Stefan Müller, *Deutsche Syntax deklarativ: Head-Driven Phrase Structure Grammar für das Deutsche*. Niemeyer: Tübingen, (Linguistische Arbeiten 394) 1999. ISBN 3-484-30394. xii + 486 pp including indices and two appendices.

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Stefan Müller has written an extensive study of a large range of German constructions from the perspective of Head-Driven Phrase Structure Grammar (HPSG). For a theoretical work, it is notable for its scale, for its extensive use of current material from corpora, and for its welcome attention to the descriptive literature. Furthermore, the analyses can be tested on Müller's prolog implementation of HPSG, which runs at http://www.dfki.de/~stefan/. This is a very extensive fragment of German, involving thousands of words of different classes, raising and control verbs, passives, verb particle constructions, the "third" construction, modal flip (*Oberfeldumstellung*), several sort of relative clauses, extraposition, complex fronting, semi-free word order in the Mittelfeld, scope ambiguities, and more. It is unusual to find this all in a single implementation, and the work is unique in being made available on the web. Müller's web page also contains errata for this book and examples.

HPSG is a syntactic theory which attributes important significance to phrase structure (constituent structure) as an explanatory tool, but which makes liberal use of elaborate lexical structure, like Lexical Functional Grammar (LFG), where phrase structure is explanatorily unsatisfactory (Kaplan and Bresnan, 1982). It shares with LFG the recommended *modus operandi* of developing explicit analyses – explicit enough for relatively direct computational interpretation – a common requirement in earlier Generative Grammar, which has not enjoyed general respect in linguistic theory for some time. Of course, not every HPSG analysis follows this recommendation, but Müller's analyses certainly do, and therefore deserve more careful attention. See Sag and Wasow (1999) for a very readable introduction to the central ideas of HPSG. The HPSG respect for explicitness leads to fairly complex analyses, for which no one to date has found simple forms for general consumption (many researchers, including me, have taken to sketching analyses intuitively in conference presentations to audiences of mixed theoretical backgrounds). Müller's book is not for the notationally faint-hearted, not could it be. An unexpected virtue of Müller's book in this regard are his fresh explanations of some technical aspects, and his careful attention to technical detail.

Chapters 1-7 are introductory, showing how Müller will treat German using the central ideas of HPSG, which was developed primarily on English material (but see Nerbonne, Netter and Pollard (1994) for a collection of earlier work). This is the weakest section of the book, I believe because Müller is trying here to make an introductory text out of what is essentially a scholarly monograph (see below). The choice of material seems in some cases arbitrary: there is a sketchy section on semantics, and a very incomplete subsection on semantic roles and optional complements, neither of which returns later. Other sections take difficult topics head on, e.g. Chap. 4 on modification. The explanation and illustrations of problems in the analysis of recursive modification are lucid, but the material abruptly becomes harder. Chap. 8 is a clear summary of central ideas of the "topological" view of German, i.e., the familiar *Vorfeld – Mittelfeld – Nachfeld,* and *linke und rechte Satzklammer*, and Chap. 9 is a careful, step-by-step introduction to the treatment of unbounded dependencies in HPSG. §9.3 contains novel contributions demonstrating (with corpus material) not only that unusual assumptions are needed to make use of "argument attraction" in some extraction accounts (9.30):

(9.30) *[Mit Norwegen] befinden wir uns allerdings [in [einem langfristigem Stellungskrieg] _]*

The point is that argument attraction is normally invoked in examples where it may be conceived as operating over a single layer of constituent structure. This example (source in DSD) makes it clear that a more complex account is needed, if argument attraction can be invoked here at all. The same section shows also that extraction from NP may be well formed, even in cases where the source NP appears in a displaced position (9.34). §§9.4.4-9.5 make a great compilation of outstanding problems in the analysis of German unbounded dependencies. It contains a great deal of the relevant data, excellent summaries of analyses to date, and Müller's interesting remarks on the significance of the various conundrums. For me, the book got into its rhythm in Chap. 9.

Chap. 10. contains a confident survey of relative clauses constructions, including headless relatives (free relatives), pied-piping, and case/form congruence requirements. The chapter spends for my taste rather too much time on an analysis involving a tacit "relativizing" operator, only to discard it with little discussion of the empirical pro's and con's, some of which can be surmised from the Chap. 9's general discussion, however. The chapter teems with interesting examples Müller has drawn from corpora, and he adduces the essential properties of headless relatives with exemplary clarity. Chap. 11 on constituent order dissects accounts in which verb-final traces are postulated in order to account for parallels in verb-second and verb-final clauses. Müller opts for a treatment in which word order is only loosely associated with constituents, an idea explored most extensively by Andreas Kathol in his Ohio State dissertation and in subsequent publications (Kathol, 1995; Kathol and Pollard, 1995). In this view phrases are licensed by phrase structure rules, but they may optionally participate in (nontrivial) *word order domains*. The option of using domains adds considerable freedom to the syntax research who no longer need assume that subconstituents will always appear together (to the exclusion of elements from sister constituents). Müller works successfully with only binary-branching constituent structures, which would be much more difficult if the added dimension of word-order domains were not available.

