

# A Reconstruction of Ancient Vietnamese Initials Using Chu Nom Materials

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# A Reconstruction of Ancient Vietnamese Initials Using Chữ Nôm Materials

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## Abstract

In previous research concerning the Ancient Vietnamese phonology using Chữ Nôm materials, only a few features, such as initial consonant clusters, have been considered. This study aims to reconstruct the phonological system of Ancient Vietnamese initials, using the Sino-Vietnamese version of the Buddhist sutra *Phật Thuyết Đại Báo Phụ Mẫu Ân Trọng Kinh* 佛說大報父母恩重經, as well as the Proto Viet-Muong phonemes established by Ferlus (2009). The Chữ Nôm characters examined in this study allow us to consider topics such as spirantization and the voicing of medial consonants—possible thanks to the existence of a number of disyllabic words contained therein. Linguistic analysis of such texts does and will play an important role in filling the missing link between Proto Viet-Muong and Middle Vietnamese (17C).\*

**Key words:** Ancient Vietnamese, Chữ Nôm characters, Sino-Vietnamese readings

## 1. Preface

One of the difficulties of using Chữ Nôm (CN) characters in historical phonology comes from the fact that they were created based on the Sino-Vietnamese (SV) reading of each Chinese character: i.e., the Vietnamized reading of Chinese characters (Nguyễn Tài Cẩn 1995). It is also known that Sino-Vietnamese readings were derived from the phonological system of Middle Chinese (MC) (Mineya 1972). This is quite different from the case of some *Manyogana*—the “*α* group” by Mori (1991)—which were based directly on the reading of MC itself. Therefore, in some cases such as (1a), SV readings reflect the original sound of MC, while in others, such as (1b), they do not because of sound change and lack of identical phonemes in MC.

(1)	a.	MC		SV		AV <sup>†</sup>	
		見	*k	>	k	—————>	k (c/k/q)
		溪	*k <sup>h</sup>	>	k <sup>h</sup>	—————>	k <sup>h</sup> (k <sup>h</sup> )
		曉	*h	>	h	—————>	h (h) etc.
	b.	幫	*p	>	ɓ	—————>	ɓ (b)
						—————>	β (β <sup>1</sup> )
		微	*ɱ	>	v	—————>	v (v)
						—————>	(w (v)) etc.

<sup>†</sup> Ancient Vietnamese (AV) denotes the stage of language between the formation of the SV readings and the time of compiling *Hua yi yi yu* 華夷譯語 in the history of Vietnamese.

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<sup>1</sup> The form written in *Dictionarium Annamiticum, Lusitanum, et Latinum* of Alexandre de Rhodes (1651), which corresponds to *v* in the modern orthography.

Those who are willing to use Chữ Nôm characters in historical phonology need to pay special attention to the latter case. Considering this point, in this study, I would like to propose an appropriate method of using Chữ Nôm materials in the historical phonology of Vietnamese.

## 2. Materials

The Chữ Nôm data used in this study are gathered from the Sino-Vietnamese version of the Buddhist sutra *Phật Thuyết Đại Báo Phụ Mẫu Ân Trọng Kinh* 佛說大報父母恩重經, which was introduced by a number of philologists inside and outside of Vietnam. There are two different opinions on the period of this material: one regards it as from the 15<sup>th</sup> century (Hoàng Thị Ngọc 1999, Shimizu 1996), and the other regards it as from the 12<sup>th</sup> century (Nguyễn Tài Căn 2008, Trần Trọng Dương 2011).

I prefer the former opinion for two reasons: (1) two taboo characters are used to avoid the names of the kings in the Lê dynasty (15<sup>th</sup> century); and (2) the pictures inserted in the Vietnamese version of the sutra are exactly the same as those in the Korean version edited in 1486 and not earlier.

Advocates of the latter opinion argue the quite old characteristics of Chữ Nôm contained in this material. However, we need to be reminded that the syllable structure of Vietnamese remained CCVC/T until as late as the 17<sup>th</sup> century (Gregerson 1969). Therefore, it is quite possible that the disyllabic structure extracted from a number of Chữ Nôm characters still existed in the 15<sup>th</sup> century.

## 3. Methods

### 3.1 Principle

First, I will explain the essential method of reconstructing the value of each phoneme at the stage of creating each Chữ Nôm. The data used here are (1) the phonemes of Proto Viet-Muong (PVM) (Ferlus 2009), Middle Vietnamese (Gregerson 1969), and modern Vietnamese, and (2) the phonemes of MC, 17<sup>th</sup> century Sino-Vietnamese (Shimizu 1999), and modern Sino-Vietnamese. The reading of a certain Chữ Nôm in the material should be placed between PVM and the 17<sup>th</sup> century, and the Sino-Vietnamese reading of its phonetic component is placed between MC and the 17<sup>th</sup> century, in order to properly estimate their value at the period of creating the Chữ Nôm character. For example, there are two Chữ Nôm characters that both express the word *rắn* ‘snake’ pronounced /zan<sup>5</sup>/ in the modern Northern dialect (NV) but each having a different phonetic component with different Sino-Vietnamese readings: one is 𣪠 *tán* /ta:n<sup>5</sup>/, and the other is 𣪡 *lận* /lɛn<sup>6</sup>/ . One of the purposes here is to reconstruct the phonemic value of each character and place it in the course of phonological change. The process of phonological change of the initial consonants is \*s > ʈ > z > z for both Chữ Nôm characters, \*s > t for the SV of 𣪠, and \*l for 𣪡. This process can be illustrated as shown in (2) and (3):

(2) 𣪠 *rắn* /zan<sup>5</sup>/ (SV: *tán* /ta:n<sup>5</sup>/)

			AV		17C		20C		NV	
SV	*s-	(MC)	>	<span style="border: 1px dashed black; padding: 2px;">*s-</span>	>	t-	>	t-	>	t-
CN	*s-	(PVM)	>	<span style="border: 1px dashed black; padding: 2px;">*s-</span>	>	ʈ-	>	z-	>	z-

The phonemes in □ are those estimated for the period of creating the character.

(3) 蝮 *răn* /zan<sup>5</sup>/ (齊 SV: *lận* /lan<sup>6</sup>/)

			AV		17C		20C		NV	
SV	*l-	(MC)	>	*l-	>	l-	>	l-	>	l-
CN	*s-	(PVM)	>	*s-	>	ɾ-	>	z-	>	z-

We then search for the stage where the Chữ Nôm reading and the SV reading of its phonetic component are the closest. In the case of 蝮, it is the stage of Ancient Vietnamese (AV), while in 蝮, it is 17C. In this way, if we follow the same process for all the phonemes, the phonological system of AV can be reconstructed theoretically.

### 3.2 Application for the case of spirantization

Shimizu (1996) points out that a number of Chữ Nôm data, regarded as the traces of disyllabic words, can be found in the present material. Some examples of these will be presented here to apply the method above for the process of spirantization (Ferlus 1982, 2009), a phonological process involving consonants in the medial position and an important process that occurred between PVM and AV, which can be summarized as follows in (4):

(4)	PVM		Orthography		NV
a.	*p *b	>	<i>v</i>		v
b.	*t *d	>	<i>d</i>		z
c.	*s	>	<i>r</i>		z
d.	*c *j	>	<i>gi</i>		z
e.	*tʃ	>	<i>gi</i>		z
f.	*k *g	>	<i>g/gh</i>		ɣ / (C)ə_V(C)/T

The same initial consonants occurring in the monosyllabic words went through the process in (5):

(5)	PVM		Orthography		NV	
a.	*p *b	>	*p	>	<i>b</i>	b
b.	*t *d	>	*t	>	<i>đ</i>	ɗ
c.	*s	>	*s	>	<i>t</i>	t
d.	*c *j	>	*c	>	<i>ch</i>	c
e.	*tʃ	>	*tʃ	>	<i>x</i>	s
f.	*k *g	>	*k	>	<i>c/k/q</i>	k / #_V(C)/T

The cases in (6a)–(11a) demonstrate the processes of (4c) and (4a). The first example, (6a), is a case of (4c).

(6)	a.	Ch:	銅	狗	鐵	蛇
		CN:	主	同	破散	可列
			<i>chó</i>	<i>đồng</i>	<i>răn</i>	<i>sắt</i>
			dog	copper	snake	iron
			'copper dog and iron snake' (29a5) <sup>2</sup>			

<sup>2</sup> “29a5” means “page 29, first half, line 5” of the Sino-Vietnamese version of the Buddhist sutra *Phật Thuyết Đại Báo Phụ Mẫu Ân Trọng Kinh* 佛說大報父母恩重經.

The first line is the original Chinese sentence, while the second one is the Vietnamese translation with Chữ Nôm characters. The words in italics on the third line are the transcription in the present orthography called *Quốc Ngữ*, followed by the glosses for each word on the fourth line and the translation of the whole expression on the fifth line. The objective here is the word for ‘snake,’ as we saw in the case of (2), but with the Chữ Nôm transcribing the presyllable: 破.

