Cognitive and Cultural Perspectives on Language

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1 Introduction

Cognitive science normally defines itself as the "science of the mind," meaning in particular the science of mental processes abstracted away from the concrete realization of such processes in brains or in computer circuitry. A mental process manipulates information in a broad sense, including e.g., perceiving, recalling, organizing, calculating, presenting, and communicating information. There is no anti-materialism (or anti-physicalism) necessary in this position, only an agreement that such processes *can* be studied in abstraction from their physical realization. The "cognitive revolution" involved freeing analyses from the burden of identifying the physical basis in which information processing took place, and concentrating rather on abstract information-processing characteristics.

From the earliest days of cognitive science, the key contributing disciplines have been psychology, linguistics, computer science (and in particular artificial intelligence), philosophy and neuroscience. So linguistics has been involved from the very beginning. As the involvement of neuroscience suggests, due attention was paid to the physical basis of the mind, by at least parts of the cognitive science community, but there has been a consensus that progress is possible even without specifying the details of the physical substrate in which cognition is realized.

It may be difficult to determine with certainty how profound the effects of this cognitive perspective have been on the study in language—at least in the sense that we cannot know what future generations of scholars will make of this development. But both the conduct and conclusions of innumerable individual studies and the careers and aspirations of many of the researchers involved have been influenced a great deal. Personally, I find that it has been stimulating, useful and insightful to adopt the cognitive perspective.

1.1 Goals

This paper aims to give a sense of this development and its consequences, as well as the increasing interest in aspects of language that point to the importance of cultural factors, especially the importance of communities of language users and their shared experience.

Since this is an audience interested in developing a cognitive perspective on religion, a very different discipline, I will try to sketch especially why the cognitive revolution largely succeeded in linguistics, and suggest some avenues that might be pursued in seeking similar success elsewhere. I will also sketch recent developments that seem to call for a broader perspective, since I suspect that these might be important in studying religion as well.

1.2 Background

Stillings, Feinstein, Garfield, Rissland, Rosenbaum, Weisler & Baker-Ward (1987) is an excellent introductory text on cognitive science, touching on all component fields, while Chierchia (1999) is a more detailed exposition of the importance of language studies to cognitive science, and Gleitman & Liberman (1995) an excellent collection of introductory, but challenging articles written by leading scientists in various subareas of linguistics, all of whom aim at presenting the "cognitive" turn in their subdisciplines.

2 Linguistic as a Cognitive Science

Linguistics has also been a very willing partner in the cognitive venture, drawing on a history of fascination with human language complexity and the implications this has for the mental make-up of human beings. Leonard Bloomfield did not participate in the cognitive revolution, but nonetheless devoted the second chapter of his very influential introduction to linguistics, *Language* to the psychology of language use (Bloomfield 1933).

The basic justification for including linguistics as a core cognitive science is very simple: languages are extremely complex systems that people learn and use nearly effortlessly. (It is clear that second languages are not always learned and used easily, but let's not focus on that.) The ease with which people learn and use their first languages makes the study of the psychology of language use immediately interesting, and inversely, challenges linguists to seek (perspectives on) linguistic regularities which might enable a language processor to deal with complexity efficiently.

But there are other, more interesting reasons linguistics has been so prominent in cognitive science. Once we have agreed that we want and can have a science of the mental in abstraction from its concrete physical realization, then we may attempt analyses of information processes without commitment to how that information is stored or manipulated, and this was received as a liberating, and sensible move throughout linguistics.

2.1 A Non-Linguistic Example

For an example from another domain, we might attempt to model how people recall faces by recording features of faces such its its proportions, color, hairline,

deviations from a standard, relative prominence of subparts, etc. We might then propose an index for faces that would predict which faces were confusible, which easy or difficult to remember, etc., and we can test these predictions, and compare alternative formulations as to which accords with the facts better. All this may be done in abstraction from the details of the physiology of human sight and the neural basis of visual memory. The point is that we can analyze a cognitive process scientifically and insightfully without building it up, brick by brick, on the foundation of physical evidence.

Note that in taking this step I have implicitly agreed to work, not on the physical events of sight and recognition in processing the faces they physically encounter, but rather on an abstract representation, in this case the set of features I use to describe faces. This is the step of abstraction inherent in cognitive science. From this it is a short step to notice that different abstract representations may be associated with differing processing characteristics.

