

17.0 Linguistics

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The work of the Linguistics group is directed towards obtaining a better grasp of the mental capacities of human beings through the study of the nature, acquisition and use of language. Language is a uniquely human faculty in that only humans appear to be capable of learning and using a language and that every normal human acquires knowledge of one or more languages during his/her lifetime. This knowledge is represented somehow in the speaker's mind, which is a special organ located in the human brain. Viewed from this vantage point, the central issues of linguistics research are:

1. What is the nature of this knowledge? What do speakers of a particular language - Latvian, Spanish or Walpiri - know, and how does knowledge of one language differ from and resemble that of some other language?
2. How do speakers acquire this knowledge?
3. How do speakers put this knowledge to use in producing and understanding utterances?
4. What are the physiological mechanisms that provide the material basis for the storage, acquisition and utilization of linguistic knowledge?

There are considerable differences in our ability to answer these questions. It would seem that at present we have advanced more with regard to question 1 and least with question 4. These differences are also reflected in the research conducted by the group. At this time, it is most heavily concentrated on issues concerned with the nature of the knowledge that characterizes fluent speakers of various languages. Yet the other three questions have not been overlooked, and significant efforts are being devoted to their solution.

The study of these topics is being carried out along a number of parallel lines. On the one hand, linguists have investigated the principles by means of which words are concatenated to form meaningful sentences. These principles have been the primary domain of inquiry of the disciplines of syntax and semantics. Phonology studies the sound structure of words while morphology examines the manner in which different languages combine different meaning-bearing units (specifically, stems, prefixes, suffixes and infixes) to form words. The latter topic has attracted increasing interest in recent years and is likely to become more prominent in the future.

The English Noun Phrase in its Sentential Aspect

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Abstract

This dissertation is a defense of the hypothesis that the noun phrase is headed by a functional element (i.e., non-lexical category) D, identified with the determiner. In this way, the structure of the noun phrase parallels that of the sentence, which is headed by Infl(ection), under assumptions now standard within the Government-Binding (GB) framework.

The central empirical problem addressed is the question of the proper analysis of the so-called Poss-ing gerund in English. This construction possesses simultaneously many properties of sentences, and many properties of noun phrases. The problem of capturing this dual aspect of the Poss-ing construction is heightened by current restrictive views of X-bar theory, which, in particular, rule out the obvious structures for Poss-ing, $[_{NP}NP VP_{ing}]$, by virtue of its exocentricity.

Consideration of languages in which nouns, even the most basic concrete nouns, show agreement (AGR) with their possessors, points to an analysis of the noun phrase as headed by an element similar to Infl, which provides a position for AGR; I call this Infl-like element D. D and Infl belong to the class of non-lexical categories, which I prefer to call functional categories. The analysis in which D heads the noun phrase I call the DP-analysis.

Importing the DP-analysis into English yields an immediate solution for the problem of the Poss-ing gerund: Poss-ing gerunds (and by extension, noun phrases generally) have a more sentence-like structure than hitherto thought, namely, $[_{DP} DP's D DP_{ing}]$. (In non-gerundive noun phrases, VP is replaced by a projection of N. This projections of N, despite being a maximal X-bar projection, corresponds to N-bar in the standard analysis.)

Current trends in the treatment of minor categories - so-called non-lexical categories - lead us to a similar conclusion. Until recently, minor categories like complementizers and modals had been treated as syncategorematic. Under current assumptions, however, they participate fully in the X-bar schema. In this way, two simplifications are achieved simultaneously: we eliminate syncategorematic elements, and we acquire an endocentric analysis of the sentence, which had been exceptional in being the only exocentric major category. To make these results fully general, we are led to treat the remaining syncategorematic elements - in particular, determiners in noun phrases and degree words in adjective phrases - as heads of full phrases. The analogy with complementizers and modeals indicates that determiners and degree words should head noun phrases and adjective phrases, respectively. In other words, determiners are lexical instantiations of D in the same way that modals are lexical instantiations of Infl.

