The Vietnamese Sound System
and Its Typological Relation to Chinese

A Thesis
Presented in Partial fulfillment of the Requirement for
the degree Master of Arts in the
Graduate School of the Ohio State University
by
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* * * *

The Ohio State University

1987

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To My Parents, Huibi & Mingrong F. Wang
ACKNOWLEDGMENTS

I wish to express my sincere gratitude to Dr. Frank Hsueh for his guidance through the research. Thanks also go to the other members of my advisory committee, Drs. Yan-shuan Lao and Galal Walker, for their suggestions and comments. Appreciation is hereby expressed to Professor Ted Yao and Ms. Lingling Liu, for their support and encouragement. The editorial assistance of Ms. Uli Kalt is gratefully acknowledged. To my wife, Jingshu, and my children, Yi and Ying, I thank you for being so understanding of my long absence from home while doing this study.
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FIELDS OF STUDY

Major Field: Linguistics

Chinese dialects, Vietnamese dialects, Vietnamese syntax, the
Reform of the Chinese and the Vietnamese writing systems.
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Chapter I

Introduction

1.1. Earlier Studies on Vietnamese Phonology

Since the 17th century, Vietnamese has engaged the interests of many scholars. Alexandre de Rhodes, a native of Avignon in southern France, joined the Cochinchinese Mission in 1624. In 1651, based on his own investigation of the different dialects of Vietnamese, Rhodes published his Dictionarium, annamiticum, lusitanum et latinum (Annamese-Portuguese-Latin Dictionary) and thus created Quoc Ngu, the Vietnamese alphabet orthography. This 17th century publication is considered significant in the study of Vietnamese phonology because it is the first systematical phonetic transcription of Vietnamese\(^1\). After this publication, the Quoc Ngu gradually replaced Chu Nom (the script combining the Chinese character, or radical, with the Vietnamese pronunciation) and Chu Nho (Confucian character, i.e., Chinese character). Finally, at the beginning of 18th century, the Quoc Ngu became the official writing system of Vietnamese. For the most part, the Quoc Ngu roughly represents the phonological system of the Northern dialect of which Hanoi is the center,\(^2\) and for many scholars it has served as a starting point in their discussion of the Vietnamese phonology.

At the beginning of the 18th century, many scholars argued over the genetic affiliation of Vietnamese. The debate focused on whether Vietnamese
is genetically related to the Sino-Tibetan languages, such as Burmese, Thai, and Chinese, or the Austro-Asiatic languages, such as the Mon-Khmer languages.\footnote{31}

Prior to World War II, Vietnamese and the other languages in Southeast Asia were rarely studied in the United States for the obvious reason that the countries in this area were either under British control (Burma and Malaya), were in the hands of the French (Vietnam, Cambodia, Laos), or were dominated by the Dutch (Indonesia). Understandably, the studies of Vietnamese in this period were conducted mostly by European scholars, mainly Franchmen, such as Léopold Cordière's \textit{Phonétique Annamite (dialecte du Haut-Annam)} (1902), and Henri Maspero's \textit{Études sur la phonétique historique de la langue annamite: les initiales} (1912). The problem of the genetic relationship between Vietnamese and the other languages in this area, including Chinese, was the main topic of these studies.

Since the 1950's, quite a few works on Vietnamese have appeared in the United States, many of which were initially intended for teaching Vietnamese to Americans in the army during the Vietnam War. Nguyen Dinh Hoa's \textit{Speak Vietnamese} (1957, Revised ed. 1963), U.S. Army Language School's, \textit{Vietnamese Basic Course} (1954-56), and Nguyen Dang Liem's \textit{Vietnamese Pronunciation} (1970) are the main works. Some appeared in the form of text-books and paid more attention to the pedagogical concerns than to phonological analysis. As a consequence of the concern for the Vietnamese language studies in the United States, some comprehensive descriptions of Vietnamese phonology appeared in the late 60's and more have followed since then. Despite the fact that scholars have different opinions about the genetic classification of Vietnamese, there seems to be a consensus that Vietnamese
and Chinese are typologically similar. Both Chinese and Vietnamese are
classified as "tonal," "isolating," and "monosyllabic" languages; (Nhan: 1984)
therefore, most linguists have concentrated their phonological analysis of
both Vietnamese and Chinese on the description of the monosyllables. Some
scholars in the United States have tried to use new linguistic theories such as
the phonemic and the prosodic theories to analyze Vietnamese phonology.
Among these works, Merray B. Emeneau's *Towards a Prosodic Statement of
Vietnamese Syllable Structure* (1966), Laurence C. Thompson's *Saigon
Phonemics* (1959), *A Vietnamese Grammar* (1965), and Nguyen Dinh Hoa's
Hoa's *Vietnamese-English Dictionary* (1959) should be mentioned.

1.2. The Purpose of This Study

These earlier studies have contributed significantly to our understanding of Vietnamese phonology. It seems to me, however, that these works have not revealed the basic structural characteristics of Vietnamese phonology for the following reasons. First, Vietnamese itself is quite complicated in terms of phonological structure. Eugenie J. A. Henderson (1966:163) writes:

There are aspects of Vietnamese pronunciation and of the distribution of Vietnamese sounds that are a challenge to phoneticians and phonologists alike, as is witnessed by the variety in the phonetic descriptions and phonemic solutions that have been offered so far. ... to provide a definitive phonological statement of Vietnamese syllablic structure, ... much further work would be required.

Second, and more importantly, though the genetic relationship between Chinese and Vietnamese is still unclear, scholars have not yet realized the degree to which Vietnamese is typologically similar to Chinese. By referring to Chinese phonology with special attention to the segmental analysis of the
sylable finals, the present study hopes to establish a Vietnamese sound system which will reveal the basic structural characteristics of Vietnamese phonology and reflect the feeling of the native speakers. It is also hoped that this study will demonstrate in formal terms the fundamental typological identity between Vietnamese and Chinese.

1.3. The Theory and Approach of This Study

The concept of the phoneme "has become one of the fundamental elements of linguistic theory as a whole, and of the scientific description and analysis of languages".[5] This concept has been refined and clarified by Z. S. Harris, who claims that linguistic procedures were directed at a "twice-made application of two major steps: the setting up of elements, and the statement of the distribution of these elements related to each other".[6] According to the distributionalists, any uttered text must have one, and only one, phonemic transcription. However, in phonology, it is Roman Jakobson, an original member of the Prague Circle, who made striking advances in joining instrumental and acoustic studies of speech transmission through distinctive feature analysis. His approach is comprehensively presented in his Preliminaries to Speech Analysis - the Distinctive Features and Their Correlates. There he emphasizes that in speech analysis one should consider "the distinctive features composing phonemes from the acoustic and from the hearer's point of view rather than from the articulatory or the speaker's position".[7] This is to say that "phonological properties cannot be accounted for without considering the acoustic properties of the sounds in question". [8]

Since the 1940's many scholars in the United States, as well as in China, have tried to apply the phonemic theory in their studies of Chinese phonology
(here, Beijing dialect), works such as M.L. Hartman's "The Segmental Phonemes of the Peiping Dialect" (1944), Hockett's "Peiping Phonology" (1947), Shi Cunzhi's "Problems in Beijing Phonemes" (1957), etc. have appeared. These studies diverge, however, in points of view on the phonemes of the Beijing dialect, even though these scholars all claim that they applied the phonemic theory in their studies. Apparently, this is because many of these studies were influenced by Y. R. Chao's "The non-uniqueness of phonemic solution to phonetic systems".

According to Jakobson, as mentioned above, the phonemic solution should be unique if we follow the strict complementary distribution theory and consider the distinctive features from the acoustic and the hearer's point of view. This principle in Jakobson's statement is followed by F. S. Hsueh who adopts Jakobson's theory and proposes a new interpretation of the Pekingese sound system. He further claims that "phonemic study represents primarily an effort to understand, as well as to explain, the feeling of the native speakers". Based on traditional Chinese phonological studies and general linguistic theory, Hsueh establishes four basic principles which he claims can test whether or not a phonemic analysis has properly reflected the feeling of the native speakers of Chinese. In his approach, the tone is considered attached to the nuclear vowel, and then each Chinese syllable is represented by the following formula:

\[ #(C)(M)V(E)# \]

The C, M, V and E stand for the initial consonant, the medial, the nuclear vowel, and the ending in the syllable, respectively. This formula simply means that the nuclear vowel without parentheses is obligatory while the other elements in parentheses are optional for the formation of syllable.
The present study also adopts Jakobson's strict phonemic theory. The main concern of this study is whether or not the Vietnamese syllable structure is the same as that of Chinese. Therefore, we refer to the approach used by Hsueh in his study of Pekingese. In order to show why our study can better reflect the basic characteristics of Vietnamese sound system, some important earlier works on Vietnamese sound system will also be examined.

