Paul Kroeger's *Analyzing Meaning: An Introduction to Semantics and Pragmatics* is a highly accessible textbook on preliminary concepts within a theory of natural language meaning. It covers a very large range of topics. In fact, teachers intending to use the book as a basis for an undergraduate course might be unlikely to cover the book's entire content in a single semester. In any case, the book, which is over 450 pages in length, provides an ample amount of material which a teacher could selectively draw on in leading a class on the topic.

The general approach of the book is to provide an expansive look into semantics and pragmatics, covering the logical underpinnings of semantics, to the central questions of meaning "dimensions" (i.e., comparing entailments, implicatures, and presuppositions), to Gricean reasoning, to speech act theory. Unlike many texts on the market, the book combines these topics with investigations into lexical semantics, including meaning relations between lexical items (e.g., hyponymy, meronymy) and featural analyses of word meaning. This presents an advantage to the instructor who wishes to cover formal semantics, lexical semantics, and pragmatics all in one class. The book provides somewhat of a 'one-stop shop'. Later portions of the book delve into more advanced topics, such as intensionality, the quantificational analyses of modal expressions, and the semantics of conditionals.

Besides its comprehensiveness, a key advantage of the book is the richness of its examples. Throughout the book, Kroeger uses, at times, witty and memorable examples from literature, newspaper headlines, poetry, and so on, to illustrate the key concepts under discussion. This strategy, I believe, improves understanding as the student is able to link the concept to its usage in the real world, aiding the student's ability to spot semantic/pragmatic phenomena 'in the wild'. For example, Kroeger opens the book with a passage from Lewis Carroll's *Through the Looking Glass* in which Alice and Humpty Dumpty debate whether words can mean whatever the speaker chooses them to mean. Using the absurdity of Humpty Dumpty's position as a starting point, Kroeger motivates the idea that natural language meaning can be productively studied as a rule based system which a language learner must acquire just like syntax or phonology. Memorable examples like this one are found throughout the book. A discussion of

expressives is supported by a digression into Bible translation and the challenge of translating an Aramaic term of contempt, alongside a political anecdote about cross-cultural misunderstandings between Malaysian and Australian politicians in the 1990s. A discussion of lexical ambiguity is enriched by a passage from Edith Wharton's short story *Xingu*, in which a character's description of a Brazilian river is misunderstood as an appraisal of a philosophical book ("*it's deep in places ... one must wade through*"). Instructors are provided with a wealth of such examples which promise to make lessons more engaging and relatable. Students, having been given a series of examples, could even be encouraged to find their own naturally occurring examples of the relevant phenomena.

Besides these many examples from literature and other texts, Kroeger also provides a wealth of data from various languages, including many understudied languages. This strategy is valuable as it encourages students to use the skills learned in a semantics and pragmatics course in order to go out and discover new phenomena in languages besides English, including perhaps in their own languages. Throughout the book, there are a handful of more extended case studies of linguistic phenomena in languages besides English. For example, case studies of aspectual markers in Mandarin, discourse particles and sentence connectives in German, markers of politeness in Japense and Korean, and a discussion of perfect aspect in the East Chadic language Baraïn. Besides adding to the empirical richness of the text, these case studies provide students with an idea of what an investigation into a semantic/pragmatic phenomenon might look like. In addition to these more extended discussions of other languages, Kroeger also peppers the text with smaller examples from various languages. Readers might spot examples illustrating Swahili aspectual markers, Lithuanian tense, evidentials in Cuzco Quechua, and a list of the twenty-five Tzeltal verbs which describe ways that something can be carried. Instructors using this text are well served by these forays into other languages, as they allow students to engage with the semantic and pragmatic theories by applying them analytically to new and unfamiliar data.

Kroeger maintains a rather conversational style throughout the text. This approach could be taken to be welcoming for undergraduate students. The prose is very accessible and never feels too dense. The conversational style extends to the book's narrative structure. Frequently, Kroeger dips in and out of the central thread of each chapter, moving into digressions, some of which are quite enlightening. But like a conversation, the text frequently sticks to prose definitions of major concepts, many times avoiding formal definitions. This is clearly stated at the outset of the book as an intention of the author, whose writing style favors in-text descriptions rather than formalism. But at times, more mathematically minded students may question whether

readability has been favored over formal precision. For students interested in exploring semantic and pragmatic concepts from a formal perspective, it might be appropriate for instructors to pair the chapter with a secondary text which approaches the relevant issues using formal tools. These texts may even be chosen from among those cited by Kroeger. Using this strategy, students might find it an instructive exercise to compare how the informally sketched concepts can be rigorously spelled out.