For example, I might structure my facial representations as a simple list and then compute an overall similarity to other faces I have encountered. Alternatively, however I might wish to organize my information into something like a decision tree. where the processing of each new bit of information successively decreases the number of plausible candidates. To take yet another example, the feature representation might be structured like the index of a book, providing a direct pointer to the relevant information in case of matches. The similarity-based match and the index structure suggests that processing time should be the same for all lists of features, the decision tree that it is variable. The similarity-based match sounds like it might be better equipped to model the successful processing of incorrect input, something humans are quite capable of.

In all of these examples we still need to make our definitions precise and to spell out the processing more exactly, moving ultimately to full-fledged algorithmic specifications, but we are gradually on our way to hypotheses about the mind and how it works—without, however, delving into the neural "wetware" on which it presumably all runs.

It is easy to see why linguists greeted this perspective as an enormous liberation. Many of the issues dealt with in linguistics involve a level of abstraction that is difficult to tie to a physical substrate, and at the very least, practicing linguists—people documenting unwritten languages, compiling dictionaries, advising on language instruction—had never concerned themselves directly with psychology or physiology, nor did they feel a need to. Perhaps they reasoned that it required more training than they had in the neighboring disciplines, or perhaps they simply found it distracted them too much from language analysis, but in any case they identified with the cognitive perspective whole-heartedly.

The example above likewise suggests that a computational model of the mind was important in cognitive science, and this suggestion is absolutely on the mark. Psychologists, linguists and others interacted actively and extensively with computer scientists. Computational implementations of alternative representations and algorithms operationalized competing hypotheses in cognitive science and reassured the sceptical that it was proceeding beyond "armchair psychology".

2.2 An Example from Morphology

To give a sense of how this works in linguistics, we'll consider morphology, the study of word structure, something everyone is familiar with. In learning English, German, Latin or any of a large number of other languages, we need to learn that words appear in different forms, e.g. sometime *walk, walks*, or *walking* but at other times *walked*. These are often described in large tables in grammars, referred to in the linguistic literature as PARADIGMS:

infinitive	3rd-p, sg	progressive	past
walk	walks	walking	walked
talk	talks	talking	talked
⋮	⋮	⋮	⋮
do	does	doing	did
⋮	⋮	⋮	⋮
be	is	being	was, were

But there is an alternative view, propounded vigorously by the Harvard Slavicist Roman Jakobson, in which one sees views the separate forms as the products of a set of RULES (Jakobson 1948). Note that Jakobson predated the cognitive turn.

$$do + [3rd\text{-}sg] \rightarrow does$$
$$be + [3rd\text{-}sg] \rightarrow is$$
$$else$$
$$V + [3rd\text{-}sg] \rightarrow Vs$$

Finally, there were proponents of a rule-based view who would prefer not to attribute so much status to the inflectional ending, pointing out the morphological processes which do not rely on the additional of material, but rather changes in the base form. These alternative models of description were well known before the advent of cognitive science (Hockett 1954).

$$f_{3rd\text{-}sg}(do) = does$$
$$f_{3rd\text{-}sg}(be) = is$$
$$else$$
$$f_{3rd\text{-}sg}(V) = Vs$$

The advent of the cognitive science perspective changed this debate radically, from one in which descriptive adequacy and elegance were primary criteria to another where fidelity to psychological facts plays a primary role. In addition to the question of whether a given model might be capable of describing the facts, psycholinguists adduce arguments from the speed of word recognition, the correctness of recognition, as well as the path eyes take across the page, and reactions to made-up stimuli (*She wugs all the time.*) (Baayen 1997, Schreuder & Baayen 1997). Elaborate computational models reify these theoretical notions and lend empirical credibility (Moscoso del Prado Martín 2003). It became quite common to find linguistic papers in which analyses were evaluated not only on the basis of their conformity with linguistic criteria such as predictions about well-formedness, but also on the basis of their "psychological reality".

b   p

| |
├────────────────────┼────────────────────────────▷

0 ms   40–50ms

b   p

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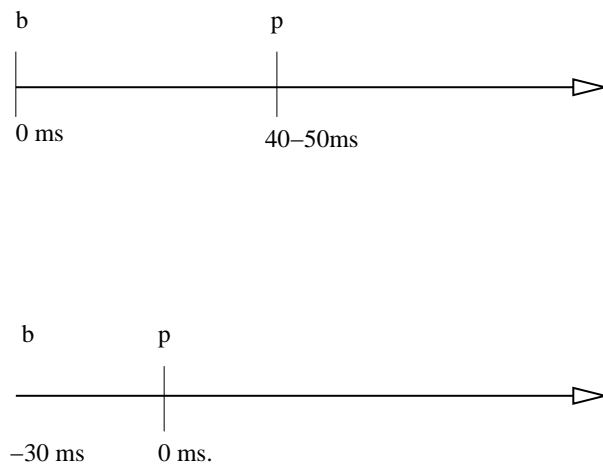
−30 ms   0 ms.