Long the cultural, economic and political center of Vietnam, Hanoi has been the most cosmopolitan of all Vietnamese cities. Consequently, Hanoi speech, which represents a subdialect of the Northern dialect, has been more prestigious than the Saigon (Ho Chiminh City) speech which presents the Southern dialect, and the Hue speech which represents the Central dialect. Furthermore, as mentioned above, the Quoc Ngu primarily reflects the phonological system of the Hanoi dialect rather than the other two. For example, the Hanoi dialect still keeps the six tonal contrasts while the other two dialects only reserve five tones. This thesis then takes the Hanoi dialect (designated as HD) as the standard Vietnamese. The other dialects are mentioned only when necessary. The data used in this study are mainly taken from my own collection of Vietnamese dialects recorded in the Summer of 1980 and the Winter of 1982, when I was investigating the Vietnamese dialects.* In addition to these data, the Vietnamese initials and finals listed systematically in Henderson's "Towards a Prosodic Statement of Vietnamese Syllable Structure" (1966: 168-173) are sometimes quoted.
1.4. Typological Features of Vietnamese

The following is a collection of the linguistic facts that serve as the basis for the present study.

Like the Chinese, native speakers of Vietnamese, not having any knowledge in linguistics or even any education, can easily understand the concept of a single syllable, which is called 'tiếng' (native Vietnamese, meaning 'sound', a spoken syllable) and the 'chữ' (Sino-Vietnamese representing the script 字, a written syllable) in Vietnamese. It is confusing, however, for them to conceptualize the term "word" in their language. This is to say that we must fully recognize that an utterance in Vietnamese, as in Chinese, is also easily analyzable into a sequence of syllables. As is well known, syllabic peak and syllable boundary are two aspects of a syllable. As in Chinese, the syllable boundary poses no problem in Vietnamese, because it is clearly marked, while it is unclear in many other languages and has to be determined only arbitrarily. This statement is supported by the fact that any utterance in Vietnamese can be recognized as one or several syllables each with a particular meaning. For example, the following sentence consists of five "tiếng", or "chữ", i.e., five meaningful syllables:

*I wish to express my thanks to Mr. Nguyễn Tu, a native speaker of the Hanoi dialect, and Miss Nguyễn Thị Sau, a native speaker of the Saigon dialect, and to other native speakers from different parts of Vietnam for generously giving their time when they stayed in a refugee camp in Guangxi province in southern China. Some of these data have been used in my article "A Tentative Phonetic Comparison between Jing [a Vietnamese dialect spoken in Southern China] and Hanoi Dialects" (Language Studies, Wuhan, China, 1984). Since that paper was a phonetic comparison between two dialects of Vietnamese, I did not discuss the phonological relationship between Chinese and Vietnamese.*
Hôm\textsuperscript{33} nay\textsuperscript{33} tôi\textsuperscript{33} bạn\textsuperscript{11} lâm\textsuperscript{35}.
[hôm\textsuperscript{33} nái\textsuperscript{33} tôi\textsuperscript{33} bạn\textsuperscript{11} lâm\textsuperscript{35}]

day this I busy very
(Today I am very busy.)

Now the question is whether we can adopt the traditional methods of Chinese phonology and divide a Vietnamese syllable into three components: the initial, the final, and the tone. Also like the Chinese, native speakers of Vietnamese easily recognize the existence of these three segments, i.e., the initial, the final, and the tone, in a syllable. This can be verified by language games in Vietnamese. For example, the "nói lai" (reverse speech) and the secret language in Vietnamese reflect the initial-final structure of the Vietnamese syllable. In "nói lai", the finals of two syllables are exchanged to form a cant language for a group of merchants: \cite{12}

\begin{enumerate}
  \item a. i. đi\textsuperscript{33} chợ\textsuperscript{11} [dí\textsuperscript{33} chò\textsuperscript{11}] 'go to the market'
      \textit{go market}
  \item i. ò\textsuperscript{11} chỉ\textsuperscript{33} [ò\textsuperscript{11} chí\textsuperscript{33}]
  \item b. i. chim\textsuperscript{33} bay\textsuperscript{33} [chim\textsuperscript{33} bål\textsuperscript{33}] 'bird flies'
      \textit{bird fly}
  \item ii. chạy\textsuperscript{33} bím\textsuperscript{33} [chải\textsuperscript{33} bím\textsuperscript{33}]
\end{enumerate}

The secret language in Hanoi, during the French occupation, was reported by Nguyen Van-tu. A cab-driver replaced all the finals in a sentence by the same rhyme /an/ to produce the secret language: \cite{13}

\begin{enumerate}
  \item a. i. Anh\textsuperscript{33} đi\textsuperscript{33} dâu\textsuperscript{33} về\textsuperscript{31} dấy\textsuperscript{35}?
      [anh\textsuperscript{33} đi\textsuperscript{33} dōu\textsuperscript{33} về\textsuperscript{31} đối\textsuperscript{35}] 'Where did you come from?'
      \textit{you go where back}
\end{enumerate}
ii. An\textsuperscript{33} dan\textsuperscript{33} dan\textsuperscript{33} van\textsuperscript{31} dan\textsuperscript{35}
[an\textsuperscript{33} dan\textsuperscript{33} dan\textsuperscript{33} van\textsuperscript{31} dan\textsuperscript{35}]
b. i. Không\textsuperscript{33}, chiều\textsuperscript{31} ngày\textsuperscript{33} tôi\textsuperscript{33} bàn\textsuperscript{11}.
[không\textsuperscript{33}, chiều\textsuperscript{31} ngày\textsuperscript{33} tôi\textsuperscript{33} bàn\textsuperscript{11} ] I'm busy this afternoon.'
No, afternoon this I busy
ii. Khan\textsuperscript{33}, chan\textsuperscript{31} nan\textsuperscript{33} tan\textsuperscript{33} ban\textsuperscript{11}.
[khan\textsuperscript{33}, chan\textsuperscript{31} nan\textsuperscript{33} tan\textsuperscript{33} ban\textsuperscript{11}]

In Chinese, each dictionary entry of a single syllable must be specified which tone it has.\textsuperscript{[14]} The same can be said of Vietnamese. As we can see from the examples above, every syllable has to carry a specific tone, \textsuperscript{33}, \textsuperscript{31}, \textsuperscript{35}, for example. This is to say that every syllable in Vietnamese must carry one of the six tones (in Hanoi dialect. For more detail, see 2.2. Tone).

In view of the above facts we can see that Vietnamese is also a monosyllabic language, and that we can also easily identify the initial, the final, and the tone in each Vietnamese syllable. Therefore, to analyze a Vietnamese syllable into its three components, as has been done for Chinese, is not just an option but the logical choice

However, there remain many problems in Vietnamese phonology. Although most Vietnamese linguists agree that Vietnamese is a monosyllabic language, they cannot come to a consensus on how many elements there are, and what they are, in a syllable. Emeneau claims that there are two possible phonemic solutions for the Vinh dialect spoken in central Vietnam. He further points out that "on Chao's 3 principles, it yields perfectly acceptable third and fourth complete solutions".\textsuperscript{[15]} L. C. Thompson writes, in analyzing the Saigon dialect, "The choice among alternate phonemic solutions is problematic in various ways: the search for a sound basis for the choice leads at times to the consideration of articulatory and acoustic questions for which I
have found few definite answers; the principles of economy and symmetry in phonemic inventory and patterning here seem in frequent conflict with faithful representation of the phonetic reality. Vietnamese thus provides a further example for the principle of multiple analysis enunciated over two decades ago by Y. R. Chao." Ngo Thanh-nhan also holds that "the Vietnamese phonemic system is utterly defective, so that a unique solution seems to be unachievable."[17] Apparently, these scholars all accept Y. R. Chao's "The non-uniqueness of phonemic solution of phonetic systems" (Chao:1934).