In line with the conversational style, Kroeger's text frequently jumps back to earlier topics and at many points throughout informs the reader that he will return to certain topics in later chapters. As a result, much of the text is very interdependent. Thus, it might be hard for an instructor to assign certain chapters as readings in isolation from the rest of the book. To pick just one example, Grice's notion of conventional implicature is introduced in §8, the chapter on Grice's theory of implicature, but the notion is only spelled out in §11. A student only assigned §8 may feel the topic has not been covered without having also read the later chapter.

The book is divided into six units, each covering a separate domain of natural language meaning. In what follows, I summarize each unit in turn, highlighting their strongest elements.

Unit I covers foundational concepts in semantics and pragmatics. Kroeger crucially relies on a three way distinction between "word meaning", "sentence meaning", and "utterance meaning". Many of the book's key concepts are defined with respect to these three notions and the relations between them. Especially important is the distinction between "sentence meaning" (loosely, the meaning obtained from the literal content of constituent expressions and their composition) and "utterance meaning". The latter is defined in terms of speaker intention, "what the speaker intends to convey" on p. 5. The most interesting cases are those in which these two meanings come apart, such as unspoken inferences made over the course of a conversation.

Chapter 2 covers the notion of reference and Frege's distinction between sense and denotation, while Chapter 3 presents the notion of a sentence's meaning as its truth conditions, and uses this concept to give a rundown of the logical relationships between sentences including entailment and presupposition. Both of these chapters begin with these foundational concepts but quite quickly transform into discussions of more advanced topics. Chapter 2 includes a preliminary treatment of expressive content, such as pejoratives like *jerk* and diminutive suffixes in Spanish. Chapter 3 provides an introductory definition of the distinction between the presuppositional and asserted content of an utterance. This approach might be considered somewhat risky, as any

discussion of presupposition gets into tricky notions of projection, accommodation, and presupposition failure. Kroeger's discussion of these concepts does an admirable job of providing the basics of these important notions, covering a lot of ground without becoming waylaid by too-advanced terminology.

Finally, chapter 4 introduces readers to the basics of propositional logic and predicate logic. These logics are introduced as a means of understand inferential schemas. As a student's first introduction to these topics, this chapter is easy to read and does a nice job linking the logical operators back to their role in analyzing the inferences under discussion. Kroeger avoids referring to notions of model theory and the interpretation function, so I wondered whether students reading the material would fully grasp the intricacies of how the English connectives (e.g., *and*, *or*, *if*) relate to the predicate logic connectives (e.g., $\land$, $\lor$, $\rightarrow$). At points, Kroeger notes the dangers of directly associating English connectives with their logical analogs, but then also at other points uses the English terms to refer to the logical operators. Perhaps students with questions about the relationships involved could be provided with supplementary material. However, for most, this brief introduction to the topic should be sufficient.

Unit II is a discussion of word meanings and the relationships between them (such as hyponymy, meronymy etc.). Building on the earlier discussion of entailment, Chapter 5 deals with the analysis of lexical items as either ambiguous or unspecified between multiple senses, or whether multiple lexical items should be posited. In answering the latter question, Kroeger on p. 90 cites some diagnostics, but students may take them to be somewhat vague: how should we decide, for example, whether two senses "share at least one salient feature"? Though, in discussing these issues, students are introduced to the haziness involved in deciding between homonymy and polysemy. Chapter 6 similarly builds on the earlier discussions of entailment to define sense relations between words, and suggesting how such relations could be employed in lexicography.

Chapter 7 explores strategies in lexical semantic analyses including lexical entailments, selectional restrictions, and componential analysis. Kroeger explores the notion of lexical entailment through many enlightening examples, though the link between lexical entailment and entailment at the propositional level is left unspecified. The discussion of componential analyses of lexical items (e.g., analyzing *stallion* as [+HORSE,+MALE]) is quite comprehensive in covering the advantages and limitations of the approach. Finally the chapter ends with a discussion of verb classes in the style of Levin 1993 and later work. These verb classes are linked to the previous discussion of componential analyses (e.g., *cut*-type verbs are classified with the features MOTION, CONTACT, and CHANGE), alongside a brief discussion of lexical decomposition.

