Cognitive Linguistics in the Redwoods

The Expansion of a New Paradigm in Linguistics

Edited by

Eugene H. Casad

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René Dirven
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Mouton de Gruyter
Berlin · New York

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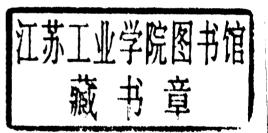
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Preface

This volume would never have been possible without the willing and enthusiastic support of both the authors who wrote the papers that appear here and the colleagues who refereed them. I am deeply indebted to each of them. The authors have delighted my heart by their vote of confidence in me as first shown by their contributing papers to this volume and then by their revising those papers on the basis of comments generously given by the referees, both those on the Editorial Advisory Board of the Series of Monographs on Cognitive Linguistics Research as well as those with other affiliations on whom I called for assistance.

I extend my deepest gratitude to each of the following who read one or more papers for me: John Barnden, Bill Bright, Ken Cook, Claudia Brugman, Paul Deane, Nicole Delbecque, René Dirven, Wolfgang Dressler, Gilles Fauconnier, Dirk Geeraerts, Ray Gibbs, Louis Goossens, Joe Grimes, Gottfried Graustein, Bruce Hawkins, Dick Hudson, Yoshihiko Ikegami, Laura Janda, Zoltán Kövecses, Thomas Krzeszowski, Adrienne Lehrer, Odo Leys, Suzanne Kemmer, Ludo Melis, Peter Mühlhäusler, Brygida Rudzka-Ostyn, Gary Palmer, Mava Jo Powell, Günter Radden, John Rager, Sally Rice, Paul Saka, Rainer Schulze, Mike Smith, Elzbieta Tabakowska, John Taylor, Sandra Thompson, David Tuggy, Mark Turner, Willy Van Langendonck, Claude Vandeloise, James Watters, Anna Wierzbicka, and Margaret Winters. Their judgments almost always reinforced my own, and, more importantly, without their assistance, I could not have made the decisions that I did.

Beyond these, I would like to mention four other people whose support was crucial to the emergence of this volume. In the first place, Ron Langacker's influence is pervasive in both the background to this volume, as well as in its very contents. His extensive knowledge of

Uto-Aztecan languages found application to my own research into a single Southern-Uto Aztecan language, Cora, which I have been able to describe in detail in a number of publications. He was also my thesis advisor and patiently endured my struggles of trying to become a gradschool student at the age of thirty-seven. Finally, he has also been hovering in the background during the entire process of editing this volume; his suggestions and encouragement have helped keep this project alive. Beyond that, several of the papers presented here are written by his students, both present and former ones. His work is also reflected in most of the other papers of this volume.

Brygida Rudzka-Ostyn has been at least equally supportive over the last six years. She organized my first lecture tour abroad and has opened the way for me to participate in the academic arena in several other ways, twice, for example, by serving as editor of volumes in which my own papers appear. Besides reading a couple of papers for me, she has given me numerous helpful suggestions regarding the editing of this volume. Both on the professional level and the personal, Brygida has been one of the most wonderful people I have ever met. I cannot express sufficiently my thanks to Brygida and her husband Paul for the hospitality they have show to me on several occasions and the encouragement and good times that they have given to me.

René Dirven has also been very supportive for the last several years. In his role as Conference Coordinator of the International Cognitive Linguistics Association, he made the choices that led to my undertaking the editorship of this volume. It has grown out of the Second International Cognitive Linguistics Association Conference that was held at the University of California at Santa Cruz, July 29-August 2, 1991. Whereas almost all of the plenary session lectures have been reserved for publication in the journal *Cognitive Linguistics,* the papers included in this volume are a selection of the general session papers which have been refereed and revised for publication.

The influence of the irascible George Lakoff is seen firstly in the title of this volume; he came up with it. In addition, his work with Mark Johnson and Mark Turner on categorization and metaphorization is reflected in many of the-papers found here. He also provided me with a copy of one of his papers that I refer to in the introduction to this volume. In a similar vein, I would like to thank Melissa Bowerman, Dedre Gentner and Len Talmy for the papers they also sent to me. My special thanks also go to Östen Dahl for having provided me with technical assistance at one stage in the writing of the introduction to this volume in Stockholm.

In addition to all the above, two gifted ladies have graciously put their expertise to work in early stages of the copy editing of this volume; I am very much indebted to the late Verna Glander of the Technical Services Department of the Mexico Branch of the Summer Institute of Linguistics in Tucson, Arizona. I am equally indebted to Birgit Smieja, René Dirven's aide at the University of Duisburg, for all her work leading to the final round of the copy editing. Both of these colleagues have made this volume much more readable and presentable than I could ever have done on my own. Hermann Cölfen was responsible for the final round of copy-editing with all the nitty-gritty of preparing special characters and handling the graphics for the diagrams, in addition to entering all the final editorial changes that I dumped on him at the last moment.

Finally, I would like to express my thanks to the directorate of the Mexico Branch of the Summer Institute of Linguistics for giving me the leeway to take the time out from other activities in order to carry out this editorial task, which took away a full year from other important tasks.