Figure 1: Two ways to realize the fortis-lenis distinction in "stop" consonants such as /p/ vs. /b/ (see text). On the one hand the lenis element (b) may release the oral obstruction simultaneously as the vocal cords begin vibrating, while the fortis element (p) first releases the oral obstruction and only later initiates vocal cord activity (above). This is the ASPIRATING pattern found in standard English and German and in the Dutch Low Saxon dialects. On the other hand, the lenis element (b) may involve the vocal cords becoming active before the release of the oral obstructions, while the fortis element release the obstruction and initiates vocal cord activity simultaneously (below). This NON-ASPIRATING pattern is found in French, Russian and in standard Dutch.

This sort of example highlights another attractive aspect of cognitive science. At its best the science which is produced genuinely engages experts in very different disciplines, fairly heady material, but not all out of the ordinary in contemporary cognitive science.

2.3   A Sound Example

We shall examine a second example of a linguistic generalization to give a flavor of what we mean, and how different disciplines may vie for explanatory honors. Many languages distinguish consonants such as /p/ vs. /b/, /t/ vs. /d/ or /k/ vs. /g/; the first of the pairs is known as VOICELESS or, alternatively, as FORTIS, and the second as VOICED or LENIS. It turns out that, in languages that make this distinction, there are exactly two ways of articulating the difference, illustrated in Fig. 1. Naturally I am suppressing some details (concerning, for example, the position of the consonant with respect to stress or other consonants).

The restriction to no more than two sorts of realization for the fortis-lenis distinction appears to be quite general (Jansen 2004), even though languages might be considerably less restrictive. For example, there appears to be no language in which the distinction is realized one way concerning the /p/ vs. /b/ distinction and another in the /t/ vs. /d/ distinction, even though this might be functional and involve only a minimum of additional memory (to store the distinction). As a further example, note that it would likewise be

straightforward for different words to code the distinction differently, even if this might require a good deal more memory to note this for each word in a large vocabulary.

Linguists have noted not only that there appear to be only these two ways of realizing the fortis-lenis distinction, and that they are applied constantly throughout the system of consonants and throughout the vocabulary, but also that other aspects of pronunciation depend on this, in particular the tendency of a consonant to allow its pronunciation to be "infected" by the pronunciation of an immediately following consonant, so-called "regressive voicing assimilation" (Jansen 2004).

The point of introducing this example here is to note, once again, that we may formulate general laws at a level of generalization that appears appropriate. At this point, other areas may of course vie for the honors of providing the best explanation, perhaps adducing evidence about the difficulty of maintaining vocal cord vibration with a blocked oral passage. In general, cognitive scientists enjoy this debate and find it adds to the field.

2.4 Language Acquisition

The study of how children learn their first language has even changed its name in the wake of linguistics's cognitive revolution. It is now referred to as "language acquisition" in order to emphasize how different it is from other learning, and how much first language learning resembles shifts in behavior that occur almost automatically as a person matures.

The study of language acquisition, just as other areas of linguistics, has benefited from the cognitive turn, and in particular, from the freedom to view the learning of a first language as an information-processing problem. Miller (1991, p. 238) has pointed out that children learn learn about 60,000 word stems by the time they graduate from high school. This estimate does *not* count the different forms of inflected words (the example of *walk, walks, walking,* etc. we discusses above) as different. This translates into 3.300 words/year, or roughly nine word stems every day. And the child is by no means done with learning once he knows the word stems—he still needs to learn the pronunciation, the various forms of words, and the means of combining words into sentences. Just as in other areas, the characterization of the problem in information-processing terms provides insight, in this case, into the magnitude of the problem.

Probably the single most famous theses of contemporary linguistics is Chomsky's hypothesis that some linguistic structure must be innate given the difficulty of language learning. According to this hypothesis some aspects of language need not be learned at all, but rather are part of the innate cognitive constitution of human beings (Chomsky 1975, pp 9–11). Chomsky reasoned that the quality and quantity of linguistic experience could never be sufficient to characterize a system as complex as a natural language. He furthermore hypothesized that, if there is innate linguistic structure, that this must be reflected in universal properties of natural languages—a daring, and challenging consequence of the innateness hypothesis.

