Language, Space, and Social Relationships

The study of the relationship between language and thought, and how this apparently differs between cultures and social groups, is a rapidly expanding area of inquiry. In this book Giovanni Bennardo discusses the relationship between language and the mental organization of knowledge, based on the results of a fieldwork project carried out in the Kingdom of Tonga in Polynesia. It challenges some existing assumptions in linguistics, cognitive anthropology and cognitive science and proposes a new foundational cultural model, 'radiality', to show how space, time, and social relationships are expressed both linguistically and cognitively. A foundational cultural model is knowledge that is repeated in several domains and shared within a culturally homogeneous group. These knowledge structures are lenses through which we interpret the world and guide our behavior. The book will be welcomed by researchers and students working within the fields of psycholinguistics, anthropological linguistics, cognitive anthropology, cognitive psychology, cross-cultural psychology, and cognitive science.

GIOVANNI BENNARDO is Associate Professor in the Department of Anthropology at Northern Illinois University.

Language, culture and cognition

Editor Stephen C. Levinson, Max Planck Institute for Psycholinguistics

This series looks at the role of language in human cognition – language in both its universal, psychological aspects and its variable, cultural aspects. Studies will focus on the relation between semantic and conceptual categories and processes, especially as these are illuminated by cross-linguistic and cross-cultural studies, the study of language acquisition and conceptual development, and the study of the relation of speech production and comprehension to other kinds of behaviour in a cultural context. Books come principally, though not exclusively, from research associated with the Max Planck Institute for Psycholinguistics in Nijmegen, and in particular the Language and Cognition Group.

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Language, Space, and Social Relationships

A Foundational Cultural Model in Polynesia

Giovanni Bennardo

Northern Illinois University

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For Katie and Maya, Lucio, Matteo

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Preface

This book elucidates the existence of a foundational cultural model in a Polynesian culture, the Kingdom of Tonga. In so doing, a number of central issues in anthropology, cognitive anthropology, linguistics, cognitive psychology, cognitive science, and sociology are discussed in depth. For example, regarding the nature of knowledge representation, a distinction is proposed between mental model and cultural model and how they both differ from schemas (or schemata). Regarding the relationship between language and thought, a dynamic engagement is suggested and a distinctive role for metaphors is envisaged. A clear relationship between cultural models and behavior is asserted as well as a transparent link between various cognitive modules. The role of the spatial relationships module (i.e., space) in the cognitive architecture is presented as fundamental in understanding the internal organization of other modules (or knowledge domains) with which it interacts. Finally, social network analysis is used while investigating the cognitive nature and organization of social relationships.

A mental model consists of bits of knowledge organized in such a way as to facilitate storage and/or retrieval/use of that same knowledge (Craik, 1943; Gentner and Stevens, 1983; Johnson-Laird, 1983). I propose to call "radiality" a specific type of mental model, a Tongan foundational cultural model. The choice is motivated by proposals made by Lakoff (1987), Holland and Quinn (1987) and Shore (1996). Lakoff suggested and elaborated the concept of "image-schema" defined as: a way of thinking about one's experience in the world derived from "… relatively simple structures that constantly recur in our everyday bodily experience: […] and in various orientations and relations: *UP-DOWN, FRONT-BACK, PART-WHOLE, CENTER-PERIPHERY* [my italics], etc." (1987: 267). Holland and Quinn argue that a "thematic effect arises from the availability of a small number of *very general-purpose cultural models* [my italics] that are repeatedly incorporated into other cultural models …" (1987: 11). And Shore states: "*Foundational* [my italics] schemas organize or link up a 'family' of related models" (1996: 53).

I define radiality as a 'mental' model, because in Johnson-Laird's (1999) words "A crucial feature [of mental models] is that their structure corresponds

to the structure of what they represent" (p. 525). The investigation of mental models, then, is enhanced by a thorough understanding of the context (physical and human) in which they are acquired and realized. I call it a 'cultural model' because in D'Andrade's (1989) words it is "a cognitive schema that is intersubjectively shared by a social group" (p. 809). Finally, I choose to term it 'foundational' because it is shared by a number of knowledge domains in various cognitive modules (Shore, 1996). In other words, radiality is conceived as a fundamental cognitive process that is used to organize knowledge across mental modules. Its intrinsic nature is spatial and as such it belongs to the spatial representations module (see Jackendoff, 1997). Tongans, though, preferably adopt/use radiality in other domains of knowledge – exchanges, religion, kinship, social networks, political action, and social relationships – in other modules, including the action module and the conceptual structure module. The existence of radiality does not exclude the presence of other foundational cultural models.

