

Chapter 1. Linguistics

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1.1 Introduction

The work of the Linguistics group is directed toward a better understanding of the mental capacities of human beings through the study of the nature, acquisition, and use of language. Language is a uniquely human faculty: only humans appear to be capable of learning and using a language, and every normal human acquires knowledge of one or more languages.

We are trying to understand how this linguistic knowledge is represented in the speaker's mind. The central issues of linguistics research are:

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

Our ability to answer each of these questions differs considerably, and our research reflects these differences. At present, we have progressed with regard to answering the questions posed by item one and have made less progress with item four. Currently, our research is heavily concentrated on issues concerned with the nature of the knowledge that characterizes fluent speakers of various languages. However, we are making a significant effort to solve the other questions also.

We are studying these topics along a number of parallel lines. Linguists have investigated the principles by which words are concatenated to form meaningful sentences. These principles have been the primary domain of inquiry into 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 will probably become more prominent in our research efforts in the future.

1.2 Abstracts of Doctoral Dissertations

The following are abstracts of dissertations submitted in 1998 to the Department of Linguistics and Philosophy in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Linguistics.

1.2.1 Economy and Semantic Interpretation: A Study of Scope and Variable Binding

Daniel Fox

Abstract

This thesis argues that principles of economy play an important role in determining the form of linguistic structures at the interface with the semantic component. The argument comes in the form of a variety of proposals regarding specific mechanisms that are active at this interface. Specifically, I suggest that Economy plays a role in determining relative scope, variable binding, and the form of Operator Variable Constructions.

Economy and Scope (chapters 2-3): In these chapters I investigate the scopal properties of sentences that are semantically identical under surface- and inverse-scope (scopally uninformative sentences). Based on a variety of empirical tests, I argue for the following generalization:

Scopally uninformative sentences are restricted to Surface-Scope (i.e., Inverse-Scope is possible only when it is semantically distinct from Surface-Scope).

This generalization argues for an economy condition (scope-economy) which rules out semantically vacuous applications of operations (such as QR and QL) which reverse the relative scope of two expressions.

Economy and Variable Binding (chapter 4): In this chapter I investigate the scopal properties of sentences that are semantically identical under Local

and non-local variable binding (binding uninformative sentences). Using one of the tests from the previous chapters, I argue for the following generalization:

Binding uninformative sentences are restricted to local variable binding (i.e., non-local binding is possible only when it is semantically distinct from local-binding).

This generalization argues for an economy condition (VB-Economy) which rules out non-local binding when it is semantically vacuous (a condition which was suggested on independent grounds by Heim¹).

Economy and Operator Variable Constructions (Chapters 5-6): In these chapters, I use binding theory (BT) to argue that A-bar chains are converted to operator variable constructions under an economy condition which prefers to maintain as much of the material at the tail of the chain as possible for interpretability (OV-Economy). OV-Economy accounts for an observation of Fiengo and May that QR affects BT(C) only when ACD is involved. The discussion yields new evidence that BT applies at LF (and only at LF) as suggested by Chomsky.²

1.2.2 Decomposing Questions

Paul A. Hagstrom

Abstract

The primary proposition of this thesis is that, in questions, a “Q” morpheme must undergo syntactic movement from a clause-internal position to a clause-peripheral position. Throughout this thesis, we develop a syntactic analysis and a semantic formalism for questions that account for the facts observed in wh-in-situ languages (focusing mainly on Japanese, Sinhala, Shuri Okinawan, and premodern Japanese).

We contrast two unrelated languages, Japanese and Sinhala, which form questions in a nearly identical way, but which differ in the placement of Q. We hypothesize that in both languages Q moves from a clause-internal position (corresponding to its overt position in Sinhala) to a clause-peripheral position (corresponding to its overt position in Japanese). We argue for this movement relation by examining the

effects of movement islands and other “intervenors” when placed in the path of the hypothesized movement.

