OC Phonology: A Sketch

1. Background

Broadly speaking, Old Chinese phonology (*shànggǔyīn* 上古音) is the sound system of Old Chinese, the language of the early first millennium BCE that underlies the rhymes of the *Shījīng* 詩經 (the Book of Odes) and the system of phonetic elements in the early Chinese script. An early stage of this language can be assumed to be the ancestor of all later attested forms of Chinese.

Scientific investigations into the phonology of Old Chinese began in China as early as the Sòng 宋 period (960–1279), undergoing brilliant developments in the Qīng 清 dynasty (1644–1911): major figures include Duàn Yùcái 段玉裁 (1735–1815), Wáng Niànsūn 王念孫 (1744–1832), and Jiāng Yǒugào 江有誥 (d. 1851). These scholars classified the *Shījīng* rhymes into some 30 rhyme categories and observed that these rhyme distinctions corresponded to distinctions among the phonetic elements in the script. Qīng scholars also made important observations about tones and initial consonants, such as the absence in Old Chinese of labiodentals, of retroflex stops, and of anything corresponding to the departing tone (see lemma on traditional Chinese phonology). They established traditional names

for rhymes, initial consonants, and various relations among them, but used no systematic phonetic notation.

Bernhard Karlgren (1889–1978) produced the first full reconstruction of Old Chinese, which he called "Archaic Chinese" (1940). He had previously reconstructed "Ancient Chinese" (i.e. Middle Chinese, *zhōnggǔ yīn* 中古音) by assigning phonetic values to the categories of the rhyming dictionary *Qièyùn* 切韻 (preface of 601 CE), based on his survey of modern Chinese dialects and Sino-Xenic (Sino-Vietnamese, Sino-Korean, Sino-Japanese) pronunciations. His Archaic Chinese reconstruction built on the results of his Qīng predecessors, but he innovated by using phonetic notation and requiring that his Archaic Chinese reconstruction should include enough distinctions to account for the distinctions of Middle Chinese, without assuming unconditioned phonological splits. His method was to project the phonological distinctions of Middle Chinese back onto Old Chinese, modifying them when rhyming or evidence from the phonetic elements in the script forced him to do so. Karlgren's Archaic Chinese was typologically similar to Middle Chinese and to modern dialects: words were tonal and strictly monosyllabic, with occasional initial consonant clusters like *kl-, *pl-, *χm-, or *k's-, and consonant endings like *-b, *-d, *-g and *-r that do not occur in modern dialects.

Since Karlgren's work, further insights have been achieved through advances in a number of areas: (1) a better understanding of Middle Chinese phonology—such as the recognition of the *chóngniŭ* 重紐 distinction; (2) more precise analysis of Old Chinese rhyming distinctions; (3) an improved understanding of Old Chinese morphology, based on internal reconstruction; (4) the study of foreign words in Chinese transcription and of early Chinese loanwords into neighboring languages; (5) the discovery in modern Chinese dialects (especially those of the Mĭn 閩 group) of phonological distinctions predating Middle Chinese; and (6) more sophisticated paleographic research, especially with the discovery in recent decades of texts on bamboo slips and other writing materials dating from the Warring States period (*Zhànguó shídài* 戰國時代, 475–221 BCE), written before the standardization of the Chinese script under Qín 秦 (221–206 BCE) and Hàn (206 BCE – 220 CE). As a result of these developments, our picture of Old Chinese has changed considerably. While a vision of Old Chinese as strictly monosyllabic and tonal, with little morphology, is still defended by some, recent research suggests that Old Chinese was a non-tonal language, in which certain unanalyzable words were disyllables, and it had a significant amount of affixal morphology (see lemmas on morphology and word families).

2. Phonology

Old Chinese phonology will be discussed from the point of view of the recent Baxter-Sagart reconstruction (Baxter and Sagart 2011; to appear). Unless otherwise mentioned, Old Chinese forms are given in the Baxter-Sagart reconstruction, and Middle Chinese forms in the conventional transcription introduced in Baxter (1992:27–85).

