

AUDITORY INVESTIGATION OF GERMAN TENSE AND LAX VOWELS.

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It has been maintained (e.g. by E.A. Meyer and by R.M.S. Heffner) that in spite of the fact that the short German vowels ɪ ʏ ʊ often have a lower tongue position than long e ø o (and, as it appears from Hans Peter Jørgensen's acoustic investigations, also a higher F1) they are normally perceived as sounds of the i y u-type. - Now it can be argued that people who hear them as i y u-sounds may be influenced either by the spelling or by the status of these sounds as the highest short vowels of the vowel system, and that people who have not got this knowledge hear them as sounds of a more open type. In order to test this hypothesis German long and short vowels (spoken by the same persons as those used in the acoustic analysis by HPJ) were cut out of words so that the central part (with a duration of 6-9 cs) was used and transitions avoided as far as possible. These vowels were combined into a test, which also included Danish vowels. The vowels of each subject were presented as a special group of vowels in the test, to prevent interferences between different subjects with different relative formant positions. For each subject the order was random. - The test tape was presented to two groups of Danish students (each comprising about 40 subjects) and one group of Danish phoneticians (10 subjects). As the students did not have sufficient training in cardinal vowels, all listeners were asked to allocate each of the vowels they heard to a position in a two-dimensional diagram containing the Danish long vowels

i	y	u
e	ø	o
ɛ	œ	ɔ

The answers were in close correspondence with the acoustic measurements. ɪ ʏ ʊ were heard as slightly higher than e ø o for the subject HL who had rather close ɪ ʏ ʊ, and as lower than e ø o, and often somewhat centralized for the other subjects.

In some cases the vowels had been influenced strongly by surrounding consonants, not only in their marginal sections close to the consonants (in the form of transitions), but also in the central section which was cut out and used in these experiments. This happened for ʊ and ɔ between dentals (relatively high F2) and for ɪ between l and p (relatively low F2). In such cases both ʊ and ɪ were heard as front rounded ø or œ.

Similar results have been obtained in a previous test with some Dutch and English vowels (e.g. υ in "soot" when isolated was heard as $[\emptyset]$).

It is intended to use the same test tape with German listeners. The results will be published in a somewhat more detailed form later.