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Common Mandarin Chinese Revisited: Focusing on Initials

Chihkai Lin
Tatung University

Three major studies (Chao 1983, Norman 2006, and Simmons and Gu 2014) have thoroughly discussed Common Mandarin Chinese. The reconstruction of Common Mandarin Chinese in the three studies all exhibits different initials that do not fit in any rime book system, and the possible time depth of their Common Mandarin Chinese is not indicated to which consonantal system it might bear the most similarity. In this paper, I argue that the initials of Common Mandarin Chinese mostly resemble the phonological inventory in the late 13th century or the early 14th century.

0. Introduction

Common Mandarin Chinese (henceforth CMC) or Common Dialectal Chinese refers to the reconstruction of Mandarin Chinese based on modern Chinese dialects by using the comparative method. This reconstruction methodologically differs from the conventional method used by most Chinese historical linguists, who rely on philological data, rime books in particular. The comparative method, which does not specially look into philological data, is a central method in historical linguistics mainly utilizing modern languages/dialects to reconstruct proto-forms and trace the possible origin. However, philological data also plays a crucial role in reconstruction, reflecting linguistic information in a specific period or sound changes in the past. The philological data sometimes significantly contribute to the causes of sound changes, the reconstruction of a proto-language or the linguistic information of an extinct language (Campbell 2014: 392).

While it is a leading and central method in historical linguistics, the comparative method is not applied pervasively in Chinese historical linguistics. Instead, the major sources of reconstructing proto-forms in Chinese historical linguistics are philological data, especially rime books. The comparative method and philological data are not mutually exclusive. The two approaches can work together to reach a reconstruction essentially closer to historical facts. As most Chinese historical linguistics from East Asia rely on philological data, several scholars outside East Asia have paid more attention to how the comparative method is applied in Chinese historical linguistics. Karlgren (1915-1926) applied the comparative method to reconstruct the phonological inventory in *Qiēyùn* (切韻) by using sources from modern Chinese dialects and Sino-Xenic languages, namely, the Chinese loans in Japanese, Korean and Vietnamese. With the success of

applying the comparative method to the reconstruction of Middle Chinese, other scholars attempt to reconstruct a specific proto-language by applying the comparative method, such as Proto Min by Norman (1973, 1974). Although Norman tries to be faithful to the comparative method, there are some crucial problems. Geng (2004) points out that Norman did not notice the clear distinction between different readings in Min and that some phenomena do not come from internal sound changes but from language contact.

Despite the fact that it is pervasively used, the comparative method is not yet completely rejected in Chinese historical linguistics. A better way is to integrate the comparative method with philological data which function as a reference point to assist the reconstruction. So far, three studies have touched upon the reconstruction of Mandarin Chinese by applying the comparative method and referring to *Qiēyùn* (切韻, 601 AD), one of the most important references in Chinese historical phonology. Chao (1983: 12) proposed *tōngyǔ* 通語 'General Chinese', a system that accounts for classical Chinese and the modern Chinese dialects. The second work is by Norman (2006), who named such reconstruction as Common Dialectal Chinese. The third work is proposed by Simmons and Gu (2014), who sought the common phonology of the Chinese dialects. Although the three works have all exhibited different initials and rimes, no time depth is explicitly indicated.

In this paper, I aim to seek a general picture that can maximally include the initials in the three reconstructions by exploring initials in the three works. Although I try to trace the possible time depth, I do not intend to reconstruct a new system. Instead, I will present a general picture that maximally covers the three phonological systems based on the comparative method with philological data in different eras. Then I will compare the general picture with the previous works. The comparison does not necessarily lead to a definite time depth that faithfully accounts for all of the data, but it can suggest a possible system to which phonological inventory it might bear the most similarity in history. I argue that the initials in CMC mostly resemble the phonological inventory in the late 13th century or the early 14th century, corresponding to Late Song Dynasty and Early Yuan Dynasty. To gain a full understanding of CMC, the reconstruction according to modern Mandarin Chinese, I review in section 1 the initials proposed by Chao (1983), Norman (2006), and Simmons and Gu (2014). In section 2, I discuss philological data. Initials from different rime books after *Guǎngyùn* (廣韻) are firstly elaborated and then compared with the initials in Chao (1983), Norman (2006), and Simmons and Gu (2014). According to the comparison, I propose in section 3 that the initials in CMC are not earlier than *Wǔyīnjíyùn* (五音集韻) in the early 13th century and not later than *Zhōngyuányīnyùn* (中原音韻) in the 14th century. Section 4 concludes this paper.

