had. It would also be easier to read if printed in larger
type, and if the quantity of unusual words were
decreased. But even so, I find the organization of
the word list so unusual and so personal that I am not sure I
could make much use of them anyway. Part of the prob-
lem may be that since each word has only one spot in the
hierarchy, new words are made up to handle the other
senses of the ambiguous words, and the result is some-
times hard to understand. Yes, throw has many mean-
ings, but does using pepperoni for throw and maneuver
help the reader?

Although The Wordtree is definitely something new, I
do not find the exclusively verb-based structure conven-
ient. It clashes, in many cases, with traditional and famil-
 iar arrangements of countries, chemical elements, and so
forth. On balance I would recommend those with good
libraries to read the work of Bishop Wilkins instead. As
an example of idea classification for lofty and ambitious
goals, it is more accessible to the reader and of historical
as well as linguistic interest.

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LECTURE ON CONTEMPORARY SYNTACTIC THEORIES: AN
INTRODUCTION TO GOVERNMENT-BINDING THEORY,
GENERALIZED PHRASE STRUCTURE GRAMMAR, AND LEXI-
CAL-FUNCTIONAL GRAMMAR
(CSLI lecture notes number 4)

Peter Sells
Center for the Study of Language and Information, Stan-
ford University, 1986, viii+214 pp. [Distributed by
the University of Chicago Press]
no ISBN. Cloth $23.95; paper $11.95

AN INTRODUCTION TO UNIFICATION-BASED
APPROACHES TO GRAMMAR
(CSLI lecture notes number 3)

Stuart M. Shieber
Center for the Study of Language and Information, Stan-
ford University, 1985, iv+106 pp. [Distributed by the
University of Chicago Press]
Cloth ISBN 0-937073-01-6, $17.95; paper ISBN
0-937073-00-8, $8.95

These books, hereafter CSLI-3 and CSLI-4, are two
volumes in the Lecture Notes series from the Center for
the Study of Language and Information, Stanford
University.

A first remark on CSLI-3: Chapter 5, a postscript
written by Thomas Wasow, constitutes the best and most
extensive review of the book itself. CSLI-3 is organized
as follows: Chapter 1 is concerned with basic concepts of
syntax. Chapters 2, 3, and 4 present, respectively,
Chomsky’s Government-Binding theory (GB), Gazdar’s
Generalized Phrase Structure Grammars (GPSG) [in fact

Example of entry from The Wordtree.

The basic idea of The Wordtree, to represent a hierar-
chy exclusively of actions, and connect all objects to the
actions by the correct case relation, is an interesting one.
This conforms with general linguistic ideas of predicates
as dominating sentences, and it permits a different
approach to a word list than any conventional alphabetical
ordering. However, in order to make a strict hierar-
phey exclusively of actions, and connect all objects to the

FASTEN = HOLD & STAY 12510
FASTEN ENCLOSED OBJECT = HANK (12940)
FASTEN GROUNDED OBJECT = STAKE (12935)
FASTEN INTRUPED OBJECT = HEDGE (12929)
FASTEN LINKED OBJECT = CHAIN (15297)
FASTEN PIERCED OBJECT = BRAD (12939)
FASTEN SOCKETED OBJECT = DOP (12965)
FASTEN STACKED OBJECT = LOCKSTACK (12937)
FASTEN STRAPPED OBJECT = THONG (15352)
FASTEN STRETCHED OBJECT = RACK (12917)
FASTEN SURROUNDEO OBJECT = CLASP (12943)
FASTEN TAUTENED OBJECT = BORGSTRETCH (12941)
FASTEN UPROLLLED OBJECT = FURL (12931)
FASTEN WOUND OBJECT = BITT (12927)
FASTEN & ENCLOSE = COPS (12923)
FASTEN & FIRM = FIX (12930)
FASTEN & ORNAHENT = BROOCH (14962)
FASTEN & ORNAHENT = BROOCH (14962)
FASTENING CAUSE & CONTROL, UNLOSE
FASTENING INSTRUMENT & CLEAT, STICKY

the University of Chicago Press]
Gazdar et al. 1985], and Bresnan and Kaplan’s Lexical-
Functional Grammars LFG.