This thesis has spawned an enormous number of reactions, but it would take us too far afield to examine them.[1] I would like to guard against the

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[1]Pinker (1994) presents the ideas behind seeing language as an instinct clearly, informat-

misconception that the cognitive turn in linguistics stands or falls with the innateness hypothesis, because this simply is not true. One may very well hold that language learning may be accounted for via general learning mechanisms, and that no innate linguistic structure is needed in a complete account—without yielding the conception of linguistics as a cognitive science, characterized via processes on information. At the same time, it seems likely that we might have waited a long time for the innateness hypothesis, and a large body of excellent linguistic work it has inspired, if we had not been willing to take the cognitive step.

3 Convincing Details

Naturally, a brief overview cannot do more than provide the flavor of such a large-scale development in science. For a group of scientists and scholars interested in pursuing a cognitive perspective in another field, however, it might be useful to note some of the reasons, both scientific and extra-scientific that may played a role in the rapid rise of the cognitive perspective.

I've tried to sketch the scientific reasons for the cognitive turn, in particular, that it allowed scientific inquiry into areas of that had been viewed as "inaccessible" earlier. The message here is simple: if you can provide novel and interesting explanations, the scholarly community is likely to take notice—even if you idealize to "objects" of information. Second, cognitive science is exciting because it involves several disciplines—the fresh perspectives from other areas can lead to genuinely new ideas, and in any case, a feeling that one's intellectual remit is large.

But the cognitive revolution may have helped itself in other ways as well. A common tactic in popularizing cognitive science has been to focus on everyday phenomena and to show how they, too, are subject to unexpectedly abstract laws. A fairly standard tactic in introductory linguistics classes has been the demonstration that even "outlaw" language is governed by rules. English has only one "infixing" process, that is, morphological attachment that is inserted into the middles of words, that than onto the beginning (like *un-*) or end (like *-ly*). We demonstrate the process with one of the unobscene forms, noting well-formed examples on the left and similar, but ill-formed material on the right (with the linguist's asterisk '*' added to note ill-formedness):

<div align="center">

abso-flipping-lutely   * ab-flipping-solutely
un-flipping-godly   * ungod-flipping-ly
fan-flipping-tastic   * fanfas-flipping-tic

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For anyone who thinks of linguistic rules as things you learn in school, such as the avoidance of split infinitives or the use of commas in nonrestrictive relative clauses, it can be an eye-opener to note that a deliberately iconoclastic bit of language is nonetheless governed by strict rules. The ill-formed examples (with the '*') are examples where the infix is not immediately before a stressed syllable, and speakers are quite unanimous in find them infelicitous.[2] The point is obvious from a cognitive science perspective: speakers have internalized the rule on the

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ively and in an entertaining way.

[2]The details of the rules are a bit more complicated (McCarthy 1982).

basis of their experience, and they recognize how it is applied automatically. The rule has become psychologically real.

Another striking demonstration of the psychological reality of linguistic rules comes from the analysis of speech errors. These involve some violation of linguistic rules, or they would not count as errors, but strikingly, speech errors do not abandon rules, rather they betray produce speech which respects linguistic structure in most respects. Fromkin (1973) notes that pronunciation errors such "squeaky floor" expressed as "fleaky squoor" or "heap of junk" pronounced as "hunk of jeep" produce mostly native-like sequences. Most frequently, basic sounds (phonemes) or sequences of basic sounds are displaced, removed or insert. But the result of an error in English is emphatically not Russian, Chinese or Quechua—it remains English.

Finally, Reuland (2005) generalizes this point, noting that linguistics has made a great deal of progess because it insists on looking at not only the empirically attested events of natural speech, but also at ill-formed expressions that are not experienced in natural speech much at all. He uses the example of someone trying to form a question from just any word in a sentence, with no regard for its position:

Whom did you accuse of cowardice after Mary hit Bill?

*Whom did you accuse Tom of cowardice after Mary hit?

Reuland's sorts of very simple examples have been extremely convincing in demonstrating the importance of linguistic structure to non-professionals and even in attracting students to the field. There is a shock of surprise in noting that such familiar material is worth careful observation and analysis. Reuland calls these "cognitively dysfunctional products", suggesting that it might be worthwhile keeping an eye for analogous phenomena elsewhere, and I agree with him wholeheartedly.

4 Some Demurring Voices

It would be mistaken to suggest that the cognitive revolution in linguistics has been without cost, or even that everyone involved has found it successful. Putnam (1978) has long argued that questions of meaning are ultimately social, so that questions of the "psychological reality" of accounts of some aspects of meaning are ill put.