Eugene H. Casad

Contents

Introduction

Eugene H. Casad

Central to the endeavor of Cognitive Linguistics is the idea that language use is grounded in our daily experience. A typical case in point is Cora, a Uto-Aztecan language of Northwest Mexico in which the grammatical structure is highly influenced by both the geographic environment and the social structure that constitute the matrix of life for the Cora people. Topographic adverbs, locative particles, demonstrative pronouns, definite articles and an elaborate set of verbal prefixes of location and direction permeate Cora linguistic structure.

Not only does a close study of the semantics of these elements tell us a lot about how the Coras themselves view the world around them, it also tells us much about the kind of theoretical constructs that one must invoke in order to give a credible and satisfying account of these complex data. In particular, it suggests strongly that Cognitive Grammar, as it is being elaborated by Langacker, Lakoff, Geeraerts, Rudzka-Ostyn, Sweetser, Talmy, Taylor, Wierzbicka and their associates, is an appropriate and powerful framework for linguistic analysis and description. This framework is applicable, of course, to a much broader range of phenomena than Cora locationals, as all the papers in this volume testify. Janda, for example, explains the bewildering variety of markedness phenomena in terms of concepts central to cognitive linguistics. In addition to the studies presented here, the papers in volumes such as Paprotté and Dirven 1985, Rudzka-Ostyn 1988, Geiger and Rudzka-Ostyn 1993 and Sweetser and Fauconnier 1994 amply illustrate the utility of this approach.

Obviously, one's idea of what "cognitive" means differs from person to person and the role that "cognitive" phenomena are accorded in linguistic theory may differ greatly from framework to framework. For some investigators, what is "cognitive" is outside the domain of linguistics proper and can thereby be singularly consigned to some other workplace. On the other hand, a basic assumption of Cognitive

Linguistics as it is presented in this volume and in the other volumes of the series *Cognitive Linguistics Research* is that linguistic descriptions and explanations must accord with what we know about human mental processing as a whole (Langacker 1987: 12-13; Lakoff 1990: 40). The "cognitive commitment" as Gibbs and Lakoff call it, carries heavy implications for how the overall research is carried out, the kind of data that are collected, what the investigator chooses to say about those data and the choice of both the theoretical constructs and the notational devices he/she uses for presenting data and explaining them. All of these points are addressed in various ways by the twenty-eight papers included here. They are divided into five sections roughly framed according to distinct implicatures of the metaphor "Cognitive Linguistics in the Redwoods".

Section I: At ground level

The six papers contained in this section treat topics that explore the basis of cognitive linguistics – the phenomena that occur at ground level, if you please, the neurological, mental, developmental, environmental, functional and societal matrix which gives rise to the conventionalized usages in language, that which we call "grammar" in the widest sense of the term, including morphology, the lexicon and discourse.

In the leadoff article of this volume, "What's cognitive about cognitive linguistics?", Ray Gibbs nicely contextualizes for us what is cognitive about our approach. He notes, first of all, that cognitive linguistics is especially cognitive because of the way that it incorporates empirical findings from other disciplines into linguistic theory. The research strategy employed is an interdisciplinary one and the works included in this volume are in part selected precisely to illustrate this point. All the papers in Section I, as well as Radden's and Serra Borneto's papers in Section III and Lindenfeld's and Lytje's papers in Section V link Cognitive Linguistics to a number of psycholinguistic, neurological, developmental and sociocultural issues. In addition, Gibbs points out that Cognitive Linguistics seeks to examine the specific contents of human knowledge and not just its architecture. Most

of the papers in this volume illustrate his second point to one extent or another.

Gibbs also provides us with an additional call to further research by addressing some interesting questions with which Cognitive Linguistics must concern itself. For example, he cites four possible ways that conceptual knowledge can influence language use. The demonstration as to which ones do influence it and the kinds of influence that they exert is an empirical issue still to be settled.

Paul Deane's paper addresses the question as to why children possess such a strong sense of linguistic structure. Deane's account, in strong contrast to the Chomskyan approach, presents arguments for an explicit linguistic theory that makes specific predictions about how linguistic knowledge is instantiated in the brain. In particular, Dean explores the neurological basis for Lakoff's Spatialization of Form Hypothesis, which states that grammatical structure is organized in terms of basic spatial schemas such as LINK, PART/WHOLE and CENTER/PERIPHERY.

Deane posits a variety of LINKS and shows that the disruption of these links leads to a number of types of agrammatism, which may vary greatly in the degree of severity which affects a person's speech performance. At this point Deane's work converges nicely with that being carried out by Damasio and Tranel and their Convergence Zone Hypothesis, discussed by Lakoff in a recent paper (Lakoff 1993). This latter work in turn confirms the developmental studies of nouns and verbs detailed in Gentner (1982). In short, Deane's theory seeks to ground linguistic phenomena in general cognitive capacities and argues for a model of syntax which is neither autonomous nor strictly modular. Grammar is simply one instantiation of the general human capacity for spatial structural thought, a point underscored by recent research on American Sign Language by Armstrong, Stokoe and Wilcox (1993: 7).

