

and some discussion of the relevance of language ideology (x), which (as Dorian also argues in Chapter 1) often plays a decisive role in the death or survival of endangered languages and may account for some apparently surprising instances of both outcomes.

These and other issues are, of course, discussed further in the various chapters of the book, to which 15 distinguished linguists have contributed their expertise in the form of 13 chapters. There are four "Parts": I "General Issues" (chapters 1-2), II "Language-community responses" (3-6), III "What is lost: language diversity" (7-10) and IV "Mechanisms of language loss" (11-13); this last category includes both (a) language-internal developments such as "Matrix Language turnover", degeneration, etc; and (b) the progressive abandonment of languages by their users and the failure of children to acquire them. There follow an appendix (contributors' addresses), references and a series of indexes. The range of languages covered is very considerable, including Aleut, Catalan, Cushitic, Hebrew, Irish, Kacchikel, K'ichee', Lardil, Mapudungu, Mohawk, Nahuatl, Navajo, Quechua, Shaba Swahili, Tlingit, Yup'ik and many others, from all around the world. By no means all of these find themselves in the same situations, and both the similarities and the differences are of great interest. A small point: one might wonder why Part IV (or at least Chapter 12) and Part III do not precede Part II, given that the latter Part deals with responses to the developments treated in the former two.

This is an important book and it may be recommended unreservedly to scholars and advanced students.

Mark Newbrook

Mark Newbrook was born near Liverpool in 1956 and is Senior Lecturer in Linguistics at Monash University, having previously taught in Singapore, Hong Kong and Western Australia. He has published three books and also numerous articles, on English grammar/dialectology/sociolinguistics (especially Southeast Asian Englishes) and latterly on skeptical linguistics.

Heim, Irene and Angelika Kratzer
Semantics in Generative Grammar
Blackwell, Malden MA., 1998
pp.324 (RRP \$49.95)

If you understand "generative grammar" to mean contemporary Chomskyan grammar, this book does exactly what its authors claim. The book is aimed at graduate or advanced undergraduate students with a knowledge of formal syntax and more particularly LF as developed in work by e.g. May, Huang, Higginbotham. It would also help if the reader were familiar with set theory, functions, and lambda calculus, which are used throughout, but only cursorily introduced in the first chapter. This book would therefore be difficult for the typical Arts or Social Sciences undergraduate. However, it is well constructed with many helpful exercises (except that no answers are given). It is focused to the point of tunnel vision: by intention, it is severely limited as an introduction to linguistic semantics: lexical semantics, cognitive, conceptual, and functional semantics are totally ignored. A neophyte could read this book and conclude that semantics was concerned only with quantifiers and anaphora. It is rather annoying that the book has no bibliography — all references are given in endnotes.

I will comment on each of the 12 chapters in turn.

Chapter 1 "Truth conditional semantics and the Fregean program" sets the tone for the book; it begins: "To know the meaning of a sentence is to know its truth conditions." A concept of binary truth values is presupposed. The Tarskian schema for truth conditions is used as a springboard to Frege on compositionality. Given the Fregean paradigm in formal semantics, this is entirely appropriate. The rest of the chapter is an eight page tutorial on sets and functions.

Chapter 2 "Executing the Fregean program" is about constructing the meaning of a clause from its immediate constituents with the Fregean premise that semantic composition is functional application. The analysis of clause predicates as functions is demonstrated but not discussed and the characteristic functions of sets is introduced as a vehicle for identifying clause predicates as functions from individuals to truth values. This in turn admits assignment of semantic types. Once again background information is lacking: an inquisitive student should be asking What is type theory? What motivated

its creation? This book seems to prefer authoritarian direction rather than the encouragement of questioning and lateral thinking. A section on Schönfinkelization (also known as “Currying”) shows how transitive verbs are analyzable as recursive one-place predicates, which — within a phrase marker — roughly equate to applying first the V to the DP¹ within VP then applying this unified VP to the subject DP. The chapter next defines functions in lambda notation, but with inadequate discussion for any student to whom λ expressions are wholly new. They introduce an ambiguous convention:

Read “[$\lambda\alpha : \phi . \gamma$]” as either (i) or (ii), whichever makes sense.

