

CONSTRAINTS ON VARIABLES IN SYNTAX



by

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Signature of Author
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Certified by
Thesis Supervisor

.....
Chairman, Departmental Committee
on Graduate Students

DEDICATION

To four of my teachers

Bernard Bloch, Zellig Harris, Noam Chomsky and Morris Halle

who have awoken in me, and intensified
by their ever-deeper insights, the desire
to understand Man through an unraveling
of the mysteries of his language; and

to my mother,

Eleanor Campbell Mott Ross,

who, although she does not understand
how anyone could want to study language,
has spared no effort to let me study
where, what, and how I want to,

I dedicate this thesis.

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submitted to the Department of Modern Languages and Linguistics on August 21, 1967, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

This thesis attempts a definition of the notion syntactic variable, a notion which is of crucial importance if the central fact of syntax, that there are unbounded syntactic processes, is to be accounted for. A set of constraints on variables, some universal, some language particular, is presented, and the question of what types of syntactic rules they affect is raised. It is shown that these constraints, in conjunction with the notion of command, partition phrase markers into islands -- the maximal domains of applicability of all rules of a specified type.

Thesis Supervisor: Noam Chomsky
Title: Professor of Linguistics

FRAGESTELLUNG

The following anecdote is told of William James. I have been unable to find any published reference to it, so it may be that I have attributed it to the wrong man, or that it is apocryphal. Be that as it may, because of its bull's-eye relevance to the study of syntax, I have retold it here.

After a lecture on cosmology and the structure of the solar system, James was accosted by a little old lady.

"Your theory that the sun is the center of the solar system, and that the earth is a ball which rotates around it, has a very convincing ring to it, Mr. James, but it's wrong. I've got a better theory," said the little old lady.

"And what is that, madam?" inquired James politely.

"That we live on a crust of earth which is on the back of a giant turtle."

Not wishing to demolish this absurd little theory by bringing to bear the masses of scientific evidence he had at his command, James decided to gently dissuade his opponent by making her see some of the inadequacies of her position.

"If your theory is correct, madam," he asked, "what does this turtle stand on?"

"You're a very clever man, Mr. James, and that's a very good question," replied the little old lady, "but I have an

answer to it. And it's this: the first turtle stands on the back of a second, far larger, turtle, who stands directly under him."

"But what does this second turtle stand on?" persisted James patiently.

To this, the little old lady crowed triumphantly,

"It's no use, Mr. James -- it's turtles all the way down."

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This thesis ends an overly long career as a professional student, a career which has been a joy to me, but a trial to the many teachers and administrators who have gritted their teeth and forgiven the lateness of papers and assignments (several are still late), the frequency with which I asked ill thought-out questions, and my chronic unpunctuality. They have put up with all this in the hope that something might become of me someday. To these friends I can only offer this thesis, in the hope that it will in part repay their confidence in me.

For aid and support beyond the call of duty, I must single out the following for special gratitude:

The Deutscher Akademische Austauschdienst, who gave me a chance to dabble around at three German universities, apparently learning nothing but in reality finally realizing that it was time to stop dabbling and study seriously;

The Woodrow Wilson Foundation, who gave me one last chance that I had no right to, sending me to the University of Pennsylvania, where at last I did stop dabbling;

Don Walker, of the MITRE Corporation, who allowed me to spend the summer of 1963 at MITRE, a summer in which I produced nothing, but learned more through reading and talking than in any comparable period of my life;

Naomi Sager, for whom I worked for almost a year as a research assistant on the String Analysis Project of the University of Pennsylvania, and who never complained about the extent to which I neglected my job;

Hu Matthews, who I worked for when I first came to MIT, again giving precious little to show for it;

John Olney, of the Systems Development Corporation, who supported my work during a pleasant California summer in 1965;

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Susumu Kuno, of the Harvard Computation Laboratory, who supported my work during 1965-1966, and eliminated many oversights and inadequacies in my work with insightful counterexamples.

The typing of a thesis this size is a job of Herculean proportions, and proofreading it can be almost as bad. It is therefore with great pleasure that I thank Ellie Dunn, Patricia Wanner, and, because she did the bulk of it with a speed and industry which were incredible, especially Lorna Howell. The care and accuracy with which these girls prepared the manuscript made proofreading as enjoyable as I have ever known it.

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To Roman Jakobson, I owe a special debt: not only has he always given me freely of his time, for discussion of a wide range of problems, but he loaned me his office in Boylston Hall, so that I could break out of the becalmed state I had gotten into. Without his generosity, the thesis would not have been finished this summer.

Each member of the MIT Linguistics Department has helped me overcome some obstacle in my work. Hu Matthews helped me to see

the nature of the Sentential Subject Constraint (cf. § 4.4) more clearly, and to formulate it. Ed Klima's fundamental insight that pruning interacts with the constraints of Chapter 4 (cf. § 4.1.1) has been the indirect source of most of the thesis. And Paul Kiparsky's insight that factive clauses behave the same with respect to feature-changing rules and reordering rules (cf. § 6.4) leads directly to what I regard as one of the most important concepts developed below --the concept of islands.

My debt to the remaining three members is less direct, but no less important, for all that. It was from Paul Postal's lectures in 1964 and 1965 that the conception of a highly abstract, but probably universal, deep structure, which contained only nouns and verbs, emerged. It is to the end of establishing the correctness of this conception that most of Lakoff's and my work, including this thesis, has been directed.

Morris Halle, in addition to running a department which contains an atmosphere uniquely conducive to discovery, has somehow been able to get across to me the all-important distinction between solutions to problems (i.e., devices that work, but...) and explanations for phenomena, the most crucial distinction in science.

What I owe to Noam Chomsky is incalculable. Unless he had formulated the A-over-A principle (cf. Chapter 2), it is doubtful whether I would have even noticed the problems which this thesis is devoted to solving. I disagree with him on many particular points of

analysis, but since it was really from his work that I learned how to construct an argument for or against a proposed analysis, my ability to disagree also derives from him. I am deeply grateful to him and to Halle for helping me to understand what it is that a theory is.

It is impossible to thank all my friends individually for their contributions, so I will select three. David Perlmutter, aside from the great amount I have learned from his work, has also taught me a lot about my own, through serving as a backboard for my new ideas and pointing out unclarities and inconsistencies. He has also helped proofread the thesis, for all of which I thank him. Bruce Fraser has helped in every kind of way -- linguistically, technically, financially. I cannot thank him sufficiently.

This thesis is an integral part of a larger theory of grammar which George Lakoff and I have been collaborating on for the past several years. Since there is close interaction between the theory of variables reported here and almost all facets of the larger theory, it is impossible to guess what kind of thesis I would have written on this topic had we not worked together in delving down into deeper and deeper layers of turtles. Where I can remember, I have tried to give him credit for particular ideas of his. I ask him to accept this general word of thanks for all the places I have forgotten.

Finally, I come to my family. Since in my view cats are as necessary as air or water, I thank our cats Krishna and Aristotle

for deigning to stay with us and seasoning our existence. To my new son Daniel Erik I owe the added impetus that pushed me to finish the thesis this summer. The ease with which this three-month-old child dislodged the completion of the thesis from its central position in the universe, to assume this position himself, made me realize that once he became ambulatory, thesis writing of all sorts would cease.

I have no words with which to thank my wife Elke-Edda. The writing of this thesis has been as much of an ordeal for her as it has for me, for which I beg her forgiveness. For making my life as easy as it could be, under the sword of Damocles, I thank her with my heart.

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