Chap. 12 on Mittelfeld extraction presents a clever, nonobvious analysis of sentences such as:

Von Maria hat er ein Foto _ gemacht.

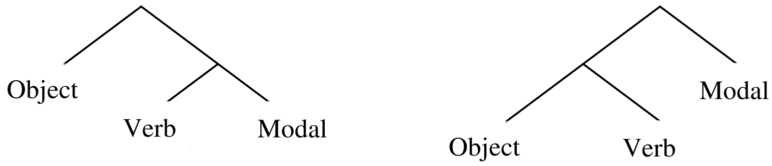
Müller assimilates its analysis to that of long-distance dependencies rather than to argument attraction or "scrambling". Müller includes "R"-pronouns here (*Da sagt er nichts drüber __*) and adduces some contrasts which have escaped attention, e.g. (9.30) above vs. **Keinen Nachfolger hat sie sich auf einigen können*. Why may the subconstituent of a prepositional object be displaced while its parent, the object of the preposition itself, may not be?

Chapter 13 is again rewarding for the breadth of examples adduced, this time on extraposition, including constructions of the sort *…stolz darauf gewesen, daß …,* Müller opts for a treament of extraposition which recognizes discontinuous constituents whose daughters are assumed into larger word-order domains. may appear (introduced in Chap 11). This analysis was introduced by Kathol and Pollard (1995) and relies on the least-structured mechanism in the HPSG toolbox, a Horn Clause definition of a relation which extraposed elements must satisfied (with respect to a clause). The presentation is not easy to follow: Müller's discussion of an alternative analysis based on the theory of unbounded dependencies is five times longer than the presentation of his own treatment, which is content to sketch a single example. Specialists will appreciate Müller's discussion of the tricky interactions between extraposition and unbounded dependency of the sort found in questions and relative clauses.

Chapter 14 present Hinrichs and Nakazawa's (1994) treatment of the verb cluster in German, essentially the idea that verbal combination takes precedence over the combination of verbs with other complements – i.e., we obtain (NP (V V)) instead of ((NP V) V). Müller generalizes the Hinrichs and Nakazawa account and contrasts his account with one in which clause structure is entirely flat, and where "verb clusters" are epiphenomena resulting from linear precedence restrictions within the flat constituents. But his only criticism of the latter is that coordination of verbal clusters would have to be analyzed as nonconstituent coordination. This will surprise no one. It would have been interesting to see a discussion of whether word-order domains might be deployed to make the earlier treatment plausible ((NP V) V), instead of the (NP (V V)) Hinrichs and Nakazawa argue for. Must one assume that verbal clusters form constituents in a theory that allows other possibilities, viz. that they might be ordered by constraints on word-order domains? (Müller returns to these questions in Chap. 21.) Chapter 15 presents an analysis of the passive in which the assignment of nominative and accusative case is not specified lexically (as the assignment of dative and genitive is, at least when these are verbal complements), but is effected rather by the syntactic configuration in which verbs and object find themselves. The idea was originally introduced by Heinz and Matiasek (1994). In Müller's treatment the introduction of a novel specification, the ergative argument of the verb, plays a key facilitating role. Chapter 16 treats agreement briefly and neatly.

Chapter 17 examines coherence (Bech 1955). Although this is well-trodden ground, even in the small world of HPSG Germanists, Müller manages to incorporate new considerations into his discussion, building on the extensive foundation of the earlier chapters. He examines word order, extraposition, and scope (especially the scope of negation) for a range of verbs, and also what he calls "intraposition", where entire verb phrases appear to the left of the *rechte Satzklammer* of subordinating verbs (i.e., in the Mittelfeld), and also the "third construction", in which single subconstituents of embedded, extraposed VP's appear in the matrix, e.g., *…weil ihm anfing schlecht zu werden.* To the analysis of the latter he contributes an argument against subsuming the construction to modal flip (*Oberfeldumstgellung*).

