Introduction

Introduction

This volume has its origins in a theme session entitled: "Lexical and Grammatical Classification: Same or Different?" organized by the editors at the Fifth International Cognitive Linguistics Conference held at the Vrije Universiteit in Amsterdam on July 18th, 1997. We have included almost all of the theme session presentations as well as additional papers from that conference and some invited contributions. All the analyses in this volume explore the relationship between lexical and grammatical categories. Some illustrate the close interaction between lexical and grammatical categories in interpreting linguistic expressions; some provide data that call into question the strict dichotomy between lexicon and grammar that is sometimes assumed, which in turn suggests the need to question the value of the dichotomy itself.

In one form or another, virtually every linguistic theory makes a distinction between lexicon and grammar, though the basis for the distinction varies from one theoretical approach to another. The seeds of the modern distinction may already be seen in Aristotle, whose influence on theorizing language can hardly be overstated. Aristotle distinguished between substance (*phýsis*) and accidents (*ptōseis*) in the parts of speech now known as 'noun' and 'verb': the substance being the notion, or lexical content, expressed by the word, and the accidents being modifications of the word that according to Aristotle have no independent meaning (i.e. the cases of nouns or the tenses of verbs). He also distinguished between the individual word which signifies a concept or thought, but which by itself cannot be true or false, and the composition of words into a *logos*, or proposition, which has the property of truth or falsity (see e.g. Arens 1984, chs. 2 and 3). Later Alexandrians such as Dionysius Thrax included the discovery of "analogies" (what we might now call rules) in the scope of *grammatikē* (cf. Dinneen 1967, ch. 4). Although Aristotelian terminology does not coincide with that of modern linguistics, it is not difficult to see conceptual parallels with classical thinking in 20th century descriptions of the lexicon/grammar distinction. In general, modern approaches base the distinction on three broad themes: a

division between different types of notional content, a division between optional and obligatory elements or between 'open class' and 'closed class' elements, and/ or a division between content and form. As an example of the type-of-content distinction, Boas (1966 [1911]: 29–30) states:

> In the discussion of a language, the parts expressing the material contents of sentences appear to us as the subject-matter of lexicography; parts expressing the modifying relations, as the subject-matter of grammar.

Sapir's treatment of this topic is reminiscent of his teacher, but he also explicitly includes the proposition-building function in grammar. Sapir distinguishes between "radical concepts" that name "objects, actions, qualities to talk about", and "relational concepts" that "moor the concrete concepts to each other and construct a definite, fundamental form of proposition" (1921: 93).

Both Boas and Sapir acknowledge that the distinction between lexicon and grammar may be difficult to draw in particular cases, but both clearly regard the distinction as fundamental. An additional point in common is that both Boas and Sapir emphasize the centrality of "obligatory categories" in grammar — that is, categories that must be expressed in order to produce a correct sentence in a given language, though they vary from language to language (Boas 1966 [1911]: 31–39; Sapir and Swadesh 1964 [1946]). By contrast, lexical elements are optional: speakers are not forced to choose one rather than another.

It should be noted that Sapir's notion of "grammatical element" subsumes both individual morphemes with relational meaning, such as the English present tense suffix -*s*, and more abstract processes such as word order (see, for example, his famous analysis of "The farmer kills the duckling" in Chapter 5 of *Language*). Other linguists, such as Bloomfield, draw the distinction somewhat differently. Bloomfield (1984 [1933]: 162) states that "the total stock of morphemes in a language is its *lexicon*." For Bloomfield grammar is not the morphemes themselves but the principles of their arrangement, such as order and phonetic modification (1984 [1933]: 163–4), i.e. his distinction is based on content vs. form. He also notes that no actual utterance is devoid of grammatical form, since all utterances minimally involve selection of (a member of) a lexical class and modulation such as a pitch-contour, both of which carry grammatical meaning (1984 [1933]: 168–169). Bloomfield also noted a further characteristic of the lexicon, in a view which remained influential in linguistic thinking for generations: its status as repository of what is unpredictable or unproductive. "The lexicon is really an appendix of the grammar, a list of basic irregularities" (1984 [1933]: 274). Aronoff (1994: 18) sees Bloomfield as the originator of this understanding of the lexicon, which he calls "idiosyncratic-lexical".

   Post-Bloomfieldian and generative theorists have generally echoed Bloomfield's content vs. form approach in separating lexicon from grammar, though they have not necessarily agreed with him in regarding principles of grammatical arrangement as meaning-bearing units. Furthermore, in theories that have focussed on discovering universal properties of formal syntax, the "idiosyncractic-lexical" perspective has often been emphasized. Just as Dionysius Thrax saw grammar as a search for "analogies", so have generative grammarians defined grammar as the locus of productivity/predictability. By contrast, the lexicon is seen as an inventory of unpredictable features, including phonetic forms and their associated notional content, that must be memorized individually (see for example Chomsky 1965: 87, cited in Arono 1994: 18). The metaphors of "computation" (grammar) vs. "storage" (lexicon) have been widely used to describe this distinction (e.g. Pinker 1991). There is variation among generative theories in the properties and scope of the lexicon, as compared with syntax, but most theories agree on the premise that irregularity/regularity is central to the lexicon/grammar distinction.

   Over the past decade or so, proponents of Cognitive Grammar have often challenged traditional dichotomies, including the distinction between grammar and lexicon. For example, Langacker (1988: 19) states:

> Grammar (both morphology and syntax) is describable using only symbolic elements, each of which has both a semantic and a phonological pole. The symbolic units characterizing grammatical structure form a continuum with lexicon: while they di er from typical lexical items with respect to such features as complexity and abstractness, the di erences are only a matter of degree, and lexical items themselves range widely along these parameters.

Similarly, those working under the rubric of grammaticalization theory typically recognize lexicon and grammar as poles separated by a continuum rather than a sharp boundary (e.g. Lehmann 1986; Heine et al. 1991, ch. 1; Hopper and Traugott 1993: 6–7). Nevertheless, some cognitive linguists find the distinction useful. For example, Talmy (1988: 165) asserts that "a fundamental design feature of language is that it has two subsystems which can be designated as the grammatical and the lexical". In a conception strongly reminiscent of Sapir, he states (ibid.) that "the grammatical elements of a sentence determine the majority of the *structure* of the C[ognitive] R[epresentation], while the lexical elements together contribute the majority of its *content* [emphasis in original]".