2.1. Consonants

Old Chinese is reconstructed with a complex array of initial consonants (Table XX), which include features of labialization and pharyngealization, as well as contrasts between velars and uvulars and between voiced and voiceless resonants.

labials	alveolars	alveolar sibilants	laterals	rhotics	palatals	velars	labio velars	uvulars	labio-uvulars	laryngeal	labio-laryngeal
p	t	ts				k	k^{w}	q	q^{w}	ʔ	
p^{h}	t^{h}	ts^{h}				k^{h}	k^{wh}	q^{h}			
b	d	dz				g	g^{w}	ɢ	$ɢ^{w}$		
		s									
m	n					ŋ	$ŋ^{w}$				
			l	r	j				w		
m̥	n̥					ŋ̊	$ŋ̊^{w}$				
			l̥	r̥							
$p^{ʕ}$	$t^{ʕ}$	$ts^{ʕ}$				$k^{ʕ}$	$k^{wʕ}$	$q^{ʕ}$	$q^{wʕ}$	$ʔ^{ʕ}$	$ʔ^{wʕ}$
$p^{hʕ}$	$t^{hʕ}$	$ts^{hʕ}$				$k^{hʕ}$	$k^{whʕ}$	$q^{hʕ}$	$q^{whʕ}$		
$b^{ʕ}$	$d^{ʕ}$	$dz^{ʕ}$				$g^{ʕ}$	$g^{wʕ}$	$ɢ^{ʕ}$	$ɢ^{wʕ}$		
		$s^{ʕ}$									
$m^{ʕ}$	$n^{ʕ}$					$ŋ^{ʕ}$	$ŋ^{wʕ}$				
			$l^{ʕ}$	$r^{ʕ}$							

m̥ˤ	n̥ˤ					ŋ̊ˤ	ŋ̊ʷˤ				
			l̥ˤ	r̥ˤ							

Of these consonants, *kʷ- had an allophone written as -wk in coda position; similarly, the coda *-w may be regarded as an allophone of initial *Gʷ-. One of the nasals, either *n or *ŋ, had an allophone written as *N in preinitial position.

Initial consonants could occur in clusters with a following *-r-. This medial *r (first reconstructed as *l in Jaxontov 1960 [1983]) affected the development of both the initial and the main vowel in predictable ways. Compare 濟 *tsˤəjʔ > MC *tsejX* > *jǐ* 'stately' with 齋 *tsˤrəj > MC *tsrɛj* > *zhāi* 'purify oneself' (where MC *tsr-* can be interpreted as [tʂ]); and 卑 *pe > MC *pjie* > *bēi* 'low, humble' with 碑 *pre > MC *pje* > *bēi* 'pillar' (an example of the *chóngniǔ* distinction). Authors disagree on whether other elements (*-j-, *-l-, *-w-) could also appear in the medial slot.

In the coda position, current systems reconstruct at least *-j, *-w, *-m, *-n, *-ŋ, *-p, *-t, and *-k for Old Chinese (Zhèngzhāng reconstructs *-b, *-d, *-g in place of *-p, *-t, *-k). But Karlgren (1923, 1940) reconstructed voiced stop codas *-b, *-d,

and *-g in contrast with *-p, *-t, and *-k. These final voiced stops, lost in Middle Chinese, were reconstructed in words with MC non-nasal endings other than *-p*, *-t* and *-k* that show graphic or etymological connections with words in MC final *-p*, *-t* and *-k*: thus because of its etymological connection with the verb 度 *duó* < MC *dak* 'measure (v.)', which he reconstructed as *d'âk, Karlgren reconstructed the noun 度 *dù* < MC *duH* 'measure (n.), degree' as *d'âg. Karlgren's final voiced stops, still maintained by Li (1971), are dispensed with in Haudricourt (1954b) and Wáng Lì (1957), where such alternations are ascribed to the effect of an OC *-s suffix or, in Wáng's case, of vowel length: thus for Karlgren's *d'âk and *d'âg, Haudricourt has *dâk and *dâks, and Wáng Lì has *dak and *da:k. In this the Baxter-Sagart reconstruction follows Haudricourt.

