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The papers in this collection deal with the concept of locality in syntactic theory, but more specifically they relate to the various contributions that Luigi Rizzi has made in this connection over the past three-and-a-half decades. All the authors are either former students of Luigi’s or colleagues and friends who have collaborated with him closely over the years. We, his friends, students, and collaborators, are convinced that Luigi’s influence on the development of syntactic theory has been extremely profound.

Very few others have influenced our field as much as Luigi has. And so, we who are fortunate enough to consider ourselves Luigi’s friends and collaborators would like to offer him this volume, in recognition of our gratitude.
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Locality
CHAPTER 1

Locality: An Introduction

ENOCH O. ABOH, MARIA TERESA GUasti, AND IAN ROBERTS

The papers in this collection all deal with the concept of locality in syntactic theory and more specifically relate to the various contributions Luigi Rizzi has made in this connection over the past three and a half decades. The authors are all either former students of Rizzi’s or colleagues and friends who have collaborated with him closely over the years. Luigi’s influence on all our work, and on the development of syntactic theory as a whole, has been profound; this volume is a small attempt to recognise and show our gratitude for that influence.

In this brief introduction we will try to set the chapters in this book, and thus indirectly the nature of Rizzi’s influence on the field, in context. Accordingly, §1 deals with the notion of locality in general and how this has developed over the past five decades. In §2, we focus more directly on Rizzi’s contributions. Finally, §3 summarises the papers collected here.

1. LOCALITY IN GENERATIVE GRAMMAR

Arguably, some notion of locality is conceptually necessary in generative syntax. If syntax relates sound and meaning over an infinite domain, syntactic dependencies and operations must be restricted in such a way as to apply over limited, finite domains in order to be detectable at all (although of course they may be allowed to iterate indefinitely). The theory of what these finite domains are and how they relate to the fundamentally unbounded nature of syntax is the theory of locality.
The notion of locality also relates to explanatory adequacy as originally conceived in Chomsky (1964). The goal of generative grammar is the construction of Universal Grammar (UG), a theory that will explain the human faculty of language. A major aspect of such a theory will be its restrictiveness: the more limited the possibilities of the grammars of natural languages, the smaller the number of hypotheses about the grammar of his or her language the acquirer has to entertain and so the easier the task of language acquisition. One of the main concerns in generative grammar is thus a concern for the restrictiveness of the rules and principles which constitute the mechanisms of grammar. It is in this connection that the study of locality has been important.

The empirical domain in which the question of locality is most readily apparent involves a subclass of movement relations, known as A'-movement. A fundamentally important property of A'-movement dependencies is the fact that they appear to operate over an indefinitely large structural domain: that is, they appear to be unbounded. Wh-question formation, one instance of A'-movement, is such an operation. The apparently unbounded nature of this operation is illustrated in (1); examples are from the 1986 edition of Ross’s (1967) Massachusetts Institute of Technology (MIT) PhD dissertation and are cited from the published version (copies of moved elements are in parentheses):

(1) a. What did Bill buy (what)?
    b. What did you force Bill to buy (what)?
    c. What did Harry say you had forced Bill to buy (what)?
    d. What was it obvious that Harry said you had forced Bill to buy (what)?

(Ross 1986: 5)

In these examples, the wh-expression appears to be fronted over an indefinitely large amount of material.

However, wh-expressions cannot be fronted over just any sequence of material, as (2) illustrates:

(2) a. *What did that Bill wore (what) surprise everyone?
    b. *What did John fall asleep and Bill wear (what)?

(Ross 1986: 6)

The enterprise of accounting for facts like those illustrated in (1) and (2)—that is, the construction of a theory of unbounded dependencies—is central to the concerns of generative grammar for three reasons.

First, we require the theory to be descriptively adequate; that is, it must account for the facts of English and other languages and any
typological generalisation which can be observed. Therefore, operations like \textit{wh}-movement have to be constrained, and the formulation of the constraints is in part an empirical matter.