The decision to posit radiality as a foundational model and to investigate the domain of social relationships was also influenced by two other bodies of literature: one about a number of proposals suggesting radiality in many aspects of Eastern (e.g., Nisbett, 2003), South-East Asian (e.g., Kuipers, 1998), Micronesian (e.g., Ross, 1973), and other Polynesian societies (e.g., Shore, 1996; Herdrich and Lehman, 2002); and one containing current ideas about the content of a 'cultural' component-module of the mind (e.g., Jackendoff, 1992, 1997, 2007; Pinker, 1997; Talmy, 2000a, 2000b) that is orchestrated around the mental representations of social relationships (i.e., kinship, group membership, dominance).

When representing spatial relationships in small-scale space in long-term memory, Tongans prefer the absolute frame of reference. The specific subtype of the absolute frame of reference that they use is one that I have called "radial" (Bennardo, 1996, 2002a). *A fixed point of reference in the field of the speaker is selected and objects are represented as from or toward that point*. It is this non-ego-based (other-based) mental organization of knowledge in the spatial relationships module (radiality) that is found repeated in the preferential organization of other knowledge domains in other mental modules and as such it is proposed as a foundational cultural model.

The notion of foundational cultural model I adopt needs some clarification. In cognitive psychology, Brewer defines schemata (preferred plural of schema for psychologists) as "the psychological constructs that are postulated to account for the molar forms of human generic knowledge" (1999: 729). He traces the origin of the concept back to Kant, Bartlett, Piaget, and more recently to Minsky (1975), who called these "molar" constructions frames. A subtype of schema for sequences of actions is called script by Abelson and Schank (1977).

Schemas (preferred plural of schema for anthropologists, but see Casson, 1983; Keller, 1992) are proposed as abstract mental entities whose content does not need to be completely filled before the whole structure is activated/retrieved. Thus, in talking about an 'eating at a restaurant' event, people do not need to relate all the parts of the 'eating at a restaurant' schema and at the same time expect the same/similar schema to become activated in its entirety in the other person's mind. It is this type of "cognitive schema" that D'Andrade is advocating as "shared" in his definition of cultural model given above.

I propose as a foundational cultural model a schema (or mental model) that, besides being shared by a group of individuals, is primarily shared by a number of cognitive modules and by a number of knowledge domains in each individual. Basically, I am proposing to call a foundational cultural model a homology in the organization of knowledge across mental modules and in various knowledge domains. This organization (or structure) is a set of relationships between units of knowledge that results from the generative capacity of higher-level mental processes – they derive from them. The structure itself also exhibits generative capacities and is capable of realizing a variety of instantiations – it generates a number of cultural models.

This proposal is indebted to the "image-schema" concept suggested and elaborated by Lakoff (1987) in cognitive semantics and more recently by Mandler (2004) in developmental psychology. In cognitive anthropology, I was also influenced in my thinking by the "foundational schema" concept introduced by Shore (1996). Both suggestions, though, fell short in satisfying what I needed to explain my data. Thus, the genesis of the ideas briefly introduced in the above paragraph.

The proposal is new in three ways. First, it forces one to look for similar organizations of knowledge across mental modules and knowledge domains within an individual mind, and across individuals, i.e., members of a social group/community. Second, it looks at these mental structures as a stage in the cognitive understanding and construction of meaning and behavior. Reasoning, inferences, deductions, beliefs, and behavior (including linguistic behavior) undergo this generative process and are affected/molded at this stage. Third, it dovetails with research conducted on individualism versus collectivism (Triandis, 1995; Kusserow, 2004; Greenfield, 2005). Radiality, in fact, is seen as the generative mental engine behind various forms of collectivism.

Supported by two NSF grants (no. 0349011 and no. 0650458), during my search for evidence of the hypothesized cultural model, I collected and analyzed a variety of data – ethnographic, linguistic, experimental, behavioral, social networks, and geographic (e.g., GIS and 3-D renderings) – and used a number of methodologies – participant observation, interviews, semantic analyses, analyses/parsing of texts, administration of experimental tasks (e.g., memory tasks, drawing tasks, sorting tasks, kinship tasks), administration of

questionnaires, indirect observation of social networks, social network analysis – in a cross-disciplinary fashion. The motivation for such an array of data and methods is to be attributed to the cross-domain (knowledge) and cross-modular (cognition) investigation conducted.

