

Head-Driven Phrase Structure Grammar

The handbook

Edited by

Stefan Müller

Anne Abeillé

Robert D. Borsley

Jean-Pierre Koenig

Empirically Oriented Theoretical
Morphology and Syntax

Empirically Oriented Theoretical Morphology and Syntax

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Preface

Head-driven Phrase Structure Grammar (HPSG) is a declarative (or, as is often said, constraint-based) monostratal approach to grammar, which dates back to early 1985. when Carl Pollard presented his Lectures on HPSG. It was developed initially in joint work by Pollard and Ivan Sag, but many other people have made important contributions to its development over the decades. It provides a framework for the formulation and implementation of natural language grammars which are (i) linguistically motivated, (ii) formally explicit, and (iii) computationally tractable. From the very beginning it has involved both theoretical and computational work seeking both to address the theoretical concerns of linguists and the practical issues involved in building a useful natural language processing system.

HPSG is an eclectic framework which has drawn ideas from the earlier Generalized Phrase Structure Grammar (GPSG, [Gazdar et al. 1985](#)) framework, Categorical Grammar ([Ajdukiewicz 1935](#)), and, other frameworks such as Lexical-Functional Grammar (LFG, [Bresnan 1982](#)). It has naturally evolved over the decades. Thus, the construction-based version of HPSG, which emerged in the mid 1990s ([Sag 1997](#); [Ginzburg & Sag 2000](#)), differs from earlier work ([Pollard & Sag 1987](#); [Pollard & Sag 1994](#)) in employing complex hierarchies of phrase types or constructions. Similarly, the more recent Sign-Based Construction Grammar approach differs from earlier versions of HPSG in making a distinction between signs and constructions and using to make a number of simplifications ([Sag 2012](#)).

Over the years, there have been groups of HPSG researchers in many locations engaged in both descriptive and theoretical work and often in building HPSG-based computational systems. There have also been various research and teaching networks, and an annual conference since 1993. The result of this work is a rich and varied body of research focusing on a variety of languages and offering a variety of insights. The present volume seeks to provide a picture of where HPSG is today. It begins with a number of introductory chapters dealing with various general issues. This is followed by chapters outlining HPSG ideas about some of the most important syntactic phenomena. Next are a number of chapters on other levels of description and then chapters on other areas of lin-

guistics. Finally, a number of chapters consider the relation between HPSG and other theoretical frameworks.

It should be noted that for various reasons not all areas of HPSG research are covered in the Handbook (e.g., phonology). So, the fact that a particular topic is not addressed in the Handbook should not be interpreted as an absence of research on the topic. Readers interested in such topics refer to the HPSG online bibliography maintained at the Humboldt Universität zu Berlin.¹

All chapters were reviewed by one author and at least one of the editors. All chapters were reviewed by Stefan Müller. Jean-Pierre Koenig and Stefan Müller did a final round of reading all papers and checked for consistency and cross linking between the chapters.

Open access

Many authors of this handbook were involved in several other handbook projects before (some that cover various aspects of HPSG) and by now there are at least five handbook articles on HPSG available. But the editors felt that writing one authoritative resource describing the framework and being available free of charge to everybody was an important service to the linguistic community. We hence decided to publish the book open access with Language Science Press.

Acknowledgements

We thank all the authors for their great contribution to the book. We thank the authors for reviewing chapter outlines of other authors and for reviewing chapters of other authors. We thank Frank Richter, Bob Levine, Roland Schäfer for discussion of points related to the handbook and Elizabeth Pankratz for extremely careful proofreading and help with typesetting issues. We also thank Elisabeth Eberle and Luisa Kalvelage for doing bibliographies and typesetting trees of several chapters and for converting a complicated chapter from Word into \LaTeX .

We thank Sebastian Nordhoff and Felix Kopecky for constant support regarding \LaTeX issues both for the book project as such and individual authors. Felix implemented a new \LaTeX class for typesetting AVMs (`langsci-avm`), which was used for typesetting this book. It is compatible with more modern font management systems and with the `forest` package, which is used for most of the trees in this book.

¹<https://hpsg.hu-berlin.de/HPSG-Bib/>, 2020-03-18.

We thank Sašo Živanović for writing and maintaining the forest package and for help specifying specific styles with very advanced features. His package turned typesetting trees from a nightmare into pure fun!

The code of the book is available on github and we hope that it may serve as role model for future publications of HPSG papers.

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Part I

Introduction

Chapter 1

Basic properties and elements

Anne Abeillé

Université Paris Diderot

Bob Borsley

University of Essex

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1 Introduction

Phasellus maximus erat ligula, accumsan rutrum augue facilisis in. Proin sit amet pharetra nunc, sed maximus erat. Duis egestas mi eget purus venenatis vulputate vel quis nunc. Nullam volutpat facilisis tortor, vitae semper ligula dapibus sit amet. Suspendisse fringilla, quam sed laoreet maximus, ex ex placerat ipsum, porta ultrices mi risus et lectus. Maecenas vitae mauris condimentum justo fringilla sollicitudin. Fusce nec interdum ante. Curabitur tempus dui et orci convallis molestie (Chomsky 1957).

Meier (2017)

- (1) Latin (personal knowledge)
cogit-o ergo sum
think-1SG.PRS.IND hence exist.1SG.PRS.IND
'I think therefore I am'

Sed nisi urna, dignissim sit amet posuere ut, luctus ac lectus. Fusce vel ornare nibh. Nullam non sapien in tortor hendrerit suscipit. Etiam sollicitudin nibh ligula. Praesent dictum gravida est eget maximus. Integer in felis id diam sodales accumsan at at turpis. Maecenas dignissim purus non libero scelerisque porttitor. Integer porttitor mauris ac nisi iaculis molestie. Sed nec imperdiet orci. Suspendisse sed fringilla elit, non varius elit. Sed varius nisi magna, at efficitur orci consectetur a. Cras consequat mi dui, et cursus lacus vehicula vitae. Pellentesque sit amet justo sed lectus luctus vehicula. Suspendisse placerat augue eget felis sagittis placerat.

Table 1: Frequencies of word classes

	nouns	verbs	adjectives	adverbs
absolute	12	34	23	13
relative	3.1	8.9	5.7	3.2

Sed cursus¹ sapien pulvinar. Sed consequat, magna². Nunc dignissim tristique massa ut gravida. Nullam auctor orci gravida tellus egestas, vitae pharetra nisl porttitor. Pellentesque turpis nulla, venenatis id porttitor non, volutpat ut leo. Etiam hendrerit scelerisque luctus. Nam sed egestas est. Suspendisse potenti. Nunc vestibulum nec odio non laoreet. Proin lacinia nulla lectus, eu vehicula erat vehicula sed.

Abbreviations

COP copula

FV final vowel

NEG negation

SM subject marker

Acknowledgements

References

Chomsky, Noam. 1957. *Syntactic structures* (Janua Linguarum / Series Minor 4). The Hague: Mouton.

¹eros condimentum mi consectetur, ac consectetur

²eu scelerisque laoreet, ante erat tristique justo, nec cursus eros diam eu nisl. Vestibulum non arcu tellus