The Direction of Influence

A more vexing problem has been the relation of linguistics to psycholinguistics. Chomsky has famously suggested that one define linguistics as "a branch of cognitive psychology" (Chomsky 1972), but at the same time, linguists are loathe to regard psychological evidence on a par with evidence of what structures are found in language, and in which combinations:

> Evidence from language acquisition [...] along with evidence derived from psycholinguistic experimentation, the study of language use (e.g. processing), language deficit, and other sources should be relevant, in principle, to determining the properties of UG [universal grammar] and of particular grammars. But such evidence is, for

the moment, insufficient to provide much insight concerning these problems. (Chomsky 1981, p. 9)

Some researchers have reacted to this as an important retreat from cognitivism. Harald Clahsen, a noted expert on language acquisition, formulates the question quite sharply, "Has any theoretical linguist ever changed his/her theory in the face of psycholinguistic evidence?" (Clahsen 2006). The feeling among many researchers in language acquisition, processing, and aphasiology is that linguistic theory would like to set the agenda for research with little attention to the psychological issues.

The issue is actually quite old. Victor Yngve noted long ago that some constructions are quite difficult for humans to process (Yngve 1960). He studied structures such as the following:

> The mouse escaped
> The mouse the cat chased escaped
> The mouse the cat the dog bit chased escaped
> The mouse [the cat [the dog bit] chased] escaped

As the bracketing in the last examples is intended to suggest, the more complicated examples are constructed in analogy with the first. What makes the issue quite interesting is that such CENTER-EMBEDDING structures are a crucial bit of evidence in the linguistic reasoning which shows that languages are inherently complex.[3] The consensus view in linguistics is that the evidence of how the structures combine is convincing, and that limitations on working memory are the cause of the apparent infelicity in the longer sentences. The tension arises in the cognitive paradigm: what is the point of postulating linguistic structure which is, in principle, inaccessible to human cognitive processing? Would a theory of visual cognition speculate about the structures in the infrared parts of the spectrum—or any other phenomena beyond the affordances of the information-processing animal?

5 Cultural Influences

We regard as culture all the information—knowledge and skills—that is socially transmitted. Let's carefully note that cognitive and cultural perspectives often compete in explanations, but also that they are not ultimately incompatible. For example, there may be cognitive structure within linguistic variants which are nonetheless socially transmitted. On the other hand, some traits may be socially transmitted, i.e., cultural, but might nonetheless have cognitive preconditions. Most linguists would assume that most details of language acquisition are examples of the latter sort.

The cognitive revolution has not impeded work on cultural aspects of language, e.g. on the social correlates of linguistic variation, which have extended earlier work on dialectology to the study of how some variation signals differences of class, sex and/or gender, etc. Furthermore, there is growing recognition that there are law-like regularities in linguistic variation examined from a cultural perspective.

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[3]The issues cannot be presented here in full detail, which, however, may be found in Gross (1972, Chap. 8).

Linguistic Variation

By way of example, we examine lexical distance (percentage of differing vocabulary) as a function of geographical distance in the graph on the left hand side of Figure 2. We see both that the data is quite noisy, reflected in the wide cloud of points. So the cultural differences we encounter are not extremely orderly, at least not with respect to geography. Further, there is a clear positive slope, reflecting the increasing number of lexical differences of increasingly distant settlements, as expected. We can explain lexical distance as function of geography ($r \approx 0.66$), which means that geography plays a major role. Naturally, a large role for geography is not incompatible with there being other important forces, but it will clearly be difficult to compete with the strength of geography. Finally, the linear/sublinear form of the dependence of lexical distance on geography (there is no significant difference in linear and logarithmic models of this data set) suggests a fairly gentle dynamic behind the diffusion of lexical variation. Strongly differentiating forces would suggest a steeper rise in the regression curve.

The second graph complements the first. To obtain it, we have first calculated, for each site s, the degree of correlation $r_s(d, l)$ between geographic distance d and lexical distance l for all of the other sites in the data set. We then plot $r_s(d, l)$ as a function of d for all sites s. Finally, we perform a regression analysis, which we use to draw the slope of the curve shown on the right side. The negative slope of the regression line is naturally expected, since lexical distances will vary more as distance increases. We note in particular that the regression line reaches zero at approximately 400 km, meaning that we can no longer predict the lexical distance between a pair of sites simply by knowing the lexical distance of other sites separated by the same physical distance. The interesting supplementary information we obtain in the autocorrelation graph is thus an estimation of the geographic extent of the influence exerted by one site on another. Because the regression line is drawn on the basis of these sites as well, we do not report the r resulting from the regression line—these are mathematically influential, but as we have argued, linguistically irrelevant.