For example, linguistic data were gathered to conduct semantic analyses of the spatial relationships domain, e.g., spatial prepositions, spatial nouns, and directionals. Some of these same data and others were also analyzed to achieve an understanding of specific linguistic practices, i.e., instances of language use. Usage patterns and preferences emerged that enhanced the supporting evidence available for the main hypothesis. Moreover, some data was analyzed in a multi-dimensional fashion. For example, some linguistic data such as interviews about social relationships (i.e., telling a story) were analyzed for linguistic reasons (e.g., frequency of use of some lexemes), for social network purposes, (e.g., influence structure of the village), and for cognitive objectives (e.g., dimensions of the group – number and type of individuals – recalled and mentioned as an indication of specific forms of mental representation of those same groups).

The following statement summarizes the major findings obtained: radial organization is pervasive in the Tongan domains of knowledge and mental modules investigated. The findings, besides supporting the hypothesis, have relevance for the way in which the human cognitive architecture can be conceptualized. Specifically, a number of domains of knowledge are shown to share a similar fundamental organization, a foundational cultural model, thus indicating a specific way in which cross-modular interactions may take place. The role of cultural models in cognition is clearly established, but many questions about the specifics of their significance still remain.

Acknowledgments

This book is the result of one and a half decades of research during which I was mentored, supported, or simply helped by a number of people, institutions, and agencies. I am deeply indebted to all of them and I am acknowledging their contribution below in some kind of chronological order. For all of those I am leaving out, I do apologize in advance and ask for their forgiveness.

Kris Lehman and Janet Keller at University of Illinois, Urbana-Champaign, Department of Anthropology, took the renegade linguist I was and made me into the linguistic and cognitive anthropologist I think I currently am. Steve Levinson, Gunter Senft, and all the other colleagues at the Max Planck Institute for Psycholinguistics, Cognitive Anthropology Research Group, Nijmegen, The Netherlands, taught me lessons about the essential value of empirical data collection. William Brewer, Department of Psychology, Jerry Morgan, Department of Linguistics, and Norman Whitten, Department of Anthropology, all at University of Illinois, Urbana-Champaign, helped me in sharpening my thinking during the first stages of the research project presented in this book.

Three parts of my research were conducted in strict collaboration with colleagues and students: the "Digitized Tonga" database, the social network analysis, and the algebraic analysis of the Tongan kinship terminology. For the "Digitized Tonga" database I want to thank the remarkable skills and patience of Kelly Hattman, a graduate assistant, of Jennifer Testa, Caroline Pempek, Naimah Ali, Suzanne Alton, Dana Cali, and Paul Herrick, all Undergraduate Research Assistantship Program (URAP) students in the Department of Anthropology at Northern Illinois University. Paul Herrick was also extremely helpful for some data analysis and data conversion (from analog to digital). Kurt Schultz, Northern Illinois University, School of Art, was essential in the conceptualization and implementation of the "Synchronized Media and Visualization Analysis Tool" (SMVAT), the 3-D part of the "Digitized Tonga" database.

Regarding social network analysis, Charles Cappell, Northern Illinois University, Department of Sociology, was the researcher and collaborator that made it possible. His contribution to the research is explicitly acknowledged in Chapter 11, but the insights into the data that he provided go well beyond

the content of that chapter. I am also indebted to Jeff Wagley, Nathan Walters, and Tony Robertson, all three URAP students at Northern Illinois University, who painstakingly helped in converting raw data into sociomatrices to be later processed and analyzed.

The algebraic analysis of the Tongan kinship terminology was conducted in strict collaboration with Dwight Read, UCLA, Department of Anthropology. The project was first conceived when we met at UCLA in 1998, and it took several years to complete. I must thank Dwight for patiently working with me over these years and slowly mentoring me into the arcane world of algebraic kinship analysis. It took me a while, but I came out of this experience as a better researcher than I could ever have become all by myself. I also need to thank Sachiko Koike, a URAP student at Northern Illinois University, for processing some raw data about the kinship project.

I want to thank Nicole Simon, another URAP student at Northern Illinois University, for patiently scanning and digitizing a number of Tongan texts and readying them for analysis. It was not an easy task to work with an unfamiliar language like Tongan, but she managed perfectly. My two Tongan graduate assistants, Lisita Taufa and Siniva Samani, deserve a special mention. The linguistic analysis conducted on the Tongan data about social relationships were all conducted with their close collaboration. I want to point out especially the three year contribution provided by Lisita, who worked with me patiently and effectively, both in Tonga and in the US, while we were both discovering and learning more every day about the Tongan ways of speaking and thinking.