(6) b.	PVM <sup>3</sup>	AV	17C	20C	NV	cf. Rục <sup>4</sup>	
	<i>rán</i>	*p-səŋ?	*p <sup>h</sup> a-san <sup>5</sup>	ʃan <sup>5</sup>	zan <sup>5</sup>	zan <sup>5</sup>	pusiŋ <sup>3</sup>
	破散		*p <sup>h</sup> a:sa:n <sup>5</sup>	(ta:n <sup>5</sup> )	(ta:n <sup>5</sup> )	(ta:n <sup>5</sup> )	

Referring to the PVM form and that of Rục, for instance, it is quite certain that the present initial *r* comes from \*s and that the SV initial of 散 also comes from the MC \*s (心母). Therefore, the most rational measure is to reconstruct both of these initials as \*s at the stage of AV. Furthermore, the SV initial of 破, which comes from the MC \*p<sup>h</sup> (滂母), also reinforces the reconstruction of the PVM presyllable \*p-. The process of change occurring in the initial \*s of the main syllable can be summarized as shown in (7):

(7)	PVM	AV	>	17C	>	20C	>	NV
	*-s-	-s-		ʃ-		z-		z- ( <i>r</i> )

The examples in (8) to (11) are all concerned with the process of (4a). The first case, (8a), contains one character 盪司 with two components, both expressing the sounds 司 for the presyllable and 盪 for the major syllable.

(8) a.	Ch:	歡	愛	長	乖	
	CN:	弄	盪司	酉	波亘	利
		<i>lóng</i>	<i>vui</i>	<i>dáu</i>	<i>hàng</i>	<i>liá</i>
		heart	pleasant	love	long	apart
		‘The heart of pleasant love is far away for a long time.’ (20a3)				

Again, referring to the PVM and Rục forms, it is certain that the initial consonant of *vui* had gone through the process of spirantization. According to Ferlus (1982), the process of spirantization of the PVM labials \*p and \*b can be traced as shown in (4a)’:

(4)’ a.	PVM	>	*-p-	>	*-β-	>	*-β-	>	17C	>	β-	>	20C	>	v- ( <i>v</i> )
			*-b-	>	*-β-										

Looking through the phonetic components of Chữ Nôm characters that express *v* in the modern orthography, the voiced stop ʙ, such as in the SV reading of 盪 *bói* /bɔ:j<sup>1</sup>/, is distinguished from *v*, as in the SV reading of 爲 *vi* /vi:<sup>1</sup>/ in 憐<sup>5</sup>, which is another Chữ Nôm character that expresses the same word *vui* ‘pleasant.’ I believe that the labiodental feature of the latter expresses the stage of around 20C when the process β > v had been completed. Meanwhile, the voiced bilabial stop ʙ in bɔ:j<sup>1</sup> can be understood in two ways. One is to regard ʙ as transcribing

<sup>3</sup> The Proto Viet-Muong (PVM) forms are cited from Ferlus (2007).

<sup>4</sup> One of the languages of the Chứt group belonging to the Viet-Muong branch of Mon-Khmer family.

<sup>5</sup> Trần Văn Kiêm, L.m. An-tôn (2004: 879).

the stage of the voiceless stop \*p of the same phoneme, as illustrated in (8b), and the other is to regard it as expressing the stage of the voiced bilabial fricative β, as illustrated in (8c).

- (8) b. PVM AV 17C 20C NV cf. Rục  
*vui* \*t-pu:j \*ti-pu:j<sup>1</sup> βu:j<sup>1</sup> vu:j<sup>1</sup> vu:j<sup>1</sup> tapuj<sup>1</sup>  
 司盃 \*ti<sup>1</sup> 6o:j<sup>1</sup> (6o:j<sup>1</sup>) (6o:j<sup>1</sup>) (6o:j<sup>1</sup>)
- c. PVM AV 17C 20C NV cf. Rục  
*vui* \*t-pu:j \*ti-βu:j<sup>1</sup> βu:j<sup>1</sup> vu:j<sup>1</sup> vu:j<sup>1</sup> tapuj<sup>1</sup>  
 司盃 \*ti<sup>1</sup> 6o:j<sup>1</sup> (6o:j<sup>1</sup>) (6o:j<sup>1</sup>) (6o:j<sup>1</sup>)
- cf. 憐 [爲] \*vi:<sup>1</sup>

The case of (8c) is more likely than the case of (8b) for two reasons. First, it is difficult to imagine that the opposition of voiced and voiceless stops remained up to the stage of AV. Second, it is also quite difficult to imagine that the initial stop of the SV reading of 盃 was still voiceless or that it was useful for transcribing the voiceless stops at the time.

Example (9a) is the same as (8a). For the same reasons as above, I believe the voiced bilabial stop in this example transcribes the voiced bilabial fricative.

- (9) a. Ch: 救 父 王  
 CN: 助 叔 吒  
*trø vua cha*  
 save king father  
 ‘save the father king’ (5a1)
- b. PVM AV 17C 20C NV  
*vua* - \*ti-βuɤ<sup>1</sup> βuɤ<sup>1</sup> vuɤ<sup>1</sup> vuɤ<sup>1</sup>  
 司布 \*ti<sup>1</sup> 6o:<sup>5</sup>

Another problem is concerned with the height of tones. For example, the problem with (10a) is how the tone height should be reconstructed.

- (10) a. Ch: 何 不 早 死  
 CN: 牢 庄 阿盃 折  
*sao chǎng vôi chét*  
 why not early die  
 ‘Why not die early?’ (38a1)

The modern form *vôi* belongs to the lower tone, while the SV reading of 盃 6o:j<sup>1</sup> belongs to the higher one. Therefore, as far as we follow the SV reading, the tone of the AV stage should be the higher counterpart of tone 6 (nặng tone)—that is, tone 5 (sắc tone).<sup>6</sup> The tone change from high to low in this case is due to the voicedness of the presyllable \*a-.

<sup>6</sup> Three high/low pairs of the modern 6 tones are tone 1 (ngang) / 2 (huyền), tone 3 (hỏi) / 4 (ngã), and tone 5 (sắc) / 6 (nặng).

(10) b.	PVM	AV	17C	20C	NV
	<i>vphi</i>	-	*a-βo:j <sup>5</sup>	βo:j <sup>6</sup>	vo:j <sup>6</sup>
	阿盃		*a <sup>1</sup> 6o:j <sup>1</sup>		

The case in (11a) also has quite important problems concerning spirantization and tone height. The word *vô vè* in the present orthography is an example of reduplication, but each syllable was disyllabic in AV.

(11) a. Ch:	寵弄	鎮 <sup>7</sup>	能	歡
CN:	{阿*普}{阿*批} <sup>8</sup>	沒	養	哈
	<i>vô vè</i>	<i>môt</i>	<i>dường hay</i>	<i>vui</i>
	comfort	once	know	pleased
	'comfort and feel pleased for a while' (14a4)			

The SV initial transcribing of major syllables 普 *phô* /fo:<sup>3</sup>/ and 批 *phê* /fe:<sup>1</sup>/ comes from MC \*p<sup>h</sup> (滂母). As far as we follow the order of spirantization → voicing proposed by Ferlus (1982), the voiceless feature of the initial *ph* shows the middle stage of the process \*p > φ > β. Meanwhile, the tones of SV *phô* (3: hoi tone) and *phê* (1: ngang tone) belong to the higher series, while those of *vô vè* (4: ngã tone, 2: huyền tone) belong to the lower, and both are the counterparts of the opposite in each pair: 3/4 and 1/2. These conditions allow us to reconstruct the value of those Chữ Nôm at the AV stage as in (11b):

(11) b.	PVM	AV	17C	20C	NV
	<i>vô</i>	-	*a-φo: <sup>3</sup>	(βo: <sup>4</sup> ) <sup>9</sup>	vo: <sup>4</sup>
	阿普		*a <sup>1</sup> fo: <sup>3</sup>		
	<i>vè</i>	-	*a-φe: <sup>1</sup>	(βe: <sup>2</sup> )	ve: <sup>2</sup>
	阿批		*a <sup>1</sup> fe: <sup>1</sup>		

This case will be evidence for reconstructing both φ and β at the stage of AV. The spirantization process and the value of labials at the AV stage are as follows in (12):

(12)	PVM	AV	17C	20C	NV
	*-p-	*-φ-	β-	v-	v-
	*-b-	*-β-			

So far, I have applied the method described in section 3.1 to reconstruct the value of the voiceless fricative \*s and the labial stops \*p and \*b of PVM that had gone through the process of spirantization. It is noteworthy that the cases introduced above are quite characteristic in that all of them are disyllabic words and the structure of their Chữ Nôm characters shows the disyllabicity clearly by using two phonetic components for each word.

#### 4. Reconstruction of AV

Hereafter, we apply the method proposed in section 3.1 for all the initial consonants of PVM.

<sup>7</sup> In other texts, 鎮 is substituted by 纒 'for a while' (Makita 1976: 56).

<sup>8</sup> In the case that Chữ Nôm fonts are not available, we separate the components into {A\*B} for vertical and {A+B} for horizontal placement: e.g., {山\*石} = 岩, {石+少} = 砂.

<sup>9</sup> Not found in the Dictionary of Rhodes.

Before this, it is necessary to discuss the syllable structure of AV.