Unit III is focused on pragmatics. Beginning with Grice's theory of implicature, the unit goes on to discuss modern extensions of Grice's theory, before discussing speech act theory and Potts' theory of conventional implicatures. Kroeger introduces Grice's idea that implicatures are inferences that interlocutors make in order to preserve an assumption of cooperativity. The earlier set up distinguishing "sentence meaning" and "utterance meaning" serves the discussion well here. Also, the earlier introduction of presuppositions allows Kroeger to provide a good summary of the distinctions between implicatures and presuppositions, and how to diagnose the two. However, I did find a discussion of whether a conversational implicature can survive embedded under negation rather confusing. Table 8.1 states that implicatures are not preserved under negation, but as Kroeger points out, the "not all"-implicature of *most* becomes an entailment when *most* scopes under negation. There is also the potential confusion with the separate but related question of whether expressions like *most* can be interpreted on their strengthened reading ("most but not all") when embedded under negation (i.e., can *not most* ever mean "either less than most or all"?), as discussed in relation to *or* on p. 166.

Chapters 9, 10, and 11 deal with topics in pragmatics building on the Gricean foundation. Chapter 9 discusses post-Gricean theories of the semantics-pragmatics divide. One key issue in this chapter is the notion of explicatures, or the use of pragmatic reasoning to infer implicit content in determining the truth conditions of a sentence (e.g., from an utterance of "too old", inferring that the speaker intended something like *too old to be an effective senator*). Kroeger draws a distinction here between these cases and the determination of pronominal/deictic reference, stating that the former requires more complex reasoning, though this distinction seems fuzzy to me. Chapter 10 on speech act theory is very strong. Even in isolation the chapter would make a good introductory reading on the topic, using many memorable examples illustrating key concepts, and relating the topic back to issues in translation and cross-cultural communication. The chapter also touches on the subtle divide between conventionalization and ad-hoc inferences in pragmatic reasoning. Chapter 11 on conventional implicatures is also strong, relating Potts' (2005) notion of conventional implicatures (or not-at-issue content) to a variety of cross-linguistic phenomena, giving relatively clear diagnostics in order to diagnose conventional implicatures from other dimensions of meaning such as presuppositions. I did wonder about the use of the *Hey, wait a minute!* test in order to diagnose conventional implicatures, firstly because the judgements seemed very subtle to me, and secondly due to Potts' own work questioning the reliability of the diagnostic (see Potts 2008).

Unit IV is concerned with semantic composition. Chapter 12 is an introductory discussion of Frege's central contributions to the philosophy of language. A lot of this discussion is predicated on the notion of "rigid designator" (i.e., the term *Lincoln* refers to the same individual across worlds), which is clearly presented, though students may have lingering questions about the status of fictional entities. With these notions established, Kroeger goes on to discuss propositional attitude predicates like *believe*, and why substituting one embedded clause for another does not preserve the truth conditions of the entire sentence. I wondered if students unfamiliar with the notion of semantic compositionality would fully appreciate this argument, though Kroeger's prose descriptions are relatively detailed.

With Frege's philosophical intuitions in tow, Chapter 13 delves into model theory. In order to provide a complete discussion, Kroeger introduces basic notions of set theory. This discussion may also be helpful for understanding details in earlier chapters, e.g., the chapter on lexical entailment, or the previous discussion of quantifiers, so instructors may wish to have students read this chapter earlier in the course. The chapter covers a lot of ground, describing how English sentences can be translated into expressions in predicate logic, which in turn can be interpreted using set theory. There are quite a few complex, interacting ideas which Kroeger is able to articulate in limited space. Chapter 14 builds on these theories in order to present an analysis of quantifiers. The discussion gets into some more advanced topics, such as the distinction between cardinal and proportional quantifiers, why certain quantifiers such as "most" cannot be represented in predicate logic, and scope ambiguities. The discussion of scope makes use of some operators from modal logic, so readers may wish to jump ahead to the later unit on modality if the symbols are unfamiliar.

Finally, Chapter 15 groups together a number of topics, including translations of expressions into a typed lambda calculus, non-intersective adjectives, and propositional attitude predicates, under the label of intensional contexts. Kroeger returns to Frege's notion of substitutivity and argues that introducing the notion of intensions presents a solution. While this chapter introduces the philosophical intuition behind the notion of intension, I wondered whether students would be able to reproduce the technical details behind the notion, and why these details lead to a solution to Frege's problem of attitudinal contexts and substitutivity. This is likely not a problem for students and instructors who wish to keep to an introductory level, though students may have questions about the link between the philosophical notion of intensions and the lambda calculus, introduced briefly towards the end of the chapter.