Most of the material presented in this book was either discussed with colleagues and with students, or presented at conferences, or published in various forms. I want to express my gratitude and appreciation to editors of journals, anonymous reviewers, participants at professional meetings, colleagues in my department and other departments at NIU, and at departments in other institutions, and students in the classes I taught at UCLA, University of Missouri, College of Charleston, and Northern Illinois University. During the production of the book, the efficient and professional contributions of Helen Barton and other staff at Cambridge University Press were invaluable. This book would not have been completed without the contributions of all these individuals. Thanks also to the various presses that gave permission to reprint material.

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support from the College of Charleston, both a Dean of School of Humanities and Social Sciences research grant and a Faculty Research Grant. Finally, a number of Faculty Research and Artistry Grants (2001, 2002, 2005, 2007) and two Travel Grants (2005, 2006) from the Graduate School at Northern Illinois University contributed to the continuation of the research and its final completion.

I want to thank the Government of Tonga for granting me permission to conduct the research in the Kingdom. My fieldwork experience in Tonga has not only provided the data to fill the pages of this book but mainly enriched my soul with exciting and profound human experiences. The person I must thank first is Loisi Finau, my Tongan teacher in Tonga. She introduced me to the Tongan language, but most of all to the Tongan heart. In fact, after only a few weeks of working together she asked her family in her native village, Houma, Vava'u, to host me at their house for as long as I wished. Houma eventually became my main field site and the Finau family my adoptive Tongan family.

Regarding people in Houma, I must especially thank Sione Finau and the late Mele Finau for accepting me into their family. Besides, I want to thank in particular Nunia Finau, who worked patiently with me for months as my assistant, informant, and collaborator. Her graceful explanations, her soft attitude, and her warm friendship are one of the most valuable gifts I received during my whole stay in Tonga. Thanks go to Taniela Lolohea for supervising the data collection by my collaborators in Houma in 2004, 2005, and 2007, and for spending wonderfully enlightening hours with me while we transcribed interviews. All the people of Houma deserve a special thanks because they donated to me their understanding, their patience, and above all their friendship and respect. I want to make sure that they understand that I have carved a special place for them in my heart.

I want also to thank Siaki Tokolahi, one of my collaborators, who accompanied me on my trip to Niuatoputapu, and Semisi Tokolahi in whose house I lived during my stay in the village of Hihifo, Niuatoputapu. The people of Hihifo deserve a special thanks for their joyous readiness to cooperate and comply with my requests of performing tasks, to answer my thousands of questions, and to satisfy my endless professional and personal curiosity. I devote a special thankful thought to Leo Hoponoa and his family. He was my Tongan teacher in the United States and a student colleague, but most of all by living in my house for a year we became close friends. He was my collaborator in the field and helped me greatly during my stay in Ngele'ia, Tongatapu, his native village. His family hosted me several times while visiting Nuku'alofa on my way to Houma, Vava'u or back to the United States. Above all, Leo and his family contributed greatly in making Tonga become for me a familiar, warm, and friendly place.

While in Tonga, I came into contact with several people who befriended me, helped me, talked to me, and made me feel at home in their country. I want to give my most sincere thanks to all the Tongan people not mentioned, but whose company and help I have enjoyed. Without them this book would not have been possible. I hope I am faithful to the message they have entitled me to carry outside of their wonderful world.

The writing of this book was accomplished with the essential contribution of the continuous, warm, and supporting advice of Katharine Wiegele, my wife. She listened to me when I needed to talk about my work. She pushed me along when my mental energy faulted me. She praised me when I completed a task. She took care of the millions of things I was dropping aside while intensely concentrating on my writing. She was and is my wonderful companion, she completes my life, professionally, personally, and spiritually. No words are sufficient to express what I feel, and I am forced to make a "thank you from the bottom of my heart" suffice to provide a minimal pointer towards my feelings. Maya, Lucio, and Matteo are my children and they deserve to be mentioned because they too contributed to the process. They missed me when I was not around and they wanted me, they had to bear the burden of my swinging moody days, they adjusted to a somewhat absentminded father who was not really paying attention to violin or clothing issues, Harry Potter stories, or Power Rangers adventures. They especially missed me during my fieldwork months in Tonga, and I hope that marveling their friends with their father's travels and adventures in the South Sea make up for that, even if just a little.

Finally, I take full responsibility for any mistakes, misrepresentations or fallacies that may be contained in the present book.

Abbreviations

adj	adjective
art	article
clas	classifier
conj	conjunct
dem	demonstrative
dir	direction
expr	existential preposition
interj	interjection
iposs	indefinite
N	noun
neg	negation
num	numeral
part	particle: untranslatable before numerals
poss	possessive adjective
pospr	possessive preposition
pp	personal pronoun
pr	preposition introducing subject or object
prpr	presentational preposition
sN	spatial noun
sP	spatial preposition
tns	tense
V	verb