

Chapter 1

Introduction

1.1. Objectives

One main goal of generative grammar is to discover a formal system that mediates sounds and meanings. A working hypothesis is that the formal system (= the grammar) concatenates elements selected from the lexicon of a given language, and yields as output the two representations, PF, which serves as the formal basis of sounds and LF, the formal basis of meanings. Under this hypothesis, it is crucial to investigate what representations the grammar can generate, and the relevant investigation often must rely on the intuition regarding what meanings a given sentence can be associated with.

In the context of this investigation, the scope interaction among *quantificational noun phrases* (= QPs) has been extensively discussed, and what is standardly assumed is

(1).

(1) All instances of scope interpretations emerge directly from the grammar, i.e., from LF compositional computation.

A working hypothesis is (2), which can be derived from (1), together with a certain assumption regarding the denotation of a given QP, namely, a QP is of type $\langle et, t \rangle$, cf.

Barwise & Cooper 1981.

(2) Let S be a sentence whose configuration is $[\dots \alpha \dots \beta \dots]$, where α and β are QPs.

a. α can take scope above β iff S is represented as (3a) at LF.

b. α can take scope below β iff S is represented as (3b) at LF.

(3) a. LF: $[\psi \alpha [\psi \dots \beta [\psi \dots t_\alpha \dots t_\beta \dots]]]$

b. LF: $[\psi \beta [\psi \dots \alpha [\psi \dots t_\alpha \dots t_\beta \dots]]]$

Reported generalizations regarding the availability of scope interpretations, however, are not always uncontroversial, and particular theories/analyses are often built on different sets of acceptability judgments. An example of such a state of affair is found even in the very beginning of the generative enterprise. Chomsky 1957 and Katz & Postal 1964, for example, report different sets of judgments for the same two sentences, as indicated in the following passages.

We can describe circumstances in which a 'quantificational' sentence such as "everyone in the room knows at least two languages" may be true while the corresponding passive "at least two languages are known by everyone in the room" is false, under the normal interpretation of these sentences – e.g., if one person in the room knows only French and German, and another only Spanish and Italian. This indicates that not even the weakest semantic relation (factual equivalence) holds in general between active and passive. (Chomsky 1957, pp.100-101)

Although the facts are far from clear, the active seems to be open to the same interpretation attributed to the passive, and conversely, the passive is open to the same interpretation attributed to the active. Both can mean either 'everyone in the room knows the same two particular languages, Persian and Hottentot' or 'everyone in the room knows two languages different for different people'. Thus it seems that both active and passives containing quantifiers and pronouns are ambiguous in the same way and so are full of paraphrases of each other. (Katz & Postal 1964, p.72)

On the basis of their respective interpretations of the data, Chomsky (1957) claims that the active-to-passive transformation affects sentence interpretation, and Katz & Postal (1964) maintain the opposite.

What can we do when we encounter two (or more) conflicting generalizations? In the case of the conflict between Chomsky and Katz & Postal, the subsequent works have adopted the Katz & Postal generalization over the Chomsky one. The choice seems rea-

sonable as long as the assumption in (1) can be maintained. But can we really maintain (1)? I would like to think that the answer is not so obvious. Given (what seems to be a reasonable assumption) that human languages (more precisely the speaker's intuitions about a given sentence in a given context) can be sensitive to non-formal factors such as those having to do with pragmatics and discourse, the negative answer seems more natural. In fact, the main goal of this dissertation is to argue that (1) cannot be maintained.

Suppose that (1) cannot be maintained. Then, it is not clear a priori which of the conflicting generalizations must be adopted for a theory of the grammar. In the case of the conflict between Chomsky and Katz & Postal discussed above, for example, it may well be the case that the Chomsky generalization is relevant for the study of the grammar, but not the Katz & Postal one. It is therefore necessary to address the following question.

- (4) How can we ensure that a given scope interpretation in a given sentence emerges directly from the grammar i.e., from LF compositional computation?

The secondary objective this work aims to achieve is to identify the characteristics that distinguish scope interpretations that are generated directly from the grammar from those that are not.

In summary, by achieving the two objectives above, this dissertation aims to provide a key for resolving (much of) the problem of judgmental fluctuations often observed in the discussion of scope phenomena in the literature, making it possible to seriously aspire to the attainment of repeatability in the study of LF structural properties within generative grammar, which has not been possible in the field for the principled

reason that quite distinct types of phenomena have been conflated into one, not only in the area of quantifier scope but also in other areas having to do with interpretations.

1.2. Outline

The rest of the dissertation is organized as follows. In Chapters 2 and 3, the thesis in (1) is scrutinized. Chapter 2 presents a descriptive study regarding the scope interaction among QPs in the configuration of (5), where QP_{Sub} and QP_{Obj} stand for a subject QP and an object QP, respectively.