Barbara Malt focuses precisely on the need for interdisciplinary efforts in discussing the questions of concepts and word meanings from the standpoints of both Cognitive Psychology and Cognitive Linguistics in her paper titled "From cognitive psychology to cognitive linguistics and back again". Malt is concerned about the increasing divergence between cognitive psychologists and cognitive linguists. In

spite of the fact that both disciplines seem to be closely aligned: both seek to characterize how the human mind understands the world and encodes that understanding in language. In order to stress the fundamental overlap between Cognitive Psychology and Cognitive Linguistics, Malt presents the results of experiments that suggest that the structure of many common object categories studied by cognitive psychologists may be more alike the structure of categories discussed by cognitive linguists. Folk models, for example, do not adequately constrain what entities are counted as category members, but rather multiple dimensions are important in characterizing the concepts which underlie common object categories. In support of her point is Langacker's comment that "Most concepts require specifications in more than one domain in order to characterize them" (Langacker 1987: 154). In passing, note also that a number of linguists do discuss and invoke folk models as one possible factor in some of their analyses (cf. especially Herskovits 1986; Holland and Quinn 1987 and Rubba, this volume).

In "Cost in language acquisition, language processing and language change" Dorit Ravid explores some of the cognitive principles and strategies that govern how language is acquired and how it is processed. The language of the study is Hebrew. Ravid undertakes to characterize and explain the variation in the usage of certain Hebrew verbs as evidenced by speakers of varying age and socioeconomic status. For her, a basic assumption is that linguistic change has its source in the synchronic variation found within a given speech community, a point of view very much in sympathy with Labov's widely known work, and one that fundamentally underscores Langacker's view that the interaction of grammar as a sanctioning device for actual language usage is the crucible of emerging language structures (1987: 65).

Ravid concludes that the changes which do find their way into the grammar and become part of the established standards are less "costly" than those changes that momentarily pop up, but never gain acceptance. The accepted changes have achieved their aim without disrupting the system elsewhere, creating even greater havoc. Tuggy's paper in Section III discusses a spectacular example in English of just such a change that does not cost very much in Ravid's terms. One

fundamental constraint that also helps to ensure this result is the "intelligibility" requirement discussed by Györi in the paper that follows.

Redwood forests achieve their present form throughout a long period of growth, accommodation to the environment and diversification. The history of the forest is indelibly imprinted in the phenomena found there. This is also true of linguistic systems. Gabor Györi, in "Historical aspects of categorization", examines how categories come to be formed in a culture and the way that they become encoded in language. He holds that the process of cultural category formation is functional in nature precisely because it is based on the way that a speech community adapts to its environment.

Sounding a note fully compatible with that recently expressed by Anttila (1992: 316), Györi holds that etymologies reveal much about how cultural categories are formed, since they show how conceived reality can be construed in alternate ways at different points in time to facilitate a society's adaptation to its environment. A major topic discussed in this paper is the role of a descriptive naming model as the mechanism for the coding of culturally valid categories (cf. also Armstrong, Stokoe and Wilcox (1993: 10). Finally, Györi discusses parallels between Hermann Paul's view of semantic change with that of both Geeraerts and Langacker on the contemporary scene.

In her paper titled "Unpacking markedness", Laura Janda explores the nature and phenomena of markedness. She shows that different kinds of markedness phenomena are natural by-products of the cognitive structuring of language. Janda also finds that the theoretical constructs of Cognitive Linguistics are particularly suited to her approach. Those that figure prominently in her analysis include the primarily Lakovian notions of 'radial category', 'the idealized cognitive model (ICM)', 'basic level' and 'metaphorical mapping'. For Janda, all of human linguistic knowledge is stored in cognitive categories and the structure of those categories results in markedness phenomena. Finally, she notes that the assignment of markedness values is neither arbitrary nor predictable, a point similar to that made by Kemmer and Bat-Zeev Shyldkrot, Lee and Watters in this volume regarding the data they discuss.

Section II: Within morphology and the lexicon

The life of a redwood forest is found within the morphology of its architecture: the roots, the trunk, the branches and the leaves. The papers in this section deal with those aspects of language which illustrate its life as seen in its own morphological structures and lexicon. Included here are papers by Willem Botha, Nicole Delbecque, Bruce Horton, Suzanne Kemmer and Hava Bat-Zeev Shyldkrot, Keedong Lee, Günter Radden, Carlo Serra Borneto, Ya-Ming Shen and Claude Vandeloise. In "The cognitive frame of a set of cricket terms", Willem Botha analyzes lexicographic definitions taken from four different dictionaries of Afrikaans, viewing them against the background of the culture-based conventionalized knowledge which is encapsulated in what he calls "the cricket frame". He concludes that the conceptualization of different cricket terms takes place in relation to an intrinsic point of orientation. For example, the definition of a term such as *batsman* involves the fact that *batsman* acts as an intrinsic point of orientation and that, furthermore, that orientation is a two-sided one. An adequate lexicographic definition of this term must make explicit note of this. In other words, the lexicographer, as both a perceiver and as a conceptualizer, must go onstage with the batsman. In Langacker's terms, such lexical items are highly objective in nature (cf. Langacker 1990).

Prepositions convey a variety of semantic relations. Yet they are often held to be grammatically determined and empty of semantic content. Nicole Delbecque examines these assumptions in her detailed discussion of the Spanish prepositions *por* and *para*. Her purpose is to provide a unified and cognitively satisfactory account of the uses of *por* and *para* based on usages culled from a corpus of essays. She arrives at single schematic meanings for each of these prepositions (a feat not always attainable) and spells out partial semantic networks in which she relates the specific meanings of *por* and *para* to the schematic meanings of each one. Other aspects of Delbecque's analysis include the role of the differential profiling of elements within a schematic structure, the influence of the speaker's perspective on the scene he/she is describing and the way in which the situation itself is construed.