### 4.1 Syllable structure

Ferlus (2004) supposed the syllable structure of PVM to be as follows:

- (13) PVM a. disyllables:  $C_1-C_2V(C_3)$   
 b. monosyllables:  $C_1V(C_2)$

The reason  $C_1-C_2V(C_3)$  is regarded as disyllabic is because  $C_1-$  in (13a) is usually followed by a shwa, which had no phonological value inserted between  $C_1$  and  $C_2$ . As we saw in section 3.2, the spirantization process itself had not been completed and was still in the course of change at the stage of AV. Therefore, we believe there is strong evidence for confirming that the presyllables and major syllables had formed one unit so close as to interact with each other. This opinion can be summarized as follows in (14):

- (14) PVM  $C_1-C_2V(C_3)$  >  $\frac{AV}{C_1-C_2V(C_3)/T}$  >  $C_1V/T + C_2V(C_3)/T^{10}$  >  $\frac{20C}{C_2V(C_3)/T}$

We can make the AV version of the syllable types as in (15):

- (15) AV a. disyllables:  $C_1-C_2V(C_3)/T$   
 b. monosyllables:  $C_2V(C_3)/T$

### 4.2 Presyllables ( $C_1$ )

In the present material, Chữ Nôm characters such as 可, 車, 舍, 破, 司, 阿, and 羅, etc., can be regarded as transcribing the presyllables. First of all, the presyllable list of the PVM stage, shown in (16), was proposed by Ferlus (2007):

- (16) PVM \*p- \*t- \*c- \*k- \*ʔa-  
 \*s-  
 (\*m-) (\*l-)  
 (\*r-)

The phonemes in ( ) are limited in number.

The examples in (17) are of Chữ Nôm characters transcribing disyllabic words:

- | (17) | CN   | SV   | PVM     | 20C (North)              | Ch | Pages    |
|------|------|--|---------|--------------------------|----|----------|
|      | *ka- |  |         |                          |    |          |
|      | 可汝   | khá nhữ /k <sup>h</sup> a: <sup>3</sup> ni: <sup>4</sup> / <sup>11</sup> | *k-ŋə:ʔ | nhớ /ŋx: <sup>5</sup> /  | 憶  | 15b1     |
|      | *ca- |  |         |                          |    |          |
|      | 車莽   | xa mǎng /tʃa: <sup>1</sup> ma:ŋ <sup>4</sup> /                           | *c-maŋʔ | mǎng /maŋ <sup>5</sup> / | 聞  | 5b3, ... |
|      | 舍莽   | xá mǎng /tʃa: <sup>5</sup> ma:ŋ <sup>4</sup> /                           | *c-maŋʔ | mǎng /maŋ <sup>5</sup> / | 諦  | 23a5     |

<sup>10</sup>Some fossilized disyllabic words in modern Vietnamese are *mồ hôi* 'sweat' (Thavung: pahũ:), *chiêm bao* 'nightmare' (Ruc: cəpə:<sup>1</sup>), etc.

<sup>11</sup>The IPA transcription in this study is generally based on the modern Northern speech, except here, the SV sounds of each Chinese character are based on the reconstructed AV phonemes. This is to clarify that the AV phonetic values of the presyllables and the reconstructed PVM sounds are quite close.



<b>*pa-</b>						
破散	<i>phá tán</i> /p <sup>h</sup> a:⁵ sa:n⁵/	*p-səŋʔ	<i>rán</i> /zan⁵/	蛇	29a5	
<b>*ta-/sa-</b>						
盃司	<i>tur bôí</i> /ti:¹ ɓo:j¹/	*t-pu:j	<i>vui</i> /vu:j¹/	歡,樂	20a3, 46a3	
{司*盃}						
<b>*a-</b>						
阿盃	<i>a bôí</i> /a:¹ ɓo:j¹/		<i>vôí</i> /vo:j⁶/	早	38a1	
{阿*普}	<i>a phô</i> /a:¹ ɓo:³/		<i>vô</i> /vo:⁴/	寵弄	14a4	
{阿*批}	<i>a phê</i> /a:¹ ɓe:¹/		<i>vê</i> /ve:²/	寵弄	14a4	
阿吟	<i>a ngâm</i> /a:¹ ŋam¹/	*-ŋamʔ (?)	<i>ngâm</i> /ŋam⁶/	甘	42a4	
<b>*la-</b>						
羅打	<i>la đá</i> /la:¹ đá:³/	*l-ta:ʔ	<i>đá</i> /đá:⁵/	丘山	41b2	

In summary, the list of presyllables (C<sub>1</sub>-) extracted from the present materials will be as follows:

- (18) AV            \*p-      \*t-      \*c-      \*k-      \*ŋa-  
                               \*s-  
                               (\*l-)

### 4.3 Initials of major syllables (C<sub>2</sub>)

According to Ferlus (2009), the list of initials of major syllables (C<sub>2</sub>) and their modern reflected forms are as follows in (19):

- (19) a. aspirated stops, voiceless fricatives
- |  |                      |                      |              |                      |            |
|--|----------------------|----------------------|--------------|----------------------|------------|
|  | <b>p<sup>h</sup></b> | <b>t<sup>h</sup></b> | <b>s</b>     | <b>k<sup>h</sup></b> | <b>h</b>   |
|  | > <i>ph</i>          | > <i>th</i>          | > <i>t~r</i> | > <i>kh</i>          | > <i>h</i> |
- b. unaspirated stops
- |  |              |              |                |               |              |          |
|--|--------------|--------------|----------------|---------------|--------------|----------|
|  | <b>p b</b>   | <b>t d</b>   | <b>c ɟ</b>     | <b>tʃ</b>     | <b>k g</b>   | <b>ʔ</b> |
|  | > <i>b~v</i> | > <i>đ~d</i> | > <i>ch~gi</i> | > <i>x~gi</i> | > <i>c~g</i> | > #      |
- c. implosives
- |  |            |            |             |
|--|------------|------------|-------------|
|  | <b>ɓ</b>   | <b>ɗ</b>   | <b>ɟ</b>    |
|  | > <i>m</i> | > <i>n</i> | > <i>nh</i> |
- d. nasals
- |  |            |            |             |                 |
|--|------------|------------|-------------|-----------------|
|  | <b>m</b>   | <b>n</b>   | <b>ɲ</b>    | <b>ŋ</b>        |
|  | > <i>m</i> | > <i>n</i> | > <i>nh</i> | > <i>ng/ngʰ</i> |
- e. voiced fricatives
- |  |            |            |
|--|------------|------------|
|  | <b>v</b>   | <b>j</b>   |
|  | > <i>v</i> | > <i>d</i> |
- f. liquids
- |  |            |            |
|--|------------|------------|
|  | <b>r</b>   | <b>l</b>   |
|  | > <i>r</i> | > <i>l</i> |

In the case of the PVM \*s, for instance, the modern reflection on the left *t* is the phoneme in the monosyllabic words, while the modern reflection on the right *r* is the phoneme after it has gone through spirantization in the disyllabic words. Accordingly, in the other cases, such as \*p/\*b > *b~v*, \*t/\*d > *đ~d*, \*c/\*ɟ > *ch~gi*, \*tʃ > *x~gi*, and \*k/\*g > *c/k/q~g/gʰ*, the italic letters on the left are those in monosyllabic words, and those on the right are in disyllabic words (Ferlus 1982).

Hereafter, the AV phonetic values of (19) a~f will be reconstructed in order.

### 4.3.1 Aspirated stops and voiceless fricatives

#### 4.3.1.1 \*p<sup>h</sup>

The PVM aspirated voiceless bilabial stop \*p<sup>h</sup> corresponds to the modern spelling *ph*, and in the 17<sup>th</sup> century, it remained an aspirated stop, not a fricative as in the modern Northern dialect [f]. Its process of change can be illustrated as in (20):

- (20) PVM            AV            17C            20C (North)  
 \*p<sup>h</sup>-    >    \*p<sup>h</sup>-    >    p<sup>h</sup>-    >    f- (*ph*)

The correspondence of Chũ Nôm readings (*ph*) and the SV readings of their phonetic components (*ph*) are as follows in (21):

- (21) (MC: \*p<sup>h</sup> 滂, \*f 非, \*t<sup>h</sup> 敷 >) *ph*: (PVM: \*p<sup>h</sup> >) *ph*
- | CN    | Mod. Orth.                       | SV                                 | MC | Ch        | Pages          |
|-------|----------------------------------|------------------------------------|----|-----------|----------------|
| 派     | <i>phái</i> /fa:j <sup>3</sup> / | 派 <i>phái</i> /fa:j <sup>5</sup> / | 滂  | 被         | 19b4           |
| 沛     | <i>phái</i> /fa:j <sup>3</sup> / | 沛 <i>phái</i> /fa:j <sup>5</sup> / | 滂  | 若         | 7b3, ...       |
| 鋪     | <i>phô</i> /fo:¹/                | 鋪 <i>phô</i> /fo:¹/                | 滂  | 我等        | 30b5           |
| ...   |                                  |                                    |    |           |                |
| {火+非} | <i>phoi</i> /fɔ:j¹/              | 非 <i>phi</i> /fi:¹/                | 非  | 曝         | 20a2           |
| 發     | <i>phút</i> /fu:t <sup>5</sup> / | 發 <i>phát</i> /fa:t <sup>5</sup> / | 非  | 須臾        | 17b3           |
| 番     | <i>phen</i> /fɛ:n¹/              | 番 <i>phan</i> /fa:n¹/              | 敷  | 回, 度, ... | 8b2, 10b3, ... |

Another correspondence is as follows in (22):

- (22) (\*b 並 >) *b*: (\*p<sup>h</sup> >) *ph*
- | CN | Mod. Orth.                       | SV                                | MC | Ch | Pages |
|----|----------------------------------|-----------------------------------|----|----|-------|
| 裴  | <i>phây</i> /fɛ:j <sup>3</sup> / | 裴 <i>bui</i> /bu:j <sup>2</sup> / | 並  | 拂拭 | 35b3  |
| 哺  | <i>phô</i> /fo:¹/                | 哺 <i>bô</i> /bo:⁶/                | 並  | 汝等 | 11b2  |

Most of the examples show the correspondence with the MC initials \*p<sup>h</sup> (滂母, 非母, 敷母)—that is, (p<sup>h</sup> >) f (*ph*). However, only two cases have a correspondence with (\*b 並 >) *b*. This should not be regarded as an exception but as evidence of the stop feature of the phoneme.