However, despite the conceptual links, the question of the existence of a functional head of the noun phrase (the DP-analysis), and the question of the place of the determiner, are independent questions, and I treat them separately. Chapters 1 through 3 are concerned predominantly with the former question, Chapter 4 with the latter.

Chapter 1 provides a brief introduction. In Chapter 2, I present the DP-analysis, motivating it by examining languages with agreement between noun and possessor. I also discuss issues raised by the DP-analysis, with emphasis on the parallelism between noun phrase and sentence hypothesized under the DP-analysis. In particular, I treat the question of PRO in the noun phrase; and I show that the numerous differences between sentence and noun phrase do not invalidate the parallelism of structure proposed under the DP-analysis. In Chapter 3, I apply the analysis to the three gerundive constructions, Acc-ing, Poss-ing, and Ing-of. Finally, in Chapter 4, I turn to the question of whether the determiner is the lexical instantiation of D, the functional head of the noun phrase.

Null Operator Constructions

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Abstract

This dissertation defends the hypothesis that certain constructions involve covert A'-movement resulting in the creation of A'-chains headed by null categories commonly referred to as null operators. The constructions which have been widely analyzed as involving null operators fall into two categories. In the first category, designated OWM (Oh WH-movement) constructions, are relative clauses (tensed and infinitival), purpose clauses, degree clauses, adjectival complements, clefts and comparatives, all of which are treated as covert wh-movement structures in Chomsky (1977). More recently, the null operator hypothesis has been extended to parasitic gap constructions, which constitute the second category. The goal of this dissertation is to develop an analysis of the nature of null operator chains and the conditions which apply to them which will account for the similarities and differences between the two categories of constructions in a unified manner. Three types of constraints are discussed and proposed: constraints governing the licensing of the null operator itself, the licensing of the variable created by null operator movement, and the licensing of the null operator chain as a whole. Chapter 1 contains a history of the development of the null operator analysis, reviews the basic phenomena to be examined and sets out the framework, essentially that of Chomsky (1986a, 1986b), within which the research has been carried out.

Chapter 2 examines the relation between predication and the operators, both overt and null, which allow clausal categories to function as predicates in OWM constructions. It is proposed that predication relations which are not licensed by θ -role assignment must be licensed by the existence of an agreement chain between the sub-

ject of predication and a predicate internal category. An agreement chain exists when two categories are connected by an unbroken sequence of independently motivated instances of agreement, e.g., subject-predicate agreement, SPEC-HEAD agreement, etc. It is further argued that null operators are pure pronominals, i.e., *pro*, and that the agreement chain which licenses predication is sufficient to identify *A'*-*pro*.

Since *A'*-*pro* in OWM constructions receives ϕ -features via the agreement chain, it is licensed as the head of an *A'*-chain. In Chapter 3, it is shown that the fundamental difference between OWM constructions and parasitic gap constructions is that *A'*-*pro* in the latter does not participate in an agreement chain and, therefore, does not receive phi-features. The result is that *A'*-*pro* in parasitic gap constructions is not licensed to head a chain; however, under the appropriate assumptions about the constraints governing *A'*-chains, unidentified *A'*-*pro* may act as an intermediate empty category. This position is embedded in an analysis of parasitic gap constructions which treats the parasitic chain and the real chain as a single complex chain derived by chain formation, a non-exceptional, non-construction specific process. The Subjacency Condition is interpreted as a condition on chain links which applies at SS to the output of all chain formation operations and which, therefore, governs the formation of complex chains. Conditions on the identification of variables are also shown to affect the distribution of parasitic gaps. At LF *A'*-*pro* in these constructions, like other intermediate empty categories in argument chains, deletes via Affect α , yielding representations identical to those resulting from the Chomsky (1982) analysis, in which the matrix operator directly binds two variables. The anti-c-command constraint is once again analyzed as a Binding Condition C violation. The chapter ends with some speculative remarks concerning the typology of empty categories and the nature of chains.