   Psycholinguistic findings both support and undermine the grammar/lexicon dichotomy. In support of it, some neurolinguistic studies have suggested that there are di erences in the way 'closed class' vs. 'open class' items are stored in the brain. According to Pulvermüller et al. (1995), for example, "content

words" in German correspond to neuronal assemblies equally distributed over both brain hemispheres, whereas "function words" are strongly lateralized to the left hemisphere. Research on lexical decision tasks in French by Cole and Segui (1994) found di erences in response time between closed class and open class words. On the other hand, Bates and Goodman (1997) strongly advocate the inseparability of grammar and the lexicon, based on evidence culled from a plethora of experimental studies in first language acquisition, aphasia and real-time processing:

> We conclude that the case for a modular distinction between grammar and the lexicon has been overstated, and that the evidence to date is compatible with a unified lexicalist account. Studies of normal children show that the emergence of grammar is highly dependent upon vocabulary size, a finding confirmed and extended in atypical populations. Studies of language breakdown in older children and adults provide no evidence for a modular dissociation between grammar and the lexicon; some structures are especially vulnerable to brain damage (e.g. function words, non-canonical word orders), but this vulnerability is also observed in neurologically intact individuals under perceptual degradation or cognitive overload. Finally, on-line studies provide evidence for early and intricate interactions between lexical and grammatical information in normal adults.

Bates and Goodman do not claim that grammatical structures do not exist, nor that their underlying representations are identical with those of individual content words, but rather argue that heterogeneous linguistic phenomena are acquired and processed by a single, unified processing system motivated by a common set of activation and learning principles. They claim that there is no need for discontinuous boundaries separating the grammar and the lexicon and advocate a unified lexical approach to grammar which is compatible with various current, functional (Fillmore et al 1988; Goldberg 1995), cognitive (Langacker 1987), and formal (Pollard and Sag 1994) linguistic approaches. Like Bates and Goodman, the papers in the present volume support a more holistic approach to the traditional grammar/lexicon dichotomy, but most of them consider this question from a sign-oriented perspective.

Contemporary sign-oriented theories of language share with Cognitive Grammar the view that all linguistic units, whether lexical or grammatical, are semiotic in nature. However most of these theories establish a theoretical distinction between lexical and grammatical signs, primarily on the basis of type of content as well as type of paradigmatic opposition (closed class vs. open class). Although sign-oriented theories are deeply indebted to the work of Ferdinand de Saussure, in fact a lexicon/grammar dichotomy may have been only

implicit in the *Cours*. Saussure cites both lexical signs (e.g., *arbre* "tree" in his famous diagram exemplifying the linguistic sign, 1986 [1916]: 67) and grammatical signs (e.g., the plural in de Saussure 1986 [1916]: 119–120) without officially distinguishing between them, despite the fact that he discusses both the meanings of signs and syntagmatic versus paradigmatic oppositions.

Guillaumean sign theory, The Psychomechanics of Language, distinguishes between the 'word base', which expresses a particular idea or lexical content and is the product of a mental operation of "discrimination" or "particularizing", i.e., the abstraction from the general to the particular, and grammatical forms expressing concepts such as gender, number, and case, which reflect the mental operation of "generalizing", i.e., are "mediating, vector forms which provide a support for thought as it advances toward the final form [i.e., the part of speech]" (Guillaume 1984: 117). In short, the mental operations associated with lexical signs "particularize" meanings while the mental operations associated with grammatical signs "generalize" (Guillaume 1984: 113–114, 116, 117; Hirtle 1975: 5–6). The Guillaumeans do not provide an explicit argument as to why these two converse mental operations should exist or why these (or other possible mental operations) should create two different categories of grammatical versus lexical signs other than the fact that particularizing and generalizing are well-accepted thought processes which logically imply each other.

Diver (1995: 95–98) of the Columbia School distinguishes between tight-knit systems of oppositions which exhaustively subcategorize a shared semantic substance (grammar) versus more loosely organized systems with a decreased importance of mutual opposition (lexicon). He further distinguishes the kind of relationships these different classes of signs may have. Grammatical signs stand in a 'satellite' relationship, i.e., they provide information about lexical items, while lexical signs do not stand in such a relationship. Of the two criteria defining grammatical signs — exhaustive classification of a semantic substance versus standing in a satellite relationship — the former is the more important of the two because it is always present while the latter may not necessarily be present (e.g., in pronouns and deictics). Diver (1995: 98–99) further attributes meaning differences between grammatical and lexical signs to the differences in the nature of the oppositions and how they are learned:

> The success of the speaker in working out appropriate uses for the grammatical meanings… suggests that the grammatical system, with its semantic substance and its relations of value, has in some sense been "learned" as an entirety. The appropriate use depends crucially on this overall awareness. Recall the instance of the Sanskrit and Latin systems of number, in which the dropout of one member brings with it a reshuffling of the value relations of the remainder

[viz. Tobin this volume].

But successful use of any one link in a lexical chain does not seem to depend on a comprehensive grasp of the chain as a whole. If you learn just one link you can use that link "correctly". A later encounter with another link seems to have no effect on the use of the first one; compare the various senses of *galvanize* [first used to describe production of an electric shock, then a process of electroplating iron with zinc, and later for a process of coating iron with zinc that does not involve electricity]. And we can hardly expect that the dropout of one link in the chain would have any particular effect on the use of the others.

One consequence of establishing this distinction between grammatical versus lexical meanings is that Diver himself attributes invariant meanings to grammatical signs but remains agnostic on the question whether lexical items have invariant meanings or not, whereas other sign-oriented linguists of his own school assign invariant meanings to lexical signs as well (e.g., Reid 1991; Tobin 1990, 1993, 1994, 1995). However, Diver does not provide an explanation as to why linguistic signs should "sort themselves" (1995: 96) into separate lexical and grammatical classes.

