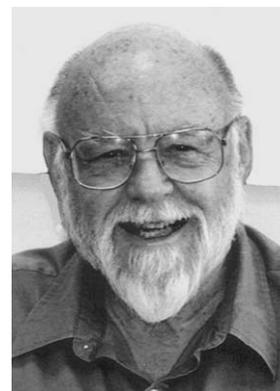


Editorial

Informational Masking



When you are trying to listen to one talker while there are one or more other talkers in the background, communication may suffer. We used to say that the competing speech masks the to-be-attended speech, but we now know that the problem is not so straightforward. There are at least two different masking effects, energetic and informational. “Energetic” masking occurs when the neural excitation evoked by the competing speech exceeds the excitation produced by the target speech. It is largely a matter of the relative energies in the two signals. This is the conventional notion of masking that has been studied at great length by psychoacousticians for more than 80 years. Within the past three decades, however, we have come to recognize what Ray Carhart originally called “perceptual” masking, the additional interference, over and above conventional or energetic masking. In recent years this component has come to be called “informational” masking to emphasize the interfering effect of the informational component of the masker, over and above its energetic masking effect.

In this issue of *JAAA*, investigators Benjamin Hornsby, Todd Ricketts, and Earl Johnson of the Vanderbilt Bill Wilkerson Center, in the paper “The Effects of Speech and Speechlike Maskers on Unaided and Aided Speech Recognition in Persons with Hearing Loss,” ask to what extent hearing loss and amplification are impacted by informational masking. The authors were assiduous in constructing a test environment reflecting the kinds of listening situations encountered by both normal and hearing-impaired individuals in everyday life, even to the extent of adding reflective surfaces to the walls of the test

chamber. The HINT test was presented via loudspeaker at 0° azimuth while maskers were presented via loudspeaker at other azimuths ranging from 45° to 315°. There were two types of maskers: (1) multitalker babble of either two, four, or seven talkers (energetic masking + informational masking) and (2) speech spectrum noise modulated by the envelopes of these same talkers (energetic masking alone). The difference between performance under the two types of maskers was attributed, in part, to differences in informational masking. Results confirmed that, when an individual attempts to understand the speech of a target talker in the presence of other, spatially separated talkers, there is an informational masking component over and above the energetic masking.

Of particular interest was the finding that, in participants with hearing loss (mostly elderly), amplification produced only limited improvement in speech understanding in the presence of informational masking, mirroring a frequent complaint of elderly hearing aid users. This finding highlights, again, the need to evaluate the efficacy of amplification systems in ecologically valid test situations reflecting the reality of everyday listening, rather than in test environments in which a single loudspeaker delivers unmasked speech stimuli in a highly sound-absorbent chamber.

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