CSLI-4 makes a perfect couple with CSLI-3, continuing
to present syntactic approaches and unification-based
implementation, suitable for all the grammatical formal-
isms discussed in the books.

The landscape in the valley of syntax is governed by
GB, as the highest achievement towards universality. GB
realizes a rich set of universal principles, the grammars of
the particular languages being obtained as parametriza-
tions of a Universal Grammar. All the other syntactic
approaches (including GPSG, LFG, logic-based gram-
mars) could be labeled as stages in the evolution of
Chomsky’s ideas from observational to descriptive and to
explanatory adequacy. In their trend to universality,
explicitness, and rigor, they inevitably decreased in spec-
ification of empirical detail. The linguistic pole for all the
contemporary syntactic theories or tools is the effort to
attain the lexical meaning, as a min-max (or equilibrium)
principle: minimality, coming from semantics, and maxi-
mality, coming from syntax. Another basic idea is that
clause structure is largely predictable from the semantics
of predicates: these theories agree in deriving canonical
structures from lexical semantics and it is (somehow)
surprising “how little needs to be stipulated beyond lexi-
cal meaning” (T. Wasow).

CSLI-4 reveals the strong developments in unifica-
tion-based implementations, stemming from different
research directions but converging to grammars in which
declarative and procedural interpretations can coexist.
The grammatical version of unification, viewed as a
(directed acyclic) graph-combining process, suggests
many other linguistically and logically relevant oper-
ations: generalization (as the dual of unification),
disjunction, negation, overwriting. Along with GPSG and
LFG, Martin Kay’s Functional Unification Grammar,
logic-based grammars (Definite Clause Grammar, Extra-
position Grammar, Gapping Grammar, etc. [Dahl and
Saint-Dizier 1985]), Shieber’s PATR-II grammars repre-
sent a “least common denominator” of the various uni-

cation-based formalisms but are still powerful. Appendix
A in CSLI-4 contains the machine-interpretable form as
an instructive example, handling increasingly complex
constructs. As a corollary of all the formalisms and
implementations, even those not (strictly) based on unifi-
cation, like Wehrli (1984), is the emphasis on lexical
properties in syntax and semantics.

This pair of books represents an important and useful
effort on the part of the authors to bring these linguistic
theories and tools, as well as the implementation trends,
to the computational linguistics community.

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tives, Université de Genève.

MULTILINGUAL ASPECTS OF INFORMATION TECHNOLOGY

Paul A. Bennett, Rod L. Johnson, John McNaught, Jean-
ette Pugh, J.C. Sager, and Harold L. Somers

Aldershot: Gower, 1986, ix+146 pp
ISBN 0-566-03513-8; £17.50

This is a book for a first acquaintance with computational
linguistics. It gives an overview of some of the main fields
of interest, namely machine translation, natural language
interfaces, and the lexicon.

The book is directed towards user-oriented applications,
especially systems on the market and under develop-
ment. Some basic theoretical linguistic questions
encountered in such development work are mentioned
rather than discussed, and the book does not tell its read-
ters too much about more fundamental research.

In accordance with this practical scope, the topic of
the lexicon is presented in two distinct chapters, one on
general lexicology and lexicography and the other one on
terminology and terminography, and no link is estab-
lished on a level of word linguistics.

The machine translation chapter introduces the basic
terms, for instance in the field of system design (interlin-
gual, transfer, direct; or machine-aided human vs.
human-aided machine translation). This chapter is also
the most explicit one with respect to implementation
principles. The authors mention, among others, the
advantages of modularity in structured programming.

Another type of structured modularity is undoubtedly as
important as this: the conceptual distinction between
grammar and programming, with a formalism level as the
interface. There are too many publications on the market
which do not distinguish for example syntax, parsing
formalism, and parser in a clean way. The authors of this
book seem to make distinctions of this kind, and they
also advocate a sound degree of modularity between the
various parts of grammar (syntax, semantics, ...). In an
introductory book, however, the principles of these
distinctions should, to my taste, be made explicit. There
are so many bad examples.

As a first superficial introduction to computational
linguistics the book is certainly good, but the word
“multilingual” in the title appears to be a bit misleading.
Machine translation is of course multilingual, but what
the authors report about terminography and natural
language interfaces is only in some accidental cases more