In Jakobsonian sign theory, grammatical meanings or categories differ from lexical in a way similar to the Columbia School: grammatical elements are considered to occur in closed sets (similar to Diver's exhaustive categorization) which are "obligatory categories" in the Boasian sense (cf. Jakobson 1959), whereas lexical elements constitute an open set (Sangster 1982: 105). A rationale for this distinction is suggested by van Schooneveld, who has consistently explored the connection between language and perception (van Schooneveld 1983, 1987, 1991, 1994). According to van Schooneveld, all linguistic acts are acts of perception: the meanings of linguistic signs act as "identification cues needed to identify objects in extralinguistic reality" (1994: 68). However, the use of grammatical and lexical signs involves different kinds of perception. Lexical signs help identify referents in the narrated situation by providing cues for perception that remain relatively stable from one communicative act to another, and from one "observer" to another, i.e., they need not be tied to participants/ properties of a particular utterance. On the other hand, grammatical signs "are operations on lexical meaning and involve therefore *necessarily* [emphasis in original] speaker and addressee. They are marked with respect to lexical meaning since they involve the spoken chain." (ibid., 67). That is, grammatical signs give instructions (similar to Diver's satellite relationship) about how to integrate a given lexical sign into the ongoing communication: "lexical meaning sets up a narrated situation; grammatical meaning identifies that narrated situation and

poses the question as to what that narrated situation has to do with the speaker and addressee" (van Schooneveld 1983: 159; see also Tobin 1990: 74–77). This account is reminiscent of Sapir's distinction between 'radical concepts' that name "objects, actions, qualities to talk about", and 'relational concepts' that "moor the concrete concepts to each other and construct a definite, fundamental form of proposition" (1921: 93). The important point here is that there is a communicative motivation for the lexicon/grammar distinction, which is connected to the 'satellite relationship': the lexicon designates what is being talked about, and the grammar tells the receiver how to interpret the lexical signs in a given utterance (referred to as "the synergetic relationship between lexicon and grammar" in Tobin 1990: 62–64).

The semiotic or sign-oriented definition of language underlying these theories revolves around the linguistic sign as its unit of analysis. The sign itself is represented as a dyad: a Janus-like duality inseparably composed of a signal and an invariant meaning. This relationship between signal and invariant meaning and the role each plays in the communicative act may also be viewed synergetically, i.e., there may be a cooperative interrelationship between both parts of the linguistic sign as they function together in the communicative act of creating messages. Furthermore, the relationship is often iconic: the smaller and less salient the signal is in a sign, the more vague its invariant meaning, and, therefore, the greater its 'polysemic potential'. That is, the vaguer the invariant meaning, the more potential discourse messages and possible syntactic and pragmatic functions the sign may have. "Small words" (such as the preposition *in*) may often begin as "locatives" (*in the room*), are then extended metaphorically from concrete spatial messages to the more abstract realm of "temporal" messages (*in the morning*), to the even more abstract realm of "existential" messages (*in trouble/in pieces*), to the point at which they may even change their categorial status (*to be "in"*; *the "in"-group; to be an "inny" or an "outy"*). This point resembles an observation made by Bybee and Pagliuca (1985: 76): that there is a relationship between generalization of meaning/widening of range of use and phonological reduction as part of the process of grammaticalization. However, they see the phonological reduction as a result of increased frequency of use as opposed to an iconic relationship between signal and meaning.

Cognitive grammarians (e.g., Herskovits 1986) and grammaticalization theorists (e.g., Heine et al. 1991) analyze such extensions as a form of polysemy. Yet it is possible to account for all the various spatial-temporal-existential messages, both literal and metaphoric, and the various syntactic and pragmatic functions such a word may obtain by positing an invariant meaning (e.g., *in* = LIMITED BY BOUNDARIES) as it is exploited in di erent linguistic and

situational contexts along a universal cognitive spatio-temporal-existential cline developing from more concrete to more abstract messages (Tobin 1990: 61, 1994: 23–25, this volume).

Conversely, the larger and more salient the signal of a sign, the more specific its invariant meaning may be. Therefore, its 'polysemic potential' may be correspondingly lower: it has fewer potential discourse messages and syntactic and pragmatic functions. This synergetic principle may be related to other lexical and grammatical phenomena as well. In many words containing stems and additional bound and/or inflectional su xes, the larger the words, i.e., the more linguistic signs a word may be composed of, the more specific its meaning, and, therefore, the more limited its "polysemic potential" and the number of its potential syntactic and pragmatic functions (*nation–national–nationalize–nationalization*) (see also Jakobson 1971).

Invariant meanings are systematically and synergetically opposed to each other in two fundamental ways: paradigmatically, based on their value relationships within lexical and grammatical systems and syntagmatically, in discourse, to produce coherent messages. As we have seen, grammatical signs are usually considered to be in exhaustive, mutually exclusive relationships within tightly organized paradigmatic systems based on their semantic value (e.g., singular versus plural within a grammatical system of Number, or past versus non-past in a grammatical system of Tense, etc.). Lexical signs, on the other hand, are generally considered to be less systematically ordered and much less tightly organized within larger semantic fields; they exhibit relationships such as antonymy, polarity, ambiguity, synonymy, homonymy, etc. There may very well be, however, a synergetic relationship between these two fundamental categories of linguistic signs. Communication is based on these di erent kinds of sign systems, the lexical and the grammatical. Speakers of languages exploit each kind of sign for di erent communicative purposes. In general, the brunt of communication is on the lexicon. Lexical signs usually provide us with the most basic information, i.e., what we are talking about. The grammar, on the other hand, provides us with additional information or further refines the relational aspects of what is being talked about (the lexicon). Indeed, both in first and second language acquisition, lexical signs usually play a greater communicative role than grammatical signs. There is abundant anecdotal evidence of people claiming "to understand" or "speak" a language without "knowing its grammar". In short, it may safely be assumed that the grammar is imposed on the lexicon. Iconically speaking, lexical signs are usually independent morphemes or words composed of relatively independent and autonomous roots and stems to which bound morphemes, often in the form of a xes, are attached. The grammatical

signs of the language, on the other hand, are oftentimes those very same bound morphemes or a xes which are added to the more relatively independent roots and stems (see also Haiman 1980).