Unit V focuses on modals and conditionals. Chapter 16 provides a quantificational analysis of English modal expressions, using Kripkean modal logic, and extends this discussion by introducing Kratzer's (1981) notion of contextually supplied quantificational domains for modals in order to tackle the problem of variations in "flavors of modality". Chapter 17 introduces markers of evidentiality, a topic which builds upon earlier discussion of modality and speech act theory. Here, the discussion is mainly oriented around introducing natural language phenomena rather than pinning down a formal analysis. Chapter 18 presents an intriguing analysis of the sentence connective *because* and its relatives in German. The analysis employs a causation operator CAUSE, whose definition is left rather intuitive. Kroeger deals with the apparent polysemy of *because*. Under Kroeger's analysis, *because* can serve as a connective between two propositions, expressing a causal relationship between them. Otherwise, *because* expresses the same causal relationship between a proposition and a proposition embedded under a speech act operator. This latter use is employed for cases like "*What are you doing tonight? Because there's a good movie on.*" (paraphrasable as *There being a good movie on causes me to inquire "What are you doing tonight"*). This intriguing analysis is supported by syntactic and semantic evidence, demonstrating to students how to build a convincing series of linguistic arguments.

Chapter 19's discussion of conditionals is rather complex, blending material from previous discussions on modality, quantification, intensions, and speech acts. Students should have a relatively good handle on all these prior topics before tackling this material. Like the prior analysis of *because*, Kroeger identifies a use of *if* which relates a proposition with a proposition embedded under a speech act operator in order to derive so-called "biscuit" conditionals (from Austin 1958) (e.g., *There are biscuits on the sideboard if you want them.*). Together, the two analyses make an intriguing link between the semantics of connectives and the semantics-pragmatics divide.

The chapter also discusses various kinds of counterfactual expressions, including "frustratives" such as clauses introduced by the Kimaragang Dusun particle *dara*, used to express failed attempts. Kroeger uses this wide range of data to discuss the adequacy of analyzing *if ... then* statements using the propositional logic connective $\rightarrow$, eventually favoring the quantificational analysis of both indicative and counterfactual conditionals originating with Lewis 1975.

Unit VI, focusing on tense and aspect, like Unit V, supports its analyses with many cross- linguistic case studies, including paradigms from Chinese, Lithuanian, and Baraïn. Chapter 20 deals with both lexical aspect (or *Aktionsart*) and grammatical

aspect. The discussion of the former draws on Dowty's (1979) analysis, presenting a series of diagnostics for determining a predicate's telicity, dynamicity, and so on. The discussion of grammatical aspect uses Klein's (1994) notions of topic time, utterance time, and event time. All of these notions are important for students to grapple with and Kroeger presents a thorough treatment with helpful examples and diagrams. It is notable that in Chapter 20 (and 21), Kroeger quotes two definitions of "tense" (from Comrie 1985 and Bybee 1992) which differ in terms of strength, one requiring reference to "the present moment" and one not, but not much is made of this discrepancy. Chapter 21's discussion of tense builds on the previously introduced theory of temporal expressions attributed to Klein. Kroeger introduces Prior's (1957) quantificational analyses of tense and Partee's (1973) argument against it, though Kroeger does not adopt Partee's solution, but rather a solution using Klein's notion of Topic Time. Kroeger goes on to present a rather detailed discussion of various phenomena relating to tense employing Klein's framework. The discussion includes a case study on the English simple present and its various uses, the notion of relative tense, and temporal remoteness, all backed up with much data from various languages. This chapter would be especially useful and interesting for students who are interested in the description of understudied languages, including their temporal systems.

Chapter 22 delves deeper into the notions of the "perfect" and "perfective". The discussion primarily centers around the contrast between English perfect (the *have*+past participle construction) and the simple past. The discussion of the English perfect discusses whether its various uses should be analyzed as a case of polysemy. Some of the discussion references aspectual markers in other languages which Kroeger glosses as the perfect, including case studies of Baraïn (Chadic) and Mandarin. These case studies demonstrate that markers which are referred to as the "perfect" in different languages may have quite different usage profiles. In many ways, this chapter reads somewhat more like a paper than a textbook article, which could be useful for students wishing to see how the mechanisms introduced in earlier chapters can be integrated into an extended discussion of a singular phenomenon.

In summary, the key advantage of Kroeger's textbook is its breadth and coverage. An instructor could structure a semester's worth of content by choosing only a portion of the book, say the portions focusing more on lexical semantics, or alternatively the more advanced case studies towards the end of the book. The exercises at the end of each chapter are helpful and comprehensive. A nice feature of the exercises is the extent to which they engage with understudied languages, allowing students to gain experience getting their hands dirty with natural language data, and building skills in conducting

semantic and pragmatic analyses. Overall, the book promises to get students excited about the study of natural language meaning, especially in a cross-linguistic setting.

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