

A CONTRASTIVE PHONETIC STUDY
OF JAPANESE AND DUTCH

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ABSTRACT

As part of a research project on the pronunciation of Dutch by foreigners (representing more than 20 languages), we have paid special attention to the contrast between Japanese and Dutch. This contrast forms a factor to explain the pronunciation of Dutch by Japanese speakers. For a period of more than 200 years, Dutch was the only European language known in Japan and during that time this language had an important influence on the Japanese culture. Many loanwords of Dutch origin were introduced, for which the pronunciation and writing in Japanese graphemes were adapted to the Japanese sound system. In our study the phonetic properties of these loanwords are related to the results of the present contrastive phonetic investigation.

1. INTRODUCTION

During the last decades, large groups of foreigners have settled in the Netherlands. Many of them use Dutch with a very strong accent, which makes communication difficult and can be felt as a strong social handicap. Dutch language instruction to foreigners is often provided for heterogeneous groups, where most of the attention is paid to grammatical and lexical aspects of the Dutch language. In many cases, the pronunciation errors (which may vary considerably within the group) are not taken into account sufficiently.

In order to analyse these problems for various groups of non-native speakers, we followed the example of Gårding and Bannert (1980) in setting up foreign accent archives: recordings of Dutch spoken by representatives of 23 language groups. These recordings consist of a text read aloud, isolated words and spontaneous speech (for more than 80 subjects). For separate languages, whose phonology differs from Dutch in an interesting way, a further analysis is made and typical errors are collected and classified. In this classification we distinguish vowels, consonants, prosodic properties and further aspects.

2. DUTCH SPOKEN BY JAPANESE SUBJECTS

One of the groups of foreigners we paid special attention to in our project consisted of Japanese speakers of Dutch. This choice was motivated by the large differences between both languages, the historical importance of the Dutch language in Japan and the existing collaboration we have with Japanese institutes. In Figure 1 we present the phoneme systems of Japanese and Dutch, illustrating the differences between both languages.

Figure 1

Japanese vowels and consonants:										
i	u	p b	t d		k g					
e	o		s z	ʃ ʒ						
a		m	n							
			r							
		w		j	h					
Dutch vowels and consonants:										
i	y	u	p b	t d	k g					
ɪ e:	ø:	o:	f v	s z	x ʃ					
ɛ	æ	ə	m	n	ŋ					
a:	a		r l							
		w		j	h					

The most important differences are:

for vowels:

- (2.1) the Japanese vowel system, with five vowels only, is much less complicated than the Dutch system
- (2.2) in Japanese, the phoneme /u/ is realized as the unrounded high back vowel [ɯ]
- (2.3) there are no rounded front vowels in Japanese

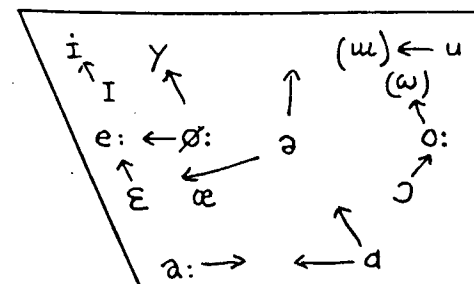
for consonants:

- (2.4) The fricatives /f/, /v/, /x/ and /ɣ/ do not exist in Japanese
- (2.5) /h/ is realized as an unvoiced palatal fricative before /i/ and as a bilabial fricative before /u/
- (2.6) /r/ is realized as an alveolar flap; there is no separate phoneme /r/
- (2.7) /t/ becomes [tʃ] before /i/ and [ts] before /u/
- (2.8) /n/ undergoes regressive assimilation of place, e.g. to [m] before /p/, /b/ and /m/. It is the only consonant that can be followed directly by other consonants and is considered as a separate syllable
- (2.9) there are no clusters of consonants within a syllable; these have the structure V (only vowel) or CV (consonant-vowel-combination)

3. COMPILATION OF PRONUNCIATION ERRORS

We analysed the sound recordings of Japanese speakers who read the Dutch text, the isolated words and produced spontaneous conversation. First, a phonetic transcription was made of the material and with the aid of this we gave an inventory of the main pronunciation errors for each speaker. Afterwards, their common errors were summarized in a compilation that can be considered as a typical pattern representative of the speakers of Japanese. For the vowels, we illustrate this in a vowel diagram with the Dutch vowels, where the typical deviations of the vowel pronunciation are indicated by arrows.