The relationship between lexical and grammatical signs and their di erent roles in communication has been outlined above. The fact that linguistic signs can and do span the opposition between the lexicon and the grammar — as this volume claims — contributes even further to the synergetic cooperation between encoders and decoders in establishing more e cient and successful communication. The more that signs can align and realign themselves along a holistic and dynamic continuum combining lexical and grammatical properties, the better chances both encoders and decoders have in working together to communicate more e ectively.

The contributors to this volume explore a range of linguistic phenomena that span the grammar/lexicon continuum and move beyond the traditional dichotomy in a number of di erent ways. Taken together, they promote a more holistic view of classification based on theoretical and methodological criteria reflecting cognitive aspects of human language, which can be applied to both the realms of the grammar and the lexicon. A further connection uniting the chapters in this volume is that they all share a functional, cognitive, communication-oriented approach to linguistics despite their theoretical diversity: the papers by Contini-Morava, Otheguy and Stern, Klein-Andreu and de Jonge follow the sign-oriented tenets of the Columbia School; Andrews promotes the semiotic-oriented precepts of Charles Sanders Peirce and belongs to the Jakobsonian-van Schooneveldian School of linguistics; Hirtle and Morris represent the Guillaumean School of the Psychomechanics of Language; Tobin and Gorlach present an eclectic view of linguistic sign systems combining theoretical aspects of the three abovementioned schools; Kirtchuk adheres to the structuralist view of the Jerusalem School in general and the morphogenesis of language in particular; while Janda, Ryder, and Ravid and Shlesinger define themselves as Cognitive Linguists. Therefore this volume may be compared to other anthologies which combine various sign-oriented linguistic theories with other cognitive and functionalist-oriented approaches (e.g., Andrews and Tobin 1996; Contini-Morava and Goldberg 1995; Klein-Andreu 1983; Reid and Otheguy (forthcoming), and Tobin 1988, 1989).

The volume itself is divided into two parts. Part I, Number and Gender Systems Across Languages, is further subdivided into three sections dealing with (1) Noun Classification; (2) Number Systems; and (3) Gender Systems. Part II, Verb Systems and Parts of Speech Across Languages, is divided into two sections: (1) Tense and Aspect and (2) Parts of Speech. Various theoretical and methodological approaches illuminating the holistic and cognitive perception of

language are exemplified in a diverse range of languages and language families: Bantu (Swahili); Guaykuruan (Ge-Pano-Caraib: Pilagá); Indo-European (English, Russian, Polish, Bulgarian, Macedonian, Spanish); and Semitic (Hebrew).

Each of the thirteen papers in this volume, regardless of its specific theme, theoretical approach, or language(s) analyzed, possesses a very basic expositional line. It first presents a sign, or a set, or a system of signs and then examines their uses and functions, pointing out how they span the opposition of the traditional dichotomy of lexicon and grammar. We, the editors, were struck by the close interrelationships among the papers. This is not surprising if we consider the synergetic, holistic, and cognitive principles outlined above as fundamental *leitmotifs* underlying all of the papers in this volume.

Contini-Morava presents a new perspective on noun class in Swahili as number. Oftentimes the same morphological forms simultaneously signal information about noun class or grammatical gender and number (cf. Kirtchuk). Traditionally the various aspects of these morphemes are analyzed separately and independently: noun class or gender is usually treated as a lexical feature assigned to nominal roots whereas number is a viewed as a grammatical or inflectional feature. From the point of view of semantics, noun classes and number have been treated di erently as well. It is commonly believed that noun classes have lost their original semantic coherence and have become more "grammatical" in nature. Number, on the other hand, has traditionally been viewed as a purely grammatical category with semantically unproblematic forms indicating familiar concepts such as "singular" and "plural" (cf. Hirtle), or less commonly "dual" or "paucal" (cf. Janda and Tobin). Contini-Morava argues against both these assumptions. She shows that the noun classes in Swahili may be less semantically arbitrary than previously assumed and specifically challenges the assumption that number is unproblematic semantically. In fact, her challenge undermines the widely held assumption that noun class and number are disparate phenomena and shows that the problem of number is intrinsically connected to the meanings of the noun classes themselves. She first outlines the asymmetry of the singular–plural morphology of the noun class system in Swahili: some classes show reciprocal singular–plural pairing whereas others do not. She then provides an innovative reanalysis of number in Swahili as a system of degree of individuation rather than a binary opposition between "singular" and "plural". For Contini-Morava, individuation indicates a scale of relative discreteness, homogeneity, and boundedness in space. She thus proposes an alternative classification system combining noun class and number which consistently accounts for the allocation of nominal stems in Swahili as a reflection of a scale of individuation of the entities named by the nouns that comprise the various noun classes. In so

doing, she shows how a new cognitive-semantic perspective combining both lexical and grammatical phenomena can yield a more comprehensive and coherent explanation of the complex noun classification system in Swahili, and perhaps other Bantu languages as well. The analysis is supported by statistical data. Contini-Morava's concept of individuation can be compared and contrasted with the notions of the continuate versus the discontinuate classification of space found in Hirtle's and Morris's papers on number and gender in English based on Guillaumean theory; the cognitive concept of individuation presented by Janda for the dual number in Polish, Bulgarian, and Macedonian in its extension from meaning "dual" to meaning "virile"; Tobin's view of continuous versus discontinuous perceptions of space, time and existence related to the marked distinctive feature of 'Semantic Integrality' underlying the number system of Hebrew in general and the dual number in particular; and the concepts of discreteness and individuation found in Otheguy and Stern's and Klein-Andreu's analyses of gender in the Spanish lexicon and in third person clitic pronouns in Spanish according to the Columbia School framework. Her use of quantitative validation methods is also shared by the other Columbia School papers found in this volume (de Jonge, Klein-Andreu, Otheguy and Stern).

