SPECIAL ISSUE ON MATHEMATICAL PROPERTIES
OF GRAMMATICAL FORMALISMS

Guest Editor: C. Raymond Perrault

On the Mathematical Properties of Linguistic Theories
C. Raymond Perrault

English and the Class of Context-Free Languages
Paul M. Postal and D. Terence Langendoen

On Two Recent Attempts to Show that English Is Not a CFL
Geoffrey K. Pullum

Comments on Pullum's Criticisms
D. Terence Langendoen and Paul M. Postal

Strong Generative Capacity, Weak Generative Capacity, and
Modern Linguistic Theories
Robert C. Berwick

Book Review

A Grammar of English on Mathematical Principles
Reviewed by Bruce E. Nevin

The FINITE STRING Newsletter

A New Section: Sources
Recent Computer Implementations of PSGs

Site Report
BBN Labs

Program
Workshop on the Lexicon, Parsing, and Semantic Interpretation

Minutes of 1984 Annual Meeting

Abstracts of Current Literature
COLING84

Microfiche (CL Mr. 99)

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A Note from the Editor:

At the 21st Annual Meeting of the ACL at MIT in 1983, one of the sessions was devoted to the formal properties of various linguistic formalisms and to the significance of these results. This Special Issue is an aftermath of that session, although the list of participants is somewhat different.

In their 1982 paper "Natural Languages and Context-Free Languages", Geoffrey Pullum and Gerald Gazdar examined all the published claims that natural languages might not be context-free and found them wanting. The contributions by Postal and Langendoen and by Pullum to this issue continue to explore this question. Postal and Langendoen argue in "English and the Class of Context-Free Languages" that English is not context-free by examining the class of sentences exhibiting the sluicing construction, such as Joe discussed some bourbon hater but it's not known which bourbon hater. Pullum's paper "On Two Recent Attempts to Show that English Is Not a CFL" attacks the linguistic data on which Postal and Langendoen's argument is based, as well as those underlying a similar claim by James Higginbotham. The second contribution by Langendoen and Postal is a rejoinder to Pullum's paper.

Robert Berwick's "Strong Generative Capacity, Weak Generative Capacity, and Modern Linguistic Theories" is a discussion of some of the formal properties of Lexical Functional Grammar and the Government-Binding (GB) version of transformational grammar. It contains the first published formalization of GB, a proof that GB languages under this formalization are recursive and that they have the arithmetic growth property.

Finally, my contribution to this issue is an expanded version of a survey of formal results about various linguistic theories and a discussion of how these results can be used as lower bounds and as upper bounds on acceptable theories.

C. Raymond Perrault, Guest Editor