These sorts of studies confirm the view that there are law-like relations between culture and language, just as there are law-like linguistic generalizations based on cognition. They are not intended to suggest an alternative basis for linguistics, only the need to find a basis more comprehensive than individual cognition.

Cognitive-Cultural Interfaces

Finally it is worth noting that there has been criticism of the adoption of a strict view identifying grammar with cognitive mechanisms uninfluenced by culture. Koster (2005) notes that whatever one might think of the cognitive mechanisms underlying grammar, these mechanisms operate on culturally mediated entities, namely words. This brief synopsis does not do justice to his careful argument, but the basic observation is clear, and suggests that the view of grammar as an innate system of rules merely triggered by environmental evidence is dissatisfying: how could such a cognitive module develop, except in a cultural context?

This work on cultural influences constitutes in no sense a rejection of a cognitive perspective, merely the recognition that there are many aspects of
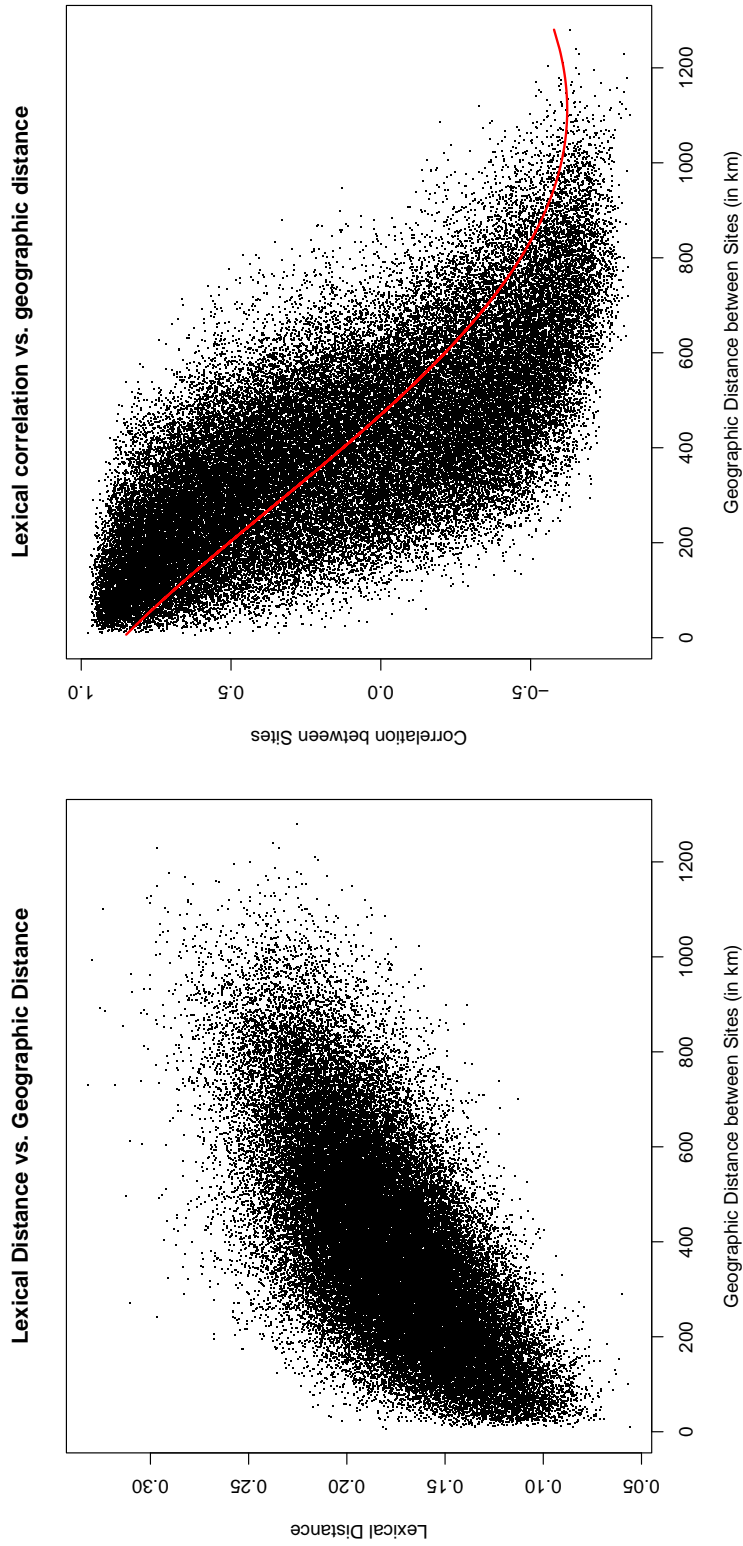
Figure 2: Lexical distance as a function of geography (left), and the correlation of lexical distance as a function of geography (right). Note that we regard the negative correlations as evidence of little cultural influence, and the zero as (roughly) the extent of influence.

