GENERAL DISCUSSION OF SESSION 1:
THE RELEVANCE OF PSYCHOPHYSICS FOR SPEECH PERCEPTION

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Although in the past the contributors to this session held very
different views on the relevance of psychophysics for research on
speech perception, the most striking aspect of the session was the
strong convergence that has taken place in recent years. The main
reason for this is probably that the area of auditory psychophysics has
become considerably wider than that of "traditional" psychoacoustics,
which was concerned almost exclusively with the perception of
sinusoids and noise bands. Not only have more complex signals
increasingly come into the domain of psychophysics, but more
importantly, so has the realization that human perception always
involves memory.

Another reason for the convergence of opinion among the
speakers at this session is undoubtedly the widely felt tedium at the
"tennis game" (Massaro) between those who keep finding new
phenomena which are special to speech, and those who then proceed
to demonstrate that the same phenomena can also be observed with
nonspeech stimuli.

The consensus among the speakers and, indeed, among
participants generally, was that speech perception research cannot do
without considering the role of learned memory categories. The
differences concern the nature of these categories, the question of
exactly what information about speech sounds is stored, and how it is
coded. There was general agreement that auditory information plays
the dominant role in the coding of speech sounds, but Repp, in his
paper, also included a representation of information about
articulatory manoeuvres. Massaro spoke about his concept of auditory
prototypes; the perceptual anchors introduced by Macmillan et al., on
the other hand, represent boundaries between categories rather than
prototypes. However, Macmillan produced new data about consonant
perception, indicating that here, unlike with vowels, the perceptual
anchors represent the centres of the categories.

Schouten and Espinoza-Varas argued that categorical
perception, as defined in the speech perception literature, is an ideal
which is seldom if ever achieved, and owes its appearance to task
factors (Espinoza-Varas) and stimulus factors (Schouten). This led to a
general discussion, in which it was agreed that categorical perception
research has outlived its usefulness: instead of chasing after an
experimental artifact, we should simply concentrate on speech
perception, recognizing that categories (whether they are phonemes,
allophones, or syllables) play an extremely important part in speech
perception.
Another set of terms whose usefulness was questioned are "top-down" and "bottom-up" processing; at least in our field of research these terms cause a great deal of confusion. A preference was expressed for the more reductionist terms "peripheral" and "central", although it was realised that (in the words of A. Fourcin) "the efferent system may be capable of modifying the nature of the transformations right down to the bottom". We want to find out first, however, how far we can usefully go without any such complicating assumptions in our models.

Another point of agreement was that speech perception and psychophysics have a very useful meeting ground in the perception of timbre: what is needed is a psychophysics of complex signals.

To sum up, since there was much more agreement than was expected, there was inevitably less discussion. We did agree, however, to drive out a number of terminological ghosts.