Bruce Horton focuses on a different domain of grammar in "What are copula verbs?" He shows that in the inventory of English copula verbs, there is a category prototype, as well as a range of copular types that diverge from that prototype in various ways. He goes on to discuss the entire gradient of copular verb types, which range from non-copular "look-alike constructions" to quasi-copular constructions and on to the true copulas. He notes, crucially, that category membership is not an all or nothing affair, but is rather a matter of degree, a theme oft discussed by Lakoff, Langacker and Rosch, among others, and re-iterated by several papers in this volume, including that of Tuggy in his analysis of the "double *is* construction" in English.

Suzanne Kemmer and Hava Bat-Zeev Shyldkrot turn their attention to the French prepositions *à* and *de,* noting that these prepositions often appear in similar syntactic contexts, but with a distribution that seems entirely arbitrary. Thus, infinitival complements, for example, may be introduced by either *à* or *de.* Their goal is to show that semantic properties of *à* and *de* motivate their occurrence in the constructions in which they introduce infinitival complements. Their analysis encompasses both synchronic and diachronic facts and relates cases in which the semantics of *à* and *de* are clear to those in which the semantics of *à* and *de* appears to play no role whatever in the construction. They find that there is no clear dividing line between the "meaningful usages" of *à* and *de* and the "meaningless usages". Basically, even prepositions involving infinitives can be meaningful.

The characterization of the meanings of these constructions is simply a matter of imposing alternative ways of viewing the situation that the speaker is discussing: the main clause and its relation to the infinitive clause are construed in different ways and this is reflected in the choice of either *à* or *de.* Achard in his paper on French complements (this volume), Delbecque in the preceding paper on Spanish *por* and *para* and Verhagen in his paper on linear order in complex sentences in Dutch (also in this volume) all invoke the notion of construal in their respective analyses. This conclusion also underscores Langacker's claim that grammar structure is almost entirely overt (Langacker 1987: 46; 1992: 127, 465). Finally, Kemmer and Bat-Zeev Shyldkrot note that the question of the meaningfulness of grammatical

elements is essentially independent of the degree of obligatoriness in the occurrence of these elements.

The notion of a semantic network that relates specific meanings of a lexical item or those of a grammatical morpheme to more schematic meanings is the framework for Keedong Lee's paper "Getting at the meaning of *make*". He follows Bolinger (1977) in claiming that a word form is not a container into which different and unrelated senses can be randomly placed, but rather is one which contains related senses.

An additional construct from Cognitive Grammar that figures heavily in Lee's analysis of *make* is the conceptual base that is necessary for characterizing a predicate and the ancillary notion of profiling distinct elements within that base, an idea also invoked in the papers of Delbecque and Kemmer and Bat-Zeev Shyldkrot discussed above. Lee notes that in the conceptual base associated with the meaning of *make,* there are several components. However, given entities within conceptual structure are not always profiled in the same way. Some are selected for special attention, while others are backgrounded in the base. Through this profiling, the verb *make* comes to have not only different senses, but also gets grammaticalized in various ways so that its variants can take distinct complement structures. Lee also concludes from his study that the different senses of *make* are not so arbitrary as commonly thought, but that they are not predictable either, a sentiment shared by several other of our authors.

That language use is grounded in our daily experience is the starting point for Günter Radden in his paper "Motion metaphorized: The case of *coming* and *going*." This accounts for both the persuasiveness of metaphors that describe events in terms of motion and the observations of developmental psychology that motion verbs are the ones that children learn earliest, are the most frequently used ones and are conceptually dominant, (cf. Miller and Johnson-Laird 1977). Behind all this is a fundamental schema whose properties allow it to serve as the base for numerous metaphors and whose properties have been discussed by a number of authors in a variety of contexts (cf. Casad 1982; 1993; Johnson 1987; Lakoff 1987, Langacker 1987; Lindner 1981).

In this paper Radden addresses the problem of the metaphorical mappings from the source domain of motion onto the target domain of change of state. He notes that the conceptual metaphor CHANGE OF STATE is CHANGE OF LOCATION is highly motivated, is probably universal and is an entailment of the general metaphor STATES ARE LOCATIONS. The conceptual metaphor CHANGE IS MOTION is probably an excellent candidate for Lakoff's Invariance Hypothesis, according to which "metaphorical mappings preserve the cognitive topology (that is, the image-schema structure) of the source domain (1990: 54)". The topological elements of the motion schema, SOURCE, PATH, GOAL and, possibly, DIRECTION, are directly mapped onto the structure of changes of states. Spatial SOURCE and GOAL correspond to the states before and after transition, respectively. Spatial PATH corresponds to the transitional phase of a change of state and spatial DIRECTION may be related to the "direction" of a change of state.

Lakoff's notion of an 'image-schema' is a powerful tool used widely in semantic analyses within Cognitive Grammar. Image-schemas provide a natural way for representing notationally such factors as the speaker's vantagepoint on a scene, the speaker's involvement in the scene that he/she is describing and the orientation of foregrounded entities vis à vis backgrounded ones within a given context. In his paper "*Liegen* and *stehen* in German", Carlo Serra Borneto invokes all these aspects of image-schemas to relate the basic usages of each verb to their figurative and metaphorical usages. He also contrasts these two verbs with each other in considerable detail. He concludes that one cannot treat the notions 'horizontality' and 'verticality' as simple universal semantic features. Instead, he finds at work complex, almost 'Gestalt-like schemata', which are linked to basic perceptual and psychological experiences, but which are not necessarily derived from them. Vandeloise reaches a similar conclusion with respect to the feature 'contact' in his discussion of the French verb *toucher* (this volume). Serra Borneto also finds a 'semantic continuum' that can be associated with each verb, relating the figurative usages to the more concrete ones.