#### 4.3.1.2 \*t<sup>h</sup>

The PVM \*t<sup>h</sup> corresponds to the modern spelling *th*, and its value remained t<sup>h</sup> throughout its history.

- (23) PVM            AV            17C            20C (North)  
 \*t<sup>h</sup>-    >    \*t<sup>h</sup>-    >    t<sup>h</sup>-    >    t<sup>h</sup>- (*th*)

The correspondence of the Chũ Nôm readings (*th*) and the SV readings of their phonetic components (*th*) are as follows in (24):

- (24) (\*dz 船, \*ɕ 書, \*z 常, \*ts 清, \*t<sup>h</sup> 透 >) *th*: (\*t<sup>h</sup> >) *th*
- | CN  | Mod. Orth.                                     | SV  | MC | Ch | Pages     |
|-----|--|---|----|----|-----------|
| 舌   | <i>thit</i> /t <sup>h</sup> i:t <sup>8</sup> / | 舌 <i>thiêt</i> /t <sup>h</sup> iət <sup>8</sup> / | 船  | 肉  | 29b5, ... |
| 世   | <i>thay</i> /t <sup>h</sup> aj¹/               | 世 <i>thé</i> /t <sup>h</sup> e:⁵/                 | 書  | 無量 | 3a3, ...  |
| 審   | <i>thâm</i> /t <sup>h</sup> am³/               | 審 <i>thâm</i> /t <sup>h</sup> am³/                | 書  | 深  | 16b1      |
| ... |  |   |    |    |           |

蝮	<i>thò</i> /t <sup>h</sup> ɣ:2/	蝮	<i>thù</i> /t <sup>h</sup> i:2/	常	事	42b4, ...
沮	<i>thá</i> /t <sup>h</sup> a:3/	且	<i>thá</i> /t <sup>h</sup> a:3/	清	行	17a1
崔	<i>thói</i> /t <sup>h</sup> o:j <sup>1</sup> /	崔	<i>thói</i> /t <sup>h</sup> o:j <sup>1</sup> /	清	捨	33b1
体	<i>tháy</i> /t <sup>h</sup> ʌj <sup>5</sup> /	体	<i>thé</i> /t <sup>h</sup> e:3/	透	見	4b1, ...
他	<i>thá</i> /t <sup>h</sup> a:1/	他	<i>thá</i> /t <sup>h</sup> a:1/	透	拔	23a3, ...
...						

In all cases, the phoneme corresponds to the SV t<sup>h</sup> (*th*) from the MC initials 船, 書, 常, 清 and 透 and remains with the value t<sup>h</sup>. From this, it is likely that the SV readings of the initials 船, 書, 常, and 清 had also already become stops, not fricatives or affricates.

#### 4.3.1.3 \*s

The PVM \*s had gone through the process of spirantization, so \*s > r occurred in disyllabic words (4c), and \*s > t occurred in monosyllabic words (5c). As we have already seen in (6a) and (6b), the value \*s possibly remained in disyllabic words. First of all, other examples that went through the process \*s > r in the disyllabic words include those shown in (25) to (29):

(25) (\*s 心, \*ts 精 >) t: (\*s >) r

CN	Mod. Orth.	SV	MC	Ch	Pages
{塞+个}	<i>ráy</i> /zaj <sup>5</sup> /	塞 <i>tái</i> /ta:j <sup>5</sup> /	心	洗濯	15a1, ...
{文(=塞)+个}	<i>ráy</i> /zaj <sup>5</sup> /	塞 <i>tái</i> /ta:j <sup>5</sup> /	心	洗濯	11b5
{彳+塞}	<i>ráy</i> /zaj <sup>5</sup> /	塞 <i>tái</i> /ta:j <sup>5</sup> /	心	洗濯	17b5
索	<i>rách</i> /zɛ:k <sup>5</sup> /	索 <i>tác</i> /ta:k <sup>5</sup> /	心	裂	29b5
燥	<i>ráo</i> /za:w <sup>5</sup> /	燥 <i>táo</i> /ta:w <sup>5</sup> /	心	乾	14a1, ...
{藻-彳}	<i>ráo</i> /za:w <sup>5</sup> /	藻 <i>táo</i> /ta:w <sup>5</sup> /	精	-	29b5

(26) (\*s 心, \*z 邪 >) t: (\*s >) t

CN	Mod. Orth.	SV	MC	Ch	Pages
些	<i>ta</i> /ta:1/	些 <i>ta</i> /ta:1/	心	我	5a3, ...
細	<i>tói</i> /tɣ:j <sup>5</sup> /	細 <i>té</i> /te:5/	心	向	15b2, ...
...					
席	<i>tiéc</i> /tiək <sup>7</sup> /	席 <i>tích</i> /ti:k <sup>7</sup> /	邪	-	36a2
辞	<i>tù</i> /ti:2/	辞 <i>tù</i> /ti:2/	邪	慈	13b5
...					

(27) (\*s 心 >) s: (\*s >) t

CN	Mod. Orth.	SV	MC	Ch	Pages
珊	<i>tan</i> /ta:n <sup>1</sup> /	珊 <i>san</i> /sa:n <sup>1</sup> /	心	消散	9a4, ...

(28) (\*ts 精, \*dz 從 >) t: (\*s >) t

CN	Mod. Orth.	SV	MC	Ch	Pages
卒	<i>tót</i> /to:t <sup>5</sup> /	卒 <i>tót</i> /to:t <sup>5</sup> /	精	妙	2a3
齐	<i>táy</i> /tʌj <sup>2</sup> /	齐 <i>té</i> /te:2/	從	-	2a3

(29) (\*t 端 >) d: (\*s >) t

CN	Mod. Orth.	SV	MC	Ch	Pages
多	<i>to</i> /tɣ:1/	多 <i>da</i> /dɑ:1/	端	帛	36b3

In the case of monosyllabic words, the existence of the cases in (27) and (28) allow us to reconstruct the value as \*s—apart from one case where it is transcribed with the phoneme *ɖ* (29).

The process can be summarized as follows in (30):

(30)	PVM	>	AV	>	17C	>	20C (North)
	*-s-	>	*-s-	>	ʈ-	>	z- ( <i>r</i> )
	*s-	>	*s-	>	t-	>	t- ( <i>t</i> )

#### 4.3.1.4 \*k<sup>h</sup>

The PVM \*k<sup>h</sup> corresponds to the modern *kh* in orthography, but after the 17<sup>th</sup> century, it went through the process k<sup>h</sup> > x (Gregerson 1969), illustrated in (31) below.

(31)	PVM	>	AV	>	17C	>	20C (North)
	*k <sup>h</sup> -	>	*k <sup>h</sup> -	>	k <sup>h</sup> -	>	x- ( <i>kh</i> )

The correspondence of the Chũ Nôm readings (*kh*) and the SV readings of their phonetic components (*kh*) are as follows in (32):

(32)	(*kh 溪, *k 見 >) <i>kh</i> : (*k <sup>h</sup> >) <i>kh</i>					
	CN	Mod. Orth.	SV	MC	Ch	Pages
	看	<i>khǎn /xan<sup>1</sup>/</i>	看 <i>khán /xa:n<sup>5</sup>/</i>	溪	辛苦	18a1
	庫	<i>khó /xo:<sup>5</sup>/</i>	庫 <i>khó /xo:<sup>5</sup>/</i>	溪	苦	6a1, ...
	...					
	{昌+圭}	<i>khoe /xwe:<sup>3</sup>/</i>	圭 <i>khue /xwe:<sup>1</sup>/</i>	見	健	13a4, ...

We can see only one case of correspondence with the MC \*k (見母), but at the time of SV formation, it already had the initial *kh*, so it can be treated the same way as the other cases. Alternatively, it could be analogous to the SV reading of 奎, which also has *kh* as an initial.

Therefore, this phoneme also remained a stop until it became the fricative [x] after the 17<sup>th</sup> century.

#### 4.3.1.5 \*h

The PVM \*h corresponds to the modern *h* in orthography, and its value has remained h from PVM until now, as shown in (33).

(33)	PVM	>	AV	>	17C	>	20C (North)
	*h-	>	*h-	>	h-	>	h- ( <i>h</i> )

The correspondence of the Chũ Nôm readings (*h*) and the SV readings of their phonetic components (*h*, #) are as follows in (34) and (35):

(34)	(*h 曉, *fi 匣, *o 云, *k 見 >) <i>h</i> : (*h >) <i>h</i>					
	CN	Mod. Orth.	SV	MC	Ch	Pages
	哈	<i>hai /ha:j<sup>1</sup>/</i>	哈 <i>hai /ha:j<sup>1</sup>/</i>	曉	二	6b4, ...
	歇	<i>hét /he:t<sup>7</sup>/</i>	歇 <i>hiét /hiət<sup>7</sup>/</i>	曉	盡	2a5, ...
	...					
	鵠	<i>hoc /ho:k<sup>8</sup>/</i>	鵠 <i>hoc /ho:k<sup>8</sup>/</i>	匣	習学	18a3
	紇	<i>hôt /ho:t<sup>8</sup>/</i>	紇 <i>hôt /ho:t<sup>8</sup>/</i>	匣	露珠	9a3, ...

