

Perception of prosodic boundaries by untrained listeners

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Prosodic units of English larger than the word have been proposed and analyzed by numerous researchers. Variouslly called (among other things) “tone groups” (Halliday 1967; Brown et al. 1980), “tone-units” (Crystal 1969), “intonation-groups” (Cruttenden 1997), or “intonation units” (Chafe 1987; Du Bois et al. 1992, 1993), these units have been analyzed both for their phonetic/phonological properties as well as for their role in discourse structure, information structure, and utterance meaning. Common to most approaches is the assumption that the prosodic units exhaustively and categorically partition the speech stream — that is, that any given word is contained within exactly one prosodic unit.

There remains a good deal of uncertainty, however, about how confident researchers can or should be in segmenting natural speech into such prosodic units (cf. Cruttenden 1997, pg. 29). Although some authors (e.g., Cruttenden 1997; Du Bois et al. 1992, 1993; Halliday 1967) propose structural definitions of the units and/or auditory cues by which they may be identified (e.g., pause, pitch changes, lengthened syllables), there has been no empirical demonstration that these rubrics actually improve the validity or reliability of transcription. Moreover, although Cruttenden (1997, pg. 36) suggests that “the phonetician [in identifying prosodic units] is trying to formalize what an ordinary listener does unconsciously,” we know little about how ordinary listeners segment the speech that they hear (but see Kreckel 1981; Mo et al. 2008). In particular, we have no empirical evidence that the proposed phonetic/acoustic cues are actually relevant to ordinary listeners’ perception of prosodic boundaries. It also remains unknown how much individual listeners vary in their perception of such boundaries.

I argue that the appropriate starting point for a theory of prosodic units is naive-listener judgment. I present data from an experimental study of prosodic perception, in which untrained listeners listened to short monologic excerpts from natural American English conversations and were asked, in deliberately vague terms, to demarcate sequences of words which sounded like they were “spoken together as a group.” Inter-listener agreement on boundary locations was calculated statistically, controlling for demand characteristics and other extraneous factors. The results show that, although there can indeed be high agreement among listeners as to the location of prosodic boundaries, there is often no clear separation between high and low levels of agreement — that is, there is a fairly large gray area of cases in which listeners disagree about whether a boundary is present or not.

Based on these results, I argue that the assumption of categorical prosodic boundaries is problematic, and that existing approaches to boundary identification should therefore be reconsidered. I argue that it is more appropriate to consider prosodic boundaries as having various strengths. I also suggest that a phonetic characterization of prosodic boundaries, and of their strengths, should be empirically derived by analyzing the acoustic properties of the boundaries that were actually perceived by untrained listeners, and I demonstrate some initial steps in this direction.

References

- Brown, G., Currie, K.L., and Kenworthy, J. 1980. *Questions of intonation*. London: Croom Helm.
- Chafe, Wallace. 1987. Cognitive constraints on information flow. In Russell S. Tomlin, ed., *Coherence and grounding in discourse*. Amsterdam: John Benjamins.
- Cruttenden, Alan. 1997. *Intonation*. Cambridge: Cambridge University Press.
- Crystal, David. 1969. *Prosodic systems and intonation in English*. Cambridge: Cambridge University Press.
- Du Bois, John W., S. Schuetze-Coburn, D. Paolino, and S. Cumming. 1992. *Discourse transcription*. Santa Barbara Papers in Linguistics, Vol. 4. University of California, Santa Barbara.
- Du Bois, John W., S. Schuetze-Coburn, D. Paolino, and S. Cumming. 1993. Outline of discourse transcription. In Edwards, Jane A., and Martin D. Lampert, eds., *Talking data: Transcription and coding methods for language research*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Halliday, M.A.K.. 1967. *Intonation and Grammar in British English*. The Hague: Mouton.
- Kreckel, Marga. 1981. Tone units as message blocks in natural discourse: segmentation of face-to-face interaction by naive, native speakers. *Journal of Pragmatics* 5: 459-476.
- Mo, Y., Cole, J., and Lee, E-K. 2008. Naïve listeners' prominence and boundary perception. In Barbosa, P. A., Madureira, S., and Reis, C. (Eds.) *Proceedings of the Speech Prosody 2008 Conference*, Campinas, Brazil.