We also observe that in both languages, indefinites can be formed by appending Q directly to a wh-word in a declarative sentence. Using this, we develop a compositional semantic account under which wh-words like who are represented as sets of individuals and Q is represented as an existential quantifier over choice function variables. This, in conjunction with the proposed syntax, allows us to derive the semantics both of questions and of indefinites containing wh-words.

More complex issues arise when considering questions with multiple wh-words and with quantifiers. It is proposed that in multiple questions, Q originates by the lowest wh-word. If Q moves to the clause periphery from there, a “pair-list” reading will result, while if Q first moves above the wh-words, a “single-pair” reading results. Through the use of a semantic mechanism called “flexible functional application,” this generalization is derived from the proposed semantics of pair-list questions, which are semantically represented as a set of questions. Questions with quantifiers with functional readings and with pair-list readings are also discussed in detail.

Arguments for several more theory-internal propositions are made as well, including an argument for a “single cycle” syntax and an argument for a type of movement labeled “migration” which is crucially different from “feature attraction.”

1.2.3 Locality in A-Movement

Martha Jo McGinnis

Abstract

In this dissertation, I demonstrate that the feature-based *Attract* theory of syntactic movement solves several empirical challenges for relativized minimality, while incorporating its key insights. Chapter 1 introduces the theory of phrase structure, syntactic movement, and abstract case to be adopted throughout the dissertation. This chapter also lays out a cross-linguistic typology of possibilities for A-movement to the subject position.

1 I. Heim, “Anaphora and Semantic Interpretation: A Reinterpretation of Reinhart’s Approach,” SfS-Report-07-93 (Tübingen, Germany: University of Tübingen, 1993).

2 N. Chomsky, “A Minimalist Program for Linguistic Theory,” in *The View From Building 20* (Cambridge, Massachusetts: MIT Press, 1993).

Chapter 2 concerns cases of advancing, where the highest generated argument is attracted by the feature (EPP) driving movement to the subject position. Here locality interacts with a condition (case identification) preventing an argument from “pied-piping” to check EPP if it checks case elsewhere. In some instances, advancing is forced jointly by locality and case identification. Given two equally local arguments, case identification determines which can be attracted to the subject position. However, newly identified “superraising” violations support the view that locality is respected even if the highest argument has already checked case.

In the first part of chapter 3, I argue for the central empirical proposal of this dissertation, Lethal Ambiguity: an anaphoric dependency cannot be established between two specifiers of the same head. I contend that one argument can A-scramble past another only by entering, or leapfrogging through, a multiple-specifier configuration with it. In either case, no anaphoric dependency can be established between the two arguments. In the second part of chapter 3, I present cases of leapfrogging in A-movement to the subject position, also subject to lethal ambiguity.

Chapter 4 extends the empirical coverage of lethal ambiguity to answer a long-standing question from the literature—namely, why anaphoric clitics cannot be object clitics. I argue that lethal ambiguity rules out the object clitic derivation for anaphors because an anaphoric object checks case in a multiple-specifier configuration with the would-be antecedent. I adopt a passive-like derivation for the well-formed anaphoric clitic construction, where the clitic is a categorially underspecified external argument. Since this argument cannot be attracted to check case or EPP, the object can skip over it to the subject position without lethal ambiguity arising. The remainder of the chapter is devoted to other potential cases of skip-ping.

1.2.4 On the Making and Meaning of Chains

Ulrich Sauerland

Abstract

This thesis investigates the mechanisms applied in the interpretation of syntactic chains. The theoretical background includes a translation of syntactic forms into semantic forms and a model theoretic explication of the meaning of semantic forms. Simplicity considerations apply to all three stages of the interpretation

process: syntactic derivation, translation into semantic forms, and interpretation of semantic forms. Three main results are achieved.