Other aspects of *A'*-chains involving both null and overt operators are explored in Chapter 4, in particular, the greater sensitivity of extracted subjects in a variety of contexts to the presence of intervening barriers. It is shown that this sensitivity is not a unified phenomenon and that it does not motivate certain revisions of the ECP which have been proposed in recent work. The marginality of subject gaps in OWM constructions, parasitic gap constructions and within certain types of islands in English is attributed to the Subjacency Condition, in a revised relativized form which imposes a stricter SS bounding constraint on non-complement chains than on complement chains. Another group of constructions which exhibit stronger violations and which share the property that extraction of an argument requires the obligatory presence of an intermediate empty category in an *A'*-position at LF, are brought within the scope of the ECP by means of a condition on LF argument chains involving *A'*-positions. A discussion of several other topics, including the appropriate formulation of the Minimality Condition, the nature of antecedent government and head government, the proper definition of barrier, ends the chapter.

Planar Phonology and Morphology

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Abstract

The development of the non-linear theory of phonological representation has lent great depth to our current understanding of long-distance phonological processes like harmony, and, in particular, to our understanding of transparent and opaque segments in harmony systems. This thesis argues for an analysis of harmony systems in which the properties of transparency and opacity are not primitive, but instead derive from properties of the phonological representation to which harmony applies. Blocking segments can be characterized either by their specification for the harmonic feature, or in cases of parasitic harmony, by their specification for a contextual feature on which harmony is dependent. Central to this analysis is the idea that all phonological processes are governed by a locality constraint which requires that two elements related in a phonological rule be adjacent at some level in the phonological representation.

The harmony rules of four languages are examined in detail; these rules seem to violate the adjacency constraint, allowing harmony to skip over segments that are specified for the harmonic feature—segments which in other harmony systems would be expected to block harmony. In all four cases, harmony is a reflex of a morphological affixation process. To explain the unusual properties of these morphologically governed harmony systems, I adopt McCarthy's (1981) proposal that morphemes occupy separate planes in the phonological representation of a word. The special property of morphologically governed harmony is that it applies to multi-planar representations. In a morphologically governed rule of F harmony, the harmonic feature (F) spreads on a plane that is distinct from the (F) plane of stem segments. Since adjacency is always calculated between elements on a single plane, F Harmony will never be blocked by a (F) specification of a stem segment.

The multi-planar representations created by morphological affixation are collapsed uni-planar representations at some stage in the derivation. It is shown that certain non-morphologically governed harmony systems apply after this process of Plane Conflation. The role of Plane Conflation in phonological systems is investigated, focussing on the proposal made by Younes (1983) and McCarthy (1986) that Plane Conflation is the formal mechanism that effects Bracket Erasure. A close look at the empirical evidence for Bracket Erasure reveals that Bracket Erasure, as a universal convention, does not apply internal to the lexical level of morpho-phonological derivation. Regarding Plane Conflation, the available data from syncope systems (McCarthy, 1986) and harmony systems only weakly suggest that Conflation may in some cases need to apply internal to the lexical level. The conclusion is that Plane Conflation and Bracket Erasure can only be equated insofar as Plane Conflation can be restricted to apply only where Bracket Erasure applies: at the end of the lexical level.

Observations about the locality constraints on morphological and phonological processes have been used to argue for the Bracket Erasure Convention. It is shown that computational limitations of morpho-phonological parsing motivate such locality constraints, independent of the Bracket Erasure Convention. An Adjacency Constraint is formulated which requires that phonological elements related in a rule be adjacent (on the skeleton, or on the plane of some distinctive feature or feature class node), and that morphological elements related in a rule meet a condition on morphological c-command and peripherality.

The role of morpheme planes in explaining phonological phenomena is further illustrated by analyses of four phonological rules from Fula, Malayalam, Dakota and Hausa.

Syntactic Features: Parametric Variation in the History of English

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Abstract

This study compares the syntax of Old English and early Middle English with particular attention to the annals of the Peterborough Chronicle. It provides an account of the immediate changes in syntactic representations during this period and relates these changes to the revisions which swept the English lexicon during the Middle Ages.