   Kirtchuk explores the connection between deixis and noun classification in Pilagá, a language from the Guaykuruan (or Ge-Pano-Caraib) family spoken by approximately two thousand people in Argentina, Paraguay, and Bolivia. He combines the traditionally disparate lexical and grammatical categories of noun class and deixis in his innovative analysis of noun classification in Pilagá. Kirtchuk goes beyond Pilagá *per se* and explores the role of deixis in the development of noun class or gender systems, pronouns, demonstratives, and articles, etc. across languages, and investigates the evolutionary relationships among them. In his analysis of Pilagá, Kirtchuk brings in various lexical, grammatical, pragmatic, and cognitive criteria to describe and explain morphology which classifies nouns in the following ways: human, animate, and inanimate entities appoaching a speaker; entering his/her field of vision either as a result of the speaker's movement in space, or on the time axis; when the noun's referent is a natural phenomenon a ecting the speaker on the time axis; when the noun's referent is a standing person; or a plant or a tree in a vertical position; or an inanimate in a vertical position; or a person lying; or an animal lying; or a reptile; or a dead person or animal; or a course of water; or an inanimate in a horizontal position; or a piece of land; or a person sitting or squatting, or a bird or quadruped on their feet; or when a referent is in a "completed" state; or in a "heap"; or is a celestial body; or is a container; or a person moving away from the speaker; or an animate or inanimate entity doing the same; or an inanimate

present in the speaker's mind but moving away on the time axis; or a process or event moving away from the speaker's field of vision on the time axis; or when the noun's referent is non-existent, or missing; or of uncertain existence; etc. Kirtchuk discusses sets of grammatical and lexical features from the pragmatically-oriented parameter of perceiving and structuring space and time from the speaker's point of view: i.e., as a fundamentally deictic function. He then elaborates on the theoretical and methodological consequences of the grammaticalization and lexicalization of deictic elements in Pilagá and across languages. Kirtchuk thus rejects the traditional dichotomized analyses of noun classification, on the one hand, and separate and independent analyses of various other deictic morphological classes, on the other. In the spirit of this volume, he presents a new, unitary, pragmatic explanation of these seemingly disparate phenomena inspired by the work of Karl Bühler, Joseph Greenberg, and others, where he focuses on the dynamic and evolutive essence of language in the form of the diachronic and phylogenetic order of appearance of deictic elements and nominal classification across languages. Kirtchuk's holistic, cognitive, and pragmatic approach links his paper to all the chapters in this volume, to which he adds his own particular structuralist and morphogenetic point of view.

Hirtle's paper deals with number in the English substantive from the point of view of the Guillaumean School of the Psychomechanics of Language. It is based on the idea that the very notion of number in the substantive involves a representation of space. The traditional concepts of 'singular' and 'plural' ("one", "more than one", "all") involve the mental representation of entities occupying locations in space distinct from one another. In particular, he discusses the *-s* morpheme as representing the impression of 'discontinuity in space'. Hirtle's chapter (like Morris's, Otheguy and Stern's, and Tobin's contributions) includes and even concentrates on examples which are rather infrequent, idiomatic, or unusual: i.e., might be considered as "exceptions" to the rule. For example, *zero degrees; plus/minus one degrees; heads or tails; every means; to be friends/pals with; to take sides; to make amends; to give thanks; to earn wages; to get one's just deserts; to sue for damages*, etc. In all of the above, as well as in other examples, Hirtle claims "that the *-s* morpheme is a means for focusing on what the speaker has in mind, a sort of viewing template ready to represent as 'discontinuate' the space involved in the concept representing what the speaker wants to talk about." Alternatively, the singular zero morpheme (Ø) represents space as 'continuate'. Thus, the Guillaumeans represent grammatical number from a pragmatic and cognitive point of view (like the noun classification systems presented by Contini-Morava and Kirtchuk) as a way of discerning or "monitoring the ever changing panorama of each speaker's experience to make sayable the particular

spatial distribution of anything we want to talk about." For the Guillaumeans, the substantive is essentially that part of speech which gives a formal configuration of space to anything we want to talk about. Thus, we will see that the Guillamean view of gender in English in Morris's chapter in this volume links gender to spatial representation as well. Hirtle's view of 'continuate'/'discontinuate' space can also be compared with Contini-Morava's and Janda's concepts of individuation, Tobin's distinctive feature 'Semantic Integrality' marking the Hebrew dual, and the concepts of discreteness and individuation in Spanish found in the contributions of Otheguy and Stern and Klein-Andreu.

Janda's chapter links number and gender as well, but from a diachronic and cognitive perspective (cf. Kirtchuk, Klein-Andreu, Ryder, Ravid and Shlesinger). Like the other contributions in this volume dealing with noun classification, number, and gender, Janda links number and gender morphology to extralinguistic experience in general and the perception of entities in space in particular: "Number and gender potentially serve at both ends of this cognitive spectrum, relating both to perceptual experience (for number as discrete as opposed to non-discrete, and if discrete as one or many or a collective unit; for gender this involves primarily the sex of animate beings), and to linguistic conventions (mass/count, singular/plural, collective, singularia & pluralia tantum and the like)." In other words, for Janda as well, number and gender "both address the individuation of entities and the noun phrases that represent them." Janda shows that dual morphology in the Slavic languages was both peripheral and defective, which may have contributed to its reconception in Polish, Bulgarian, and Macedonian as a "virile: a subordinate category for the di erential marking of male humans as opposed to all other referents", available in the plural only as a special FIGURE-GROUND distinction. Janda then traces the historical loss of dual morphology in Slavic languages and its contribution to the creation of genitive-accusative plural and/or virile numeral constructions. Thus Janda's diachronic study illustrates the "recycling of defunct dual morphology" into the creation of virile numeral expressions. She further discusses the role played in language change by the Cognitive Grammar concepts of central and peripheral morphology and categories, category structure, prototype schema, and blending. In this respect her paper is linked to that of Ryder, who presents a diachronic cognitive account of the development of the English lexical su x -er and its possible development into a grammatical anaphoric and clitic function, as well as to the contribution of Ravid and Shlesinger, who present a cognitive linguistic account of the peripheral category of manner adverb in Hebrew.

