THE DANISH "STÆD"

THE PROBLEM OF PHONETIC REALIZATION AND PERCEPTION

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ABSTRACT

The present investigation of the Danish stæd is based on recordings by 13 Danish speakers. Duration, F0, intensity, formant frequencies of the stæd-vowels has been compared with those of the stædless vowels. The stæd-vowels are distinguished from the stædless vowels first of all by F0 pattern, than by quality and intensity changes. It has been found out how the stæd-vowels are perceived by the groups of subjects with different level of Danish knowledge.

A specific feature of the Danish prosodic system is that unlike closely related Swedish and Norwegian, there exists stæd in Danish, which is a dynamic syllabic accent resulting in a brief voval folds compression or a complete closure with an additional distinctive value. The stæd may occur in a long vowel, in a diphthong, almost in all sonorant consonants, in /3/ and only in a stressed position. By many phonologists the stæd in Danish is considered to be phonemically distinguishing element. O.Jespersen represented 400 minimal pairs distinguished only by presence or absence of the stæd. The stæd is commonly found in monosyllables, but the majority of oppositions stæd-word/stædless-word are dis-syllabic words: (jeg ) læser /læs er/ - (I) read, læser /læs er/ - reader. The stæd, however, here is not an independent distinctive element, it plays only a secondary part in the system of expressive means of the language, because the differences in these minimal pairs are obvious from word order in the sentence. Danish linguist A. Hansen pointed out that the stæd is not absolutely necessary for understanding Danish /1/.

Historically, the stæd is correlated with pitch accents of other Scandinavian languages. While comparing Norwegian, Swedish and some Southern Danish dialects, one finds some similarity in opposition of stæd presence and absence in Danish words and that of presence and absence of pitch accents in the words of Scandinavian origin. For instance, a simple pitch accent in modern Swedish is manifested in a falling tone and a complex one in a falling-rising tone. These accents were replaced in the 13-14 centuries by the opposition stæd-word/stædless-word, the stæd corresponding to the accent 1, the absence of stæd respectively to the accent 2.

The Danish stæd has always been in the centre of word prosody studies. The problems of its origin and realization were interpreted in the works of R. Rask, K. Verner, L. Hjelmslev, A. Martinet, O. Jespersen and other linguists, but still the Danish stæd evokes a lively discussion.

Formerly, the stæd was considered to be a complete closure, hence it was called "a glottal stop". S. Smith found that a complete closure is as a rule rare, a brief and intense innervation of the expiratory muscles takes place. It abruptly initiates and briefly terminates /2/. Two or three stæd phases may be observed: the 1st phase - regular oscillations, the 2nd phase - oscillations weakened or disappear (in a case of complete closure) and the 3rd phase is possible when new oscillations appear.

Recent phonetic investigations have shown, that there is great variability in the phonetic manifestation of the stæd, produced by different speakers or the same speaker in different words /3/. The difference may be manifested in duration, pitch, intensity. There are several ways of stæd realization and the question arises, whether there are any common characteristics of stæd and what helps us to perceive these different acoustic signals as stæd.
This paper is concerned with the study of stød, occurring in vowels, 900 Danish words and 900 sentences were chosen for the study. Most words presented pairs (or a short vowel and a stød vowel) or three words with a long, short and stød vowel. A sentence, surrounding

phrases with stød vowel make it possible

kers, students and staff members from the universities of Denmark were recorded. The instrumental and audio analysis were taken up.

To study the perception of the Danish stød the combinations, consisting of a consonant and a long vowel, a stød vowel or a short vowel, were cut out of 45 words, performed by two speakers. These combinations were then presented to 3 groups of subjects with different level of Danish knowledge.

The curves of single words and phrases and stød vowel make it possible to distinguish different types of stød pronunciation: from the complete closure to the curve with no changes.

Out of many stød types 3 main types seem to be pointed out according to 3 phases, Two-phased stød vowels prevail in this material (62% for the isolated words and 96% for the statements), while there are 27% of three-phased stød-vowels in the isolated words and only 2% in the statements, and 9% of stød-vowels, containing stød—the combinations, consisting of a consonant and a long vowel, a stød vowel or a short vowel, were cut out of 45 words, performed by two speakers. These combinations were then presented to 3 groups of subjects with different level of Danish knowledge.

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