This theoretical viewpoint will lead to different conclusions. For example, L. Thompson (1965) advocates that in the Hanoi dialect there are thirty-four phonemic initials (twenty consonants and fourteen "initial clusters") and eleven vowels,[18] while Ngo Thanh-nhan claims that there are 24 consonants, 2 semi-vowels, and 13 vowels (with 3 diphthongs) in this dialect.[19]

In criticizing the "non-uniqueness of phonemic solution", Jakobson and others writes:[20]

"... The analysis of language into distinctive features overcomes the "non-uniqueness of phonemic solution". This pluralism, pointed out by Y.R.Chao, interfered with the analysis as long as the phoneme remained the ultimate operational unit and was not broken down into its constituents. The present approach establishes a criterion of the simplicity of a given solution, for when two solutions differ, one of them is usually less concise than the other by retaining more redundancy."

In the remainder of this thesis, using the distributionalist theory, I will first give an interpretation of the Vietnamese sound system, and then, through comparing the syllablic structure of Chinese and Vietnamese, identify the typological relation between the two languages in question. Consequently, my interpretation of the Vietnamese sound system will provide
another example in support of Jakobson's theory that phonemic solution
should be unique if we follow the strict complementary distribution theory
and consider the distinctive features from the acoustic and from the hearer's
point of view.
Chapter II

The Phonemic System of the Hanoi Dialect*

2.1. Initials

2.1.1 Description

There are nineteen phonemes which serve as the initials in Hanoi dialect. According to their phonetic features, these initials can be classified as in the following chart:

<table>
<thead>
<tr>
<th></th>
<th>Stops</th>
<th>Fricatives</th>
<th>Nasals</th>
<th>Laterals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voiceless</td>
<td>Voiced</td>
<td>Voiceless</td>
<td>Voiced</td>
</tr>
<tr>
<td>Unasp.</td>
<td>p</td>
<td>f</td>
<td>v</td>
<td>m</td>
</tr>
<tr>
<td>Asp.**</td>
<td>b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labials</td>
<td>t</td>
<td>d</td>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Dentals</td>
<td>th</td>
<td>s</td>
<td></td>
<td>z</td>
</tr>
<tr>
<td>Alveolars</td>
<td>ç</td>
<td>z</td>
<td></td>
<td>η</td>
</tr>
<tr>
<td>Velars</td>
<td>k</td>
<td>g</td>
<td></td>
<td>h</td>
</tr>
</tbody>
</table>

* The Vietnamese romanization form, i.e., Quoc Ngu, roughly represent the Vietnamese phonology, and its spelling is in many cases close to the IPA with some exceptions. [1] For the consonant; the [-c] in Quoc Ngu is replaced by [-k]. The [-ch, -nh] in Quoc Ngu are [ç, ñ] in IPA. [2] For the vowels or semi-vowels: "u, u’, è, e, a, ó, ã, ö, ø" stand for "w, m, e, e, o, ã, o, õ" respectively. For the convenience of typing, we will still use the Quoc Ngu spelling forms. Note that the "a" preceded by "i (or u’), u" will read as "o, õ" respectively. Other alterations in spelling will be explained when they first appear.

** We use "h", rather than "’", to represent asperation. When "h" is used separately, it stands for velar fricative. And this is the same as in Quoc Ngu.
2.1.2. Discussion

In comparison with the finals, there are less disagreements among scholars on the initials. Many scholars adopt the initial-final-tone analysis of Vietnamese syllables. For example, Thompson says, "All syllables also have a consonant at the beginning. ... These consonants and clusters are initials." He further concludes that, "each syllable contains an initial, a nucleus and a tone."[1] Nhan states that the syllabic structure of Vietnamese is represented as the following formula:

$$T$$

$$C(W)V(C)$$

where, C = Consonant (and glide), W = glide/w/, V = vocalic nucleus, T = tones.[2]

The above statements show that the two authors are both aware of the initial as a basic segment in Vietnamese syllables.

We disagree with them, however, in some aspects. Firstly, we will not accept Nhan's and Thompson's so-called "/?/ - solution" in the initial of HD. Similar to the argument for the so-called "zero-initial", (i.e., ˇl`ng sh`ngm` 𪴒 声 母) in Chinese, there are also two different opinions on the status of the glottal stop [ʔ] in Vietnamese. Some scholars, such as Henderson (1966) and Liem (1967), argue that when a syllable does not have an orthographic initial consonant, [ʔ] is actually perceived before the "rhyme" (i.e., final), but it is not fit to be considered a phoneme. And this is the so-called "/0/ - solution". However, these scholars did not give any further explanation. Others like Thompson (1965a) and Tue and Minh (1976) claim that all syllables have an initial consonant, and this is the so-called "/ʔ/ - solution". Some scholars, Emeneau (1951) for example, put the '?' within parentheses, meaning both
solutions are optional. Nhan (1984:65) states that "there is no preferred solution between the /0/ and the /ʔ/ proposals, since each has its advantages."

For this study, which adheres to the complementary distribution theory, we have to choose the /0/-solution. Phonetically the [ʔ] is realized only as a prevocalic onset in the zero-initial syllables, such as ao\(^{33}\) [ʔau\(^{33}\)] 'lake' in Vietnamese. In other words, the [ʔ] is predictable, therefore it should not be treated as a phoneme in HD.

Secondly, we do not accept Thompson's "initial clusters" in HD. He states that "Most of these consonants appear in some syllables followed by a semivowel [w], making a cluster."\(^{[3]}\) According to his definition, aside from the twenty initials, including the glottal stop [ʔ] just discussed above, there are fourteen consonant "clusters" in HD: [tw, dw, thw, lw, chw, xw, zw, nhw, kw, khw, gw, ngw, w, hw]. Here the [w] should be, based on his /ʔ/-solution, [ʔw]. This analysis will cause a number of problems. Firstly, in terms of simplicity, his treatment greatly increases the number of the initials. As our study shows below (see 2.2.1.), in addition to [w], there are three more semivowels, [i, uy, ū], functioning as the medials of the finals of HD. The existence of these semivowels is a common phenomenon in the Sino-Tibetan languages. Some scholars hold a similar view of these semivowels as Thompson. For example, Wang Jun (1984: 11) describes the initials followed by [w] of the Gelao language spoken in southern China as "chúnhuà shèngmǔ" (labialized initials).\(^{[4]}\) Sun Hongkai (1983:17) considers the initials followed by [i] of the Qiang language spoken in south-western China as "èhuà shèngmǔ" (palatalized initials).\(^{[5]}\) There are some problems in this treatment. For example, if we adopt this solution, the number of initials of HD will be increased almost four times. More importantly, this solution is inadequate in
reflecting the feeling of the native speakers, which, as we emphasized in chapter I, is the basic principle of the phonemic analysis. For example, if we consider the semivowels [w, i, ..] attached to the initials making labiolized and palatalized initial "clusters", we have to treat the syllables without initials, or with /ʔ/ initial in Thompson's and Nhan's systems, as with /(ʔ)w/, /(ʔ)i/... initials. This means that we have to separate the finals such as [iếu, uai, ...] into an initial + a final:

\[
\begin{align*}
[iếu] & \quad */(ʔ)j + ěu/ \\
[iai] & \quad */(ʔ)w + aï/
\end{align*}
\]

This is apparently against the feeling of the native speakers. Again, the secret languages, or "noi lai" in HD mentioned in Chapter I, can provide convincing evidence to support our argument. In "noi lai", the finals in the following sentence are uniformly replaced by /an/ to produce a secret language (Cf. Tu, 1976:215-216):

\[
\begin{align*}
(i) & \quad \text{Không}^{33}, \text{ chiêu}^{31} \ \text{nay}^{33} \ \text{tôị}^{33} \ \text{bàn}^{11}.
\end{align*}
\]

[không^{33}, chìw^{31} nâj^{33} tôj^{33} bōn^{11}]

\textit{No afternoon this I busy}

(No, I am busy this afternoon.)

\[
\begin{align*}
\text{---}> & \quad (ii) \text{ Khan}^{33}, \text{ chan}^{31} \ \text{nan}^{33} \ \text{tan}^{33} \ \text{ban}^{11}.
\end{align*}
\]

[khan^{33}, chan^{31} nan^{33} tan^{33} ban^{11}]