Tobin presents an eclectic sign-oriented account of the dual number in Hebrew which includes the concept of invariant meaning and system similar to

the Columbia School, embellished by the Jakobsonian School notion of a marked distinctive semantic feature, related to the Guillaumean concept of continuate versus discontinuate space. Tobin claims that the dual number in Hebrew provides a primary example of a morphological form that productively spans the opposition between lexicon and grammar. He first questions the grammatical status of the dual as a deficient and peripheral category in the number system compared to the richer morphology and more frequent exploitation found for the singular and plural members of the system. He then argues against the traditional notion that the dual means "two" by providing counter-examples where dual morphology is used to express any potential plural number, or to merely indicate plurality, intensification, or a process. He also shows that the dual appears to be used erratically, inconsistently, and even sporadically, as the marker of paired body parts, time expressions, dualia tantum, etc. Furthermore, the dual is in opposition to the compound form of the number two to indicate two entities, and the dual morpheme is also attested in collocation with the plural morphemes in the same lexical item. Rather than entertain the well-accepted notion that the dual is "on the way out" in Modern Hebrew, Tobin also provides many examples attesting to the productivity of the dual morpheme in spoken and written Israeli Hebrew of all styles and registers, with examples of the unusual, idiomatic, and exceptional uses of this form (cf. Hirtle, Morris, Otheguy and Stern). His analysis attributes to the dual the marked distinctive feature of 'Semantic Integrality' based on an extension of the Guillaumean opposition of disconti- nuate/continuate space to a cognitive conceptual cline of discontinuous versus continuous perceptions of entities on a spatio-temporal-existential cline. He then presents a microlevel analysis of sentences containing minimal pairs opposing the dual versus the compound forms of the numeral two and the plural, and a macrolevel textual analysis of a children's story replete with a productive use of the dual. This is followed by an attempt to explain the seemingly erratic, inconsistent, sporadic, and arbitrary distribution of the dual in the lexicon previously alluded to by appealing to cognitive, perceptual and pragmatic criteria. Tobin's paper can be linked to all the other papers dealing with the categoriza- tion of space involving discreteness and individuation and boundedness (Contini- Morava, Janda, Hirtle, Morris, Otheguy and Stern, Klein-Andreu) and to the eclectic sign-oriented approach of Gorlach.

Otheguy and Stern's contribution deals with the Spanish so-called definite articles (*el/la,los/las*), ostensibly marked for gender (masc./fem.) and number (sg./pl.) and their relationship to "word classes" or "parts of speech" (nouns and adjectives). The traditonally accepted — and almost unquestioned — analysis of articles and noun classes in Spanish rests on the following assumptions: (1) the

lexicon in Spanish is divided into the two classes of nouns and adjectives which relates di erently to the articles, and (2) the nouns only are further subdivided into the gender classes of masculine and feminine. Therefore the gender of the nouns and the choice of definite articles to modify them in a relationship of agreement may be see to "feed into" each other. Otheguy and Stern question this familiar analysis because not all words bear the unique categorization of either noun or adjective. There are many words (e.g., *pirata* "pirate") which are categorized as both. It is also not the case that all nouns are classified as either masculine or feminine: i.e. common gender or epicene nouns (e.g., *el profeta/la profeta* "the prophet"). Otheguy and Stern choose these "exceptional" cases (like Hirtle, Morris, Tobin) not as instances which "prove the rule", a statement reflecting the position upon which the traditional consensus is based, but rather show that the analysis based on the rule is incorrect and inadequate. Indeed, they claim that the standard assumptions represent a missed opportunity to obtain revealing insights into the actual workings of the Spanish lexicon with the articles. Otheguy and Stern's analysis relies on speaker's choice which is guided by culturally dictated conceptions and needs that impact on local communicative intents as they interact with the lexical meanings encoded in the lexicon and the grammatical meanings encoded in the articles and in the syntactic order of modifiers and modifieds. An essential part of the grammatical meanings for the articles is related to the concepts of discrete versus non-discrete space (Contini-Morava, Hirtle, Janda, Morris, Tobin). Otheguy and Stern's chapter can be compared theoretically and methodologically with the other Columbia School papers (Contini-Morava, Klein-Andreu, de Jonge) as well as the other sign-oriented chapters inspired by Columbia School and other sign-oriented tenets (Gorlach, Tobin).

Klein-Andreu analyzes the grammatical and lexical behavior of Spanish third person clitic pronouns in a way similar to Otheguy and Stern's analysis of the Spanish lexicon and Morris's analysis of pronominal usage in English. She further adds an additional criterion of "degree of text dependence" — grammatical signs are more text dependent than lexical signs — to show how pronouns in their anaphoric (grammatical) and deictic (lexical) uses leads us to question the utility of the lexicon/grammar dichotomy. Klein-Andreu further points out the 'portmanteau' aspect of pronouns indicating case which she defines as a more utterance dependent grammatical category as well as "real-world characteristics of the referent": i.e., the lexical characteristics of person, number, and gender (cf. Contini-Morava, Kirtchuk, Hirtle, Janda, Tobin, Otheguy and Stern, Morris). She further focuses on the historical development of these complex pronominal forms and their reanalysis in di erent Northern Spanish dialects (cf. Kirtchuk, Janda,

Ryder, Ravid and Shlesinger). Her analysis centers around the reanalysis of these signs based on their interlocked invariant meanings as defined by the Columbia School (Contini-Morava, Otheguy and Stern, de Jonge). Her data indicate that the traditional treatments of case and gender are inadequate and do not account for the current behavior of the dialects studied. Klein-Andreu then redefines some of the traditional categories in order to explain the distributional behavior of the third person clitic pronouns in these dialects. The traditional case distinctions of dative and accusative are replaced by invariant meanings categorizing the relative 'degree of activeness' assigned to the referent "object". This analysis is also related to the concepts of animacy, gender, and number as cognitive and perceptual criteria to be used by speakers to categorize the potential degree of activeness of the referents involved. Klein-Andreu then reanalyzes number in terms of the degree of individuation or discreteness (Contini-Morava, Hirtle, Janda, Tobin, Morris, Otheguy and Stern). It appears that the speakers of these various Spanish dialects assign di erent degrees of saliency to either relative degree of activeness and/or individuation in number and gender in their choice of third person clitic pronouns. This notion of saliency plays a key role in Morris's analysis of English gender as well, particularly in regard to assigning animate gender to inanimate referents. Klein-Andreu further connects the concept of saliency to the notions of discreteness and well-defined boundaries (Otheguy and Stern) and degree of individuation (Contini-Morava, Hirtle, Morris, Janda, Tobin). Her paper is unique in this volume in that it not only deals with diachronic issues (Kirtchuk, Janda, Ryder, Ravid and Shlesinger) but with regional variation as well. Like the other Columbia School analyses in this volume, this paper uses both qualitative and quantitative methodologies of validation (cf. Contini-Morava, Otheguy and Stern, de Jonge).