1. Studies by Chao (1983), Norman (2006), and Simmons and Gu (2014)

The three major studies dealing with the reconstruction of Common Mandarin Chinese or Common Dialectal Chinese are Chao (1983), Norman (2006), Simmons and

Gu (2014). The first work is Chao's (1983) General Chinese. In his system, there are 40 initials, as shown in (1).

(1) Chao's (1983) initials

幫 b	端 d	見 c		精 z	知 dy	照莊 dr	照章 j	曉 x
滂 p	透 t	溪 k		清 ts	徹 ty	穿初 tr	穿昌 ch	匣 h
並 bh	定 dh	群 g		從 dz	澄 dhy	牀崇 jr	牀船 dj	影 ø
明 m	泥娘 n	疑 q	日 r			審生 sr	審書 sh	喻云以 y, w
						禪士 zr	禪時 zh	
非敷 f	來 l			心 s				
奉 fv				邪 sz				
微 v								

According to Chao (1983: 12), the major dialects in his study are Mandarin, Cantonese, Wu, and some features from Min. Chao proposes 12 stops: 幫 b, 滂 p, 並 bh, 端 d, 透 t, 定 dh, 見 c, 溪 k, 群 g, 知 dy, 徹 ty, and 澄 dhy. In his system, there is no voiceless aspirated stop [p^h, t^h, k^h] for 滂, 透 and 溪, but there are voiced aspirated stops [bh, dh] for 並 and 定. Besides, Chao uses c for [k] (見), which is paired with g (群), for the reason that there is a high frequency of palatalization. The three words, 知 dy, 徹 ty, 澄 dhy, are reconstructed with y. Chao proposes 9 affricates: 精 z, 清 ts, 從 dz, 照莊 dr, 穿初 tr, 牀崇 jr, 照章 j, 穿昌 ch, and 牀船 dj, and 10 fricatives: 非 ~ 敷 f, 奉 fv, 心 s, 邪 sz, 審生 sr, 禪士 zr, 審書 sh, 禪時 zh, 曉 x, and 匣 h. With regard to nasals, lateral and laryngeals, there are five nasals, 明 m, 微 v, 泥 ~ 娘 n, 疑 q and 日 r, one lateral 來 l, and three laryngeals 影 ø, 喻以 y ~ w and 喻云 y ~ w + h (雄熊).

The second work is Norman's (2006) Common Dialectal Chinese. The dataset includes ten dialects: Beijing, Yangzhou, Suzhou, Wenzhou, Changsha, Shuangfeng, Nanchang, Lichuan, Meixian, and Guangzhou. It should be noted that Min is not included in the dataset (Norman 2006: 234). In total, there are 32 initials, as shown in (2) below.

There are seven labial initials: 幫 *p, 滂 *ph, 並 *b, 明 *m, 非 ~ 敷 *f, 奉 *v, and 微 *mv, in which 非 and 敷 have merged. There are five dental initials in (2), 端 *t, 透 *th, 定 *d, 泥 *n, and 來 *l. As for dental sibilants, there are 精 *ts, 清 *tsh, 從 *dz, 心 *s, and 邪 *z. In alveolopalatals, the three series of words *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 have merged. According to Norman (2006: 235), the first two series have completely merged, while the third series has been attributed to the difference in finals. Thus, Norman reconstructed *c for 知/章, *ch for 徹/昌, and *j for 澄/船. As for alveolopalatals, 日, 書 and 禪 are reconstructed as *nh, *sh and *zh, respectively.

Norman's velars include 見 *k, 溪 *kh, 群 *g, 疑 *ng, 曉 *x, and 匣 *h. Norman also reconstructs zero initial for 影, and two semi-vowels *y and *w.[1]

(2) Norman's (2006) initials

Labials	Dentals	Dental sibilants	Alveolo-palatals	Velars	Others
幫 *p	端 *t	精 *ts	知/章 *c	見 *k	
滂 *ph	透 *th	清 *tsh	徹/昌 *ch	溪 *kh	
並 *b	定 *d	從 *dz	澄/船 *j	群 *g	影 *ø
明 *m	泥 *n		日 *nh	疑 *ng	
	來 *l				
非敷 *f		心 *s	書 *sh	曉 *x	
				匣 *h	
奉 *v		邪 *z	禪 *zh		
微 *mv					*y, *w

The third work is by Simmons and Gu (2014). Sixteen Chinese dialects are collected for the common phonology of the Chinese dialects. The sixteen dialects are Beijing, Xi'an, Taiyuan, Yangzhou, and Taixing (Northern Mandarin), Suzhou, Huzhou, and Wenzhou (Wu), Changsha and Shuangfeng (Xiang), Nanchang and Lizhou (Gan), Meixian (Kejia), Guangzhou and Yangjiang (Yue), and Xiamen (Min). In Simmons and Gu (2014), Min is not specifically distinguished in the dataset. The initials, 39 in total, proposed by Simmons and Gu (2014) are shown in (3) below.