- (i) “The function which maps every α such that ϕ to γ ”
- (ii) “the function which maps every α such that ϕ to 1, if γ , and to 0 otherwise” (37)

The algorithm for disambiguation refers to the form of γ : if it is a clause, choose (ii), otherwise (i). In all linguistic examples in the book (ii) is required. Given that so much is omitted from discussion it would seem preferable that (i) were omitted or consigned, like much elaboration of points in this book, to a footnote. An example: the denotation of *smoke* is $\llbracket \text{smoke} \rrbracket$ ($\llbracket \]$ is an interpretation function) and the lexical entry is $[\lambda x \in D . x \text{ smokes}]$. The formula $x \in D$ means x is a member of the relevant domain (universe of discourse). To assign an interpretation to *Ann smokes* apply lambda expression to Ann:

$[\lambda x \in D . x \text{ smokes}](\text{Ann}) = 1$ iff Ann smokes, 0 otherwise

λ conversion is not described, but you readily infer that the variable bound by λ is replaced in the range by the term in parenthesis to the right of the lambda expression.

Chapter 3 “Semantics and syntax” assumes that phrase structures have only binary branching; that the denotations of terminal nodes are specified in the lexicon; that non branching mothers accept the denotations of their daughters; and that branching nodes apply the denotation of one daughter as a function on the other — all provided that nodes in the PS tree are in the domain of the interpretation function $\llbracket \]$. Inadequacies in the theta-criterion are inconclusively discussed, as are argument structure and the linking of arguments to positions in a PS tree; there is a much better account of

both in Jackendoff (1990). Heim and Kratzer seem to favour the position that all information about a verb’s argument structure is directly derivable from its denotation (58), but say this cannot be pursued in an introductory text — for more comprehensive accounts see Goldberg (1995), Pustejovsky (1995), Van Valin and LaPolla (1997).

Chapter 4 “More of English: nonverbal predicates, modifiers, definite descriptions” pursues the assumption of categorial grammar that all semantic types derive from configurations of the two basic types, e (individuals) and t (truth values); see Dowty, Wall and Peters (1981) for comprehensive discussion. The chapter also overviews modification and presupposition. They begin by claiming (without convincing argument) that *of*, *be*, and *a* are semantically empty — something which I would hotly dispute in the case of the indefinite article (contrast DP *a wine* with DP *wine*), less hotly for *be*, and I might even support the semantic vacuity of *of*. Prepositions like *in* are two place predicates, and a restrictive modifier such as *a city IN TEXAS* $\rightarrow [\lambda x \in D . x \text{ is a city and } x \text{ is in Texas}]$. All of which is pretty standard predicate logic. A section on “nonintersective adjectives” is devoted to evaluative adjectives like *small* and calls on “the size standard made salient by the utterance context”, e.g. *small elephant* “draws attention to the elephant stereotype” which begs more questions than it answers. The only references given in the footnote fail to refer to discussions of stereotypes (and prototypes) and many important works on such matters (a reference list too long to be included here). The rest of this chapter is on the definite article, defined as

$\lambda f : f \in D_{\langle e,t \rangle}$ and there is exactly one $x \in C$ such that $f(x) = 1$. the unique $y \in C$ such that $f(y) = 1$, where C is a contextually salient subset of D . (81)

Undefined are uniqueness and salience, not to mention the relation between x and y . The use of definite plurals is not accounted for, and reasons for preferring this definition to that of Russell (1905) are not even hinted at. This whole chapter is very unsatisfactory, unfocused, and is likely to cause dismay in many a student.

