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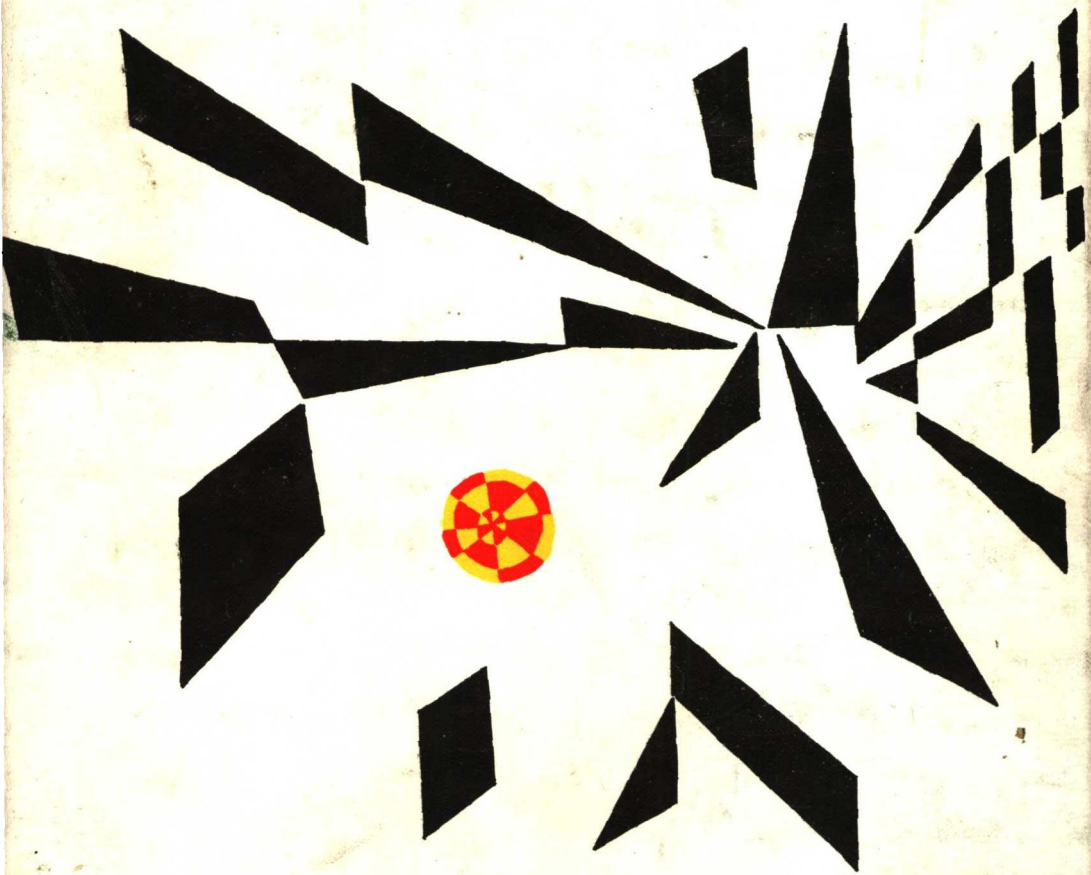

John Robert Ross

# INFINITE SYNTAX!

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*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 humanity through an unraveling*
*of the mysteries of 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 book.*

# *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 person, 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!"

# *Acknowledgements*

This thesis ends an overly long career as a professional student. This career, although a joy to me, has been 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 Penn-

sylvania, 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; and

—Claudia Brugman, for her care and lucidity in editing this manuscript for publication, with the kind of understanding an author always dreams of.

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 people prepared the manuscript made proofreading as enjoyable as I have ever known it.

I would also like to express my thanks to Dwight Bolinger, of Harvard, for the care that he has devoted to reading, and commenting on, various papers of mine, some related closely to the thesis, some not, and for the many deep insights into syntax that his comments afford.

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 in this publication—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 George 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. If he had not 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 our 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 comple-

tion 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.

JOHN ROBERT ROSS

# *Foreword*

***by Paul M. Postal***
*IBM T. J. Watson Research Center*

The present work (henceforth CVS [for "Constraints on Variables in Syntax," the working title]) is one of the most important in the history of so-called generative-transformational grammar introduced by Noam Chomsky in the mid 1950's and developed by him and others since. Although not published until now, CVS was distributed by the Indiana University Linguistics Club, and it is among the most frequently cited works in the transformational tradition. It has influenced and stimulated in one way or another a massive amount of later work.

Appearing originally some ten years after the beginning of the now much-heralded transformational revolution, marked by the appearance of Chomsky's *Syntactic Structures* in 1957, CVS led to a significant reorientation of much grammatical work. Previously, attempts to construct fragments of transformational grammars had overwhelmingly tended to assume that restrictions on particular constructions relevant to a hypothesized rule had to be built into the structure of that rule. In practice, this led to postulated rules of extraordinary complexity, involving myriads of *ad hoc* constraints. It further led to a lack of comparability between rules for different constructions, and still more for different languages. It obscured the possibility that large classes of different constructions were subject to similar constraints.