There are seven labials, 幫 p, 滂 p', 並 b, 明 m, 非 ~ 敷 f, 奉 v, and 微 mv, and five dentals, 端 t, 透 t', 定 d, 泥 ~ 娘 n, and 來 l. Five dental sibilants are proposed: 精 ts, 清 ts', 從 dz, 心 s, and 邪 z. With regard to velars, there are 見 k, 溪 k', 群 ɡ, 疑 ŋ, 曉 x, and 匣 ɣ. There are one zero initial 影 ø, and two semi-vowels j and w. In Simmons and Gu (2014), the three series of words *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 are distinguished. In *zhīzǔ* 知組, there are 知 tj, 徹 tj', and 澄 dj; in *zhāngzǔ* 章組, there are 章 th, 昌 th', 船 dh, 書 sh, and 禪 zh. In *zhuāngzǔ* 莊組, there are 庄 tr, 初 tr', 崇 dr, and 生 sr.[2] The 日 is reconstructed as nr.

[1] In Norman's system, h in stops and affricates refers to aspiration. In *sh and *zh, the phonetic value is [ʃ] and [ʒ].

[2] It should be clarified that in Simmons and Gu (2014), aspiration is marked by ', not by h. If j and r represent palatal and retroflex in (3), it becomes vague that what feature h in *zhāngzǔ* 章組 represents. According to personal communication with Prof. Simmons at the NACCL 29, the notation of h does not represent any phonetic value. It is only a symbol to distinguish *zhāngzǔ* 章組 from the other two series.

(3) Simmons and Gu's (2014) initials

幫 p	端 t	精 ts	知 tj	庄 tr	章 th	見 k	曉 x
滂 p‘	透 t‘	清 ts‘	徹 tj‘	初 tr‘	昌 th‘	溪 k‘	匣 ɣ
並 b	定 d	從 dz	澄 dj	崇 dr	船 dh	群 g	影 ø
明 m	泥娘 n	心 s		生 sr	書 sh	疑 ŋ	云以
非敷 f	來 l	邪 z			禪 zh		j, w
奉 v					日 nr		
微 mv							

The three studies are compared in (4). I divide the initials into two parts. The first part includes labials, dentals, dental sibilants, and velars; the second part consists of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組. The initials that are identical in the three studies are shadowed in (4).

(4) A comparison of Chao (1983), Norman (2006), and Simmons and Gu (2014)

a.		1.	2.	3.		1.	2.	3.		1.	2.	3.
	幫	p	p	b	端	t	t	d	精	ts	ts	z
	滂	p‘	ph	p	透	t‘	th	t	清	ts‘	tsh	ts
	並	b	b	bh	定	d	d	dh	從	dz	dz	dz
	明	m	m	m	泥娘	n	n	n	心	s	s	s
	非敷	f	f	f	來	l	l	l	邪	z	z	sz
	奉	v	v	fv								
	微	mv	mv	v	日	nr	nh	r				
	見	k	k	c	曉	x	x	x				
	溪	k‘	kh	k	匣	ɣ	h	h				
	群	g	g	ɡ	影	ø	ø	ø				
	疑	ŋ	ng	q	云以	j, w	y, w	j, w				
b.	知	tj	c	dy	庄	tr	--	dr	章	th	(c)	j
	徹	tj‘	ch	ty	初	tr‘	--	tr	昌	th‘	(ch)	ch
	澄	dj	j	dhy	崇	dr	--	jr	船	dh	(j)	dj
					生	sr	--	sr	書	sh	sh	sh
									禪	zh	zh	禪時 zh (禪上 zr)

* 1. Simmons and Gu (2014); 2. Norman (2006); 3. Chao (1983)

In the first part, the most noticeable difference between the three studies is how stops are interpreted. Simmons and Gu (2014) and Norman (2006) share similar interpretation of the following eight initials: 幫, 滂, 並, 端, 透, 定, 見, and 溪. The three initials 幫, 端 and 見 are voiceless unaspirated stops [p, t, k] in Simmons and Gu (2014) and Norman (2006), while Chao (1983) reconstructed 幫 and 端 as voiced unaspirated stops [b, d] and 見 as palatalized [c]. As for 滂, 透, and 溪, they are interpreted as voiceless aspirated stops [p^h, t^h, k^h] in Simmons and Gu (2014) and Norman (2006), whereas they are unaspirated in Chao's (1983) system. The two initials 並 and 定 in Simmons and Gu (2014) and Norman (2006) are voiced without aspiration, but the two initials in Chao (1983) are not only voiced but also aspirated.