...						
矣	<i>bōi</i> /hɣ:j <sup>4</sup> /	矣 <i>hī</i> /hi: <sup>4</sup> /	云	嗚呼	34a5	
忽	<i>hót</i> /ho:t <sup>7</sup> /	忽 <i>hót</i> /ho:t <sup>7</sup> /	見	除	15a3	

(35) (\*ʔ 影 >) #: (\*h >) *b*

CN	Mod. Orth.	SV	MC	Ch	Pages
謁	<i>hét</i> /he:t <sup>7</sup> /	謁 <i>yét</i> /iæt <sup>7</sup> /	影	終	18a4, ...

In most cases, the phoneme corresponds to the SV readings for the MC initials \*h (曉母) and \*ɦ (匣母). In only one case each does it correspond to \*ø (云母), \*k (見母), and \*ʔ (影母). The SV readings for the former two MC initials are always *b* in the modern orthography. The only exception—MC initial \*ʔ (影母)—could also be analogous to 歇 *hét* as it shares the same phonetic component. Therefore, the value *h* has remained quite steady from PVM until today.

To summarize all the reconstructed forms of aspirated stops and voiceless fricatives, we have the chart in (36):

## (36) aspirated stops and voiceless fricatives

PVM	AV		17C		20C (North)
*p <sup>h</sup> -	*p <sup>h</sup> -	>	p <sup>h</sup>	>	f ( <i>ph</i> )
*t <sup>h</sup> -	*t <sup>h</sup> -	>	t <sup>h</sup>	>	t <sup>h</sup> ( <i>th</i> )
*s-	*-s-	>	ʃ	>	z ( <i>r</i> )
	*s-	>	t	>	t ( <i>t</i> )
*k <sup>h</sup> -	*k <sup>h</sup> -	>	k <sup>h</sup>	>	x ( <i>kh</i> )
*h-	*h-	>	h	>	h ( <i>h</i> )

## 4.3.2 Unaspirated stops

The series of unaspirated stops went through the process of spirantization, except for the case of the glottal stop. These processes were shown in (5) and (6). Below are the actual cases of Chū Nôm transcription.

## 4.3.2.1 \*p and \*b

For the case of the bilabial stops \*p and \*b, we have shown the process of disyllables in (12). As far as we can attest the trace of voiceless fricatives shown in (11), we can assume that the spirantization process was still under way at this point.

The following in (37) are the other cases of the labials, with the cases of the monosyllables that have nothing to do with the process of spirantization listed first.

(37) (\*p 幫, \*b 並 >) *b*: (\*p, \*b >) *b*

CN	Mod. Orth.	SV	MC	Ch	Pages
巴	<i>ba</i> /ba: <sup>1</sup> /	巴 <i>ba</i> /ba: <sup>1</sup> /	幫	三	5b1, ...
奔	<i>buôn</i> /buən <sup>1</sup> /	奔 <i>bôn</i> /bo:n <sup>1</sup> /	幫	經商	19b1
...					
盆	<i>buòn</i> /buən <sup>2</sup> /	盆 <i>bòn</i> /bo:n <sup>2</sup> /	並	懊惱	38a2
倍	<i>bui</i> /bu:j <sup>6</sup> /	倍 <i>bôi</i> /bo:j <sup>6</sup> /	並	塵	35b3, ...
...					

In the case of monosyllabic words, most of the cases transcribe the initial with *b* corresponding to the MC initials \*p (幫母) and \*b (並母). However, we have no evidence to confirm whether it had already been voiced or still remained voiceless. In general, as far as the Chũ Nôm characters were created using the SV readings that distinguish voiced and voiceless consonants by the height of tones—i.e., higher tones and lower ones—one can be sure that the bipartition of high and low tones had already been completed. It follows that the contrast between voiced and voiceless had already disappeared, at least within Vietnamese. Here we continue with the supposition that the phoneme in question had already been voiced.

The cases in (38) and (39) are those of the disyllables that had gone through the process of spirantization.

(38) (\*p 幫, \*b 並 >) *b* : (\*p, \*b >) *v*

CN	Mod. Orth.	SV	MC	Ch	Pages
邦	<i>vàng</i> /vΛŋ <sup>1</sup> /	邦 <i>bang</i> /b̄a:ŋ <sup>1</sup> /	幫	奉	6b2, ...
包	<i>vào</i> /va:w <sup>2</sup> /	包 <i>bao</i> /b̄a:w <sup>1</sup> /	幫	入	5a1, ...
...					
{女+久*田}	<i>vợ</i> /vɜ: <sup>6</sup> /	備 <i>bị</i> /b̄i: <sup>6</sup> /	並	婚媿	19b2
卞	<i>vin</i> /vi:n <sup>1</sup> /	卞 <i>biện</i> /b̄iɛn <sup>6</sup> /	並	攀	11a2

(39) (\*p<sup>h</sup> 滂 >) *b* : (\*p, \*b >) *v*

CN	Mod. Orth.	SV	MC	Ch	Pages
丕	<i>vây</i> /vΛj <sup>6</sup> /	丕 <i>phi</i> /fi: <sup>1</sup> /	滂	故	2a4, ...

Again, the case in (39) shows the stage when the voicing of the voiceless fricatives had not occurred.

In (40), we summarize the above discussion.

(40) PVM      AV      17C      20C (North)

*-p-	>	*-ϕ-	→	β-	>	v- ( <i>v</i> )
*-b-	>	*-β-	→			
*p-	→	*b-	>	β-	>	β- ( <i>b</i> )
*b-	→					

#### 4.3.2.2 \*t and \*d

The PVM dental stops also went through spirantization in the disyllabic words. Sections 4.3.2.2 to 4.3.2.6 present cases of monosyllabic words.

(41) (\*t 端, \*d 定 >) *đ* : (\*t, \*d >) *đ*

CN	Mod. Orth.	SV	MC	Ch	Pages
怛	<i>đát</i> /d̄Λt <sup>7</sup> /	怛 <i>đát</i> /d̄a:t <sup>7</sup> /	端	土	3b1, ...
帶	<i>đái</i> /d̄a:j <sup>5</sup> /	帶 <i>đai</i> /d̄a:j <sup>5</sup> /	端	不淨	11b5, ...
...					
畑	<i>đèn</i> /d̄ɛ:n <sup>2</sup> /	田 <i>đièn</i> /d̄iɛn <sup>2</sup> /	定	燈	26b2
調	<i>đều</i> /d̄ɛ:w <sup>2</sup> /	調 <i>điêu</i> /d̄iɛu <sup>2</sup> /	定	惣	6a1, ...
...					

For the same reason as with the labials, we suppose the contrast between voiced and voiceless

disappeared and merged into a voiced stop.

The cases that went through the spirantization process are listed in (42).

(42) (\*t 端, \*d 定 >)  $\check{d}$ : (\*t, \*d >)  $d$

CN	Mod. Orth.	SV	MC	Ch	Pages
{心+多}	<i>da</i> /za:¹/	多 <i>ḍa</i> /ḍa:¹/	端	質	15a1
帶	<i>ḍwóí</i> /ziəj⁵/	帶 <i>ḍái</i> /ḍa:j⁵/	端	下	10b1, ...
...					
代	<i>ḍay</i> /zaj⁶/	代 <i>ḍai</i> /ḍa:j⁶/	定	訓教	18a3, ...
杜	<i>ḍō</i> /zo:⁴/	杜 <i>ḍō</i> /ḍo:⁴/	定	訓教	18a3
...					

The cases of consonant  $d$  were here transcribed with the SV reading  $\check{d}$  corresponding to the MC initials \*t (端母) and \*d (定母) without exception. Therefore, it is different from the case of labials in that there are no cases transcribing the voiceless fricatives. The process is as follows in (43):

(43) PVM AV 17C 20C (North)

*-t-	>	-	→	ḍ-	>	z- ( $\check{d}$ )
*-d-	>	*-ḍ-	→			
*t-	→	*d-	>	d-	>	d- ( $\check{d}$ )
*d-	→					

#### 4.3.2.3 \*c and \*j

The PVM palatal stops \*c and \*j also went through the process of spirantization. The cases in (44) and (45) are those of monosyllable words that kept the stop feature.

(44) (\*tɕ 章 >)  $ch$ : (\*c, \*j >)  $ch$

CN	Mod. Orth.	SV	MC	Ch	Pages
止	<i>cháy</i> /tʃaj³/	止 <i>chí</i> /tʃi:³/	章	流	8b2, ...
真	<i>chân</i> /tʃʌn¹/	真 <i>chân</i> /tʃʌn¹/	章	脚	11a3, ...
...					

(45) (\*t 知, \*d 澄, \*tʃ 莊 >)  $tr$ : (\*c, \*j >)  $ch$

CN	Mod. Orth.	SV	MC	Ch	Pages
吒	<i>cha</i> /tʃa:¹/	吒 <i>trá</i> /tʃa:⁵/	知	父	5a1, ...
徵	<i>chúng</i> /tʃi:ŋ¹/	徵 <i>trung</i> /tʃi:ŋ¹/	知	爲	5a2, ...
召	<i>chəu</i> /tʃi:w⁶/	召 <i>trieu</i> /tʃiəw⁶/	澄	受	11b3, ...
{ $\rightarrow$ *丁}	<i>chī</i> /tʃi:⁴/	{ $\rightarrow$ *丁} <i>trī</i> /tʃi:⁴/	澄	文	5a5, ...
庄	<i>chāng</i> /tʃaŋ³/	庄 <i>trang</i> /tʃa:ŋ¹/	莊	不	5b4, ...
債	<i>cháy</i> /tʃaj⁵/	債 <i>trái</i> /tʃa:j⁵/	莊	火	16a2, ...

