

# Reviews

BENGT ALTENBERG, *Prosodic Patterns in Spoken English: Studies in the Correlation Between Prosody and Grammar*. Lund Studies in English 76. (Pp. 225, Lund University Press, Lund, 1987. SE K 178:-. ISBN 0-86238-125-8.)

Reviewed by JULIA HIRSCHBERG, AT&T Bell Laboratories.

In this series of studies, Altenberg reports on work carried out in 1984–6 for the 'Text Segmentation for Speech' project within the Lund University Survey of Spoken English. He examines the correlation between speech rate and tone unit (TU) length and explores the extent to which knowledge of grammatical and 'communicative' features can help to predict phrasing, stress assignment, and choice of contour in a small corpus of natural speech drawn from the Lund Corpus (Svartik and Quirk 1980). Findings are compared to predictions of existing theories, in particular those of Crystal (1969, 1975), Quirk *et al.* (1964, 1985), and Ladd (1980).

While the immediate goal of these studies is to provide an empirical basis for developing prosodic rules for text-to-speech conversion, Altenberg also intends this work to further the exploration of English prosodic characteristics from naturally occurring data. However, the studies' empirical base is their chief weakness. The first study, relating to TU length, is based on ten recorded texts, each of about 5000 words, apparently chosen to represent different speech genres, including public and private dialogues and monologues, both prepared and spontaneous. It is not clear how to evaluate results based on single tokens of each of ten such 'types', either for the purposes of comparing genres or of generalizing about overall rate. The other five studies were all based on one of these texts, a 'partly scripted but informal' talk given by a master-builder said to be 'inexperienced at public speaking' to a local group on the life and history of their village, Stoke Poges. Altenberg justifies focussing on such a text by the reasonable enough claim that most text-to-speech applications will not be 'conversational' in nature but will simulate more 'controlled forms of delivery' (p. 13); hence 'prepared and partly scripted monologues' should form the model for text-to-speech systems. However, in such a case, the choice of a half-read half-spontaneous talk by an inexperienced speaker – and one whose style is presumably not in the mainstream of, say, British radio speaking, seems odd. Furthermore, by defining the sample in terms of a single text, no control over, say, the representation of various grammatical categories is possible. In particular, more fine-grained comparison of grammatical features is often impossible due to single-digit sample sizes. While Altenberg is generally scrupulous in pointing out the limitations of his data – and loath to draw broad conclusions – different choice of material and sampling techniques might have borne more fruit.

The most interesting of the studies are those relating grammatical structure to TU boundaries and relating tonicity (nuclear stress placement) to grammatical and communicative information. Both are based on the master-builder's speech. As with the other four studies, Altenberg compares his empirical findings with more theoretical proposals, with no very startling results. For example, while he finds no support for Ladd's 'hierarchy of acceptability' in the tonicity study, it is not clear whether the absence of evidence from this single text should tell heavily against the theory.

The first study involves a painstaking examination of the location of TU boundaries with respect to the syntactic as well as surface features of the text. This analysis forms the basis for a tentative algorithm for TU boundary assignment, which assumes both grammatical and orthographic information to predict much of the spoken version of the speech. However, Altenberg is careful to note that his text-to-speech conversion rules also assume distinctions between clause types – e.g. restrictive vs non-restrictive – which are not actually available from the text (p. 120). Furthermore, while his rules have a high rate of success for predicting the presence or absence of TU boundaries at sentence boundaries (93%), they do less well at predicting lesser ones (averaging 80%); for intonational boundaries other than the simple TU no analysis was apparently performed. Additionally, this algorithm had not actually been fully formalized or implemented as of the date of publication, although that is apparently a future goal.