In addition to stops, Simmons and Gu (2014) and Norman (2006) are different from Chao (1983) in labial 奉, dental sibilants 精, 清, and 邪, and velar 匣. In labial 奉, Simmons and Gu (2014) and Norman (2006) treat it as a simple fricative f, and Chao (1983) treats it as a compound of f and v. Simmons and Gu (2014) and Norman (2006) regard dental sibilants 精 and 清 as affricates [ts, ts^h], and 邪 as voiced alveolar fricative [z]. On the other hand, Chao (1983) regards 精 as z [z], 清 as ts [ts], and 邪 as sz, which phonetically might be [ʒ]. As for velar 匣, Simmons and Gu (2014) assumes it as a voiced velar fricative [ɣ], while Norman (2006) and Chao (1983) reach a consensus on the phonetic value of 匣, which is a voiceless glottal fricative [h]. The last difference between the three systems is the initial 日. It is certain that 日 is characterized as a nasal with a minor feature that can be retroflex (Simmons and Gu 2014, Chao 1983) or palatal (Norman 2006).

The second part in (4) is the three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組. The phonetic value in *zhīzǔ* 知組 would be palatalized, and the phonetic value in *zhuāngzǔ* 莊組 would be retroflex. In *zhāngzǔ* 章組, the phonetic value would be like postalveolar. With regard to whether the three series merge in CMC, there are different interpretations in the three studies. Chao considers the three series distinct, and Simmons and Gu (2014: 3) follows Chao's suggestion, assuming the three series unmerged. Norman (2006), on the other hand, proposes that the three series have merged, *zhīzǔ* 知組 and *zhāngzǔ* 章組 as one type attributed to initials, and *zhuāngzǔ* 莊組 as the other type attributed to finals.

The comparison of the three studies suggests that Simmons and Gu (2014) and Norman (2006) share more similarity in the reconstruction of CMC, whereas Chao's results deviate more from the other two studies in the interpretation of the voicing and aspiration of stops. Besides, the three studies have viewed *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 differently. The merger of the three series is recognized by Norman (2006), while Simmons and Gu (2014) and Chao (1983) make a clear distinction between the three series.

2. Rime book systems: initials

This section is concerned with the comparison of the reconstruction of CMC in rime book systems. The three studies in section 2 reveal two characteristics. The first characteristic is that there are labiodentals. Reconstructing them in CMC suggests that CMC would not be earlier than *Guǎngyùn* (1008 AD), which systematically lacks labiodentals. The second characteristic is the status of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組. In *Guǎngyùn*, the three series are clearly differentiated. Nevertheless, the three series in the three studies of CMC are no longer distinct from one another.

According to two characteristics, I review rime books after *Guǎngyùn*. The criteria for selecting proper rime books as reference points are based on Ning's (2009: 8) relation of rime books after *Qiēyùn*. The direct descendants of *Guǎngyùn* are *Jíyùn* (集韻) and *Wǔyīnjíyùn* (五音集韻). Other related representative rime books in the following dynasties are *Ménggǔzìyùn* (蒙古字韻) and *Zhōngyuányīnyùn* (中原音韻) in Yuan Dynasty, *Hóngwǔzhèngyùn* (洪武正韻) and *Yùnlüèyìtōng* (韻略易通) in Ming Dynasty.

The first rime book is *Jíyùn*, completed in 1039 AD, Song Dynasty. Shao (2011: 70) reconstructs the initials of *Jíyùn* in (5).

(5) Initials in *Jíyùn* by Shao (2011)

幫 p	端 t	精 ts	知 ʈ	庄 ʧ	章 tɕ	見 k	曉 x
滂 pʻ	透 tʻ	清 tsʻ	徹 ʈʻ	初 ʧʻ	昌 tɕʻ	溪 kʻ	匣 ɣ
並 b	定 d	從 dz	澄 ɖ	崇 dʒ	常 dʑ	群 g	影 ʔ
明 m	泥 n	心 s	娘 ɳ	生 ʃ	書 ɕ	疑 ŋ	以 ø
非 pf	來 l	邪 z			船 ʑ		
敷 pfʻ					日 nʑ		
奉 bv							
微 ɱ							

There are 40 initials in (5).[3] In the 40 initials, bilabials and labiodentals are separated. Besides, the three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 are also distinguished in Shao's reconstruction.