We can see that in the secret language, every syllable is separated into an initial plus a final while the tones still remain the same. And the "chiêu^{31}" in (i) is separated into 'ch' and 'iếu'. In other words, in the feeling of the native speakers, the 'ch' /ch/, rather than 'chi' /ch/, is the initial. This is to say that to analyze the 'chi' as the "initial cluster" is against the feeling of the native speakers.
2. 2. Tones

2.2.1. Description

There are six tonemes in the Hanoi dialect under the Vietnamese names of bang, huyen, hoi, nga, sac, and nang. By adopting Y. R. Chao’s five-degree scale, the pitch level and the contour pattern of these tonemes can be illustrated as follows:

<table>
<thead>
<tr>
<th>Tonemes*</th>
<th>Băng</th>
<th>Huyễn</th>
<th>Hői</th>
<th>Ngã ***</th>
<th>Sắc</th>
<th>Nâng</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch</td>
<td>33</td>
<td>31</td>
<td>214</td>
<td>2215</td>
<td>35</td>
<td>11</td>
</tr>
<tr>
<td>Contour **</td>
<td>MI</td>
<td>MF</td>
<td>LR</td>
<td>CR</td>
<td>MR</td>
<td>Ll</td>
</tr>
<tr>
<td>Mark</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>ma</td>
<td>mà</td>
<td>mā</td>
<td>mà</td>
<td>mà</td>
<td>mà</td>
</tr>
<tr>
<td></td>
<td>evil</td>
<td>but</td>
<td>grave</td>
<td>horse</td>
<td>cheek</td>
<td>seedling</td>
</tr>
</tbody>
</table>

In line with the principle that the nuclear vowel is obligatory while the other segments are optional for each syllable, we will certainly treat the suprasegmental tone as being attached to the nuclear vowel.

2. 2. 2. Discussion

There is less disagreement over the Vietnamese tonemes. Scholars face, however, the theoretical difficulties of explaining whether the tone is a

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*With the only exception of the first tone "băng" being a technical term used by grammarians, the other five names are in common use to designate the diacritics.

** M = mid, l = level, F = falling, R = rising, C = creky, L = low.

***The Ngã tone is very special one, where the tone pitch suddenly raises to the highest point "5" after a very short glottalized stop. We describe it as $2^{215}$. This tone has merged with the Hoi tone in most Vietnamese dialects, such as the Saigon dialect.
suprasegmental element of the syllable as a whole or attached to the nuclear vowel only. The present study holds that, besides the tone, the nuclear vowel is the only obligatory element of the syllable (for more details, see 2. 3. Finals). Therefore, we will have to consider the tone as being attached to the nuclear vowel. Note that even for the term “nuclear vowel”, scholars have different definitions in mind. We will discuss this problem in greater detail in the following.
2.3. Finals

2.3.1. Description

There are several kinds of finals in HD. Before making a phonemic analysis of these finals, we should first classify them phonetically into three types:

1. Single-element finals containing only one vowel, such as [a, o, e];
2. Two-element finals containing diphthongs, such as [ai, uo, ia], or a vowel followed by a consonant, such as [at, am, an];
3. Three-element finals containing triphthongs, such as [ièu, uai, uôi], or a diphthong followed by a consonant, such as [ièp, uôn, uôk].

Note that phonetically the length of time occupied by these elements is different. Thompson points out that, "In the clusters [ie, uô, uô] the second vowel is frequently more prominent than the first". However, in the clusters [ai, au, oi] it is the first vowel that is more prominent than the second. Similar phenomena happen in the three-element finals where the vowels in the middle are always more prominent than the other two, i.e., the preceding and the following vocalic elements. Because the consonants in the ending slot of the finals of HD, as well as all other Vietnamese dialects, are always unreleased, the length of time occupied by these consonants is then even shorter than that by the preceding vowels. Therefore the prominent vowel represents syllable peak, and we can conclude that it is not only phonemically necessary, but also phonetically correct to differentiate these elements in the same final. For the sake of comparison between Vietnamese and Chinese phonology, we will also use the term 'nuclear vowel,' (Chinese yùnfù 韻腹) to represent the prominent vowels. We also adopt the term 'medial,' (Chinese yùntóu 韻頭) and the term 'ending,' (Chinese yùnweǐ 韻尾)
to represent the elements which precede or follow the nuclear vowel respectively. (Cf. Hsueh:1980)

We should point out here that it is not something new to divide the finals into different elements in the studies of Vietnamese phonology. Some scholars have emphasized the necessity of differentiating these elements in the finals of Vietnamese. However, there remain many problems on the ways of dividing the finals as well as on the substance of each element in the finals. For example, Nhan (1984: 80) states that [w] is the only glide (our "medial") in Vietnamese, while Thompson treat this [w] as part of the preceding consonant "initial clusters". In another example, Tue and Minh (1976: 67-68) claim that the Vietnamese "rhyme" (our "final") consists of a tonal (our "medial" plus "nuclear vowel") and a final (our "ending"). On the other hand, Thompson put the semi-vowels such as [i, ü], but not [u], along with the nuclear vowels such as [o, ò, a, e, è] as the "two-element" and "three-element" nuclei (Thompson: 1965:47-50). On account of such divergent opinions, it is obviously necessary to re-analyze the Vietnamese finals.

2.3.1.1. Medials

In the finals of HD, we find four different medials which are represented by six spelling forms in Quoc Ngu:

i (as in iao, ieu, iêng)
y (as in yêm, yên, yêu)
u (as in uôi, uóc, uông)
o (as in oai, oac, oang)
uy (as in uyêt, uyên, uya)
ù (as in úô, úôi, úông)
But these six spelling forms represent only four kinds of medial in HD, because [y] is pronounced as [i] under a spelling rule that [i] will be replaced by [y] if it is in the onset of a syllable. Also [o] is pronounced as [u] under the spelling rule that [u] will be written as [o] when the following vowel is [a]. As we have mentioned, in the finals [ièu, ièng, uôí, uôc], the first elements [i, u] are transient and always shorter in duration than the following prominent vowels, here [è] and [ô]. The two elements are, therefore, semivowels and stand for palatalization and labialization respectively as in Chinese (Cf. Hsueh 1980:497). The [uy] in Quoc Ngu form is in fact [ui]. We should recognize that in the finals with medial [uy], such as [uyênt, uyên], [uy] phonetically combines the features of both [i] and [u]; in other words, [uy] stands for both palatalization and labiolization. As for [û], the situation is the same as for the [i, u]. It is also a transient semivowel and shorter than its following vowel, and hence it also serves as medial in the finals [ûô, úôí, úông]. Because it is high, back and unrounded, it is neither palatalization nor labiolization.

As we have emphasized above, in the two-element and the three-element finals, there is always a nuclear vowel which is more prominent than the preceding or following vocalic elements. To avoid confusing the nuclear vowels [i, u] with the medial vowels (the semivowels [i, u]), and, more importantly, in order to show that the semivowels [i, u] are by nature different from the nuclear vowels, we will hereafter use /j/ and /w/ to represent the semivowels [i, u] in the finals such as [ièn, uòng] respectively, and use /jw/ to represent [uy] (Cf. Hsueh: 1980). For the same reason, we use /i/ to represent the semivowel [û]. All these semivowels, /j, w, wj, i/, start from a high tongue position and move towards the position of a generally lower
vowel. In other words, all the medials in HD are high, while the finals without medial start from a lower position. These finals without medials can be defined as having a /0/ (zero) medial. Then the features of the four medials /j, w, jw, i/ in HD can be illustrated as follows:

<table>
<thead>
<tr>
<th></th>
<th>Pal</th>
<th>Lab</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>/j/</td>
<td>+</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>/w/</td>
<td>−</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>/jw/</td>
<td>+</td>
<td>+</td>
<td>−</td>
</tr>
<tr>
<td>/i/</td>
<td>−</td>
<td>−</td>
<td>+</td>
</tr>
</tbody>
</table>

Here are some examples for showing the contrast among the medials. Two minimal pairs are given for each contrast. We first list those examples which can show the contrast between the zero /0/ medial and the other four medials.