The SV reflection of the MC initial \*tɕ (章母)—that is,  $ch$ —along with the SV initials with nearby places of articulation such as  $tr$  (reflection for the MC initials \*t 知, \*d 澄, and \*tʃ 莊) make it clear that the PVM \*c and \*j had merged into voiceless stops. The cases of disyllabic words are shown in (46) and (47).

- (46) (\*tc 章 >) *ch* : (\*c, \*j >) *gi*  
 CN Mod. Orth. SV MC Ch Pages  
 折 *giét* /ziət<sup>5</sup>/ 折 *chiét* /tʃiət<sup>5</sup>/ 章 屠 13a3, ...
- (47) (\*d 澄 >) *tr* : (\*c, \*j >) *gi*  
 CN Mod. Orth. SV MC Ch Pages  
 陣 *giân* /zɿn<sup>6</sup>/ 陣 *trân* /tʃɿn<sup>6</sup>/ 澄 嗔恨 19a4  
 {<sup>h</sup>\*, \*j} *giũ* /zi:<sup>4</sup>/ {<sup>h</sup>\*, \*j} *trũ* /tʃi:<sup>4</sup>/ 澄 守護 11b2, ...  
 {木+長} *giuông* /ziəŋ<sup>2</sup>/ 長 *truông* /tʃiəŋ<sup>2</sup>/ 澄 床 21a1  
 ...

As far as this material is concerned, all the consonants in question are transcribed with *ch* and *tr*. Therefore, the process can be traced as follows in (48):

- (48) PVM AV MV 20C (North)  
 \*c- > \*ç- > J- > dʒ- (*gi*)  
 \*j- > -  
 \*c- > \*c- > c- > c- (*ch*)  
 \*j- >

#### 4.3.2.4 \*tʃ

The PVM affricate \*tʃ had become *x* in all cases. According to Ferlus (2009), it became *gi* in disyllabic words. The cases of monosyllables are listed in (49) to (52).

- (49) (\*tc<sup>h</sup> 昌 >) *x* : (\*tʃ >) *x*  
 CN Mod. Orth. SV MC Ch Pages  
 車 *xa* /sa:<sup>1</sup>/ 車 *xa* /sa:<sup>1</sup>/ 昌 遠 16b2, ...  
 侈 *xé* /sɛ:<sup>5</sup>/ 侈 *xi* /si:<sup>3</sup>/ 昌 研 29b3  
 ...
- (50) (\*tc 章 >) *ch* : (\*tʃ >) *x*  
 CN Mod. Orth. SV MC Ch Pages  
 {示+占} *xem* /sɛ:m<sup>1</sup>/ 占 *chiêm* /tʃiəm<sup>1</sup>/ 章 觀 17a1, ...  
 嗔 *xin* /si:n<sup>1</sup>/ 眞 *chân* /tʃɿn<sup>1</sup>/ 章 須 33b5, ...
- (51) (\*c 書, ts<sup>h</sup> 清 >) *th* : (\*tʃ >) *x*  
 CN Mod. Orth. SV MC Ch Pages  
 拭 *xúc* /si:k<sup>7</sup>/ 拭 *thúc* /t<sup>h</sup>i:k<sup>7</sup>/ 書 塗 8a1, ...  
 千 *xiên* /siəŋ<sup>1</sup>/ 千 *thiên* /t<sup>h</sup>iəŋ<sup>1</sup>/ 清 刺 29b3  
 崔 *xui* /su:j<sup>1</sup>/ 崔 *thôi* /t<sup>h</sup>o:j<sup>1</sup>/ 清 被 19a5
- (52) (t<sup>h</sup> 徹 >) *s* : (\*tʃ >) *x*  
 CN Mod. Orth. SV MC Ch Pages  
 撐 *xanh* /sɛ:ŋ<sup>1</sup>/ 撐 *sanh* /sɛ:ŋ<sup>1</sup>/ 徹 - 15a2  
 丑 *xáu* /sɿw<sup>5</sup>/ 丑 *sáu* /si:w<sup>5</sup>/ 徹 醜狀 21b3

The existence of the consonant *ch* for the MC initial \*tc (章母) to transcribe *x* in (50) shows the stage of \*tʃ, while those cases in (52) show the value of *j* in the process \*tʃ > *j*. Concerning the



consonant  $x$  in the SV readings, the general reflection of the MC initial \*c (書母) is  $tb$ , but when it appears with medial  $j$ , the SV reflection is  $x$ . Meanwhile, the value of  $x$  in the 17<sup>th</sup> century was  $\int$ , and the value of  $tb$  in modern Vietnamese is so “soft” that it is sometimes pronounced  $\theta$ . Therefore, when it comes with medial  $j$ , the value can be quite close to that of  $x$ .

Unfortunately, we did not find any cases that had gone through the spirantization process in the present material, as depicted in (53).

(53)	PVM	AV	17C	20C (North)
	*-tʃ	-	j-	dʒ- ( <i>gi</i> )
	*tʃ	*tʃ/ʃ	ʃ-	s- ( <i>x</i> )

#### 4.3.2.5 \*k and \*g

In the case of velars, the SV reflection of the MC \*k (見母) and \*g (群母) is  $c/k/q$ , not  $g/gh$ . However, when the SV readings are further Vietnamized in the colloquial language, it often becomes  $g/gh$ .

The cases of the monosyllable words are presented in (54).

(54)	(*k 見, *g 群 >) $c/k/q$ : (*k, *g >) $c/k/q$					
	CN	Mod. Orth.	SV	MC	Ch	Pages
	核	<i>cây</i> /kaj <sup>1</sup> /	該 <i>cái</i> /ka:j <sup>1</sup> /	見	樹	29b2
	拈	<i>cát</i> /kΛt <sup>7</sup> /	吉 <i>cát</i> /ka:t <sup>7</sup> /	見	拳	22b3
	...					
	其	<i>cày</i> /kaj <sup>2</sup> /	其 <i>kì</i> /ki: <sup>2</sup> /	群	犁	31a3
	揆	<i>cõi</i> /kx:j <sup>4</sup> /	揆 <i>quĩ</i> /kwi: <sup>4</sup> /	群	辺	44b3
	...					

As in the case of the SV readings, the PVM labials and dentals became voiced implosives, while velars became voiceless  $c/k/q$ . This is one of the typical features in Vietnamese.

The cases of the disyllabic words are shown in (55) and (56).

(55)	(*k 見, *g 群 >) $c/k/q$ : (*k, *g >) $g/gh$					
	CN	Mod. Orth.	SV	MC	Ch	Pages
	斤	<i>gân</i> /γΛn <sup>2</sup> /	斤 <i>cân</i> /kΛn <sup>1</sup> /	見	近	16b3
	丐	<i>gái</i> /γa:j <sup>5</sup> /	丐 <i>cái</i> /ka:j <sup>5</sup> /	見	女	7b4, ...
	...					
	及	<i>gáp</i> /γap <sup>8</sup> /	及 <i>cáp</i> /kΛp <sup>8</sup> /	群	遭值	3a3
	技	<i>ghẽ</i> /γe: <sup>4</sup> /	技 <i>kĩ</i> /ki: <sup>4</sup> /	群	違	31a4, ...
	...					

(56)	(*k <sup>h</sup> 溪 >) $kb$ : (*k, *g >) $g/gh$					
	CN	Mod. Orth.	SV	MC	Ch	Pages
	可	<i>gá</i> /γa: <sup>3</sup> /	可 <i>kha</i> /xa: <sup>3</sup> /	溪	婿	22a2
	{子+可}	<i>gã</i> /γa: <sup>4</sup> /	可 <i>kha</i> /xa: <sup>3</sup> /	溪	孩子	13b5

In the 17<sup>th</sup> century, for instance, the velar consonants retained the contrast between voiced and voiceless ( $k/g$ ), and the voiced consonant had become a fricative as in the modern language. Here, it is quite clear from the modern reflection that the velar stops remained voiceless in the

monosyllabic words, while those in the disyllabic words became voiced. Here again, the existence of the cases in (56) show the medial stage in the process  $*k > x > \gamma$ , which is illustrated in (57).

(57) PVM      AV      MV      20C (North)

$*-k-$	$>$	$*-x-$	$\longrightarrow$	$\gamma-$	$>$	$\gamma-$	$(g/gb)$
$*-g-$	$>$	$*-\gamma-$	$\longrightarrow$				
$*k-$	$\longrightarrow$	$*k-$	$>$	$k-$	$>$	$k-$	$(c/k/q)$
$*g-$	$\longrightarrow$						

#### 4.3.2.6 \*ʔ

The glottal stops are never transcribed in Chũ Nôm or modern orthography. They are transcribed with the SV readings of the MC initial \*ʔ (影母), as demonstrated in (58).

(58) (\*ʔ 影 >) #: (\*ʔ >) #

CN	Mod. Orth.	SV	MC	Ch	Pages
咳	<i>ān /an<sup>1</sup>/</i>	安 <i>an /a:n<sup>1</sup>/</i>	影	食	10a5, ...
意	<i>áy /ʌj<sup>5</sup>/</i>	意 <i>j /i:<sup>5</sup>/</i>	影	爾	23a3, ...
...					

Now let us summarize the process of the stop series in PVM as shown in (59).