Morris presents a Guillaumean view of gender in English. She begins by criticizing the widely accepted hypothesis of "natural gender" based on biological criteria such as 'animate', 'inanimate', 'masculine', 'feminine', etc., which is fraught with exceptions and problems: i.e., what she refers to as the "unnaturalness" of "natural" gender. Her arguments against natural gender are supported by counter-examples culled from both spoken and written texts where: (a) biologically inanimate referents (usually referred to by *it*) are marked with animate linguistic representations (*she/he*); (b) biological animates — including human beings — are referrred to by inanimate neuter pronouns (*it*), even when their biological sex is known; and (c) the gender varies in the pronominal references to the same referent in the very same passage (*he/she/it*). Morris then begins to redefine the traditional features associated with natural gender. She first rejects the traditonal features of 'animate/inanimate' and replaces them with the concept

of 'individualization' (cf. Contini-Morava, Hirtle, Janda, Tobin, Otheguy and Stern, Klein-Andreu). This entails a perception of sexual oppositions as "an otherness within a sameness" — a type of perception which is also found in other areas of grammar such as the category of person. Morris finds that inanimate pronouns tend to be used when a referent is not well known or of particular interest to the speaker — for example, in reference to animals behaving in a species-typical fashion. With increasing attention paid to the referent, the likelihood of animate reference rises. This concept of "an otherness within a sameness" can also be used to explain the use of animate pronominal reference with highly individuated or salient inanimate referents with which the speaker is familiar, and/or are "behaving" in a manner worthy of the speaker's individual attention. Morris further observes that when biologically inanimate entities are referred to with a gendered pronoun, it is almost exclusively the feminine (*she*). She argues that the use of *he* for biological inanimates is reserved for referents that are behaving in an unpredictable or unexpected manner over which the speaker has no control. From the Guillamean perspective that the substantive gives a formal configuration of space to anything being talked about in its related systems of number and gender, gender can now be redefined in the following way: "the feminine gender is perceived to occupy a space whose limits can be clearly defined. The masculine, on the other hand, occupies a space whose limits cannot be clearly defined… Gender indicates how a speaker has structured or given mental representation to a particular lexical content", and as such represents a step in the process of organizing content into a formal grammatical structure. Morris then relates gender to number and person, showing how this view of spatial configuration can be extended further and be used to explain the grammatical "exceptions" which have amassed in a language (Hirtle, Otheguy and Stern, Tobin).

Andrews focuses on the property, or category of animacy and its connection to gender (Otheguy and Stern, Klein-Andreu, Morris) in Contemporary Standard Russian. Her focus on a specific, possibly universal, category and its realization in a particular language (Russian augmentative and diminutive su xes), as well as its relationship to both lexical and grammatical meaning, are similar to Gorlach's analysis of the category of 'resultativeness' as it is realized in English simple and phrasal verb constructions. With respect to Contemporary Standard Russian (CSR), Andrews argues that the category of animacy overlaps to some extent with declensional or agreement gender and is signalled at the level of both grammatical and lexical meaning. Grammatically, animacy is expressed in certain desinences and agreement forms; lexically, it is expressed either in the root morpheme or in a combination of root and word-formative su x. However, the

CSR augmentative (*išč-e/a*) and diminutive (*-(č)ik*) su xes di er in the extent to which they contribute animacy in lexical word-formation. What they share is that each constitutes a strategy for achieving "an enduring identifiability of the referent" — whether this is done at the grammatical or lexical level. Ultimately, this identifiability may have little to do with extra-linguistic (so-called "natural") animacy. In addition to her analysis of Russian word-formative su xes and their grammatical and lexical functioning, Andrews considers evidence from cognitive science that supports the following points: (1) normal humans and primates have greater di culty identifying pictures of animate objects versus inanimate ones; (2) brain damaged patients may be deficient in naming animate objects while they perform normally in naming inanimate ones; (3) human knowledge about "external reality" is only achieved indirectly via representations of stimuli, and there is a high degree of consistency among humans in their construction of reality. By comparing and contrasting the linguistic and experimental data, Andrews emphasizes the importance of perception in defining the fundamental principles and categories which make up human language. This link between the perception of extralinguistic reality and the cognitive essence of language and linguistic categories is directly related to each and every contribution to this volume.

De Jonge presents a Columbia School inspired analysis of the opposition between the simple past tenses in Spanish: the *imperfecto* and *indefinido*. His analysis challenges the traditional notion that tense is determined by means of temporality. De Jonge uses empirical data from Spanish texts to show that his analysis based on 'eventuality' can account for those uses of these tenses where temporality fails to provide an explanation. The analysis is based on the idea that the very existence of these tenses presupposes two types of past events or eventualities that are categorized by individual functional meanings which can be used to organize discourse optimally from a communicative point of view. According to de Jonge, the *indefinido* indicates EVENTUALITIES IN FOCUS and the *imperfecto* indicates SUPPORTIVE EVENTUALITIES. De Jonge's corpus is comprised of two short stories by García Márquez. These particular stories were chosen because of the frequent use of these tenses and their comparable structure: each contains a main story within which a shorter, secondary story is embedded. He tests his hypothesis based on specific linguistic variables that are expected to reflect and predict the relative focus or supportiveness of the eventualities: e.g., the presence or absence of time indicators, actions that imply an observed movement in the narrated scene versus other actions, verbs that indicate an event versus other verbs, verbs in simple and complex main versus subordinate clauses, verbs with human versus inanimate subjects, verbs appearing in the argumentation line of the main story versus the backgrounded embedded story.

The independent empirical data support the functional hypothesis postulated by de Jonge as opposed to the traditional temporal based analyses of Spanish tense. De Jonge's paper not only questions the e cacy of maintaining the traditional lexicon/grammar dichotomy, but also the concept of temporality as the sole or major motivator of tense. His sign-oriented contribution follows the theoretical and methodological tenets of the Columbia School and is validated statistically (cf. Contini-Morava, Otheguy and Stern, Klein-Andreu) and through the use of a textual analysis (Tobin). His reliance on cognitive categorizations of real world "eventualities" and their incorporation into invariant meanings links his paper both to the other cognitive based and sign-oriented contributions to this volume.