The second rime book is *Wǔyīnjíyùn*, completed in 1212 AD. The initials in this rime book are shown in (6), reconstructed by Guo (2008: 45) and Dong (2004: 32).[4]

[3] Chiu (1974) also reconstructs the initials of *Jíyùn*. Chiu's system resembles Shao's system in most initials, except for the interpretation of voiced initials. Chiu gave aspiration to the voiced initials. For example, 並 is bʻ and 定 is dʻ. The other minor difference is 日. It is nʑ in Shao's system; it is ɳʑ in Chiu's system. In Chiu's system, the three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 are also distinguished.

(6) Initials in *Wǔyīnjíyùn* by Guo (2008) and Dong (2004)

幫 p	端 t	精 ts	知 ʈ	庄 ʈʃ	章 tɕ	見 k	曉 x
滂 p‘	透 t‘	清 ts‘	徹 ʈ‘	初 ʈʃ‘	昌 tɕ‘	溪 k‘	匣 ɣ
並 b	定 d	從 dz	澄 ɖ	崇 dʒ	常 dʑ‘	群 g	影 ʔ
明 m	泥 n	心 s	娘 ɳ	生 ʂ	書 ɕ	疑 ŋ	喻 j
非 pf	來 l	邪 z			船 ʑ		
敷 pf‘					日 nʑ		
奉 bv							
微 ɱ							

There are 40 initials in (6), where bilabials and labiodentals are classified into two categories. Also, the three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 are not merged.

Not only *Jíyùn* and *Wǔyīnjíyùn* but also other representative rime books in later dynasties are discussed. The first rime book in Yuan Dynasty is *Ménggǔzìyùn* (1269 AD). The reconstruction in (7) below is based on Li (2002). There are 30 initials in *Ménggǔzìyùn*. Labials and labiodentals are not differentiated, as 非 and 敷 alternate with their corresponding labials 幫 and 滂, while 奉 and 微 split from labials 並 and 明. Alveolar nasals 泥 and 娘 are also differentiated. The complete merger of the three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 is observed in (7). Li (2002) proposes that there are two readings for velars, 見, 溪, and 曉. When the three initials are followed by a plain rime (without a front rounded glide [y]), the phonetic value is [k, k^h, x]. The capital K, K^h, G and X are used when the three initials are followed by a rime with a front rounded glide [y].

(7) Initials in *Ménggǔzìyùn* by Li (2002)

幫 p	端 t	精 ts	知 tʂ	庄	章	見 k ~ K	曉 x ~ X
滂 p^h	透 t^h	清 ts^h	徹 $tʂ^h$	初	昌	溪 k^h ~ K^h	影 ʔ ~ ʔj
並 b	定 d	從 dz	澄 dʐ	崇	船	群 G	匣 ɣ ~ ɣj
明 m	泥 n	心 s	娘 nj	生	書	疑 ng	云以
非 p ~ f	來 l	邪 z		禪	禪		ø ~ øj
敷 p^h ~ f							
奉 v			審 ʂ		日 r		
微 w			禪 ʐ				

[4] The initials in (6) are based on Guo's system, which has only difference from Dong's system in 日. Guo (2008) reconstructs 日 as nʑ, while Dong reconstructed as ŋʑ.

The second representative rime book in Yuan Dynasty is *Zhōngyuányīnyùn* (1324 AD). The reconstruction is based on Tung (1956), as shown in (8).

(8) Initials in *Zhōngyuányīnyùn* by Tung (1956)

幫 p	端 t	精 ts	知 tʃ	庄	章	見 k	曉匣 x
滂 p‘	透 t‘	清 ts‘	徹 tʃ‘	初	昌	溪 k‘	影 ø
並	定	從	澄	崇	船	群	
明 m	泥娘 n	心 s		生	書	疑 (ŋ)	云以
非敷 f	來 l	邪	ʃ	禪	禪		
奉					日 ʒ		
微 v							

In (8), the number of initials has dramatically reduced to 20 initials, losing at least seven voiced initials. The three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 have merged into one group. In addition, there is no distinction between initials 曉 and 匣 , and between initials 非 and 敷. Initial 微 is denasalized. Initial 日 is reconstructed as [ʒ]. As suggested by Tung (1956: 62), velar nasal has not clearly specified in (8) because it should have disappeared in Yuan Dynasty.