The first is that trace positions can have semantic content beyond what is needed for the semantic dependency of trace and binder. This extra content is some or all of the lexical material of the head of the chain, as expected on the copy theory of movement. Two independent arguments support this conclusion. One, discussed in chapter 2, is based on the distribution of condition C effects, where novel interactions between variable binding, antecedent contained deletion and condition C are observed. The second, developed in chapter 3, is based on conditions on the identity of traces observed in antecedent contained deletion constructions.

Both arguments lead to the same generalizations about what lexical material of the head is interpreted in the trace position. The second main result is that lambda calculus is superior to both standard predicate logic and combinatorial logic as the mathematical model for the semantic mechanism mediating the dependency of trace (or bound pronoun) and binder. Chapter 4 argues this on the basis of the distribution of focus and destressing in constructions with bound pronouns. The third main result is that quantification must be allowed to range over pointwise different choice functions. Chapter 5 shows that quantification over individuals is insufficient and that pointwise different choice functions are required. The result entails that the syntactic difference of A-chains and A-bar chains predicts a semantic difference in the type of the variable involved, which is argued to explain weak crossover phenomena. Chapters 6 argues that the interpretation procedures developed in the preceding chapters account for all cases. It is shown that only traces of the type of individuals arise and that scope reconstruction is a phonological phenomenon. The latter result also supports the T-model of syntax.

1.2.5 Object Scrambling in Chinese

Hooi Ling Soh

Abstract

This thesis examines the role of prosody and semantics in word order variations in Chinese. In particular, I address the controversial issue of whether overt object scrambling is available in Chinese. I argue that overt object scrambling exists in Chinese on the basis of (1) scope evidence and (2) the similarities

between the distribution of the object in Chinese and object scrambling in Dutch and German. I show that the distribution of the object in Chinese exhibits prosodic, semantic and discourse information structure effects, similar to object scrambling in Dutch and German (Neeleman and Reinhart, to appear). I suggest that certain differences between Chinese and Dutch/German in the distribution of the object follow from the different word orders in these languages and how the word orders interact with the possibility of stress shift. There is evidence from the distribution of the object(s) in serial verb constructions and double complement constructions that the scrambled object occupies a position within the VP. This study places Chinese among languages such as Dutch and German which allow object scrambling and, by doing so, enriches the data base for determining why scrambling occurs.

1.2.6 Infinitives

Susanne Wurmbrand

Abstract

This dissertation is an investigation of the structure of control infinitives, the mechanism of control, and the general architecture of clauses involving auxiliaries and modals.

This dissertation challenges the idea that control infinitives are represented uniformly by a clausal (CP) structure. It is argued that control infinitives of a certain well-defined class are best analyzed as simple VP-complements that do not involve an embedded subject. The structure of VP-infinitives is

motivated by five sets of properties that systematically differ from the properties of clausal control infinitives. First, VP-infinitives do not allow complementizer and *wh*-material (chapter 2). Second, VP-infinitives do not exhibit tense related properties—VP-infinitives (in contrast to clausal infinitives) do not contribute independent tense information, and overt tense marker and modification of the embedded tense are prohibited in VP-infinitives (chapter 2). Third, VP-infinitives do not involve a structural case position. Rather, the embedded object is assigned a case by the matrix predicate (chapter 3). Fourth, VP-infinitives do not involve an embedded syntactic subject (chapter 4). Fifth, VP-infinitives are characterized as properties rather than propositions semantically (chapter 5).

The second major contribution of this dissertation is that it provides a new approach to control. It is argued that there are two forms of control—syntactic or variable control versus semantic or obligatory control. In contrast to previous theories, however, it is argued that only syntactic control—which correlates with non-VP-infinitives—is a relation between an antecedent and an embedded syntactic PRO-subject. VP-infinitives, which do not have a syntactic subject, involve semantic control (chapter 4), which is to be understood in terms of a semantic entailment relation.

Finally, this dissertation investigates constructions with complex verb phrases. It is argued that modal verbs and raising verbs in German are functional categories that are generated outside the VP in some inflectional head (chapter 6).