Chapter 5 “Relative clauses, variables, variable binding” is a long chapter on the assignment of interpretations to variables. It begins by showing that restrictive relative clauses are just a kind of (set) intersective modifier, cf. $[\lambda x \in D . x \text{ is a city and } x \text{ is in Texas}] \text{ a city which is in}$

Texas. It subsequently moves to assigning an interpretation to *which John abandoned* employing a top down proof to derive $\{\lambda x \in D . \text{John abandoned } x\}$ under assignment x . Obviously this allows for a pronoun rule: If α is a pronoun, then for any assignment $a \in D$ $\llbracket \alpha \rrbracket^a = a$. Quine's assimilation of *such that* to relative pronouns is readily included because relatives were already analyzed as comprehending a vacuous complementizer, cf. $\{CP \text{ [which } C' [C \text{ [that] } S \text{ (DP [John] VP [V [abandoned] DP [t]])]]\}]$. Assignments are reclassified as partial functions from the set of natural numbers into the domain in order to get an interpretation for (co-)indexed pronouns and traces. Now the semantic value formerly identified as $\llbracket \]$ is a denotation under a null assignment so that for any tree α , $\llbracket \alpha \rrbracket = \llbracket \alpha \rrbracket^{\emptyset}$. This is an important point that I do not recall finding elsewhere. The effect is that $\llbracket [he, \text{ wrote } t_i] \rrbracket^{1-\text{Barriers}^2-\text{Joe}} = 1$ iff Joe wrote "Barriers". Although variables and constants have been differentiated throughout the book so far, they are not defined until p.116. However, variable binding is restricted in this book to indexed pronouns, traces, and *such*. The notion variable binding in predicate logic is broached on p.122 and it is suggested that PL gives syntactic definitions that are implicitly semantic. The end of the chapter illustrates the way in which random indexations violate or conform to various conditions on binding.

Chapter 6 "Quantifiers: their semantic type" is a meaty chapter that packs a lot of information for the neophyte. It begins with the problem of interpreting negatives: to understand *nobody* it seems necessary to have prior understanding of *somebody* such that *nobody* is, loosely speaking, interpreted as an absence of somebody. But this imponderable soon gives way to less controversial matters like monotonicity, roughly upward and downward entailment (cf. Barwise and Cooper 1981; Cann 1993; Chierchia and McConnell-Ginet 1990; Allan 1998). The authors' bald claim that *Everybody here is over 30 or everybody here is under 40* (pp.134, 143) is not a tautology needs some explication: $\forall x [x \text{ is over } 30 \vee x \text{ is under } 40]$ is a tautology (i.e. necessarily true), but $\forall x, y [x \text{ is over } 30 \vee y \text{ is under } 40]$ is not because it is possible that $\exists y [y \text{ is } 50]$, etc. There needs to be much more discussion of the semantic typing of determiners (referred to in the chapter title as "quantifiers") the reason that common nouns are of the same semantic type as intransitive verbs, which many students do not immediately understand. The list of definitions for determiners on p.151 will also be off-putting to many students, because there is a lack of clear relevance to linguistic facts. It would be better to include

these definitions as they become relevant later in the text. The importance of presupposition in the interpretation of DPs is given clear discussion pp.159ff. The authors favour the line that strong quantifiers are "presuppositional" i.e. speaker presupposes extension for the DP, whereas weak quantifiers are not. But they are right to be doubtful because the evidence is highly controversial: for instance, *Find every mistake* contains a strong quantifier, but the speaker need not presuppose that there ARE mistakes, though s/he must entertain the possibility that there are.

Chapter 7 "Quantification and grammar" looks at quantifier scope, and quantifiers as flexible types (i.e. as more than one semantic type). They argue for distinct types of *and* and *or* depending whether they connect clauses or clause constituents. Among the latter they include PP, e.g. *Ann is in the garden or on the porch* which I take to be clause disjunction *Ann is in the garden or Ann is on the porch*. The difference is clearly seen with the usual interpretations of the DP conjunction in *John and Mary have children* (cf. *Two and three make five*) versus the clause conjunction in the most probable interpretation of *John and his sister have children*. Although generalized quantifiers were introduced in the previous chapter, the inadequacies of the standard quantifiers of predicate logic for natural language semantics are not discussed until now, with the point being that semantic interpretation needs to refer to syntactic configuration. This leads to discussion of the relative merits of in situ interpretation versus quantifier movement. The conclusion favours quantifier raising (QR), because it seems to be required for *I read every novel you did* and *Every woman blamed herself*.