language which seem to require an appeal to culture as well as to cognition. These aspects suggest that the search for a more comprehensive perspective might be rewarding.

6 Religious Speculation

In our day of specialization it is presumptuous for a scholar or scientist in one field to attempt to contribute much of anything in another, and if such an attempt is made, it is only sensible to qualify it massively. I will not attempt a scholarly contribution to religion below, and I will in addition explicitly qualify my remarks. I have no scholarly familiarity with religious studies, so I reject any claim of novelty in the substance of the ideas below. I suggest only the sorts of issues that come to a linguist's mind as he considers how to approach religion from the point of view of cognitive science. I might skip this speculation, but that might make my contribution less accessible to scholars of religion.

To begin, I try to think of general cognitive tendencies that seem particularly prominent in religion, and where nonetheless exceptions are possible and interpretable. The point of what follows is to suggest the way a cognitive scientist might approach issues in religious studies, what sorts of questions might be asked, and what sorts of evidence might be adduced in seeking answers.

6.1 Respecting the Dead

One hint at a religious dimension which is very generally recognized is the respect human beings in general pay to the dead. While it is clear that the dead are physically different from the living, which means that the basis for respect is not physical or material, and also that the dead share no political rights or status with the living, still we are reluctant to discount the dead completely, and we are repelled by disrespect. This is simply a very general fact, but one which religions have been especially attuned to with the many elaborate ceremonies honoring and commemorating the dead.

We nearly universally respect the dead and attribute to them a dignity which justifies that respect, as Baets (2004) recently discusses.[4] "There exists probably no society which does not treat its dead with respect," noted Levi-Strauss (1955), and archaeologists have come to expect evidence of funeral rites, often including burial sites, wherever there has been human settlement. Respect for the dead seems criterial for human societies.

In fact, this attitude of respecting the dead is not limited to primitive peoples, or to those of a small number of religions, or even to people professing allegiance to some religion or other. Contemporary legal doctrine eschews the advocacy of laws with a specifically religious basis, since laws need to function in secular societies. But modern, well-considered legal doctrine has been developed which requires that the dead be respected. For example, many, if not most countries allow that the last testaments of the dead determine the division

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[4]Baets (2004) marshals all of the evidence I reproduce in this section without, however, exploring a religious perspective. Since De Baets's motive is the proposal of a declaration of responsibilities, it is clearly preferable for him to avoid any hint of dependence on particular religious beliefs. Assumptions on which responsibilities depended would naturally weaken those responsibilities to conditional ones, i.e. responsibilities under the assumed conditions.

of their property. This division might be determined by law, without regard to the last wishes of the dead, as is the case in strict communist systems. More generally accepted strictures requiring respect for the dead are encoded in the *Geneva Conventions*, Art. (34), which require, concerning the war dead, that "the remains of persons [...] be respected, and the grave sites of all such persons [...] respected, maintained and marked." (Gen 1977) This view is law in all the 190 countries which have ratified the Geneva conventions.

So we may conclude that respect for the dead is very generally expected in human societies. Are there no exceptions? I ask this question to understand the sort of generalization we are dealing with. Linguists have long noted that the sorts of rules they find in language admit exception, and therefore do not have the status of natural law. We examine exceptions to the rule to check that (non-)conformance lends a status to an action.

We may indeed witness cases where the dignity we have agreed accrues to the dead is not, in fact, respected. We know that corpses are sometimes disfigured and that their parts may be used as trophies in times of war, but we are (increasingly and fortunately) agreed that this rare behavior is atrocious. Naturally, the Geneva conventions would not be needed if respect for the dead were exceptionless. Nonetheless, these sorts of violations of generalizations need not confound a cognitive hypothesis, provided the violation of a rule does not have the same status as behavior in accordance with it, which it certainly does not.