The utility of the framework of Cognitive Grammar as a tool for the description and explanation of linguistic phenomena is evidenced

by the ease with which its concepts and notational devices can be applied to diverse languages with equal appropriateness – what is different remains so, what is cognitively the same is revealed as such. In "The semantics of the Chinese verb 'come'", Ya-Ming Shen presents an integrated analysis of the main verb usages of *lai* 'to come'. She discusses the distribution of *lai* in different sentence patterns as well as the different relationships between *lai* and its postverbal complements. Considering both semantic structures and syntactic ones, Shen describes how the semantic structures of *lai* differ from each other in different sentence types and how these meanings are interrelated by means of a semantic network.

In her analysis, Shen particularly invokes the following notions of Cognitive Grammar: (1) the base-profile distinction, (2) the "degree of prominence" scale, (3) the "setting-participant" asymmetry, (4) the ability to shift mentally from one domain to another, (5) the "subjectivity-objectivity" distinction and (6) the notion "active zone".

In summary, Shen notes that the diverse usages of *lai* group into those that specify spatial motion versus those that specify abstract motion. These two major senses are related by both a shift from the domain of physical space to that of mental space as well as a shift from an objective to a subjective perspective.

Claude Vandeloise discusses certain facts about transitive usages of the French verb *toucher* 'to touch' in his paper "*Touching*: A minimal transition of energy". In doing so he adds to our literature on the nature of Force Dynamics, a topic brought to the fore by Len Talmy (1988; 1993). To be more precise, Vandeloise notes that the transitive usages of *toucher* often forbid any transmission of energy. Curiously, in the present tense, such sentences cannot be passivized.

Vandeloise accounts for this in terms of the concept of *minimal physical action*. The subject in such sentences is neither a prototypical agent nor a prototypical experiencer, but rather stands midway between the two along the energy chain. He notes that the ban on passivization may be waived only if the external object makes contact particularly difficult.

The main lesson that Vandeloise draws from all this concerns the role of the notion 'contact' in language analysis. This concept is often presented as an important semantic feature in the componential analy-

sis of the lexicon. Although the feature [± contact] provides a convenient way for dividing all spatial relationships into two classes, one class which allows contact, the other which excludes it, linguistic categorization seems more complex. Categorization relies on complex bundles of attributes, conceptualized globally, whereas the feature [± contact] is only one such attribute. It may sometimes be a necessary condition, but it is never a sufficient one. This also holds true for the transitive usages of *toucher:* they are better described in terms of the concept *minimal physical action* rather than in terms of the topological concept of 'contact'. This in turn explains why A *touche* B cannot be used as a paraphrase of either certain kinesthetic predicates or certain static ones.

Section III: Some of the architecture

In the terms of Cognitive Grammar, all grammatical units fall somewhere along a continuum of symbolic structures ranging in size from morphemes to lexical items to phrasal structures and then on to sentence and discourse level structures, a point that is prominent in the writings of Pike and Longacre. As Langacker observes, the higher up one goes on the complexity scale, the more schematic the patterns tend to be and the less conventionalized (Langacker 1987: 36; 1991: 117; 1992: 6,152). Nonetheless, all conventionalized units, even those considered syntactic, are meaningful and the meanings of all such grammatical constructions can be modelled in much the same terms as those of lexical items. The papers in Section III are grouped here because they discuss higher level grammatical constructions, some instantiated by simple sentence structures, others by complex sentence structures. These papers are by Michel Achard, Angeliki Athanasiadou and René Dirven, Hana Filip, Toshio Ohori, David Tuggy, Karen van Hoek and Arie Verhagen, respectively. They all tie meaning to their syntactic analyses in substantial ways and invoke many of the same constructs that were employed in the analyses of individual lexical items and grammatical morphemes given by the papers in Section II.

Michel Achard, in "Complement construal in French: A cognitive perspective", provides a semantic account of the distribution of modal marking in sentential complements. He finds that whether a speaker of French uses indicative marking or subjunctive marking on the verb in the subordinate clause of a complex sentence is a matter of how the speaker construes the content of that subordinate clause. He accounts for the use of the indicative mood vis à vis the subjunctive mood in terms of a compatibility condition between the main verb of the sentence and the meaning of the indicative mood. He states that the use of the indicative mood in French means that the content of the complement clause is viewed as a proposition, a distinct part of a conceptualizer's dominion. The main verbs of indicative sentences tend to be verbs of perception, communication and propositional attitude. The kinds of verbs found to be incompatible with the meaning of the indicative include verbs of volition. In Achard's terms, these verbs are "solely concerned with the event described in the complement". We can likely conclude that indicative complements construe their content objectively, whereas subjunctive complements construe their contents subjectively. Since the objective-subjective asymmetry is a matter of degree, it is no surprise that Achard also finds that verbs of emotional reaction are "potentially compatible" with the meaning of the indicative.