This thesis argues that the properties of substantive inflection (i.e., number, gender and Case) are best represented as binary features in underspecified matrices. These grammatical features are syntactic features. Grammatical feature matrices define phrases in the syntactic representation.

The thesis proposes that a single binary feature distinguishes structural Case from inherent Case. In Old English, only structural Case was underlyingly marked. Inherent Case was assigned by a general rule in each derivation. In later English, this markedness was reversed in verb and adjective phrases. Because the Case feature is listed in verbal lexical entries, this reversal altered the markedness of verb classes in the English lexicon. During the Middle Ages, hundreds of verbs which had assigned inherent Case in Old English were revised to become structural Case assigners. More immediate changes in the syntax of early Middle English are evident in adjective phrases and in other constructions where Case is not specified in lexical entries.

The analysis provides support for a principles and parameters view of variation in natural language. The grammars of Old English and early Middle English are argued to be massively similar. Relatively simple changes in the distribution of grammatical features can account for complex differences in the surface structures of these languages.

Copular, Nominal and Small Clauses: a Study of Israeli Hebrew

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Abstract

This dissertation is a study of structures of verbless predication in Israeli Hebrew and English. Predicative and equative nominal and copular constructions are closely examined, as are embedded subject-predicative constructions (small clauses).

Chapters 2 and 3 explore the thematic relations and corresponding syntactic properties of two major classes of nominal and copular constructions: predicative and equative. It is claimed that while in predicative sentences the predicate XP assigns a θ -role to the referential subject; in equatives, both NP's are referential, and neither assigns a theta-role. The identity relation of equative sentences is shown to require the mediation of a functional head (e.g., INFL), whereas the predication relation of predicative sentences does not. It is assumed that small clauses have no functional head; they, therefore, are never read as equative. The study of small clauses in Chapter 4 allows, in turn, a refinement in the principles constraining the predication relation.

In Hebrew, the present tense equivalents of copular constructions contain no verb. Such nominal sentences are discussed in Chapter 2 of this thesis, and their syntactic and semantic properties are studied. Under the assumptions about copular constructions argued for in this thesis, the Israeli Hebrew nominal sentences are seen to offer strong evidence in favor of a syntactic and thematic division of such verbless constructions into two classes: predicative and equative.

There are two nominal sentence types. One type is analyzed as a matrix small clause, an analysis which, along with certain assumptions about small clause structures in general, correctly predicts its properties and behavior. A second nominal sentence construction is analyzed as a full (tenseless) clause, headed by the Case-assigning AGR in INFL. This analysis, together with a strict view of AGR as a bundle of features, accounts for the distribution and semantic properties of this nominal sentence type.

In Chapter 3, the properties of predicative and equative copular constructions in general, and in English, in particular, are discussed. Arguments are given to support a thematic and syntactic distinction between predicatives and equatives. It is claimed further that the relevant characterization of this distinction is to be made solely in terms of the thematic relation involved in each construction type. This makes possible a simple classification of copular constructions.

In the theory of copular constructions outlined in this chapter, noun phrases of every type (e.g., definite, or proper NP's) can be used predicatively, under specific interpre-

tations. The verb *be* is argued to have no semantic content, nor thematic role, in either predicative or equative constructions. Thus, it follows that noun phrases can be licensed even when they do not receive a theta-role projected from a predicator's argument structure.

Chapter 4 deals with the facts of embedded subject-predicate constructions in Israeli Hebrew. It is demonstrated that there is a limited class of argument small clauses in Hebrew, and it is argued that the small clause possibilities are limited due to the presence in Hebrew of a restriction on Case assignment: all verbal Case assignments must be θ -related. Small clauses are found in Hebrew only in those sentences whose matrix verb is causative. The fact that causative verbs and affixes require the incorporation of the second predicate is what allows the requirement in Hebrew Case assignment to be met. Embedded subject-predicate constructions which are not an argument of the verb, on the other hand, are comparatively free in Israeli Hebrew, since they do not constitute a violation of the Case-marking restriction.