If we are convinced that respect for the dead is general among human beings, in the sense that it is expected and its absence is striking, we may go on to ask why this is so, and also what other sorts of cognition support this attitude or disposition. At this point the undertaking becomes decidedly more ambitious as we are no longer trying to establish a generalization, but rather trying to explain it.

Why do we respect the dead? De Baets suggests that "the dead have dignity as former human beings," which I agree is a sound foundation on which to base reasoning about the responsibilities of the living toward the dead, which is De Baets's purpose. But someone interested in religious issues can nonetheless push further, not disputing that the dead have dignity, but asking why people are so ready to attribute this dignity to them. Why do people recoil at disrespect for dead? Why is it repellent to simply refuse to accord the dead the dignity others do?

There are may answers which would *not* suggest a spiritual or religious dimension, e.g., that we are merely acting in accordance with the wishes of the living. As noted above, we expect to encounter alternative attempted explanations in cognitive science, and suspect that the comparison of explanations may be interesting and rewarding. This brief essay cannot try to explore and refute all such potential explanations, but it is nonetheless striking that the dead are so often honored or commemorated in religious ceremonies. This suggests that an attempt to link the widespread respect for the dead to religious cognition is promising.

Many further cognitive questions suggest themselves. What are the necessary conditions under which this respect is expressed, and when, conversely, are people willing to suppress it? The fact that respect for the dead is found nearly universally in human societies suggest that it need not rely on cultural transmission. Bering (2002) explores the conceptualizations religious people have of

the dead, including the psychology attributed to the dead, but it would be interesting to explore the attitudes of the non-religious as well. Naturally we do not expect the non-religious to attribute personality attributes to the dead, but what do they respect? Are there indications that respect is rooted even more deeply than culture, perhaps in individual cognition? Is there any indication that respect for the dead might be found in lesser animals?

This is a point at which this non-specialist will relinquish the floor, asking the more knowledgeable to take over. I summarize that I bring up the example because it concerns a very generally accepted value, which is normally associated with religion and religious ritual. I see no immediate political or ethical problems in simply denying dignity to the dead—as admittedly repugnant as we all would find this. It is easy to imagine a society functioning politically and ethically in which the moment of death ended all the responsibilities of the living toward the dead. Why do we not live in such a society? What does this tell us about about our beliefs?

6.2 Other areas?

An earlier draft of this essay suggested that the examination of altruism might also be an area where a cognitive perspective could be rewarding, but the ensuing discussion quickly convinced me that there already were too many competing accounts of altruism for me to review and compare, even superficially (Wilson 2002, Sosis & Alcorta 2003). I note here only that, if one is prepared to assent that people are at times altruistic, as many religions advocate, then a cognitive perspective might further the understanding of altruism as a religious disposition, including e.g. the elaborate communication (Sosis & Alcorta 2003, p. 267) required if the altruism is to be encouraged. Warneken & Tomasello (2006) investigates the psychology of altruism further, demonstrating that human and chimp babies act altruistically, and noting in particular, that this presupposes an elaborate understanding of other cognitive agents, in particular, understanding that they may have goals. This sort of cognitive investigation sounds quite promising.

6.3 Comparison

Barrett (2000) surveys work on religion from a cognitive perspective, which I found useful. Barrett identifies three topics as central, viz., how supernatural concepts are represented (cognitively), how they are acquired, and how they are dealt with, e.g., in ritual. I have tried to cast the net a bit wider in this piece, written from the perspective of linguistics. Rather than focus on supernatural concepts *per se*, I sought areas within natural phenomena which some, I believe many, religions hold sacred, in particular respect for the dead. The potential advantage of focusing on these more profane areas is the chance to address issues about which a great deal of consensus might be found. I suspect that this is more difficult for the supernatural.

7   Discussion

The purpose of this essay is to sketch, for scholars of religion, why a cognitive perspective has been rewarding in another humanities study, linguistics. The cognitive perspective within linguistics has resulted in a substantial, serious and valuable interaction between linguists, psychologists, computer scientists and neuroscientists. New developments emphasize the social aspects of cognition.

I have been cautious about suggesting religious areas within which a cognitive perspective might be interesting, venturing only to advise that general attitudes and dispositions such as respect for the dead might be explored from the point of view of religious cognition. I suspect that such investigations may ultimately prove more fruitful than investigations of specifically religious experiences such as prayer or worship. In this same connection I noted that it may be interesting to pursue cognitive religious perspectives even where other perspectives may appear to be sufficient. I am convinced that researchers can profitably venture into new areas of investigation even where alternative, non-religious accounts appear to be available. The experience of linguistics confirms the value of examining and contrasting competing explanations.

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