In "Typology of if-clauses", Angeliki Athanasiadou and René Dirven provide a detailed description of English if-clauses, focussing on the relationship between the various types that they discovered in a sample of 400 sentences culled from the Cobuild Corpus. These types include three classes of Course of Event Conditionals (CEC), a class that instantiates a gradient along the probability scale of Hypothetical Conditionals (HC) and two classes of Pragmatic Conditionals (PC). They find that distinct cognitive needs are associated with the use of each kind of conditional as well as different degrees of cognitive salience.

The use of Course of Event Conditionals resides in the fact that speakers have firm knowledge of real situations, expect them to occur regularly and make generalizations on the basis of those expectations. On the other hand, Hypothetical Conditionals arise from the speaker's need to make predictions about possible future events based on his ev-

ery-day experiences. Such "predictions", of course are stated in terms of a sliding scale of probability of outcome. Pragmatic Conditionals, in contrast, relate to the domains of logic and conversation. The role of Logical if-clauses is to understate the strong certainty that the speaker has regarding a given situation, whereas the Conversational if-clauses function to background the use and expression of too obvious a reason for some event. Finally, given the semantic transparency of if in the Hypothetical Conditionals, Athanasiadou and Dirven suggest that this use of if is the prototypical one.

Hana Filip's contribution, titled "Boundedness in temporal and spatial domains" presents an analysis within the framework of construction grammar to show how Slavic languages employ verbal operators to allow speakers to interpret nominal complements as either definite or indefinite. Filip characterizes Construction Grammar as a "mono-stratal, non-transformational and unification-based framework".

Important to her analysis is the idea of an 'Incremental Theme' which applies to those cases in which a simple NP is associated with the participant that "measures out" an event. Here Filip follows the theories of Krifka and Dowty, who link the Incremental Theme to the direct object NP's in such expressions as to build a house. Filip links the Incremental Theme to the domain of an entire sentence and places it within an Incremental Schema, which is one of the interpretive schemas (or frames, in the sense of Fillmore) that is associated with sentences. Certain Aktionsart and aspect properties of sentences are interpreted against this schema. Filip also points out that this schema allows one to characterize the interaction between predicate operators and nominal arguments in terms of the system of categories that make up the "disposition of a quantity" (Talmy 1986: 16ff.)

The meaningfulness of even highly grammatical morphemes comes out in Toshio Ohori's paper "Case markers and clause linkage". Ohori draws on data from a variety of languages from distinct stocks, keeping in view the need to remain descriptively adequate while seeking to make the pertinent generalizations. He cites a number of parallels between case markers and clause linkage markers and concludes that these parallels are motivated on semantic grounds: in part, this motivation comes from the figure and ground distinction that is opera-

tive in semantic extension, and, in part, by the interplay of localism and the Gestalt preserving nature of semantic extension. He finds that case markers for the peripheral relations are more likely to be extended to become clause linkage markers than those from the core grammatical relations.

In Ohori's terms, peripheral NP's are those that serve as datives, ablatives and instrumentals. Peripheral relations also involve a variety of subordinate clauses. All of these share the property of serving as ground in a relational predication. On the other hand, nominatives and accusatives do not fit the pattern because they are either selected as figure within a complex predication or they are indeterminate with respect to the figure-ground distinction. Nonetheless, as Ohori himself notes, there are sufficient problems and there is sufficient fuzziness in all the data that the statement of particular parallels one hopes to discover can only emerge from a pair by pair study of languages for selected grammatical features.

A central theme of Langacker's formulation of Cognitive Grammar is that grammar sanctions usage, but that this sanctioning is not strongly determinative of the form that an expression assumes in a given case. David Tuggy's paper on the "double *is*" construction in English illustrates quite well some of the implications of this point of view. The "double *is*" construction is characterized by a short definite noun phrase whose head is ordinarily the word *thing*. This noun phrase is followed by two occurrences of the word *is*. These are in turn followed by the complementizer *that* and a finite clause. The finite clause itself may be quite long. Tuggy notes that this construction is marginal in English in several respects and mentions that many people who actually use it consider it to be erroneous and to be a deviation from the similar English copular construction which has a single *is*.

Sanctioning can be multiply motivated and that is the answer that Tuggy gives: the double *is* construction has apparently arisen from a number of sources, most of them anomalous or erroneous. In particular, this construction is sanctioned by parallelism with the "legitimate" double *is* construction, by solidification of the phrase *the thing is* with the concomitant loss of the analyzability of its parts and the use of a unit complementizer *is that*. In short, Tuggy presents us with a snap-

shot of an erroneous construction being partially sanctioned by a few established patterns of English grammar and becoming grammaticalized to take its own position within the grammar. In this position, then, it is now beginning to sanction its own use. It is hard to see how any of this could even take place if language really was rule-ordered as the generativists would have us believe.

Karen van Hoek presents us with a cognitive analysis of bound anaphora in English, and in so doing, shows us in precise terms how a cognitive analysis contrasts with a generative one in accounting for similar data. The generative account that van Hoek has in mind is Reinhart's 1983 solution, which invokes the notion of *c-command,* i.e. in a syntactic tree structure, the first branching node which dominates an element X must also dominate an element Y in order for the relation *X c-commands Y* to hold. For bound anaphora in particular, the first branching node that dominates the antecedent must also dominate the pronoun. Van Hoek notes that while this condition accounts for much of the data, it does not account for a number of construction types.