The study of tonicity is similarly painstaking; again it is unclear how to evaluate the results. From an examination of nuclear stress location with respect to surface position and word class, Altenberg proposes a 'Tonicity Rule' ('In TUs with simple tonicity the nucleus is assigned to the last prosodically salient item in the TU' (p. 176).) where prosodic salience is defined extensionally. Word classes are divided into salient and non-salient classes, so that adjectives, most adverbs, discourse particles, nouns, numerals, quantifiers, non-personal pronouns, and verbs are classed as salient, and most closed-class items and deictic adverbs as well as *enough* are designated non-salient. How such a classification might generalize to another text is open to question. In addition, the usefulness of any such schema depends heavily on a parser's ability to disambiguate lexical items whose various senses may place them in both salient and non-salient classes (such as discourse markers which may also function as conjunctions or adverbs, and adverbial particles which may also serve as prepositions). Even if this rule could be implemented, Altenberg notes that it only does about as well as the traditional 'last word' in the TU approach, the former explaining 90% of cases with a single focus, and the latter, 88%. Furthermore, Altenberg's assumption that further research will allow some combination of structural information with 'communicative' information to permit automatic nuclear stress assignment appears over-optimistic about our ability to determine information structure even from larger textual contexts. While we can often explain violations of default stress rules in terms of 'information status' or 'marked focus', such explanations rarely have predictive power from a simple text input.

In sum, Altenberg has provided a wealth of detailed information about the grammatical and intonational characteristics of a spoken text whose genre is hard to characterize. He presents his conclusions without over-simplification or over-generalization, and is careful to point out many of the limitations in his analysis. However, in the end, it is not clear how these results should best be used.

## References

- CRYSTAL, D. (1969). *Prosodic Systems and Intonation in English*. Cambridge: Cambridge University Press.
- CRYSTAL, D. (1975). *The English Tone of Voice: Essays in Intonation, Prosody, and Paralanguage*. London: Edward Arnold.
- LADD, D. R. (1980). *The Structure of Intonational Meaning*. Bloomington: Indiana University Press.

- QUIRK, R., S. GREENBAUM, G. LEECH and J. SVARTIK (1985). *A Comprehensive Grammar of the English Language*. London: Longman.
- QUIRK, R., J. SVARTIK, A. P. DUCKWORTH, J. P. L. RUSIECKI and A. J. T. COLIN (1964). Studies in the correspondence of prosodic to grammatical features in English. In *Proceedings of the Ninth International Congress of Linguists*. The Hague: Mouton, 679–91.
- SVARTIK, S. and R. QUIRK (editors) (1980). *A Corpus of English Conversation*. Lund Studies in English 56. Lund: Lund University Press.

### Book Notices

- MARTIN HEEPE (editor), *Lautzeichen und ihre Anwendungen in verschiedenen Sprachgebieten*. (Pp. xxvii + 116, reprint of 1928 edition (Reichdruckerei, Berlin), with an introduction by Elmar Ternes, Helmut Buske Verlag, Hamburg, 1983. DM 38.00.)
- Annotated by IAN MADDIESON, Phonetics Laboratory, UCLA.

The first part of Heepe's book presents a brief overview of five phonetic transcription systems based on the Latin alphabet which were in use in the 1920s or earlier. These include the expanded Lepsius *Standard Alphabet* used by Meinhof, Forchhammer's *Weltlautschrift* and the Lundell alphabet originally designed for use in Swedish dialect studies. However, the longest and most interesting contribution in this part of the book is a description of the IPA system by Daniel Jones (pp. 18–27). In comparison with the other systems described, the IPA stands out as a system which is governed to a considerable extent by theoretical considerations emphasizing contrast and simplicity. This 1928 presentation of the basis of the IPA anticipates the major points of *The Principles of the International Phonetic Association* (1949). The second part of the book contains notes by several authors on the then-current transcriptional practices in German dialectology, and Romance, Slavic, Finno-Ugric, Turkic, Chinese, and Burmese linguistics. A brief note on the transcriptional system recommended to the American Anthropological Association in 1916 is also included. For the present-day reader this book is mainly a historical curiosity, although it is possible that it would on occasion serve to explain an unfamiliar symbol or an unfamiliar usage in the older literature. The introduction by Ternes provides some general discussion of issues relating to transcription. He suggests, perhaps optimistically, that the IPA system of transcription is prevailing over its competitors, citing some recent use in the Soviet Union among his evidence. From a U.S. viewpoint, this claim does not look persuasive. But the reprinting of Heepe's book does remind us that transcriptional practices may have been even more heterogeneous in the past than they are now.