(5) [... QP_{Sub} [... QP_{Obj} ...]], where the QP_{Sub} and the QP_{Obj} are clause-mates

In particular, it demonstrates that the reading where the QP_{Sub} takes scope above the QP_{Obj} (= the surface scope) contrasts with that with the opposite scope order (= the inverse scope); the availability of the latter, as opposed to that of the former, is subject to a pragmatic condition, and furthermore, the latter imposes interpretive restriction on the QP_{Sub} , the QP taking narrow scope, as well as its clause-mate verbal negation if it exists. Based on these observations, I conclude with three conditions that are necessary for the inverse scope, but not for the surface scope.

Chapter 3 provides a theoretical characterization for the generalizations established in Chapter 2. It argues two-fold, on the basis of scope interaction in comparatives and Japanese scrambling constructions, that the surface scope may emerge based on the LF representation in (6a), but the inverse scope is not due to the LF representation in (6b).

(6) (Ψ stands for an element that denotes a one-place predicate.)

a. LF: [Ψ QP_{Sub} [Ψ QP_{Obj} [Ψ ... t_{Sub} [... t_{Obj} ...]]]]

b. LF: [Ψ QP_{Obj} [Ψ QP_{Sub} [Ψ ... t_{Sub} [... t_{Obj} ...]]]]

Strikingly, one of the arguments indicates that the inverse scope can obtain only if both the QP_{Sub} and the QP_{Obj} are in an A-position, where an A-position is a theta position or the IP spec position, supporting the view that a QP may or may not undergo covert movement. Give the (reasonable) assumption that the inverse scope obtains in (5) through LF compositional computation only if (5) is represented as (6b) at LF, the two arguments in this chapter constitute evidence that the inverse scope does not emerge through LF compositional computation. Hence, (1) cannot be maintained. It follows that the inverse scope necessarily involves some extra-grammatical operation. And it is reasonable to attribute to the extra-grammatical operation (i) the three necessary conditions for the inverse scope (established in Chapter 2) and (ii) the generalization that the inverse scope can obtain only if both the QP_{Sub} and the QP_{Obj} are in an A-position. Once we acknowledge the two sources of the scope interaction among QPs, nothing prevents us from assuming that the surface scope may also involve the extra-grammatical operation. It is demonstrated that such is indeed the case. It turns out therefore that when the QP_{Sub} takes wide scope with respect to the QP_{Obj} in (5), the relevant LF representation may be either (7a) or (7b).

(7) (Ψ stands for an element that denotes a one-place predicate.)

a. [Ψ QP_{Sub} [Ψ QP_{Obj} [Ψ ... t_{Sub} [... t_{Obj} ...]]]]

b. [Ψ ... QP_{Sub} [Ψ ... QP_{Obj} ...]], where the QP_{Sub} and the QP_{Obj} are in an A-position

Chapters 4 and 5 further confirm the conclusion in Chapter 3 that there are two sources of scope interaction. The generalization that the surface scope may be based on

(6a), but the inverse scope is not due to (6b), entails that there is some independent principle that rules in (6a), but rules out (6b). And the isomorphism principle in (8) is one good candidate for such a principle, which is originally argued in Huang 1982, and in effect Hoji 1985.

(8) Isomorphism Principle

When two noun phrases undergo covert movement, their c-command relation prior to the movement cannot be altered.

Chapter 4 establishes (8) on independent grounds. It demonstrates that (8) holds (i) between a referential expression and a QP, and (ii) between a QP and an NP with a 'focus-sensitive' particle, such as *only* and *even*.

Chapter 5 presents further evidence for the two sources of scope interaction, based on the scope interaction between a QP and a *wh*-word. In particular, it is argued that functional readings may emerge through LF compositional computation while pair-list readings must involve the extra-grammatical operation. It is demonstrated that in order for pair-list readings to obtain, the same conditions that are necessary for the inverse scope must be met, but the availability of functional readings is not subject to such conditions. For the last three decades, the field has addressed the question of whether or not pair-list readings can be analyzed as special instances of functional readings (cf. Engdahl 1986, Groenendijk & Stokhof 1984, May 1985, Chierchia 1993, Higginbotham 1991, and Szabolsci 1997a, among others). It turns out, however, that this very question is misleading since the cognitive domain relevant for pair-list readings may not correspond to the domain that concerns functional readings.

In the recent tradition, the recognition of more than one scope-taking strategies is not uncommon, and one may thus wonder how the claims pursued in the previous chapters differ from those in other works. I therefore review in Appendix two of such works, namely Beghelli & Stowell 1997 and Reinhart 1997.