Two representative rime books in early Ming Dynasty are *Hóngwǔzhèngyùn* (1375 AD) and *Yùnlüèyìtōng* (1442 AD). The phonological inventory of *Hóngwǔzhèngyùn* is based on Liu (1931), as shown in (9). Liu (1931) reconstructs 29 initials with voiced initials, such as 並 b and 定 d. Initials 非 and 敷 have merged. In (9), there is no distinction between the three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組.[5] Besides, 微 is still a nasal.

(9) Initials in *Hóngwǔzhèngyùn* by Liu (1931)

幫 p	端 t	精 ts	知 tʃ	庄	章	見 k	曉 x
滂 p‘	透 t‘	清 ts‘	徹 tʃ‘	初	昌	溪 k‘	匣 ɣ
並 b	定 d	從 dz	澄 dʒ	崇	船	群 g	影 ø
明 m	泥娘 n	心 s		生	書	疑 ŋ	云以 j
非敷 f	來 l	邪 z		禪	禪		
奉 v					日 ʑ		
微 ɱ							

[5] The initials of *Hóngwǔzhèngyùn* significantly differ from those of *Zhōngyuányīnyùn*, which is based on northern dialects at that time. *Hóngwǔzhèngyùn* is compiled according to a southern dialect that retains voiced initials, probably related to Wu.

The other rime book in Ming Dynasty is *Yùnlüèyìtōng*. Zhang (1999) proposes the following initials for this rime book, as in (10).

(10) Initials in *Yùnlüèyìtōng* by Zhang (1999)

幫/並 仄 p	端/定 仄 t	精/從 仄 ts	知/澄 仄 tʃ/tʂ	庄	章	見/群 仄 k	曉匣 x
滂/並 平 p‘	透/定 平 t‘	清/從 平 ts‘	徹/澄 平 tʃ‘/tʂ‘	初	昌	溪/群 平 k‘	
				崇	船		影喻疑 ø
明 m	泥娘 n	心邪 s		生	書		
非敷奉 f	來 l		ʃ/ʂ	禪	禪		
微 v					日 ʒ/ʐ		

The initials in (10) are distinguished by voiced initials when they are assigned to different tones. The contour tone 仄 is aligned with unaspirated initials, and the level tone 平 is aligned with aspirated initials. In *Yùnlüèyìtōng*, there are more mergers as in (a) 非, 敷, and 奉 into f, (b) 心 and 邪 into s, (c) 曉 and 匣 into x, and (d) 影, 喻, and 疑 into ø. The three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 also merged.[6]

Thus far, I have reviewed six representative rime books after *Guǎngyùn*. Until early Ming Dynasty, it is certain that two tendencies in the historical development. Labials and labiodentals have spilt, and *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 have merged. After early Ming, the phonological inventories gradually become stable, as the rime books in late Ming Dynasty and Qing Dynasty show less and less changes.

3. Possible time depth of CMC from a philological perspective

In sections 2 and 3, I have reviewed the reconstructions based on two different methods. In this section, I attempt to trace the possible time depth of CMC by comparing CMC with the rime book systems. The comparison is based on the following five phonological conditions in (11).

(11) a. Voiced initials
b. Labials: 非 vs. 敷
c. Merger of the three series: *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組
d. 曉 vs. 匣
e. 影 vs. 喻 vs. 疑

[6] Zhang (1999) has two interpretations for *zhīzǔ* 知組, which can be alveolopalatal or retroflex.

The first condition is concerned with voiced initials. As a crucial sound change in the history of Chinese phonology after Middle Chinese (Chu 2002: 449), devoicing of the voiced initials helps determine how far the CMC can be traced. The second condition is the distinction of labiodental initials between 非 and 敷. Scholars interpreted differently the two initials, which can remain two separate initials or merge into a single one. The third condition deals with whether the three series *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 merge into a single group. The fourth condition involves initials 曉 and 匣, and the fifth condition touches upon the distinction between 影, 喻, and 疑.

The results of comparing the reconstruction of CMC and the six representative rime books under the five phonological conditions are shown in Table 1 below. Before I discuss the five phonological conditions in (11), I first compare the number of initials in CMC with those in the rimes books. The number of initials in CMC ranges from 32 to 40, while the number of initials in the rime books ranges from 21 to 40. It is apparent that CMC is close to *Jíyùn* and *Wǔyīnjíyùn* regarding the number of initials.