For instance, if it had been noticed that whatever rules are relevant for stating the fronted position of relative pronouns in cases like (1c) were subject to the restrictions indicated by (1d), this would have been taken as grounds for building the restrictions into the statements of the rules themselves:

(1) a. Melvin called someone.

b. The boy [I think that Melvin called who].

c. The boy who I think that Melvin called _____ .

d. The boy who I think that Melvin

called { *(i) Joe and _____ / *(ii) the girl who likes _____ } .

Ross's idea was that a substantial portion of all such constraints can be extracted from individual rules and treated as a set of universal general constraints controlling whole classes of rules, these classes defined by certain formal properties. In this way the possibility arose of accounting for such otherwise unaccounted for parallelisms as those between (1) and:

(2) a. Melvin called someone.

b. That person is too strange [for me to think that Melvin called X].

c. That person is too strange for me to think Melvin called _____ .

d. That person is too strange for me

to think Melvin called { *(i) Joe and _____ / *(ii) the girl who likes _____. }

Although the construction related to the sequence *too+Adjective* in English does not involve *wh* words like the relative clause construction in (1), it is nonetheless subject to partially similar constraints. Ross's contribution was to have noticed a large number of such correlations between rules which were both apparently distinct and of apparently different types, and to have seen the possibility for accounting for such correlations by postulating constraints whose domain included rules of formally different types.

Moreover, not only did Ross adopt this view, he was able to propose several concrete instances of the constraints in question, arguing at length for their relevance to a wide range of phenomena. Thus he was able to concretize the abstract possibility of general constraints on rules in a set of actual proposals. These proposals, while hardly perfect or the

last word on the matter, were sufficiently close to the mark to have continued to be the basis for further work through the present day.

The ultimate form of Ross's approach to constraints like those in (1) and (2) was that certain portions of sentence structure are characterizable as *islands,* the boundaries of these domains acting as barriers to the operation of various types of grammatical operation. Hence coordinated phrases like *X and Y, X, Y and Z,* etc., were claimed by Ross to be islands, thus providing a basis for such instances of ill-formedness as (1di) and (2di), and, crucially, for parallel instances of well-formedness in all other languages. It would then be unnecessary for the English rules involved in relative clause constructions like those in (1) or reduced adjectival modifier constructions like those in (2) to incorporate any apparatus to predict the ill-formedness of (1d) or (2d).

Although CVS argued for the relevance of island constraints to a wide range of phenomena, these were all roughly of the sort generally known as "syntactic." One of the more interesting and at the time quite unsuspected developments of CVS was the discovery that island constraints play a role in a much broader range of phenomena, governing to some extent: (a) the scope of semantic operators and quantifiers; (b) the possibilities of well-formed lexical items; and (c) even certain phenomena often taken to involve discourses rather than sentences proper.* Thus, although islands were shown in CVS to have a quite broad scope, the actual domain for which they are relevant has turned out to be far broader.

In the present writer's opinion, the entire transformational framework in which CVS is written is mistaken from its very foundations. Ultimately, very few of its ideas and assumptions will play a role in a valid theory of grammatical structure. However, when, in the not so distant future, transformational grammar has lost its currently dominant position, it will be justly remembered as having made certain enduring substantive contributions to the understanding of the nature of language. Foremost among these, in my opinion, will be the discovery of the island phenomenon.

From this point of view alone, then, those interested in grammatical theory will wish to study CVS for many years to come. Moreover, while the introduction of the notion "island" is the most important aspect of CVS, it offers many other attractions as well. Many particular

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*For discussions relevant to (a) cf. Lakoff (1970b), Lakoff (1970c), Lakoff (1971), Lakoff (1973), McCawley (1973b), Postal (1972b), Postal (1974), Rodman (1976) and Seuren (1974a). For discussions relevant to (b), cf. Lakoff (1970a), Lakoff (1973), McCawley (1973a), McCawley (1973b), McCawley (1974). For discussions relevant to (c), cf. James (1972), Morgan (1974), Morgan (1975).

features of English grammatical structure are noted for the first time; the idea of filters or output constraints, which later come to play a major role in transformational work, is introduced here; and last, CVS provides perhaps the best sustained example of a type of transformational work which has now largely ceased to exist. I am thinking of that once predominant style in which particular rule orderings of individual transformational rules were assumed and in which a major task of research was to uncover arguments for the orderings advocated. In this approach, the possibility of ordering paradoxes arose. As faith in rule ordering has either dissolved or been replaced by the view that whatever ordering exists is a function of universal principles, this sort of work has more or less vanished. But at one time, it was typical of the best research done in the framework. And from this largely historical point of view, CVS is also a classic.

In sum, while few works in the transformational tradition would merit consideration a dozen years after their writing, CVS is unquestionably among them. No one who wants to understand transformational grammar can do without it and it also contains a great deal which will continue to influence work in other frameworks for the foreseeable future.

I said earlier that CVS had stimulated a mass of further work. The following set of references is intended to substantiate that claim and to direct the interested reader to subsequent developments relevant to CVS, more particularly, relevant to the notion island and its role in language. The present list of works is unquestionably limited, full of gaps, and inadequate, but it should nonetheless offer some useful guidance.

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