Figure 2. The pronunciation of Dutch vowels by Japanese speakers



The following differences can be observed:

for the vowels:

- (3.1) the pronunciation is in general higher and more fronted
- (3.2) short vowels are too long in general
- (3.3) the vowel /ɪ/ is pronounced like [i]
- (3.4) lip rounding is not realized in the pronunciation of /u/
- (3.5) the Dutch diphthongs are produced as monophthongs, e.g. /æy/ becomes [ø:] or [ɛ:]

for the consonants:

- (3.6) aspiration of initial voiceless plosives takes place
- (3.7) /h/ is realized as a palatal or velar fricative
- (3.8) /f/ or /v/ are produced as a bilabial or as a glottal fricative
- (3.9) /r/ and /l/ are realized in the same way: namely as an alveolar flap; they can be omitted in final position
- (3.10) /x/ or /ɣ/ can be pronounced as a velar plosive [k]
- (3.11) the velar nasal becomes [ŋ]

for clusters of consonants:

- (3.12) vowel insertion, like in [sɛtura:t] for 'straat' (Engl. 'street') takes place
- (3.13) deletion of consonants, like [sɛtɛ:k] for 'sterk' (Engl. 'strong') takes place
- (3.14) at the end of words a vowel is added, like in [tekisuto] for 'tekst'

The above changes can be explained by the properties (2.1)...(2.9) of the Japanese phoneme system as compared to the Dutch system (Section 2)

4. DUTCH LOANWORDS IN JAPANESE

For a long period in the history of Japan, the Dutch were the only Europeans who could visit the country. Due to the policy of seclusion from the outside world by the Tokugawa government, this isolation started in 1639 and it lasted until the second half of the 19th century (Vos, 1963 and 1978). The Dutch representatives imported the European culture from their settlement on Deshima and the Dutch language was used by Japanese interpreters. A special field of Dutch studies (Rangaku) developed and Japanese publications like 'Rangaku kaitei' ('Guide to Dutch Learning') by Otsuki Gentaku (1783) appeared, providing a Dutch vocabulary and a concise Dutch grammar.

Figure 3. Fragment from the 'Rangaku kaitei'

men leeren. 人 習	JK wensch u goe. 我 望 你 吉
den dag myn heer. 日 君 吾	
Hy brengt gant. 他 終	
fche nagten met. 夜 以	JK ben u dienaar. 我 者 你 臣
leefen door. 言 讀 徹	
JK heb al myn. 我 悉 吾	Ouden zal men. 老 可 人
	eeren jongenzal. 敬 少 可

In Figure 3, we reproduce a section from this book, where the Dutch sentences are translated into the kanji (the logographic writing with Chinese characters) and into the katakana (one of the syllabic writing systems where the sounds of the syllables are reproduced). The katakana represent the possible pronunciation of the Dutch words by the Japanese speakers, like Dutch [Ik] (Engl. 'I') as [iki]. In part of this text, we have compared the katakana writing to the original Dutch words and we also collected a number of loanwords from Dutch in the Japanese language. These occur in particular in the terminology of science (medicine) and ship building, but also quite general new words have been introduced into Japanese through their Dutch equivalent. According to Vos (1978), more than 160 words of Dutch origin are still in daily use in Japanese.

5. COMPARISON OF PHONETIC DIFFERENCES

In order to demonstrate the phonetic changes, we quote the following examples of Dutch loanwords with their Dutch original and English translation in brackets.

1. biiru, 'bier' (beer). The English word 'beer' is found in biiya-hooru (beer-hall).
2. bisuketto, 'beschuit' (rusk).
3. garasu, 'glas' (plate glass).
4. gasu, 'gas'
5. inki, 'inkt' (ink).
6. karan, 'kraan' (tap).
7. karuku, 'kalk' (lime).
8. kochi, 'koffie' (coffee).
9. kokku, 'kok' (cook).
10. madorosu, 'matroos' (sailor).
11. masuto, 'mast' (mast).
12. mesu, mesu (knife).
13. orugooru, 'orgel' (organ).
14. pisutoru, 'pistool' (pistol).
15. ponpu, 'pomp' (pump).
16. porudaa, 'polder' (polder).
17. ranpu, 'lamp' (lamp).
18. ransetto, 'lancet' (lancet).
19. renzu, 'lens' (lens).
20. sukoppu, 'schop' (shovel).

In these words, we can observe the following changes when comparing the Dutch originals and relating their deviations to the rules (3.1)...(3.14) following from our contrastive study:

- (5.1) final consonants are followed by a vowel, cf. examples 3, 5, 11; see rule (3.14)
- (5.2) vowels are inserted in consonant clusters, cf. examples 10, 13, 14; see rule (3.12)

- (5.3) final -ər and -əl become -V (vowel), cf. example 16; see rule (3.9)
- (5.4) the alveolar consonant l becomes r, cf. examples 17, 18, 19; see rule (3.9)
- (5.5) diphthongs are replaced by monophthongs, cf. example 2; see rule (3.5)
- (5.6) fricatives are realized differently, [f] as [h], [x] as [k], cf. examples 2, 20; see rules (3.8) and (3.10)

6. CONCLUSIONS

The structure of loanwords in Japanese deviates considerably from the Dutch originals; this also holds good for the much more numerous and more recent English loanwords (cf. Pierce, 1971, Vos 1963). We could compare the deviations with the present day pronunciation of Dutch by Japanese subjects and find similar properties in our contrastive study. Both can be explained by taking into account the differences between the phoneme systems of Japanese and Dutch.

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