Gorlach's contribution deals with the common but poorly defined concept of resultativeness. Traditionally, the category of resultativeness has been attributed to the grammatical topics of verb aspect, aspectuality, perfectiveness, and the passive voice as well as being postulated as a lexical feature to define certain word classes. Gorlach aspires to define its status as a linguistic category in English in general and as a marked distinctive semantic feature in the Jakobsonian sense (Tobin, Andrews) which will be used to explain the semantic opposition postulated for the following three constructions: (a) simple verb phrases versus (b) continuous verb-particle versus (c) discontinuous verb-particle (phrasal verb) constructions: e.g., (1) *to eat* the apple (process); (2) *to eat up* the apple (process or result); (3) *to eat* the apple *up* (result). Gorlach suggests that (1)–(3) establish oppositions based on di erent degrees of resultativeness in their invariant meanings, the intensity of the resultativeness increasing from (1) to (3). The members of this system stand in a relationship of "non-resultative versus resultative" which exemplifies a concrete realization of this category in English. Gorlach follows an eclectic sign-oriented approach (Tobin) combining theoretical and methodological aspects of the Columbia School (Contini-Morava, Otheguy and Stern, Klein-Andreu, de Jonge), the Jakobsonian School (Andrews), and the Guillaumean School (Hirtle, Morris). She summarizes the problematic history of the category of resultativeness as it has been used by English language grammarians who borrowed it, or translated it rather mechanically, from analyses of aspect in the Slavic languages. Gorlach views resultativeness as a semantic or lexico-grammatical category which reflects a fundamental way of perceiving actions and events integrally with their actual or potential result, characterized by a specific word order (cf. Tobin 1993; this volume). She provides examples which show that the resultative reading of these verb phrases is independent of tense and aspect and cuts across these traditional grammatical categories associated with the verb in English. For Gorlach, the place of the distinctive semantic feature 'Resultativeness' in English lies at the junction of syntax and semantics

— the grammar and the lexicon — not as a part of the perfective or passive as traditionally believed, but rather as an independent category in its own right.

Ryder's contribution deals with complex *-er* nominals, a point at which the processes of grammaticalization and lexicalization merge. Ryder focuses on the gradualness of linguistic change in general, and the particular problem that, in the earliest stage of change, the new linguistic situation may appear to be only minimally di erent from the old. As a consequence of this new situation, it may not be clear whether a sweeping change is in progress, or will eventually take place. This situation further indicates how hard it may be to uncover the initial stages of a linguistic change, and, in fact, very little may be known about how linguistic changes actually begin. Ryder believes that the extension of the *-er* su x in English to complex nominals may exemplify such an early stage of language change because they di er the most from the original form and may represent the most recent development in the use of this su x. She defines a 'complex -er nominal' as: a noun with the nominalizing *-er* su x whose base consists of more than one free morpheme: e.g., *in-the-parker, up-and-comer, blue-chipper*. In the spirit of this volume, Ryder further suggests that the *-er* su x is developing an anaphorical grammatical function — where it can be substituted directly for a noun phrase headed by the word *one*–in addition to its derivational lexical word-formation properties:

> *Many people like rehearsed jokes, but I think off-the-cuff jokes are much funnier.*
> *…but I think off-the-cuff ones are much funnier.*
> *…but I think off-the-cuffers are much funnier.*

Ryder also claims that the *-er* su x is showing possible early signs of becoming a clitic due to the extension of its possible bases to include phrases and clauses that have become lexicalized to varying degrees. Ryder is not only providing additional evidence to the well-known hypothesis that language changes like grammaticalization, lexicalization, and cliticization are gradual and gradient, but she is suggesting that there may not be clear-cut boundaries separating the grammar and the lexicon. Furthermore, it is this lack of firm and fixed lexical and grammatical boundaries that allows for the gradual movement of forms such as *-er* from one category to the other.

Ravid and Shlesinger discuss the diverse lexical and grammatical means with which the class of manner adverbials is realized in Modern Hebrew. Modern Hebrew, a highly synthetic Semitic language containing complex morphological systems for indicating nominal and verbal forms, has no single productive morphological class of adverbs. The authors attempt to account for this inherently secondary and heterogeneous nature of Hebrew adverbs in the

framework of Cognitive Linguistics construal of categorization. Their study takes both a synchronic and diachronic perspective (Kirtchuk, Janda, Klein-Andreu, Ryder) and is corpus-based employing mostly journalistic prose as well as spoken and written expository texts produced by children, adolescents and adults (Tobin). The peripheral nature of Hebrew adverbs is reflected by the fact that, unlike other content word categories in Hebrew, they do not make extensive productive use of morphological structure in their formation, and they do not inflect for number and gender (cf. the Hebrew dual in Tobin). Hebrew adverbs are realized in three fundamental ways which span the opposition of the lexicon and the grammar: (1) lexical forms: *maher* 'fast', *le'at* 'slowly'; (2) morphological structure: *aviv-i* 'spring-like', *ne'emana* 'loyally' ('loyal' + fem./sg. su x), *ne'emanot* 'loyally' ('loyal' + fem./pl. su x), *simultanit* 'simultaneously' ('simultaneous' + fem./sg. su x); (3) syntactic constructions: e.g., prepositional phrases: *be-kitsur* 'in-short', 'shortly', *be-diyuk* 'with-precision', 'precisely', which can then be lexicalized: *bidyuk* 'exactly'. Thus, Ravid and Shlesinger present a peripheral category in language and show how by virtue of its heterogeneous realization in Hebrew — from a syntactic class to a lexical category — their analysis provides further support for viewing the lexicon and grammar as a continuum.

It is our hope that the contents of this volume will convincingly demonstrate that the traditional dichotomy between the lexicon and the grammar should be seriously questioned and that the cognitive- and sign-oriented linguistic approaches presented herein provide both the theoretical and methodological justification as well as the means to do so.

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