Van Hoek's analysis argues that the antecedent for a pronoun functions as a conceptual reference point. It is an element which is highly salient within the context in which the pronoun is embedded and it shapes the semantic construal of the pronoun by specifying its referent. This analysis further argues that the constraint on bound anaphora follows from the antecedent's function as a reference point within a conceptual context set up by the quantifier, i.e. a *mental space* in the sense of Fauconnier 1985. The result of this analysis is a model that places severe limitations on the range of possible bound anaphoric configurations, a range that is nonetheless not as restrictive as that allowed by Reinhart's c-command analysis, but one that accommodates the facts more easily.

In "Sequential conceptualization and linear order", Arie Verhagen examines the question as to how the ordering of elements in a sentence is related to the sequencing of individual conceptualizations in a complex one. More precisely, how may linear order be used in order to justify the possible interpretations of a sentence? Verhagen considers two sets of data – (a) a set of verbs that may be viewed either subjectively or objectively and (b) extraposed relative clauses. His answer

is partly based on the notion of independence: whenever two elements in a sentence are distinguished as separate, the one that comes first is to be conceptualized independently with respect to the one that follows, whereas the reverse does not apply. Verhagen's analysis is highly reminiscent of Achard's account of the contrast between French complement constructions involving perception verbs vis à vis those embedded to volitional verbs given earlier in this section. Both analyses, moreover, may well reflect distinct aspects of construal, a concept that Talmy has recently called "the windowing of attention in language" (Talmy 1993).

Section IV: Wider connections in the forest

Section IV contains papers by Jacqueline Lindenfeld, Johanna Rubba and Inger Lytje, all of which relate language use to a broader context, either social, conceptual or paralinguistic. In "Cognitive aspects of verbal interaction", Jacqueline Lindenfeld seeks to employ a cognitively oriented approach to the study of verbal interactions in order to better understand the link between purposive and verbal behavior within the sociocultural context. For her analysis, she draws on insights from the ethnography of communication tradition of Hymes and Gumperz, as well as those of the communication goals studies of Craig (1986) and the work of Schank and Abelson (1977) on scripts. She characterizes communicative competence in terms of relations between actors' goals and their discourses as observed at a Southern California fruit stand. She notes that marketplace encounters are goal directed, that goal fulfillment is achieved in part through discourse, which varies in relation to the participant's specific goals and that this, in turn, results in the diversity of conversational structures.

Johanna Rubba looks into an area of grammar usually held to provide crucial data for demonstrating the autonomy of syntax – the choice of case markers in a sentence. Instead, Rubba proposes a direct link between conceptualization and syntax. Her study "The interaction of folk models and syntax: Case choice after prepositional verbs of cognition in German" impinges on a number of complex areas including preposition semantics, case semantics, the semantics of mental ex-

perience verbs and the German folk model of the mind. The particular proposal is that the metaphorical structuring of an area of experience in a folk model motivates case choice. Her analysis draws on the work of both Langacker and Lakoff and supports the work by Smith (1987) on German case marking, as well as that of Holland and Quinn (1987) on folk models.

Rubba notes that folk models are complex schemas which people use to understand the world around them and to manage their own experience. Folk models are used to categorize, to reason, to form expectations and to guide behavior, among other things (cf. Lakoff 1982; 1987; Holland and Quinn 1987; Herskovits 1986).

Rubba concludes that for prepositional verbs in which the preposition allows potentially for the selection of either accusative or dative case, the selection of a particular case marker is determined by the conceptualization of the event chain encoded by the verb. For some verbs, a scenario more closely approximating the transitive prototype in the realm of concrete action is found. For other verbs, a scenario is found which is much less like the transitive prototype. The case semantics each conceptualizer matches best will be used to mark the prepositional object.

Presently there are few projects exploring the possible implementation of Cognitive Linguistics within the framework of Artificial Intelligence. The paper by Inger Lytje, titled "Computer modelling of text comprehension" represents one of only two efforts that I presently know of that attempt to employ Langacker's approach in a computer simulation of natural language processing (for the other, see Holmqvist 1992).

As Lakoff states so clearly, the mind does a lot more than simply compute (1987: 348-9). Thus it is encouraging to see someone express the view that the computer modelling of natural language understanding can be a methodology for gaining insight into language regarded as a multifaceted array of synergistic cognitive processes rather than as a set of autonomous formal rules (cf. Bowerman 1994). The project that Lytje describes in this paper is in its early stages of implementation and is based on a Danish lexicon of 4,000 words. The computer model that she is suggesting is construed as a research tool for studying the relation between semantic structures and the cognitive pro-

cesses of understanding and comprehension. She and her associates are suggesting methodologies that seem to cope with some of the classical problems concerning ambiguity and undecidability. The method consists in rejecting classical categories in favor of invoking categorizing principles based on the roles of prototypes and schematic units.

Section V: The varieties in native America

The Amerindian languages provide a genuine testing ground for the development and validation of Cognitive Linguistics because of the kinds of categories that are encoded in their grammars and the rich morphological structures that characterize their word, phrase and sentence patterns. Given that there are approximately 800 such languages in the Americas, many of which are rapidly passing off the scene, the need to collect data from them and document them as fully as possible is of paramount importance. This was stated forcefully by several authors in a recent issue of the journal *Language,* and was more recently underscored by the Symposium on Endangered Languages at the 48th International Congress of Americanists held in Stockholm, Sweden.