Second, as Ross (1986: 6) points out, whatever constraints are formulated are likely to hold more widely than just in English:

The constraints on variables which I will propose are often of such a complex nature that to state them as constraints on rules in particular languages would greatly increase the power of transformational rules. So, from my investigations of the few languages I am familiar with, I will tentatively assume that the constraints I have arrived at are universal.

Another reason to think that the theory of unbounded dependencies is directly connected to UG comes from the nature of the data. Given the rather exotic nature of the data relevant to the formulation of constraints on variables, it is implausible that these constraints are acquired on the basis of primary linguistic data. Therefore, they must be innate, be part of the language faculty, or be derived from third-factor considerations of computational optimisation of the kind adumbrated in Chomsky (2005).

Third and most important, the existence of a class of constraints on variables clearly reduces the class of possible languages. The constraints therefore introduce an element of greater restrictiveness into the theory of UG. As we said already, this is a desirable step toward the overall goal of explaining knowledge and acquisition of language, since language acquirers thus have fewer hypotheses to consider in the process of grammar construction.

Although Chomsky (1964) contained some discussion of this issue and proposed the A-Over-A Principle and an early version of the \textit{wh}-island constraint, Ross (1967) represents the first major attempt to formulate a system of locality constraints on rules, which became known as island constraints.

An island is a piece of structure out of which movement is impossible. The first island constraint discussed by Ross is the Complex NP Constraint (CNPC). This is stated as follows:

\[(3) \quad \text{No element contained in a sentence dominated by a noun phrase with a lexical head noun may be moved out of that noun phrase by a transformation.} \]

(Ross 1986: 76)

This means that A cannot be extracted in (4) (Ross 1986: 77):
The CNPC accounts for two main classes of facts:

(i) the impossibility of extraction from relatives, as in (5):
(ii) the impossibility of extraction from sentential complements to nouns like claim, fact, story, etc., as in:

The second island constraint discussed by Ross is the Coordinate Structure Constraint (CSC), stated as follows:

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

This constraint rules out the following kinds of example:

Three further island constraints were formulated by Ross: the Left Branch Condition (LBC), the Sentential Subject Constraint (SSC), and the Right Roof Constraint (although the last of these was not named as such by Ross).

The LBC is stated as follows:

The LBC accounts for the following contrasts:

[4] Locality
The SSC, one of whose effects was noted by Chomsky (1964: 46), is formulated as follows:

(11) No element dominated by an S may be moved out of that S if that node S is dominated by an NP which itself is immediately dominated by S.

(Ross 1986: 149)

This accounts for the following contrast:

(12) a. The teacher who the reporters expected that the principal would fire (who) is a crusty old fuzzlebotch.
    b. "The teacher who that the principal would fire (who) was expected by the reporters is a crusty old fuzzlebotch.
    c. The teacher who it was expected by the reporters that the principal would fire (who) is a crusty old fuzzlebotch.

(Ross 1986: 148)

The constraint later known as the Right Roof Constraint is introduced in terms of the notion of upward boundedness. A rule is upward-bounded if it cannot move elements over the first S-node dominating the base position of the element to be moved. Thus, extraposition, for example, cannot move an element out of the sentence dominating it. This is illustrated in (13):

(13) *A proof that the claim (that John had lied) has been made was given that John had lied.

Ross (1986: 179) generalises the upward-boundedness constraint on extraposition to all cases of rightward-movement (notably Heavy NP-Shift), as follows:

(14) Any rule whose structural index is of the form ... A Y, and whose structural change specifies that A is to be adjoined to the right of Y, is upward-bounded.

This concept of upward-boundedness, and its alleged nonapplication to leftward movement, is relevant both to Chomsky (1973) and to typological work on wh-movement.

The wh-island constraint was proposed, without being named as such, in Chomsky (1964: 37ff.). Ross (1986: 19) cites Chomsky’s discussion of this constraint and goes on to point out certain examples which suggest it is too strong. The examples given by Ross are of the following type:
(15) He told me about a book which I can’t figure out
    . . . whether to buy or not.
    . . . how to read.
    . . . where to obtain.
    . . . what to do about.