Table 1. Comparison of CMC and rime books

CMC	Number of initials	Five phonological conditions				
		a	b	c	d	e
Chao (1983)	40	Yes	Merged	Three-way	Yes	Three-way
Norman (2006)	32	Yes	Merged	Two-way	Yes	Three-way
Simmons and Gu (2014)	39	Yes	Merged	Three-way	Yes	Three-way
Rime books						
Jíyùn	40	Yes	Yes	Three-way	Yes	Three-way
Wǔyīnjíyùn	40	Yes	Yes	Three-way	Yes	Three-way
Ménggǔzìyùn	30	Yes	Yes	Merged	Yes	Three-way
Zhōngyuányīnyùn	21	No	Merged	Merged	Merged	-----
Hóngwǔzhèngyùn	29	Yes	Merged	Merged	Yes	Three-way
Yùnlüèyìtōng	24	No	Merged	Merged	Merged	Merged

* a. Voiced initials;
b. Labials: 非 vs. 敷;
c. Merger of the three series: *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組;
d. 曉 vs. 匣;
e. 影 vs. 喻 vs. 疑

In the first phonological condition, there are voiced initials in CMC and three rime books, *Jíyùn*, *Wǔyīnjíyùn*, *Ménggǔzìyùn*, and *Hóngwǔzhèngyùn*. Secondly, initials 非 and 敷 have merged in CMC, but they are still differentiated in the rime books before Yuan Dynasty. The three series of *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組 are interpreted differently in the three reconstructions of CMC. Chao (1983) and Simmons and Gu (2014) assume that there is no merger, while there are only two series in Norman (2006). In the rime books, only *Jíyùn* and *Wǔyīnjíyùn* distinguish the three series. Initials 曉 and 匣 are distinguished in CMC, but they are not differentiated in *Hóngwǔzhèngyùn* and *Yùnlüèyìtōng*. Initials 影, 喻, and 疑 are distinct in CMC and five rime books, but they have merged in *Yùnlüèyìtōng*.

The number of initials suggests a close relationship between CMC and the earlier rime books before Yuan Dynasty, such as *Jíyùn* and *Wǔyīnjíyùn*. A comparison in the five phonological conditions also suggests a different relationship between the initials of CMC and those in rime books. In the first condition, the voiced initials are in a relationship that the CMC initials are close to those before Ming Dynasty, given that voiced initials start to devoice in Ming Dynasty. Labials 非 and 敷 in CMC are close to those after Yuan Dynasty, as the two initials merge in *Zhōngyuányīnyùn*. As for *zhīzǔ* 知組, *zhāngzǔ* 章組, and *zhuāngzǔ* 莊組, there are three patterns of changes. The three series could be clearly distinguished from one another or all merge into a single unit. No complete merger is found in the CMC initials. After Song Dynasty, the fact that the three series in rime books are no longer distinguished suggests that the CMC initials are not associated with the phonological systems earlier than Song Dynasty. Initials 曉 and 匣 are differentiated in CMC and in the rime books before *Zhōngyuányīnyùn*. This indicates that the CMC initials are closer to the systems before *Zhōngyuányīnyùn*. The comparison shows that the three initials 影, 喻 and 疑 might reflect a system before *Yùnlüèyìtōng*.

Figure 1 below summarizes the comparison of CMC and rime books.

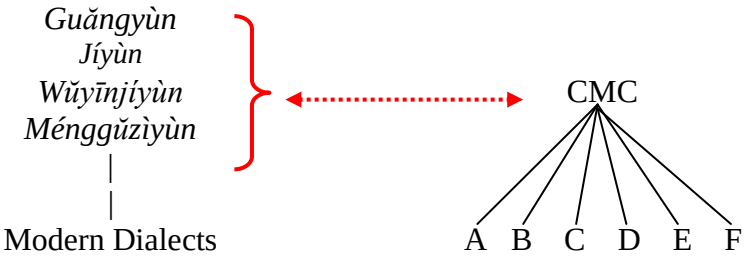

Figure 1: Comparison of CMC and philological data

According to the comparison in Table 1, there is no exact time depth for the CMC initials, but it is possible to show a rough correspondence between the CMC initials and those in rime books. I propose that the CMC initials are maximally close to the phonological inventory of *Wǔyīnjíyùn* or that before *Zhōngyuányīnyùn*. In other words,

the CMC initials could be traced back to as early as sometime between the 13th and 14th centuries. Although the number of initials and the five conditions do not differentiate *Jíyùn* from *Wǔyīnjíyùn* in Table 1, I do not attribute to a wider range that treats *Jíyùn* as the upper limit because the merger of labials 非 and 敷 shows a tendency that the CMC initials should be closer to *Zhōngyuányīnyùn*.

