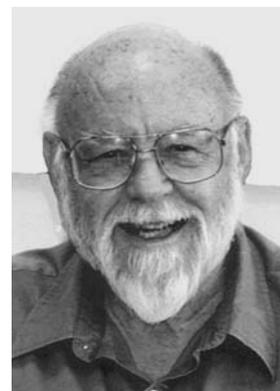


Editorial

Spoken Words versus Spoken Language



Grasp the subject, the words will follow.
—Cato the Elder (234–149 B.C.)

Much of what we know about the speech perception problems of both young and elderly persons with hearing impairment is based on monosyllabic word recognition. The ubiquitous PB lists are presented at various suprathreshold levels, either with or without the presence of competing noise or competing speech, and the listener is asked to repeat back the word heard. Not surprisingly, how well listeners with hearing impairment are able to repeat such words back correctly depends heavily on the audibility of the consonants, especially the consonant-vowel transitions. Given the paucity of available clues in a single-syllable word, it is critical to resolve the temporal and spectral variations defining the two consonants. This approach has generated an extensive literature on why individuals with hearing impairment, young and old, have trouble repeating back single-syllable words.

But actual human communication is seldom carried out one word at a time. The ability to understand the gist of a phrase or sentence is influenced, not only by consonant recognition, but by a number of suprasegmental features, including prosody, speech rate, and intonation; by linguistic factors, including grammatical, semantic, and syntactic complexity; and by cognitive factors, including memory and speed of mental processing. We might learn more about the listening problems of persons with hearing impairment, both young and old, if we were to use test materials more nearly approximating how spoken language, rather than the isolated spoken word, is understood.

In this issue of *JAAA*, Arthur Wingfield, Sandra McCoy, Jonathon Peelle, Patricia Tun, and L. Clarke Cox, of Brandeis University and Boston University Medical School, examine the roles played by two important characteristics of spoken language not assessed by responses to single words: syntactic complexity and presentation rate. In four groups of participants, (1) younger adults with normal hearing, (2) older adults with normal hearing, (3) younger adults with hearing loss, and (4) older adults with hearing loss, they compared comprehension accuracy of subject-relative clause sentences (e.g., “Men that assist women are helpful”) to object-relative clause sentences (e.g., “Women that men assist are helpful”) at four speech presentation rates. The task was to indicate the gender of the character performing the action. Results showed a dynamic interaction among factors of age, hearing loss, syntactic complexity, and presentation rate. In the case of the syntactically less complex subject-relative sentences, all four groups performed well at the normal speech rate. At very fast speech rates, both hearing-impaired groups dropped slightly, but there was no significant age effect. In the case of the more syntactically complex, object-relative clause sentences, however, there was a striking interaction among factors of age group, presence of hearing loss, and speech presentation rate. When syntactic complexity was combined with fast presentation rate, there was an effect of hearing loss in both groups and an effect of age, but the combination of age group, hearing loss group, and fast speech presentation rate led to the greatest performance decline. Stated differently, when sentence syntax was less complex, there was little to distinguish the four experimental groups from one another, except for a slight hearing

loss effect in both young and old groups at very high speech rates. But when sentence syntax was more complex, the combination of age and hearing loss had a greater effect on performance than did the effect of hearing loss alone. In other words, in this test of sentence understanding, large performance deficits owing to age and hearing loss were revealed by manipulating nothing more than the syntactic complexity of the sentence materials and the speech presentation rate. The results showed, moreover, that the hearing loss effect was greater in the older group than in the younger group and that this differential increased with speech rate. The authors summarize their results succinctly: "Taken together, the present results suggest that neither age-related cognitive constraints, nor peripheral hearing acuity alone, will give the full picture for individuals' effectiveness in sentence comprehension."

These results ought to stimulate audiologists to ask whether we are missing some very important dimensions of listening in real-world situations when we focus narrowly on how well young and elderly persons with hearing impairment recognize words in isolation.

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