/0/ <--> /w/ ngai^[11][ŋai^[11]] worry dō^[31] [dō^[31]] thing
ngoai^[11][ŋwai^[11]] outside dua^[31] [dwa^[31]]/ play game
kiēu^[33][kēw^[33]/ pround dia^[11] [dīa^[11]/ land
/0/ <--> /i/ toi^[33] [toi^[33]] broken mon^[35] [mon^[35]]/ capacity
tūoi^[33][tūoi^[33]] fresh mūon^[35] [mūon^[35]]/ hire
/j/ <--> /jw/ tên^[33] [tên^[33]] name lēn^[33] [lēn^[33]]/ rise
tuyēn^[33][tên^[33]] promote luyēn^[33] [luyēn^[33]] contraction
The following examples show how these four medials contrast with each other:

\[/j/ \quad \text{lùa}^{33} \quad [\text{lùa}^{33}] \quad \text{saw} \quad \text{lùa}^{33} \quad [\text{lùa}^{33}] \quad \text{surplus}\]

\[/j/ \quad \text{khiên}^{35} \quad [\text{khiên}^{35}] \quad \text{send} \quad \text{lùen}^{35} \quad [\text{lùen}^{35}] \quad \text{continuously}\]

\[/w/ \quad \text{thuò}^{31} \quad [\text{thuò}^{31}] \quad \text{lockstitch} \quad \text{cua}^{33} \quad [\text{kwo}^{33}] \quad \text{crab}\]

\[/w/ \quad \text{thuò}^{214} \quad [\text{thuò}^{214}] \quad \text{during} \quad \text{cua}^{214} \quad [\text{kwo}^{214}] \quad \text{of}\]

\[/i/ \quad \text{chúi}^{214} \quad [\text{chúi}^{214}] \quad \text{abuse}\]

To treat the [i, u, uy, ü] as medials rather than equal elements in the so-called "two or three elements nuclei"(Thompson:1965) is also supported convincingly by the rhyming practice in Vietnamese. One good example is the rhyming in the long narrative poem (as long as 3254 lines) *The Tale of Kieu* by Nguyen Du (1765-1820) composed in the beginning of the nineteenth century. The poem is considered the most popular literary work in Vietnam. It is written in a form accessible to the mass: *luc-bat*, or "six-eight" verse, the typical style of the Vietnamese folk poetry. The six-eight verse refers to a couplet with six syllables in the first line and eight syllables in the second. The ending syllable of the first line always rhymes with the sixth, rather than
the eighth syllable of the second line. In this way, one can make each line rhyme with the next and at the same time introduce a fresh rhyme in every other line, that is, the ending syllable of the eight-syllable line always rhymes with the ending syllable of the next six-syllable line. By examining the rhyming of the poem, people can see that the [i, u, uy, ü] are always separated from the nuclear vowels in rhyming syllables. In other words, they are not considered the necessary elements in rhyming. For example, in the following two lines (the number in parentheses is of the line in *The Tale of Kieu*):

\[
\begin{align*}
\text{ne}^{214} & \ \text{long}^{31} \ \text{nguoi}^{31} \ \text{cu}^{2215} \ \text{vang}^{33} \ \text{loi}^{31} \ \text{mot}^{11} \ \text{phen}^{33}, \ (3196) \\
[\text{ne}^{214} & \ \text{long}^{31} \ \text{nguoi}^{31} \ \text{ku}^{2215} \ \text{vang}^{33} \ \text{loi}^{31} \ \text{mot}^{11} \ \text{fen}^{33}], \\
\text{Phim}^{35} & \ \text{dan}^{31} \ \text{diu}^{31} \ \text{dat}^{35} \ \text{tay}^{33} \ \text{tiên}^{33}, ... \\
[\text{fim}^{35} & \ \text{dan}^{31} \ \text{ziu}^{31} \ \text{za}^{35} \ \text{tái}^{33} \ \text{tiên}^{33}]
\end{align*}
\]

(but I'll obey your wish just one more time.
Her elfin finger danced and swept the strings, ...)

the ending syllable "phen" in the eight-syllable line rhymes with the ending syllable "tiên" in the six-syllable line. The rhyming syllables "phen" and "tiên" consist of the acute vowels "ê" and "e" as nuclear vowels respectively and the same ending "n" (for more detail discussion about why "ê" and "e" can rhyme with each other, see 2.3.1.3 Nuclear Vowels and 2.3.1.3 Endings).

We can see that the "i" is excluded in the rhyming of these two syllables.

Another example is from the line 398 and 399:

\[
\begin{align*}
\text{dam}^{11} & \ \text{thanh}^{33} \ \text{mot}^{11} \ \text{búc}^{35} \ \text{tranh}^{33} \ \text{tung}^{31} \ \text{treo}^{33} \ \text{trên}^{33}. \\
[\text{dam}^{11} & \ \text{thanh}^{33} \ \text{mot}^{11} \ \text{bük}^{35} \ \text{chanh}^{33} \ \text{tung}^{31} \ \text{cheu}^{33} \ \text{chèn}^{33}] \\
\text{Phong}^{33} & \ \text{snúng}^{33} \ \text{dúom}^{11} \ \text{vé}^{31} \ \text{thiên}^{33} \ \text{nhiên}^{33}, \\
[\text{fong}^{33} & \ \text{sùng}^{33} \ \text{dúom}^{11} \ \text{vé}^{31} \ \text{thiên}^{33} \ \text{nhiên}^{33}]
\end{align*}
\]

(above, there hung a sketch of pale green pines.
Frost-bitten and wind-battered, they looked real:)
Here, once again, the "i" in "nhiền" is excluded when the two syllables "chên" and "nhiền" rhyme with each other. The same phenomena can also be found from the rhyming syllables containing "u, uy, ũ" as medials. We can find ample examples quoted from the same poem to account for the fact that the Vietnamese native always consider the "u, uy, ũ", like the "i" just discussed, the elements separate from the nuclear vowels in their feeling in terms of rhyming. *

2.3.1.2. Endings

We find three classes of endings in HD: the semivowel, the nasal, and the stop.

(1) Semivowels

The semivowel endings are represented by four Quoc Ngu forms:

Palatals  -i (as in uai, ōi, ơi)

-y (as in ay, ăy)

* In order to support this argument, as well as for the convenience of the readers, we quote the examples (1), (2) and (3) as follows, which will show in order that the native speakers always separate the "u", "uy", and "ũ" from the following nuclei in their rhyming practice. Therefore, one can easily reach the conclusion that they should be treated as independent elements. The underlined syllables are rhyming ones.

(1)Vinh  hoa 33  bo 31  luc 11  phong 33-trān 31, (2287)
[vinh 33  hua 33  bo 31  luk 11  fong 33  chăn 31]
chư 22 15  tinh 31  ngay 31  lai 11  them 33  xuàn 33  mót 11  ngay 31.
[chư 22 15  tinh 31  ngái 31  lai 11  them 33  suăn 33  mót 11  ngái 31]

cung 31  nhau 33  lai 11  chuọc 35  chen 35 quynh 31  giao 33-hoan 33, (3190)
[kung 31  nhâu 33  lai 11  chuọc 35  chen 35  kuyinh 31  zao 33  huan 33]
Tinh 31  xua 33  lai 33-lang 35  khôn 33 han 31,
[tinh 31  soro 33  lai 33  lang 35  khôn 33 han 31]
Labials  
-o (as in ao, eo, oeo)
-u (as in au, ēu)

These four Quoc Ngu forms [-i, -y, -u, -o] represent only two endings /i/ and /u/. The [i] will be replaced by [y] if the preceding nuclear vowel is short (see 2.3.1.3. Nuclear Vowels); thus the [ay] is in fact [āi], and the [āy] is in fact [āi]. Also the [u] will be replaced by [o] if the preceding nuclear vowels are not short; thus [au] simply means that the [a] in [au] is a short [a], i.e., [ā]. Therefore the [-i, -y; -u, -o] should be grouped phonemically as [-i, -u]. In order to show that the [-i, -u] are by nature different from the preceding nuclear vowels, we will use /-j, -w/ for [-i (y), -u (o)], for the same reason as in our treatment of the medials.