As part of the account of small clauses, an analysis of their structure in terms of projections sets is presented. This analysis, in turn, allows the revision of the restriction on the domain of θ -marking, in general, and on the predication relation, in particular.

Null and Displaced Subjects

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Abstract

This work explores three problems related to the syntactic position of clausal subject: Do all clauses require subjects? What conditions must be met for subjects to appear postverbally? Where are postverbal subjects attached?

The discussion begins with a study of expletives, in particular, of the relationship between expletives and postverbal subjects. It is hypothesized that expletives are fillers for the syntactic subject position at S-structure and that they are replaced, in Logical Form, by the semantic subject of the clause. Various consequences of this hypothesis are probed, in particular, for Case theory and Binding theory.

Chapter 3 develops a theory of Case which incorporates both the Case Filter and the condition that heads of chains must be Case marked. The particular statement of this module of Universal Grammar has consequences for the status of null expletives and variables. There follows a discussion of the Case status of variables, in particular, in positions which are clitic doubled.

Chapter 4 studies subject inversion. First, the licensing conditions for postverbal subjects are discussed and the relevant facts from Hebrew are presented. It is then ar-

gued that Hebrew has a rule of subject postposing which adjoins a subject to VP, on the left. It is argued that Spanish utilizes the option of left, as opposed to right, adjunction to VP, while Italian does not. Various crosslinguistic differences can be accounted for on the basis of this distinction, especially with regards to the distribution of the definiteness effect.

Chapter 5 considers the pro module of UG. It is shown that null expletives which are replaced, in LF, by arguments which are personal, need to be supported as S-structure by coindexing with over-grammatical features.

A study of the possessive/existential alternation in Hebrew is the topic of the final chapter. It is proposed that the verb be/have is ambiguous between an unaccusative predicate taking a single argument to which nominative Case is assigned and verb subcategorized for two internal arguments, one of which is marked with accusative Case, the other with inherent dative Case. The questions relating to this verb are considered with the intention of clarifying further the notion of syntactic subject.

Grammaticalizing Aspect and Affectedness

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Abstract

This thesis is an investigation of the interaction of aspect and syntax. More particularly, the syntactic repercussions of the aspectual property of delimitedness are examined. Delimitedness - the temporal boundedness of an event - is shown to have an effect on a wide range of syntactic phenomena, including resultative secondary predicates, verb-particle constructions, and certain Case phenomena. Affectedness is also shown to depend on delimitedness. The interaction between affectedness and syntax is proposed to take place in the Case module of the grammar.

An analysis of the property of affectedness in aspectual terms leads to a theory in which the direct argument of a verb measures out the event described by the verb over time, as if on a scale. Affected arguments are direct arguments that delimit the event on that scale. Non-affected direct arguments also measure out the event, though they do not delimit it.

This aspectual property of direct arguments is the first of a set of aspectual principles of argument structure. Three additional principles are proposed: An event may be delimited only by its internal arguments-arguments within the verb phrase at deep structure. Indirect arguments may delimit the event parasitically through the direct argument, while external arguments may not delimit the event at all. Secondly, there may be only

one delimiting to a verb phrase. And, finally, secondary objects are always delimiting elements.

Two specifically syntactic issues are addressed. First, it is proposed that aspect is a syntactic category, and several possible instantiations of aspect in phrase structure are discussed. Secondly, the aspectual principles of argument structure are applied to verb-particle constructions, resultative secondary predicates, and double object constructions; and these principles are shown to shed some light on the syntactic behavior and structure of these constructions. The usefulness of aspect as a tool for syntactic investigations is demonstrated.

The aspectual principles of argument structure place constraints on the kind of event participants that can be internal arguments. In this way, these principles provide a principled mapping between the meaning of verbs and their syntactic representations. The Aspectual Interface Hypothesis is proposed, which maintains that the two systems communicate only through a common aspectual vocabulary. Under this view only the aspectual information in thematic roles is visible to the syntax, and thematic hierarchies are not necessary in the mapping between meaning and syntax. The Aspectual Interface Hypothesis is consonant with a highly autonomous syntax.