seems a promising alternative—promising because here (unlike most phenomena), it seems that only through our *representations* of these systems do we obtain the sort of access to them that renders them empirically tractable and our theories about them empirically testable. In both the linguistic case and the case of symbolic-cultural systems, what is involved is an inference to (at least) a plausible (if not the best) explanation in areas where, previously, any explanatory aspirations had been relatively rare.

Notes

1. Administrators almost always include the cognitive sciences within the social sciences. If differentiating the two seems a bit arbitrary, then, alternatively, what we offer here, at least in section 2, is an analytical perspective on the place of the cognitive sciences within the social sciences. (In short, the cognitive sciences generally operate at lower, "subpersonal" levels of analysis than the prototypical social sciences such as sociology, economics, and political science.) We shall use the term *social science* (and its cognates) to cover both these more or less inclusive senses. In each case where it matters, the context or explicit qualifications should suffice to disambiguate our usage.

2. We intend the comments in this and the following paragraph as suggestive only. We will review the analogies in question at various points in this chapter.

3. For a more detailed discussion of these issues, see Lawson and McCauley 1990, introduction and chap. 1.

4. A far more detailed account of such a theory appears in Lawson and McCauley 1990, chaps. 5 and 6.

5. If the social sciences are taken to include the cognitive and psychological sciences, then certain behavioral and ecological approaches in psychology that, in their most extreme versions, seem simply to ignore the role of minds, might seem to constitute exceptions—though, of course, this is just to employ a different sort of idealized (and even more artificial) view of mind.

6. It is in light of these considerations that we differ with Chomsky in some respects about the status of competence theories. (In addition to section 3, see McCauley 1986 and Lawson and McCauley 1990, especially chap. 4.)

7. Stephen Stich (1983, 213–14) emphasizes the centrality of such attributions to research in the social sciences (narrowly construed): "If all talk of beliefs, desires, expectations, preferences, fears, suspicions, plans, and the like were banished from the social sciences, those disciplines as we know them today would disappear. We simply have no way of recounting our knowledge of social, political, and economic processes without invoking . . . intentional language."

8. As these examples illustrate, the subpersonal "level" itself includes more than one level of analysis.

9. We shall examine this position at greater length in the next section.

10. They almost certainly are. See, for example, Rumelhart and McClelland (1986), where they show how connectionist systems without explicit representations of formal rules can generate what have otherwise seemed to be rule-directed linguistic behaviors, such as forming the past tense of verbs. Pinker and Prince (1988) challenge this model on numerous fronts; however, see Bechtel and Abrahamsen (1991) for a reply.

11. The cognitivist hypothesis, the nativist hypothesis, and the arguments advanced in their defense would seem to have empirical implications that extend well beyond the obviously linguistic. Many of Chomsky's critics maintain that this is precisely where he is most remiss. His insistence on the fundamentally psychological and ultimately biological status of competence theories notwithstanding, his inattention to most of this extralinguistic experimental research (except for some of its most congenial results—see Chomsky 1975, 36–38) is (in)famous. McCauley (1986 and 1987) has argued that Chomsky's general failure to attend to this research can be explained and partially justified. The critical considerations concern the priority of the empirical problems internal to linguistic research concerning the descriptive adequacy of the grammars he has proposed.

12. The competence approach we tout includes *participants'* intuitions among the *subject matter* under study and as a *source of evidence* against which to assess alternative hypotheses. Structuralism, by contrast, appeals to the intuitions of *researchers* in accounting for its *methods*.

13. Three (unrelated) comments come to mind. (1) Actually, the proper contrast

case would be if otherwise normal human beings who were exposed to a religious ritual system failed to acquire competence with it. That is much less obviously the case. (2) Although religion is not pervasive among individuals, it is ubiquitous in cultures. Religious systems exist in every culture—even when they are actively discouraged. (3) We have argued at length that the same set of (formally specifiable) principles underlies all religious ritual systems. (See Lawson and McCauley 1990, chaps. 5 and 6.)

14. For interesting comments about nativist accounts of religious dispositions in other eras, see Preus 1987, 85.

15. Sperber handles this problem by taking the nativist route concerning our symbolic capacities generally. His proposal of an innate "symbolic mechanism" involves a nativism that is at least as strong as Chomsky's claims for universal grammar. (See Sperber 1985, 43; and Lawson and McCauley 1990, chap. 4.)

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