Chapter 18 focuses on complex fronting, i.e., constructions in which partial verb phrases or adjective phrases appear before the finite verb in V2 clauses. *Erzählen müssen wird er es sicher.* This construction illustrates one of the advantages of HPSG as a linguistic theory: explanations in terms of constituent structure trees and their transformations/deformations are not forced on the researcher. This is fortunate in the case of this construction, since the range of frontable constituents cannot be organized into a single coherent tree. We find not only the example above, but also *Eine Geschichte erzählen wird er sicher müssen*. These might correspond to alternative constituent structures in underlying structures:



But in the absence of corroborating evidence, this amounts to a dogma of transformationalism. The account postulating spurious ambiguity is not forced on the researcher in HPSG. Nerbonne (1994) shows that the correct conditions can be formulated in terms of the subcategorization requirements of the fronted verbal item on the one hand (*erzählen müssen* or *eine Geschichte erzählen*) and the derived subcategorization of the finite verb (*wird*). The derived finite verb must effectively inherited whatever subcategorization requirements the frontal verb item does not discharge. To my knowledge, no one has challenged this account, nor has anyone suggested that constituent-structure might be used to explain fronting without postulating *ad hoc* ambiguity, but it must also be noted that most transformationalists are untroubled by such postulations. Nerbonne (1994) explained the fronting based on completely flat *Mittelfeld* structures, and which many researchers have noted are not required: the account is compatible with a rich tree structure. The rich tree structure is not needed to explained partial verb phrase fronting, but it might be useful for other reasons. The account stands as an example of how HPSG syntactic analysis can deviate essentially from transformational analyses. Müller improves on the earlier analysis in several ways, showing how a small adjustment in feature architecture simplifies the formulation, and also generalizing the treatment to include the fronting of other partial constituents.

Chapter 19 describes separable prefix verbs, Chapter 20 reflexive constructions, and Chapter 21 discontinuous constituents. A final chapter mentions points at which Müller's computational implementation led to insights about the syntactic accounts he develops.

As positive as I am about the book in general, I still demur from unqualified praise. The book's title illustrates one point at which I'd take issue with Müller. This is a book about syntax, and the restriction "declarative" should indicate only that Müller should be expected to eschew *processing* accounts of his data. This seems like a good tack, recommended in particular by computationalists, who wish to explore various processing possibilities for the same linguistic analyses. For computationalists it is therefore essential to proceed from linguistic accounts that do not already assume a particular processing mode or discipline – these are declarative accounts. The restriction to declarative accounts is not a linguistic restriction: there are no languages – conceived as sets of strings, trees or (transformationally related) sequences of trees – that cannot be described declaratively. But at times Müller invokes processing to justify his analyses, e.g., on p.113 (and again on pp.231-2, 252) to argue for the superiority of his account as opposed to ones put forward by van Noord and Bouma (1994). Van Noord and Bouma's account of adjunct scope ambiguity foresees a potentially infinite lexicon, which they show to be compatible with effective parsing by means of special "late evaluation" techniques. Müller inappropriately criticizes this for not being part of the theory's formalism. He is right that this sort of processing is not part of the HPSG formalism, but that's because the formalism is declarative. Müller's treatment of adjunct scope ambiguity depends on the linearization mechanisms discussed above.

Every researcher working on German grammar – in whatever theoretical framework she uses – will want *Deutsche Syntax deklarativ* (DSD) within easy reach. It will serve as an excellent reference text for those wishing to know the state of the art in HPSG analyses of German, and Müller has prepared the book professionally for this sort of use. Every chapter concludes with a list of relevant literature, and the book contains not only a 13-page bibliography, but also an appendix listing special notation, and an appendix containing all of the rules. Finally, there are three indices identifying where specific authors are referenced, where specific words are the subject of analysis, and where theoretical concepts are introduced. Certainly the book will please research librarians, all of whom ought to receive requests to include this book in their collections.

This book has grown out of Müller's Ph.D. dissertation, advised by Hans Uszkoreit and Wolfgang Wahlster (Saarbrücken). It represents a welcome confluence of research streams, on the one hand Uszkoreit's commitment to the computer as a tool in syntax, and on the other descriptive syntax.

Müller recommends his book as an introduction to HPSG, and refers to his web site at http://www.dfki.de/~stefan/Pub/hpsg.html for questions and exercises for students. Although Müller has no competition in the market for German introductions to HPSG, all but the most capable and motivated students will find his book too detailed and too dense to be useful as an introduction to HPSG. Some of the book's flaws would be particularly bothersome in the context of course use for students who are at all insecure in syntax. For example, although p.1 mentions common tests for constituency, it neither develops nor illustrates any of them, and later issues concerning constituent structure (Chap. 2) make no use of the tests. The book does not explain the background theory or specific notation of HPSG sufficiently for my taste as a potential instructor. For example, there is no explanation of the essential operation of *unifying* two feature descriptions (even though a "problem" in this is pointed out on p. 139). At other places Müller contradicts conventional wisdom in his analyses, which students need to be made aware of (e.g., he reverses the usual direction of declension government, analyzing nouns as govern determiners). But these problems are easily remedied: Sag and Wasow's recent *Syntactic Theory: A Formal Introduction* would be good preparatory material for Müller's book. The book should nonetheless find its way into instruction, only at a more advanced level. I am confident that Müller's careful eye for the detail of analyses, his willingness to formalize his analyses explicitly, and his unusually wide range of empirical material are just what researchers *in spe* should be confronted with, and what they ought to emulate.

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