(2) Cão214 thom33 lăn31 giọ35 trước35 đến31, (7)
[kão214 thom33 lăn31 giọ35 chườc35 đến31]
Phong33-tịnh31 cỏ214-lục11 còn31 truyền31 sù xanh33.
[fông33 tịnh31 kỏ214 luk11 còn31 chuyện31 sù sanh33]
khí33 xem33 hoa214 kỳ33 chở31 tránh33 len33. (3224)
[khỉ33 sem33 húa33 no214 kỳ33 chở31 chăng33 len33]
Ba33 sinh33 đa2215 phi214 mùi31 nguyên31,
[ba33 sinh33 đa2215 fī214 mùi31 nguyên31]

(3) thiếu31-quang33 chin35 chuc11 da2215 ngoại31 sau35 mùi33. (40)
[tiếu31 kuang33 chin35 chuk11 da2215 ngoại31 sau35 mùi33]
Co214 non33 xanh33 tần11 chán33 troi31,
[kọ214 non33 sanh33 tăn11 chăn33 chói31]
thông33-dông33 lai11 hoai214 ngon35 dan31 ngay31 xúc33. (3192)
[thông33 dòng33 lai11 hoai214 ngon35 dan31 ngày31 suerdo33]
Nang31 rạng31. "Vi31 may35 duong31 to33,
[nang31 zăng31 "vi31 mái35 dương31 to33]
(2) Nasals

There are four nasal endings in HD:

Labial       -m (as in am, iêm, uôm)
Dental       -n (as in an, iën, uôn)
Velar         -ng (as in ang, iêng, ông)
Palatal-dental -nh (as in anh, inh)

Like the nasals in the initials, nasal endings are formed by oral closure without explosion, but unlike the stops, the decay of the nasal codas is gradual rather than abrupt.

(3) Stops

There are also four stop endings in HD:

Labial       -p (as in ap, iêp, op)
Dental       -t (as in at, iêt, uôt)
Velar         -c (as in ac, ièc, oc)
Palatal-dental -ch (as in ach, êch)

Unlike the stops in the initial position, the stop endings [-p, -t, -c, -ch] are unreleased. The syllables with stop endings are generally shorter in duration than those with correspondent nasal endings [-m, -n, -ng, -nh], and they can only occur with the sac and nang tones (see 2.2 Tone).

The finals without ending will be treated the same way as the finals without medial. In other words, we list these finals as being with zero ending. Thus in HD there are ten phonemes as endings /-j, -w, -m, -n, -ng, -nh, -p, -t, -c, -ch/. 
2.3.1.3. Nuclear Vowels

There are altogether 148 finals in HD.* One way of classifying these finals is to divide them into four groups based on the height of the tongue when they are articulated. Because we have identified the four medials and the eight endings in HD, it will be more convenient to list these finals under several sub-groups according to the height of the tongue as well as according to the medials and endings.

1/ i, im, in, inh, ip, it, iu,
   u, ui, um, un, ung, up, ut, uk,
   uy, uyu, uyn, uynh, uyt, uych
   û, ûc, ûi, ûn, ûng, ût, ûu
2/ è, êu, êm, ên, êng, ênh, ép, êt,
   ièc, ièm, ièn, ièng, ièp, ièt, ièu,
   uyèt
   ò, òi, òm, òn, òng, òp, òt, òc,
   uòc, uòi, uòm, uòn, uòng, uòt, uòk
   œ, œi, œm, œn, œp, œt,
   iœ,
   uœ,
   uyœ,

*The reasons to reduce the number of the finals in HD from 163, as listed in Henderson (1963), are as follows. [1] Some finals, such as "œ, ong", exist only in the Saigon, but not in HD. [2] Some newly appeared vowels in the finals caused by the borrowing from French and English are not included. These vowels should not be considered as phonemes. For example, "oo", is in fact the allophones of the phoneme /o/ of Vietnamese (The low-back vowel "o" does not show the long vs. short contrast in HD, for example, the [oong, ooc] are the monophones of [ong, oc] respectively).
ué, uêch, uênh,
uo, ūoi, ūou, ūom, ūon, ūong, ūop, ūot, ūoc,
uyô ,
ôu, ôy, ôm, ôn, ôp, ôt, ôc, ông;
ûôn, uông, uôt, uôi,
3/ e, eo, em, en, eng, ep, et, ek;
ue, uen, uet, uew,
o, oi, om, on, ong, op, ot, ok
4/ a, ai, am, an, ang, anh, ao, ap, at, ak, ach,
ua, uak,uach, uai, uam, uan, uang, uanh, uap, uat,
ân, âm, ṣang, ṣap, ṣat, ṣac, ay, au;
uâk, uâm, uân, uâng,uât, uay

In order to identify the nuclear vowels in each group, it is necessary to recall the theory and the approach we adopt in this study. Hsueh (1980:495), in analyzing the Pekingese, writes, "The generally accepted definition for rhyming is that syllables can rhyme when and only when they share the same vowel and the same ending". In the beginning of this chapter, we have stated that the syllable structure of HD also consists of medials, nuclear vowels, and endings. Therefore, the rhyming syllables in HD are, theoretically, always the syllables carrying the same V and the same E (if any). In other words, if the syllables are in rhyme, they should share the same nuclear vowel. In analyzing the rhyming in Vietnamese, Tue and Minh write: (1976: 85)

"They (native speakers) rhyme the words ending in ... ing and the words ending in ... ung, such rhymes being regarded as quite satisfactory in classical and modern poetry."
They also point out that in Vietnamese the vowels [i, u, uy, ū] rhyme with each other. (1986:86) Based on these rhyming practice in HD, the vowels [i, u, ū, uy] in HD should theoretically share the same nuclear vowel. The vowel shared by [i, u, ū, uy] should be a high one, say, /1/. To explain the feeling of the native speakers in their rhyming, we have to treat single vowels in HD, such as i, u, ū', y (i.e., “uy” in Quoc NGu) as phonemic compounds, even though doing so may seem to be odd to the phoneticians (Cf. Hsueh, 1980:500). Thus, the [i, u, ū, uy] represent the phonemic compounds /ji, wi, īi, jwi/.

Looking back at the finals in group 1/, we can easily see that all the finals in this group share the same nuclear vowel /1/. And the distinctions among these finals depend on the different medials and endings. Consequently, all the finals in this group can be re-written phonemically as:

1/  ji, jím, jǐn, jính, jǐp, jǐt, jǐw,
    wi, wij, wǐm, wǐn, wǐng, wǐp, wǐt, wǐk,
    jwǐ, jwǐw, jwǐn, jwǐnh, jwǐt, jwǐch
    īǐ, īǐk, īǐj, īǐn, īǐng, īǐt, īǐw

Now we return to group 2/. There are four different nuclear vowels which are pronounced with the same height of tongue. These four vowels are distinguished by a bundle of features as shown below:

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Round</th>
<th>Short</th>
</tr>
</thead>
<tbody>
<tr>
<td>ē</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ō</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>ŏ</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ē̃</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>
The first three vowels cannot be allophones of the same phoneme as can be seen from the following examples:

[tē³³] tingle
[tō³³] rent
[to³³] silk

These three vowels are also distinguished in finals with endings:

[dēn³⁵] add
[dôn³⁵] block
[don³⁵] fragmentary

As to [ō], it does not occur in syllables without ending. However, it is distinguished from [ə, ō] in the syllables with endings. We find the following examples:

[tōi³³] I
[toi³³] worn out
[tōi³³] west

We also have a minimum pair to distinguish [ə] from [ē] in the finals with ending:

[kōu³³] sentence
[kēu³³] cry

Therefore, we must keep the four nuclear vowel phonemes /ē, ō, ə, ō/ for the finals in group 2/. Thus these finals in group 2/ should be phonemically rewritten as follows:

2 / ē, ēw, ēm, ēn, ēng, ēnh, ēp, ēt,
   jēk, jēm, jēn, jēng, jēp, jēt, jēw,
   wē, wēch, wēnh,
   jwēt
ò, ój, òm, ón, óng óng, óp, ót, ók,
wò, wój, wòm, wòn,wòng, wòt, wòk
σ, σj, σm, σn, σp, σt,
jσ,
wσ,
jwσ,
iσ, iój, iòi, iòm, iòn, iòng, iòp,iòt, iòk,
öw, öy, öm, ön, öp, öt, ök, öng,
wòj, wòn, wông, wòt /

The situation in groups 3/ and /4 is similar to that in group 2/. The front-mid vowel [e] and the back-mid vowel [o] in group 3/ are distinguished by the following minimum pair where the finals are without endings:

[te³³] small net
[to³³] big

They are also phonemically distinguished in the finals with endings:

[em³³] young brother or sister
[om³³] hold in the arm

Therefore, we have to establish two vowel phonemes /e, o/ for the finals in group 3/, and these finals can then phonemically be rewritten as follows:

3/ e, ew, em, en, eng, ep, et, ek;
   we, wen, wet, wew,
   o, oj, om, on, ong, op, ot, ok /

Because the short vowel [å], like the short vowel [ö] just mentioned, does not occur in the open finals, the [å] and [a] can only be distinguished in the finals with endings:

[tåi³³] hand
[tai\textsuperscript{33}] ear

By establishing the two phonemes /ä, a/, we can phonemically rewrite the finals in group 4/ as follows:

4/  a, aj, am, an, ang, anh, aw, ap, at, ak, ach,
    wa, wak, wach, waj, wam, wan, wang, wanh, wap, wat,
    án, ām, āng, āp, āt, āc, āj, āw;
    wāk, wām, wān, wāng, wāt, uāi /

The discussion of the nuclear vowels of HD so far makes us believe that there are nine nuclear vowel phonemes including the two short ones in HD. These vowels are listed in the following table:

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<tr>
<th>Front</th>
<th>Central</th>
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<td>Low</td>
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(The central mid and low vowels /o, a/ show contrast of long versus short.)