4. Conclusion

In this paper, I have reviewed three reconstructions by Chao (1983), Norman (2006), and Simmons and Gu (2014), and discussed six representative rime books after *Guǎngyùn*. The comparison of the CMC initials and rime books suggests that CMC could be mostly close to the late 13th century or early 14th century. The reconstruction of CMC based on modern Chinese dialects probably reflects Late Middle Chinese, but it is not beyond 1,000 years, later than *Jíyùn* (1039 A.D.).

The result has a significant implication for Chinese historical phonology as well as historical linguistics. Reconstruction based on the comparative method by utilizing modern Chinese dialects does not necessarily lead to an ultimate system that can be traced back to the earliest form of Chinese, namely, Old Chinese or even to Proto-Chinese. There is a ceiling effect in the comparative method that one thousand years or at most one thousand and five hundred years might be the earliest date we can trace by applying the comparative method.

REFERENCES

CAMPBELL, LYLE. 2014. *Historical Linguistics: An introduction*. MA: MIT Press.

CHAO, YUAN-REN. 1983. *Tōngzìfāngàn* [General Chinese]. Beijing: Commercial Press.

CHIU, CHI-YANG. 1974. *Jíyùn yánjiù* [A Study of *Jíyùn*]. Taipei: Manuscript.

DONG, XIAO-ZHENG. 2004. *Wǔyīnjíyùn yǔ Qiēyùnzhǐnán yīnxì zhī bǐjiǎo yánjiù* [A Comparative Study of *Wǔyīnjíyùn* and *Qiēyùnzhǐnán*]. Master thesis, Fujian Normal University.

Geng, ZHEN-SHENG. 2004. *Èrshí shìjì hànyǔ yīnyǜnxué fāngfǎlùn* [The Method of Chinese Phonology in the 20th Century]. Beijing: Peking University Press.

GUO, SHU-PING. 2008. *Wǔyīnjíyùn yǔ Guǎngyùn yīnxì bǐjiǎo yánjiù* [A Comparative Study of *Wǔyīnjíyùn* and *Guǎngyùn*]. Master Thesis, Shandong Normal University.

KARLGREN, BERNHARD. 1915-1926. *Etudes sur la phonologie Chinoise*. Leyde: E.-J. Brill; Peiking.

LI, LI-CHENG. 2002. *Yuándài hànyǔ yīnxì de bǐjiǎo yánjiù* [A Comparative Study of Chinese Phonological Inventories in Yuan Dynasty]. Beijing: Foreign Language Press.

LIU, WEN-JIN. 1931. *Hóngwǔzhèngyùn shēnglèikǎo* [A Study of Initials in *Hóngwǔzhèngyùn*]. *Bulletin of Institute of History and Philology* (Academia Sinica), 3.2:331-373.

NING, JI-FU. 2009. *Hànyǔ yùnshūshǐ - Míngdàijuǎn* [History of Chinese Rime Books: Ming Dynasty]. Shanghai: Shanghai Renmin Chubanshe.

NORMAN, JERRY. 1973. Tonal development in Min, *Journal of Chinese Linguistics* 1–2: 222-238.

NORMAN, JERRY. 1974. The initials of Proto-Min, *Journal of Chinese Linguistics* 2-1: 27-36.

NORMAN, JERRY. 2006. Common dialectal Chinese. In *The Chinese Rime Tables - Linguistic Philosophy and Historical-Comparative Phonology*, edited by David P. Branner, 233-254. Amsterdam: John Benjamins Publishing Co.

SHAO, RONG-FEN. 2011. *Jíyùn yīnxì jiǎnlùn* [A Sketch of the Phonological Inventory of *Jíyùn*]. Beijing: Commercial Press.

SIMMONS, RICHARD V. and Gu Qian. 2014. *Hànyǔ fāngyán gòngtóng yīnxì yánjiù* [Research in the Common Phonology of the Chinese Dialects]. Nanjing: Nanjing University Press.

TUNG, T'UNG-HO. 1956. *Hànyǔ yīnyùnxué* [Chinese Phonology]. Taipei: The Liberal Art Press.

ZHANG, YU-LAI. 1999. *Yùnlüèyìtōng yánjiù* [A Study of *Yùnlüèyìtōng*]. Tianjin: Tianjin Guji Publisher.