(59) PVM      AV      17C      20C (North)

$*p-$	$\longrightarrow$	$*b-$	$>$	$b-$	$>$	$b-$	$(b)$
$*b-$	$\longrightarrow$						
$*-p-$	$>$	$*-\phi-$	$\longrightarrow$	$\beta-$	$>$	$v-$	$(v)$
$*-b-$	$>$	$*-\beta-$	$\longrightarrow$				
$*t-$	$\longrightarrow$	$*ḍ-$	$>$	$ḍ-$	$>$	$ḍ-$	$(d̄)$
$*d-$	$\longrightarrow$						
$*-t-$	$>$	$-$	$\longrightarrow$	$\delta-$	$>$	$z-$	$(d)$
$*-d-$	$>$	$*-\delta-$	$\longrightarrow$				
$*c-$	$\longrightarrow$	$*c-$	$>$	$c-$	$>$	$c-$	$(ch)$
$*j-$	$\longrightarrow$						
$*-c-$	$>$	$*-\zeta-$	$\longrightarrow$	$j-$	$>$	$dʒ-$	$(gi)$
$*-j-$	$>$	$-$	$\longrightarrow$				
$*tʃ-$	$>$	$*tʃ-/ʃ-$	$>$	$ʃ-$	$>$	$s-$	$(x)$
$*-tʃ-$	$>$	$-$	$>$	$j-$	$>$	$dʒ-$	$(gi)$
$*k-$	$\longrightarrow$	$*k-$	$>$	$k-$	$>$	$k-$	$(c/k/q)$
$*g-$	$\longrightarrow$						
$*-k-$	$>$	$*-x-$	$\longrightarrow$	$\gamma-$	$>$	$\gamma-$	$(g/gb)$
$*-g-$	$>$	$*-\gamma-$	$\longrightarrow$				
$*\#-$	$>$	$*\#-$	$>$	$\#-$	$>$	$\#-$	$(\emptyset)$

### 4.3.3 Implosives

#### 4.3.3.1 \*b

Some part of the phonemes transcribed with *m* in the modern orthography can be traced back to

the PVM implosive \**b*. By referring to the word list in Ferlus (2007), we can identify which ones are which and find the same words in our material. The comparison is presented in (60).

(60) (\**m* 明 >) *m* : (\**b* >) *m*

CN	Mod. Orth.	SV	MC	Ch	Pages
默	<i>mác</i> /mak <sup>7</sup> /	默 <i>măc</i> /mak <sup>8</sup> /	明	掛	22b1
末	<i>mát</i> /ma:t <sup>7</sup> /	末 <i>mət</i> /ma:t <sup>8</sup> /	明	損	11a1, ...
美	<i>mǒ</i> /mɤ: <sup>3</sup> /	美 <i>mǐ</i> /mi: <sup>4</sup> /	明	發	5b5, ...

At the stage of forming the SV readings, the PVM \**b* had already become a nasal *m*. Therefore, the value in the present material is also a nasal, as shown in (61).

(61) PVM            AV            17C            20C (North)

* <i>b</i> -	>	* <i>m</i> -	>	m-	>	m- ( <i>m</i> )
--------------	---	--------------	---	----	---	-----------------

#### 4.3.3.2 \**d*

Using the same method as with the labials, we can find the words in question in our material.

(62) (\**n* 泥 >) *n* : (\**d* >) *n*

CN	Mod. Orth.	SV	MC	Ch	Pages
南	<i>nām</i> /nam <sup>1</sup> /	南 <i>nam</i> /na:m <sup>1</sup> /	泥	五	5b3, ...
惱	<i>náu</i> /naw <sup>5</sup> /	惱 <i>nǎo</i> /na:w <sup>4</sup> /	泥	烹	16a5, ...
餽	<i>nuôi</i> /nuəj <sup>1</sup> /	餽 <i>nǒi</i> /no:j <sup>4</sup> /	泥	養育	16a2, ...

All the cases in (62) are transcribed with nasal *n*; therefore, the process can be summarized as in (63).

(63) PVM            AV            17C            20C (North)

* <i>d</i> -	>	* <i>n</i> -	>	n-	>	n- ( <i>n</i> )
--------------	---	--------------	---	----	---	-----------------

#### 4.3.3.3 \**f*

Another case is the palatal implosive. We can find only one word of this case. The word and corresponding rule are shown in (64) and (65), respectively.

(64) (\**ɲ* 日 >) *nb* : (\**f* >) *nb*

CN	Mod. Orth.	SV	MC	Ch	Pages
饒	<i>nbau</i> /ɲaw <sup>1</sup> /	饒 <i>nbiəu</i> /ɲiəw <sup>1</sup> /	日	諸	5a2, ...

(65) PVM            AV            17C            20C (North)

* <i>f</i> -	>	* <i>ɲ</i> -	>	ɲ-	>	ɲ- ( <i>nb</i> )
--------------	---	--------------	---	----	---	------------------

Let us summarize the process of implosives as follows in (66):

(66) PVM            AV            17C            20C (North)

* <i>b</i> -	>	* <i>m</i> -	>	m-	>	m- ( <i>m</i> )
* <i>d</i> -	>	* <i>n</i> -	>	n-	>	n- ( <i>n</i> )
* <i>f</i> -	>	* <i>ɲ</i> -	>	ɲ-	>	ɲ- ( <i>nb</i> )

### 4.3.4 Nasals

The next series are those of the PVM nasals. Essentially, all these phonemes had not changed their values but, concerning the labials, dentals, and palatals, had merged with the implosive series at the AV stage. Examples are presented for each phoneme in the sections 4.3.4.1 to 4.3.4.4.

#### 4.3.4.1 \*m

(67) (\*m 明 >) *m* : (\*m >) *m*

CN	Mod. Orth.	SV	MC	Ch	Pages
沫	<i>mát</i> /mat <sup>7</sup> /	沫 <i>mət</i> /ma:t <sup>8</sup> /	明	淚	12b4(nưóc+), ...
卯	<i>máu</i> /maw <sup>5</sup> /	卯 <i>mǎo</i> /ma:w <sup>4</sup> /	明	血	8b2, ...
{女+美}	<i>mẹ</i> /mɛ: <sup>6</sup> /	美 <i>mĩ</i> /mi: <sup>4</sup> /	明	母	4b5, ...
...					

#### 4.3.4.2 \*n

(68) (\*n 泥 >) *n* : (\*n >) *n*

CN	Mod. Orth.	SV	MC	Ch	Pages
尼	<i>nay</i> /naj <sup>2</sup> /	尼 <i>ni</i> /ni: <sup>1</sup> /	泥	今	2a4, ...
喃	<i>nám</i> /nam <sup>5</sup> /	喃 <i>nam</i> /na:m <sup>1</sup> /	泥	胞	9b2
...					

#### 4.3.4.3 \*ɲ

(69) (\*ɲ 日 >) *nh* : (\*ɲ >) *nh*

CN	Mod. Orth.	SV	MC	Ch	Pages
如	<i>nhɔ</i> /ɲɔ: <sup>1</sup> /	如 <i>nhu</i> /ɲi: <sup>1</sup> /	日	穢	15a4
茹	<i>nhà</i> /ɲa: <sup>2</sup> /	茹 <i>nhu</i> /ɲi: <sup>1</sup> /	日	宅	16a2, ...
二	<i>nhɛ</i> /ɲɛ: <sup>6</sup> /	二 <i>nhị</i> /ɲi: <sup>6</sup> /	日	輕	7b4, ...
...					

(70) (\*j 以 >) *d* : (\*ɲ >) *nh*

CN	Mod. Orth.	SV	MC	Ch	Pages
野	<i>nhá</i> /ɲa: <sup>3</sup> /	野 <i>dǎ</i> /za: <sup>4</sup> /	以	吐	11b4
{口+也}	<i>nhá</i> /ɲa: <sup>3</sup> /	也 <i>dǎ</i> /za: <sup>4</sup> /	以	吐	13b1, ...
耶	<i>nhǎ</i> /ɲa: <sup>4</sup> /	耶 <i>da</i> /za: <sup>1</sup> /	以	毀辱	18b3(nhưc+)

As for the PVM \*ɲ, it is not only the SV *nh* for the MC \*ɲ (日母) but also the SV *d* for the MC \*j (以母) that corresponds to this phoneme. This is exactly the same as the case of *nhiéc*, which is alternated by *diéc* in the modern language, and in the Dictionary of Rhodes, where *nhà* has an alternative transcription of *dà*, etc. Therefore, the cases in (70) show the same kind of alternation.

#### 4.3.4.4 \*ŋ

(71) (\*ŋ 疑 >) *ng/ngh* : (\*ŋ >) *ng/ngh*

CN	Mod. Orth.	SV	MC	Ch	Pages
{女+疑}	<i>ngò</i> /ɲɔ: <sup>2</sup> /	疑 <i>ngbi</i> /ɲi: <sup>1</sup> /	疑	惑	41a4

我	<i>ngã</i> /ŋa:⁴/	我	<i>ngã</i> /ŋa:⁴/	疑	倒	46a1
外	<i>ngõi</i> /ŋo:j²/	外	<i>ngoai</i> /ŋwa:j⁶/	疑	坐	17b1, ...
...						

The process of nasal series is as follows in (72):

(72) PVM		AV		17C		20C (North)
*m-	>	*m-	>	m-	>	m- ( <i>m</i> )
*n-	>	*n-	>	n-	>	n- ( <i>n</i> )
*ŋ-	>	*ŋ-	>	ŋ-	>	ŋ- ( <i>nh</i> )
*ŋ-	>	*ŋ-	>	ŋ-	>	ŋ- ( <i>ng/ngb</i> )

### 4.3.5 Voiced fricatives

#### 4.3.5.1 \*v

A part of the modern *v* goes back to the PVM \*v. Here again, we refer to Ferlus (2007) to select the samples in our material, shown in (73).