To date, cognitive analyses of selected grammatical patterns of Amerindian languages have been published by Brugman for Mixtec, Palmer, Ogawa and Ochs for Coeur d'Alene, Tuggy for Nahuatl and Casad for Cora. In this section we add three more languages and three more authors to the roster. I include here papers by Rick Floyd, Carole Jamieson Capen and James Watters.

In "The radial structure of the Wanka reportative", Rick Floyd explores the domain of the reportative evidential suffix *-shi* in the Wanka dialect of Peruvian Quechua. Floyd assumes a view compatible with those expressed by Langacker 1987, 1991; 1992 and Lakoff 1987, i.e. the forms that linguistic structures take are motivated by human cognitive processing. He shows that the usages of the Wanka reportative suffix *-shi* fall into a radially structured category in which the extended usages are motivated by a central prototypical usage or by one or more of the extensions of that prototype.

Floyd finds four distinct usages of *-shi*. In its prototypical use, *shi* indicates that an utterance is based on hearsay. In a second use, *-shi* marks the authoritative source for folklore. A third use occurs in riddles, whereas the fourth is one that Floyd labels "a challenge construction". Not all the uses of *-shi* can be adequately analyzed as hearsay. However, all of its uses do involve variations on the schematicity of the speaker-external information source. The central point is that there is no single characteristic that all the uses of *-shi* hold in common, but that conjointly they constitute a radial category.

The role of grammar as a sanctioning device for language use, discussed in Tuggy's paper, comes into the picture again in Carole Jamieson's paper "Chiquihuitlan Mazatec postverbs: The role of extension in incorporation". In addition, a number of other points crucial to Cognitive Grammar are illustrated by this paper.

Chiquihuitlan Mazatec is an Oto-Manguean language spoken in the state of Oaxaca, Mexico. Its lexicon contains only about 300 simple verb stems. However, there is a set of approximately fifty postverbs which undergo incorporation into simple verb stems to create a rich lexicon of compound verbs. The postverbs include both optionally possessed nouns and inherently possessed body part nouns.

Jamieson argues that the present schemata are neither basically syntactic nor semantic. Some of the characteristics of Chiquihuitlan Mazatec incorporation appear to have been sanctioned by the extension of existing syntactic patterns, while others appear to have been sanctioned by the extension of existing lexical patterns and may involve an interplay between them. Jamieson's comment here jibes very well with the accounts of multiple motivation already given in the papers by Tuggy and Floyd, among others.

In Jamieson's view, the syntax of a language and its lexicon must be simultaneously available to the speaker. It is this interplay or multiple motivation between the two processes which accounts for much of the lexical richness and grammatical complexity in the Chiquihuitlan verb. Her view also finds strong support in the psycholinguistics literature (Gentner 1993). Jamieson concludes that Chiquihuitlan Mazatec postverbs appear to be the result of the interaction or networking of the grammatical rules and ideals (cf. Herskovits 1986) and the building of the lexicon. Taken together, these factors show clearly

how a seemingly small inventory of units may well combine into a very productive linguistic system, a point similar to that recently made by Pawley for Kalam, a language of the Highlands of Papua New Guinea (cf. Pawley 1987: 337)

The final paper in this volume presents an analysis of a set of constructions that occur in Tepehua, a Totonacan language of Eastern Mexico. In "Frames and the semantics of applicatives in Tepehua", James K. Watters discusses the ideas related to accounting for the morphology and the semantics of applicative constructions in this language. There are actually four affixes that figure in these constructions; Watters discusses the three of them that are the most recalcitrant semantically. The suffix *-mi* takes an argument that may be the goal, source, benefactee or causee in an event. The prefix *li-* takes an argument that may be the direction, the secondary theme, or the reason for which something is done (among other things). The prefix *pu-* takes an argument that may be either the route, instrument, means, contained location or manner in which something is carried out.

Watters shows that any satisfactory account of the semantics of such constructions, including the assignment of semantic roles, must appeal to notions such as frames (Fillmore 1978, 1982, 1992) and image-schemas (Langacker 1987 and Lakoff 1987). He argues that in virtually all cases the resulting meaning is motivated by, although not necessarily predicted by, the image schema of the applicative suffix or prefix and the semantic frame associated with the verb to which it attaches. Watters uses the term "image-schema" to refer to the configuration imposed by the applicative affix and "frame" to refer to the scene (and the set of lexical stems) associated with the verb stem. Both are instances of what Lakoff 1987 calls "idealized cognitive models", but they differ significantly in the elaborateness of the information that each conveys.

Returning to the first paper in this volume, Gibbs comments that the focus of cognitive linguists on some of the possible ways that conceptual thought might influence language use and understanding has led to deeper analyses of human conceptual thought than was traditionally provided by generative linguists and that this appears to be the level at which Cognitive Linguistics makes its unique contribution to linguistics. He concludes that the studies coming out of this rapidly developing field are leading the way to new theoretical understandings of how the mind, body and language interact. And this is why cognitive scientists must pay close attention to the developments in Cognitive Linguistics.

In closing, we offer this selection of papers to cognitive linguists, cognitive psychologists and readers in all areas of Cognitive Science and Linguistics for their own study, benefit and use.

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