To summarize the analysis of the finals of HD, we give the following tables showing the possibilities of the combinations of the three elements - medial, nucleus, and ending - of HD.
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The Finals with /j, w/ Endings

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# The Finals with /m, n ng, nh/ Endings

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2.3.2. Discussion

In comparison with the initials and the tones discussed earlier, there are far more disagreements among scholars on the finals of the Vietnamese syllables. The focus is on how the final should be divided into sub-elements. Looking at all the previous works on the Vietnamese phonology, we find that some scholars ignore this important problem. For example, Henderson (1966), after listing the 163 finals of the Hanoi dialect, raises sixteen problems which, in her opinion, are to be considered the main concerns of the phonemic description of Vietnamese. None of them, however, aims at the issue we just introduced. We also find that, though some other authors try to make a segmental analysis on the finals, for some unclear reasons, their works have not uncovered the structural characteristics of the finals of the Vietnamese syllables.

Many scholars have been aware of the importance of distinguishing the final from the initial and the tone in their phonological studies of Vietnamese. The terms employed in these studies, as well as the segment of the finals, however, are quite different. For example, in analyzing the syllable structure of Vietnamese, Thompson uses the term "nucleus" for what Hsueh calls "rhyme base" (Hsueh:1980). Thompson claims (1965:44-45) that "every (Vietnamese) syllable has at least a vowel and a tone. ... In some syllables the vowel is followed by a semivowel, a consonant, a semivowel and a consonant, or a second vowel and a consonant." Then he gives a definition to his "nucleus" as "The vowel and whatever follows it is the nucleus of the syllable." The problem of his analysis is not the term employed, but that he makes no distinction between the individual elements constituting his 'nucleus'. In other words, he confuses nuclear vowel (i.e., his "at least a vowel") with other
vowels (i.e., his "second vowel", "semivowel") or "consonant" in a syllable. In his phonemic analysis, on the one hand, he recognizes the semivowels in HD and further points out that "In the cluster [ie, uo, ūō] the second vowel is frequently more prominent than the first" (1965: 49). He also considers that there exist some semivowels in HD, such as [w], [j] (when they are in the end of the 'nucleus'). On the other hand, however, he treats all these elements -- vowels and semivowels -- as being equal in the finals. He also divides all the finals of HD into three types as we do. He does not, however, further explain the relationship among these elements. In his opinion, all the elements "è, u, m, i, n, ò, t, k" in the finals [èu, èm, ièn, uòng, uòt, uòk] are structurally equal. Consequently, according to his analysis, there is no way for us to tell whether or not the syllables in question can rhyme with each other, because we cannot identify the nuclear vowels V, or the ending (E) in his system.

Some scholars have recognized the importance of making distinctions among the different elements in the finals. For example, Nhan (1984) considers the Vietnamese syllables as consisting of C(W)V(C), where the nuclear vowel V and the initial C (including the glottal stop "ʔ") are obligatory, while the glide (W) (called "pre-tonal segment" in his system) and the outset C (our ending) are optional. In his opinion, however, there is only one glide (W) which serves as medial in the finals of HD. Therefore, his analysis has a similar problem as that of Thompson, because he does not distinguish the nuclear vowels, such as [ê], from the medials, such as [i, u], in the finals [ièc, uè]. Tue and Minh (1960) hold a similar opinion. They claim that there are 12 vowel phonemes in Vietnamese as follow: (1960: 79)
<table>
<thead>
<tr>
<th></th>
<th>acute</th>
<th>neutral</th>
<th>grave</th>
</tr>
</thead>
<tbody>
<tr>
<td>thin</td>
<td>i (i, y)</td>
<td>u (u)</td>
<td></td>
</tr>
<tr>
<td>diphthongs</td>
<td>iΛ (iē, ia)</td>
<td>ιΛ (uò, u’a)</td>
<td>uΛ (uò, ua)</td>
</tr>
<tr>
<td>mean</td>
<td>e (ē)</td>
<td>ò (ò, â)</td>
<td>o (ò)</td>
</tr>
<tr>
<td>full</td>
<td>Σ (e, a)</td>
<td>a (a, ā)</td>
<td></td>
</tr>
</tbody>
</table>

One outstanding divergent point between their systems and the present study is whether the first element of the diphthong, such as “uò, ua” should be treated differently from the following element. Similar to Thompson and Nhan, Tue and Minh treat “iΛ (iē, ia), ιΛ (uò, ua), uΛ (uò, ua)” and “i (i, y), u (u)” as different phonemes. Because all these scholars follow a similar approach, consequently, their analyses fail to show the phonemical characteristics of the medial [uy] as being a combination of the features of both [i] and [u], as well as the medial [u] (/u/ in this study and /u/ in Tue and Minh’s description) being by nature different from the nuclear vowel [u].
Chapter III

Conclusion and Problems

3.1. Conclusion  As we mentioned in Chapter I, many scholars have pointed out that, like Chinese, Vietnamese is a monosyllabic language, and each syllable in Vietnamese is also analyzed as consisting of three components, namely, the tone, the initial, and the final. However, scholars still argue on the problem of whether we can, and how we should, segmentally analyze the Vietnamese finals. By adopting the strict complementary distribution theory as well as the approach in the study of Chinese phonology, with the emphasis on reflecting the feeling of the native speakers, this study has reached the following conclusion.

1, Some earlier studies have reached an agreement that Vietnamese syllable consists of three parts: a tone, an initial, and a final. The present study further divide the final into three segments, namely, the medial, the nuclear vowel, and the ending. Thus, beside the tone being treated as a suprasegmental element attached to the nuclear vowel, there are only four, and no more than four, segments in Vietnamese syllables. Based on this analysis, the syllabic structure of Vietnamese can be represented by the following formula:

#(C)(M)V(E)#

The C, M, V and E stand for the initial Consonant, the Medial, the nuclear Vowel, and the Ending of the final respectively. We can see here that this
formula is exactly the same as that for Chinese syllables. (Cf. Hsueh:1980, 1986)

2. The possible forms in this formula, however, are different from those for Chinese dialects. More specifically, as the result of our study has shown, there are 19 initials, 4 medials, 7 nuclear vowels and 10 endings in Vietnamese (HD), while the 6 tones are considered to be attached to the nuclear vowels. The tone difference can also be found among Chinese dialects. In Pekingese, for example, there are only five tones (Hsueh:1986), while the Cantonese and Shanghai dialect possess 9 and 7 tones respectively (Yuan:1960). Similar phenomena can be said to exist for the initials and the finals, too. However, these difference will not affect the conclusion that Vietnamese is the same as Chinese in terms of syllabic structure.

3. In this study, we pay more attention to the analysis of the finals in Vietnamese, especially to the problem whether or not we can, and how we should, analyze the finals into different segments. This is also the main disagreement between this study and the previous studies on Vietnamese phonology. Because the previous studies do not mention, or have not properly dealt with this problem, these authors cannot further uncover the structural similarity of the two languages, Chinese and Vietnamese.