(73) (*ø 云, *ŋ 微 >) v: (*v >) v						
CN	Mod. Orth.	SV	MC	Ch	Pages	
衛	<i>vè</i> /ve:²/	衛	<i>vê</i> /ve:⁶/	云	歸	7a3, ...
{尾+个}	<i>vã̃y</i> /vɛj⁴/	尾	<i>vĩ</i> /vi:⁴/	微	攪	11a4

It is noteworthy that when the PVM \*p and \*b went through spirantization and became *v*, they are transcribed with bilabial *b*, while the PVM \*v is transcribed with fricative *v*. Therefore, Chữ Nôm transcription distinguishes clearly between the PVM bilabials and labial fricatives; see (74).

(74) PVM		AV		17C		20C (North)
*v-	>	*v-	>	v-	>	v- ( <i>v</i> )

#### 4.3.5.2 \*j

A part of modern *d* is traced back to the PVM \*j, as demonstrated in (75) and (76).

(75) (*j 以 >) d: (*j >) d						
CN	Mod. Orth.	SV	MC	Ch	Pages	
酉	<i>dâu</i> /zɛw¹/	酉	<i>dâu</i> /zɛw⁶/	以	妾	21b4
{曳+ `}	<i>dây</i> /zɛj⁶/	曳	<i>duê</i> /zwe:⁶/	以	起	17b1, ...
{曳+ `}	<i>dài</i> /za:j²/	曳	<i>duê</i> /zwe:⁶/	以	長	31a3, ...

(76) PVM		AV		17C		20C (North)
*j-	>	*j-	>	ɟ-	>	z- ( <i>d</i> )

The process of voiced fricatives is as follows in (77):

(77) PVM		AV		17C		20C (North)
*v-	>	*v-	>	v-	>	v- ( <i>v</i> )
*j-	>	*j-	>	ɟ-	>	z- ( <i>d</i> )

### 4.3.6 Liquids

#### 4.3.6.1 \*r

A part of the modern *r* is also traced back to the PVM \*r, as demonstrated in (78).

(78) (\*1 來 >) /: (\*r >) r

CN	Mod. Orth.	SV	MC	Ch	Pages
{肉+聿}	<i>ruôt /zuət<sup>8</sup>/</i>	律 <i>luât /lwæt<sup>8</sup>/</i>	來	腸	22b1, ...
{酉+留}	<i>ruou /ziəw<sup>6</sup>/</i>	溜 <i>lɿu /liw<sup>6</sup>/</i>	來	酒	20b3

#### 4.3.6.2 \*l

The value of the PVM \*l had not changed throughout its history, as shown in (79).

(79) (\*1 來 >) /: (\*l >) l

CN	Mod. Orth.	SV	MC	Ch	Pages
凌	<i>lɿng /li:ŋ<sup>1</sup>/</i>	凌 <i>lǎng /laŋ<sup>1</sup>/</i>	來	身	24b2
礼	<i>láy /lɿj<sup>5</sup>/</i>	礼 <i>lě /le:<sup>4</sup>/</i>	來	以	22a3, ...
羅	<i>là /la:<sup>2</sup>/</i>	羅 <i>la /la:<sup>1</sup>/</i>	來	是	7a3, ...
...					

The process of liquids is as follows in (80):

(80) PVM AV 17C 20C (North)

*r-	>	*r-	>	r-	>	r- ( <i>r</i> )
*l-	>	*l-	>	l-	>	l- ( <i>l</i> )

### 4.4 Consonant clusters

Another topic concerning the consonant system of AV is the pattern of consonant clusters. Ferlus (1992) proposed the list of patterns of consonant clusters shown in (81):

(81) PVM

pr	br	tr	dr	kr	gr
pl	bl	ml		kl	gl
	kj				

In our material, the cases in (82) offer quite clear evidence for how the patterns of consonant clusters should be reconstructed.

(82)

CN	SV	MV	20C	Ch	Pages
bl- > t- ( <i>tr</i> )					
巴邏	<i>ba la /ḃa:<sup>1</sup> la:<sup>1</sup>/</i>	<i>blä</i>	<i>trä</i>	報答	8b5
波來	<i>ba lai /ḃa:<sup>1</sup> la:<sup>1</sup>/</i>	<i>blái</i>	<i>trái</i>	-	11a2-3
婆論	<i>bà luân /ḃa:<sup>2</sup> lwæn<sup>6</sup>/</i>	<i>bløn</i>	<i>trøn</i>	全備	11b5
p <sup>h</sup> l- > t- ( <i>tr</i> )					
坡栗	<i>pha lât /fa:<sup>1</sup> lɿt<sup>8</sup>/</i>	<i>blɿt</i>	<i>trɿt</i>	失	13b1
k <sup>h</sup> r- > ʃ- ( <i>s</i> )					
可羅	<i>kbá la /xa:<sup>3</sup> la:<sup>1</sup>/</i>	<i>sa</i>	<i>sa</i>	垂	28a1

可列	<i>khá liệ̄t</i> /xa: <sup>3</sup> liət <sup>8</sup> /	<i>sắ̄t</i>	<i>sắ̄t</i>	鐵	29a5, 31a3
kr- > ʃ- (s)					
{古*弄}	<i>cổ lộng</i> /ko: <sup>3</sup> lo:ŋ <sup>6</sup> /	<i>số̄ng</i>	<i>số̄ng</i>	生, 存	6a3, 15b1, 30a1, 44a3
/𪗇					
𪗇	<i>cự lữ</i> /ki: <sup>6</sup> li: <sup>4</sup> /	<i>sữ̄a</i>	<i>sữ̄a</i>	乳	34a4, 35a4
𪗇	<i>cự lã̄ng</i> /ki: <sup>6</sup> laŋ <sup>1</sup> /	<i>sung</i>	<i>sung</i>	腫	38a2
p <sup>hr</sup> - > ʃ- (s)					
坡律	<i>pha luậ̄t</i> /fa: <sup>1</sup> lwət <sup>8</sup> /	<i>số̄t</i>	<i>số̄t</i>	熱	29a4
破律	<i>phá luậ̄t</i> /fa: <sup>3</sup> lwət <sup>8</sup> /	<i>số̄t</i>	<i>số̄t</i>	熾	29a3
br- > ʃ- (s)					
𪗇	<i>ba lữ</i> /6a: <sup>1</sup> li: <sup>4</sup> /	<i>sữ̄a</i>	<i>sữ̄a</i>	白血	18a2
ml- > l- (l)					
麻例	<i>ma lệ̄</i> /ma: <sup>1</sup> le: <sup>6</sup> /	<i>mlời</i>	<i>lời</i>	言, 教, 語	19a1, 31a2, 37b4-5
麻隣	<i>ma lân</i> /ma: <sup>1</sup> lən <sup>1</sup> /	<i>lãn</i>	<i>lãn</i>	茺萆	19b2
麻碌	<i>ma lộc</i> /ma: <sup>1</sup> lo:k <sup>8</sup> /	-	<i>lóc</i>	茺萆	19b2

The extracted cluster patterns are as follows in (83):

(83)	PVM	AV	17C	20C (North/South)
	Cr- >	*Cr- (p <sup>hr</sup> , br, kr-k <sup>hr</sup> )	> ʃ-	> s/ʃ- (s)
	Cl- >	*Cl- (p <sup>hl</sup> , bl, kl)	> bl-	> tʃ/t̚- (tr)
		(ml)	> ml/l-	> ɲ- (nb)/l- (l)

## 5. Conclusion

Through the analysis of the Chữ Nôm characters contained in the the Buddhist sutra *Phật Thuyết Đại Báo Phụ Mẫu Ân Trọng Kinh* 佛說大報父母恩重經, we reconstructed the phonemes of initial consonants and the syllable structure of Ancient Vietnamese (15C). Concerning the process of spirantization, which can be attested quite clearly in the material, the phonological features of the Chữ Nôm characters can be placed between the stage of spirantization and that of voicing for the medial consonants.

The results of the reconstruction are summarized as follows:

### Syllable Structure

disyllables: C<sub>1</sub>-C<sub>2</sub>V(C<sub>3</sub>)/T  
 monosyllables: C<sub>2</sub>V(C<sub>3</sub>)/T

### Presyllables (C<sub>1</sub>)

p-      t-      c-      k-      ʔa-  
           s-  
           (l-)

### Consonant Clusters

p<sup>hr</sup>    br    kr (k<sup>hr</sup>)  
 p<sup>hl</sup>    bl    kl    ml

## Initial Consonants (C<sub>2</sub>)

b	d'							
			c	k	ʔ			
p <sup>h</sup>	t <sup>h</sup>			k <sup>h</sup>				
β/ϕ	v	ð	s	ʃ	ç	j	ɣ/x	h
m	n		ɲ	ŋ				
	r							
	l							

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## 字喃資料を用いた上古ベトナム語頭子音の再構

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### 要旨

従来上古ベトナム語 (AV) の再建にしばしば字喃が利用されてきたが、子音連続など限られた音韻特徴が言及されるに止まった。本稿では、漢文・字喃文対訳『佛説大報父母恩重經』所収の字喃を基礎データとし Ferlus (2009) の Proto Viet-Muong (PVM) の再構音を参照しつつ、AV 頭子音の体系の再建を試みた。結果、2音節語の分析により摩擦音化の過程が実証されたのみならず、頭子音全体の体系を示すに至った。今後も同様の資料を分析することにより、PVM から中古ベトナム語 (17C) への変遷を解明する重要な鍵が得られると期待される。

**キーワード**：上古ベトナム語，字喃，ベトナム漢字音