

English Algorithmic Grammar

Review by Prof. Dr. Chris Mellish,
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This book represents the result of detailed and painstaking work by the author to exploit and catalogue the patterns that occur in English sentences. The results of his work are available in a form that is easy to implement on a computer, and indeed he has developed successful software products based on it. Robust processing of real Natural Language is vital for a whole range of applications, such as language teaching and intelligent searching on the internet, and solving the problems addressed in this book is core to many of these endeavours.

Review by John Burrows, former EFL teacher.

English Algorithmic Grammar began as a series of papers for University consumption. Because of that it contains a considerable amount of theoretical material and references to current schools of linguistic theory. These sometimes conceal what is in effect a simple and pragmatic concept and in any case are available elsewhere. I already possess a Transformational Grammar, a Structural Grammar, a Communicative Grammar and a Conceptual Grammar, an Approximative Grammar, if not of English, then of Spanish, French or Scandinavian. Multi-media and CD-ROM notwithstanding, there is as yet no Visual Grammar available. A list of proven algorithms together with an indication of how they might be programmed, such as this book comprises, would be the next best thing.

They used to teach Latin in schools. That was how I first encountered the word parsing. Nowadays a parser is generally understood to be the keyboard interpreter for a text adventure game. Ten lines of LOGO or BASIC will give you a program to write back slang or lunatic variations of the cat sat on the mat. They will also introduce concepts of classes, segments and tables of words. It may well be that non-specialists will find much to interest them in this book. Teachers may use it as an alternative grammar, whether in class or in conference, just for the sake of change. It is something of a challenge to find a new word to add to one of the tables, and hand-checking the algorithms is akin to working one's way through a botanical key. In fact, given the number of expert systems that have been marketed in recent years, I am surprised that it has yet to be done for language. In countries such as Sweden, where students have to draw up their own lists of background reading for linguistic courses, this book would be a candidate for inclusion.

The work involved in English Algorithmic Grammar (EAG) is comprehensive

and thorough. The method of aligning structures, syntax and grammar to a mathematical computer oriented approach is clear and functional. EAG is a competent linking of the interdisciplinary work between computer programming and linguistics which will generate a lot of interest in both fields. The algorithmic specialist will also be interested in the application of algorithms to the task of English text analysis.

EAG as a text book and reference manual would be of crucial interest to the text analyst and processor. The outstanding pragmatic results of the algorithmic approach lie in the claim to near accuracy in the areas of text analysis which have not been obtained using traditional syntactic models. The accuracy in Parsing and Pronominal Reference is the determining key to text analysis and processing and the aims of Machine Translation. Further implications of this key is the vision of natural language programming with an ease and finesse impossible with artificial programming languages.

EAG as a text book and reference book would be an invaluable tool for the text processor. The algorithmic routines can easily be translated into a computer language and programs developed directly for text analysis and processing. Secondly the data presented in the form of syntactic markers and the Dictionary of Segments is of great value.

EAG introduces several unique keys for its operation which are of vital value to the linguist. The accent on the relationship of **segments** to each other, the **segments** being defined on purely formal terms, challenges the traditional Chomskian NP VP syntactical analysis and goes further in being able to deal with clausal and phrasal relationships which become complicated applying Chomsky's idea to all the variants of Natural Language. Parsing attempts following Chomsky's theory have therefore failed with applied computer translation. Dr Georgiev's accent on relationship of segments brings a workable new orientation into linguistic structuring.

Secondly, the idea of pronominal reference founded purely on a syntactical basis and not tied (at this level of description) to semantics is an outstanding realisation. Thirdly, the Dictionary of Segments is an extremely valuable working tool as a reference and a basis for further reflection. On the applied linguistic level the dictionary would function as an indispensable teaching aid helping to explain syntactic models and for the student or writer as an invaluable checking aid.

Another result of the computer/formal approach on the applied level is a step by step working model of grammar which can be grasped by the learner of English and where necessary formulated in the simplest of language. A good example where these functions would be used is the teaching and understanding of Pronominal Reference. A specialised handbook for teaching grammar using EAG's basis could also be a later possibility.

EAG is an unique approach with no competing texts. The application of computer/mathematical ways of thinking into the linguistic field in this manner has not been developed in the West. This approach has its

background in the Russian research into language structuring (of which much has remained in secrecy for its military use) with an eye to use natural language as a computer language and to develop natural language based artificial intelligence. Publication of such ideas have hitherto been confined to the former communist world. Personally I do not know how the other publications from Dr Georgiev have been received but EAG is a major work and should raise a lot of interest from the academic and professional linguist and computer processor.

The work is appropriately written and structured as a text book and reference book as I have noticed from the material sent to me, an analog of the logic of the approach itself. It is written appropriately for the academic and professional market and will generate much interest and further work. It would naturally be of further advantage if the programming of the algorithms and publication would overlap thus creating mutual interest although EAG itself provides the basis of the programming.

English Algorithmic Grammar is a major and unique work with features for the linguist and computer specialist. The application of algorithms to English syntax and its consequential opening of new paths in both fields will create great interest.

Summary: I like the book because it coincides with my own interests. I know of no other quite like it. As it stands it has an obvious appeal to Universities or other centres engaged in computational analysis of English, a field where Dr Georgiev is known. It could serve to introduce the linguist to computers, and the computer hobbyist, when he has finished playing with fractals, to linguistics.