Ross also notes that infinitival wh-complements like those in (15) are better than finite ones (compare, e.g., *He told me about a book which I can’t figure out whether I should buy or not, with (15)). Since Ross does not deny the ungrammaticality of the examples given by Chomsky to motivate the constraint (although it should be pointed out that an example like *What did you wonder where John put? also involves a crossed dependency, increasing the ungrammaticality), the discussion is inconclusive.

Ross’s island constraints prevented transformational rules from applying in certain contexts. The logical next step in research on these phenomena was to attempt to characterise what the various island constraints have in common. In this way, it was hoped that an intensional characterisation of the notion of island could be arrived at, in place of an extensional list.

The central idea in this line of research was subjacency, introduced in Chomsky (1973). In order to see how subjacency works, two assumptions must be spelled out. One concerns the structure of clauses and the other the operation of transformations.

First, it has been assumed since Bresnan (1970, 1972) that all sentences are preceded by a special complementiser position, COMP (or C); since Chomsky (1986) it has been assumed that C is the head of a phrasal category CP, taking TP as its complement. In subordinate clauses, this position is filled by the subordinating conjunction; in matrix clauses it is often empty, but in wh-questions it (or its Specifier, if C is taken to be a head) is filled by the fronted wh-element. COMP and S (or TP in more recent terminology), the clause introduced by the complementiser, form a larger constituent S’ (CP). So the rules that we have been referring to as wh-question formation and relative-clause formation both involve fronting a wh-element to COMP (until Chomsky 1986 wh-movement was seen as substitution of the wh-phrase into COMP). Because of this essential feature shared by the two rules, the rules were collapsed as wh-movement.¹

Second, the assumption that wh-movement operated in an unbounded manner was abandoned. This might seem strange, given the data in (1). However, it was proposed instead that wh-movement operates successive-cyclically, moving a wh-word through a series of C-positions in the generation of a sentence like (1c), repeated here (here we indicate the positions from which what has moved as containing copies of what):

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Here *what* moves from its base position, the direct-object position of *buy*, first to the COMP of $S'_3$ and then to that of $S'_2$ and then to the matrix COMP, $S'_1$. Two conditions were imposed on this process of successive-cyclic movement:

(16) a. **COMP-to-COMP Condition**: a phrase in COMP can only move to a higher COMP.

   b. **Strict Cycle Condition**: No rule can apply to a domain dominated by a cyclic node $A$ in such a way as to affect solely a proper subdomain $A$ dominated by a node $B$ which is also a cyclic node.

   (Chomsky 1973:243)

(The cyclic nodes are those that determine the domain of operation of the transformational cycle, NP and S). Condition (16a) forces successive COMP-to-COMP movement rather than COMP-to-subject movement, for example. Condition (16b) tightens the earlier notion of cyclic application of rules, whereby the ordered transformational rules were thought to apply *en bloc* to the lowest S and then, on the next cycle, to the next S up and so on, so that there would be no possibility of a rule on a higher cycle accidentally applying on a lower cycle.

Subjacency can be stated as follows (this is a simplified version of the formulation in Chomsky (1973: 247f 271ff.):

(17) No rule can relate $X$ and $Y$ in the following structure:

$$\ldots X \ldots [B \ldots [B \ldots Y \ldots]$$

where $X$ is separated from $Y$ by more than one bounding node $B$.

Chomsky proposed that bounding nodes were all and only cyclic nodes, that is, S and NP (these correspond to TP and DP under current assumptions).

Consider now the derivation of a sentence involving extraction from a relative clause:

(18) *Who did Mary read the book which we gave to?*

Moving *which* on the lower cycle gives rise to an intermediate structure like (19):

(19) Mary read [NP [NP the book] [S which [S we gave to who]]]