Chapter 8 "Syntactic and semantic constraints on quantifier movement" pursues the requirement that quantifier movement needs to be constrained by interpretability and the laws of syntax. May's 1985 view that all quantifiers adjoin to S is adopted but constrained to DPs containing quantifiers. It is then extended to allow for adjunction to VP and any other syntactic category "as long as the output of the derivation is interpretable" (217). The rest of the chapter discusses various arguments for and against type flexibility and eventually concludes that the matter is unresolved. Whether this challenges the smart student and confuses the less smart is a matter of conjecture.

Chapter 9 "Bound and referential pronouns and ellipsis" turns to the problem of referring uses of pronouns. The discussion of pronominal reference ignores the work of e.g. Givón and Ariel, for "In disambiguating the pronoun's reference, listeners assign it to the most salient individual that allows them to make sense of the utterance." This begs the question of what constitutes salience and making sense of an utterance. "Coreferential pronouns", that refer to the same individual and are free variables interpreted pragmatically and not by a rule of grammar, are distinguished from "bound pronouns", like the "him" in *Every man put a screen in front of him*, which does not refer a particular individual any more than "every man" does. Bound pronouns are interpreted by a rule of grammar:

If α is a pronoun or trace, i is an index, and g is a variable assignment whose domain includes i , then $\llbracket \alpha \rrbracket^g = g(i)$ (241)

This chapter also discusses ellipsis. A constituent may be deleted at PF only if it is a copy of another constituent at LF. In strict coreference *Joe went to his room; Jack didn't [go to Joe's room]*, the index is the same across both clauses at LF, for sloppy identity we have bound variable pronouns *Joe t_i went to his_i room; Jack t_i didn't [go to his_i room]* (the subject DPs having been raised).

Chapter 10 "Syntactic and semantic binding" favours Reinhart's theory of pronoun interpretation. It opens with a definition of c-command, syntactic binding, and binding theory specifying that reflexives are bound, other pronouns may be bound or free, and nonpronominals are free. QR is required for semantic binding which always correlates with syntactic binding. Weak crossover, as in *The shark next to him_i attacked [every diver_j]*, has "him" interpreted by coreference, but "every diver" QRed at LF. Very unsatisfactory in a textbook is the fact that in section 4, many sentences are given as examples of binding but for discussion of them the reader is advised to look to Reinhart (1983). Like most Chomskyan linguists, Heim and Kratzer seem unable to admit the importance of pragmatics in linguistic analysis. Since the late 60s it has been clear that anaphora cannot be properly accounted for without a notion of pragmatic interpretation. On pp.271-72 Heim and Kratzer use notions from Grice's cooperative principle without mentioning it to explain why *Felix voted for himself* is preferred to *Felix voted for Felix*, importantly they tie it to

the fact that the former results from semantic binding and the latter from coreference — a weaker link.

Chapter 11 "E-type anaphora" leads to the conclusion that some pronouns are neither coreferential nor bound, but a type first written about by Gareth Evans, hence E-type. This chapter presents a readable discussion of many complicated types of anaphora, presumably because it presents an ongoing research problem for semanticists of a philosophical persuasion. The difficulty lies in capturing what are usually straightforward intuitions into a consistent model. For instance, *Only one congressman admires Kennedy, and he is very junior* the problem is specify the antecedent of "he" (the congressman who admires Kennedy is a junior congressman and there is no other congressman that admires Kennedy). The difficulty greatly increases in *Every president thought that only one congressman admired him, and he was very junior*. The authors describe Cooper's analysis of such pronouns in terms of a definite description and an unpronounced predicate — in the last example it would be something like *Every president thought that only one congressman admired him, and the one and only congressman who admired the president (of the day) was very junior*.

Chapter 12 "First steps towards intensional semantics" shows that the extensional semantics developed hitherto in the book breaks down in intensional contexts like the complements of verbs of hoping, believing, etc. Possible worlds are briefly and clearly introduced, but little is made of the importance of intensional logics, but it seems an appropriate place to end the book.

To sum up: *Semantics in Generative Grammar* is a narrowly focused book that raises contemporary problems in the representation of quantification and anaphora at LF as a means of introducing students to semantics. As a book on formal semantics it is certainly inferior to the more logically oriented Gamut (1991) or the old standby Dowty, Wall and Peters (1981); it is less interesting and much less comprehensive than Chierchia and McConnell-Ginet (1990); easier but less comprehensive than Cann (1993), and nothing like so entertaining as Larson and Segal (1995). I am sure it will sell well to acolytes of MIT grammar, but the knowledge of semantics that students will gain from it is severely restricted.