This study has shown that there are four medials in Vietnamese syllables. This classification is the result of the phonemic analysis. As well-known, the traditional Chinese phonology divide all syllables in Chinese into four types, namely, kāikōu(開口), qíchī(齊齒), hēkōu(合口), and cuòkōu(撮口). Hsueh writes, “The classification (of the four types of finals) is based purely and solely on the syllable medial and nothing more.” (Hsueh, 1980:497) He further reveals the features of these four medials as [-0-, -y-, -w-, -jw-]
respectively, where "y" stands for palatalization, while "w" stands for labialization (1980, 1986). We have reached a similar conclusion on the medials of Vietnamese (see 2.3.1.1). We will not hold the position that the Vietnamese medials [o, j, w, jw] are equal, or correspondent, to the Chinese 開, 齊, 合, 撮, though some scholars have studied the relationship between Ancient Chinese and the Sino-Vietnamese and claimed that their medials are correspondent in terms of 開, 齊, 合, 撮. (Wang Li: 1948; Hashimoto: 1978) We believe that phonemically recognizing the five medials and separating the medials from the nuclear vowels in Vietnamese, as we have done in this study, will make it possible to establish the phonemic correspondence between Chinese and Vietnamese, provided that the analyses of both Chinese and Vietnamese are all in the phonemic, rather than phonetic, level.

3.2. Problems

The genetic affiliation of Vietnamese has long been debated. In fact, the same can be said of the approximately fifteen different languages spoken in southern China, i.e., the Miao-Yao languages and the Zhuang-Dong languages. Many scholars claim that these languages belong to the Sino-Tibetan language family (Luo Changpei and Fu Maoji: 1951), while some other scholars argue that these languages are different from Chinese. Haudricourt (1954) goes even further and points out that there is a so-called Austro-Thai language family including the Miao-Yao languages and the Zhuang-Dong languages. Clearly, these scholars are far away from reaching an agreement on the genetic affiliation of the Miao-Yao languages and the Zhuang-dong languages, as well as of the Vietnamese (Cf. Chapter I). Following the principles in the recent phonemic study on Chinese
(Hsueh: 1980, 1986), this study has provided a phonemic analysis on the Vietnamese sound system. More research, however, is needed. For example, it will be very useful if we can do some phonetic analysis on the quality of the medials and the nuclear vowels of Vietnamese (HD). Also, a detailed investigation on the Vietnamese rhyming will give more support to, or revise our conclusion. Rhyming practice in Vietnamese as we know so far shows that, the rhyming syllables in Vietnamese are those sharing the same fullness of vowel quality, not necessarily exactly the same vowel. To decide whether the vowels with same fullness belong to the same phoneme, one has to refer to the complementary distribution of the vowels in question, as this study has done. Thus, the rhyming in Vietnamese raises a problem: whether the definition of rhyming can be vary in different languages.¹

We are glad to see that many scholars have collected the valuable materials of the Miao-Yao and the Zhuang-Dong languages, and some scholars have done very significant research on these languages. It seems to me, however, that it is necessary to do further phonemic analysis of these languages, as well as to investigate their rhyming practice, paying specific attention to the typological relationship between these languages and Chinese, because, like Vietnamese through this study, these languages probably are also typologically related to Chinese (More detail discussion on this topic is beyond this study). And such analysis will benefit both the typological and genetic classification of the languages in question.
NOTES TO CHAPTER I


2 For the correspondence with the alphabet writing system, i.e., the Quoc Ngu, which, as mentioned above, roughly represents the Hanoi dialect, we list the Quoc Ngu forms as below. For example, the nineteen consonant initials in Hanoi dialect are represented by twenty-three Quoc Ngu forms as shown in the following table:

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[ch]</td>
<td>ch</td>
<td>[s]</td>
<td>s</td>
<td>[z]</td>
<td>d, gi</td>
<td>[h]</td>
<td>nh</td>
<td>[g]</td>
<td>g, gh</td>
</tr>
<tr>
<td>[k]</td>
<td>c, q, k</td>
<td>[kh]</td>
<td>kh</td>
<td></td>
<td></td>
<td>[h]</td>
<td>h</td>
<td>[η]</td>
<td>ng, ngh</td>
</tr>
</tbody>
</table>

As for the vowel system, see Chapter II.

3 Maspero(1912, 1929, 1952) and Wang Li (1948) regard Vietnamese as being related to the Thai languages. Many other scholars seem to have reached an agreement that Vietnamese belongs to the Austro-Asiatic language family. For example, Logan(1852), Przyluski (1924), Benedict (1942), Houdricourt (1953, 1954), and Thomas and Headley (1970) are all in favour of this argument. This argument did not seem convincing until 1954, when Houdricourt (1954) brought up the genetic relationship between the Vietnamese tones and the Mon-khmer word shapes. Houdricourt's hypothesis makes it possible to connect a tone language, here Vietnamese, with the nontonal languages, here the Mon-Khmer languages. To support Houdricourt's hypothesis, some scholars (Huffman, 1977) try to find out as many the correspondent words among Vietnamese and some Mon-Khmer languages as possible. However, quite a lot of the correspondent words which seem to support Houdricourt's hypothesis are also related to Ancient Chinese. Whether they are borrowings of Chinese in Vietnamese, i.e., Sino-Vietnamese, or cognates of Chinese is beyond this paper. This is not to say, however, that this study has nothing to do with the issue of genetic affiliation of Vietnamese. Contrastingly, if our analysis reaches an right solution which can explain the systematical evolution of the Chinese borrowings in Vietnamese, it will benefit the study of the historical relationship between Vietnamese and Chinese. This will consequently offer some necessary evidences of the genetic affiliation of Vietnamese itself. Some further research is necessary.

46


Hyman, 1975: 31

Hsueh, F. S., 1980: 493


Hsueh, 1980: 495. Ngo, Thanh-nhan (1984: 95) also uses a similar formula to represent Vietnamese syllabic structure. For detailed discussion, see Chapter II

Ngo, Thanh-nhan, 1984: 95.

Cf: Tu, 1976: 215-216

Cf: James D. McCowley, 1978: 119

Emeneau, 1951: 9-22

L. C. Thompson, 1959: 455

Ngo, 1984: 111

L. C. Thompson, 1965: 18-23

Ngo, 1984: 96

Jakobson, 1965: 7

NOTES TO CHAPTER II

1 Thompson, 1965: 45

2 Ngo, 1984: 80
Thompson, 1965: 45. We should point out that he is contradictory himself here, because he does not put the glottal stop (?) before the [w], the element of his "consonant cluster". See Thompson, 1965: 46.

Wang, Jun, 1984: 11

Sun, Hongkai, 1983: 14

Thompson, 1965: 49

For example, Nhan (1984: 80) uses the formula C(W)V(C) to present the Vietnamese syllable (see 2). Tue and Minh also hold a similar opinion about the the syllabic structure of Vietnamese. They illustrate the Vietnamese syllables as consisting of a tone, an initial and a rhyme, which is constituted by vocalic resonance, the way it ends and the mode of contact. For more details, see Tue and Minh (1986: 67-81).


NOTES TO CHAPTER III

Hoang Tue and Hoang Minh define the "Rhyme" in Vietnamese as: (1960: 86-87)

"Two words (syllables) rhyme with each other if, and only if:
1) their tones are identical or belong to the same melodic category (bang or trac);
2) their finals are identical or, being consonants, they have the same mode of articulation (nasal or non-nasal).
3) their tonals are identical or have the same tonality (acute, neutral or grave), or have the same vocal fullness and are combined to the same final with the same mode of contact."

It should be noted that same terms employed in their statement are quite different from ours. Their "finals, tonals" are in fact our endings and nuclear vowel plus medials, if any, respectively. It is important that their definition confirms that the vowels [i (i, y), u (u, o), ŭ (û)] "have the same vocal fullness" (Tue and Minh 1976: 81) --- in their classification all these three vowels are "thin" in terms of fullness ---, and therefore they can rhyme with each other. One can find some examples to meet their rhyming requirements. For example, in The Tale of Kieu, [i] and [ê] can rhyme with one another:

nhưng 2215 minh 31 nao 31 biệt 5 co 35 xuân 33 la 31 gi 31. (1240)
Doi 11 phen 33 gio 35 tua214 hoa 33 kẹ 33, ...

And [é] and [ê] can also rhyme with each other:

mau tham hè thay hoi dong thi mê. (1306)
Duoi trang quyen da goi he,
However, by taking a glance on the whole rhyming finals, one can easily find that most rhyming finals share the same nuclear vowels and endings, if any. To explain these two contradioional phenomenon, a further investigation on Vietnamese rhyming is needed. It is, however, beyond this study.
BIBLIOGRAPHY


_______ 1968. *A grammar of Spoken Chinese*.