References

- Allan, Keith 1998. The semantics of English quantifiers. In Peter Collins and David Lee (eds.) *The clause in*

- English: Papers presented to Rodney Huddleston.
Amsterdam: John Benjamins.
- Barwise, Jon and Robin Cooper 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy*, 4:159-219.
- Cann, Ronnie 1993. *Formal semantics*. Cambridge: Cambridge University Press.
- Chierchia, Gennaro and Sally McConnell-Ginet 1990. *Meaning and grammar: An introduction to semantics*. Cambridge MA: MIT Press.
- Dowty, David R., Robert E. Wall, and Stanley Peters 1981. *Introduction to Montague semantics*. Dordrecht: Reidel.
- Evans, Gareth 1985. *The collected papers*. Oxford: Clarendon Press.
- Gamut, L.T.F. 1991. *Language logic and meaning*. Vol.1 *Introduction to logic*. Vol.2 *Intensional logic and logical grammar*. Chicago: Chicago University Press.
- Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*. Chicago: University of Chicago Press.
- Jackendoff, Ray 1990. *Semantics structures*. Cambridge MA: MIT Press.
- Larson, Richard and Gabriel Segal 1995. *Knowledge of meaning: An introduction to semantic theory*. Cambridge MA: MIT Press.
- May, Robert 1985. *Logical form: Its structure and derivation*. Cambridge MA: MIT Press.
- Pustejovsky, James 1995. *The generative lexicon*. Cambridge MA: MIT Press.
- Reinhart, Tanya 1983. *Anaphora and semantic interpretation*. London: Croom Helm.
- Russell, Bertrand 1905. On denoting. *Mind* 14:479-93. Reprinted in Robert C. Marsh (ed.) 1956. *Logic and Knowledge*, 39-56. London: Allen and Unwin.
- Van Valin, Robert D. Jr and Randy LaPolla 1997. *Syntax: Structure, meaning, and function*. Cambridge: Cambridge University Press.

Endnotes

- 1 DP = determiner phrase, formerly NP.

Keith Allan

Keith Allan is Reader in Linguistics and Co-Head of the Linguistics Department at Monash University. The author of several books and numerous articles, his current research interests focus mainly on aspects of meaning in language (semantics and pragmatics), with a secondary interest in the history and philosophy of linguistics.



Now in colour

The Cambridge Encyclopedia of Language
Second Edition
DAVID CRYSTAL

The first edition of the book is probably the most successful general study of language ever published. This second edition extends the coverage to include advances in areas like machine translation, and offers a complete update of all material including maps and statistics.
0 521 55050 5 Hb \$99.00 0 521 55967 7 Pb \$39.95



New

English as a Global Language
DAVID CRYSTAL

David Crystal has written a timely and informative account of the phenomenon of English as a global language. It includes a historical summary of the global development of English; an analysis of the current spread and status of English as a first and second language internationally and an informed assessment of the future of English.
0 521 59247 X Hb \$26.95



Now in paperback

The Cambridge Encyclopedia of the English Language
DAVID CRYSTAL

This celebrated book offers a unique experience of the English language in all its richness and diversity. Clear and accessible, it abounds with insights into how language evolved and how it works. Superbly illustrated in colour, it is the most comprehensive general reference book on the history, structure and worldwide use of English ever written.
0 521 40179 8 Hb \$75.00 0 521 59655 6 Pb \$39.95



Australian author

The Rise and Fall of Languages
R.M.W. DIXON

This book offers a new approach to language change. Professor Dixon argues that the commonly used 'family tree' model of language relationships is of limited usefulness. He challenges many of the views currently held by linguists, archaeologists and geneticists, and emphatically dismisses recent speculation that the original languages of humankind could be reconstructed.
0 521 62310 3 Hb \$90.00 0 521 62654 4 Pb \$19.95



CAMBRIDGE UNIVERSITY PRESS

Tel (03) 9568 0322 Fax (03) 9563 1517