Karlgren also reconstructed a coda *-r in his Archaic Chinese, to account for cases of MC *-j* (also zero coda from earlier *-j) alternating with MC *-n*: for example, Karlgren reconstructed 洗 *xǐ* < MC *sejX* as *siər, and its phonetic element 先 *xiān* < MC *sen* 'first' as *siən. Starostin (1989) modified Karlgren's idea, proposing that OC *-r evolved to *-j in some dialects and to *-n in others; thus he reconstructed *-r in both *xǐ* 洗 'wash' and *xiān* 先 'first', attributing the presence of both *-n* and *-j*

reflexes in Middle Chinese to dialect mixture; and this is accepted in the Baxter-Sagart reconstruction.

The Old Chinese distinction reconstructed (following Norman 1994) as pharyngealization (e.g. *pˁ- versus *p-) underlies the Middle Chinese distinction between nonpalatalized syllables ("divisions I, II and IV" in traditional terminology, also known as "type A syllables") and palatalized ones ("division III", or "type B") respectively (Norman 1994). Norman regarded this pharyngealization as a feature of syllables; Baxter and Sagart treat it as a feature of syllable onsets, because it did not affect rhyming. In the evolution to Middle Chinese, pharyngealization caused high vowels to be lowered, and prevented low vowels from rising; it also prevented alveolars, laterals and velars from palatalizing. Compare 亶 *tˁanʔ > MC *tanX* > dǎn 'sincere, truly' with 氈 *tan > MC *tsyen* > zhān 'felt (n.)'; and 稽 *kʰˁijʔ > MC *khejX* > 'bow the head to the ground' with 脂 *kij > *tsyij* > zhī 'fat, grease'. This distinction had previously been treated as absence vs. presence of a medial yod (i.e. a palatal glide) by Karlgren; as a vowel length distinction (long in type B, short in type A in Pulleyblank (1962:99), but long in type A and short in type B in Zhèngzhāng (1987) and Starostin (1989)); as reflecting different stress conditions (Pulleyblank 1973); and recently as tense voice (type A) vs. lax voice (type B)

(Ferlus 2009).

There is broad agreement that the three-way distinction of manners of articulation in Middle Chinese stops and affricates (voiceless plain, voiceless aspirated and voiced) is inherited from Old Chinese: for instance 箕 *kə > MC *ki* > *jī* 'winnowing basket', 欺 *kʰə > MC *khi* > qī 'to cheat', 其 *gə > MC *gi* > qí 'this'. Karlgren had reconstructed two voiced series, plain and aspirated, in addition to the two voiceless ones: but his plain voiced initials, which yielded Middle Chinese *hj-* and *y-* (*Yù sān* 喻三 and *Yù sì* 喻四 in traditional terminology), now appear to have disparate Old Chinese origins, including sonorants *l- and *r- and the voiced uvular stops *ɢ- and *ɢʷ-. For example, Baxter and Sagart reconstruct 易 *yì* < MC *yek* < *lek where Karlgren reconstructed *dịěk, and 異 *yì* < MC *yiH* < *ɢək-s where Karlgren reconstructed *gịəg. Karlgren's initial plain voiced stops are now generally abandoned, and his aspirated voiced stops are regarded as unaspirated.

Although Middle and Old Chinese both had a three-way manner distinction among stops and affricates, some words changed categories. Sagart and Baxter (2010) argue that nasal prefixes voiced Old Chinese voiceless stops, e.g. *N-p- > MC *b-*, accounting for Middle Chinese alternations between voiced and voiceless

initials in related words, e.g. 敗 *bài* < MC *pæjH* < *pˁrat-s 'defeat (v.t.)' and 敗 *bài* < MC *bæjH* < *N-pˁrat-s 'suffer defeat'. Conrady (1896) and Mei (2008), on the other hand, reconstruct MC *b-* < *b- and *p-* < *s-b- in such cases, arguing that original voiced stops were devoiced by a prefixed *s-. (See the lemma on word-families.)

All authors reconstruct at least one voiceless fricative, OC *s-, as a source of Middle Chinese *s-*. A guttural fricative—Karlgren's *χ, Li's *h, Baxter's *x—was previously reconstructed as the main source of Middle Chinese *x-*, but Pān Wùyún 潘悟雲 (1997) showed that most words with MC *x-* are better reconstructed with OC *qʰ-, e.g. 化 *huà* < MC *xwaeH* < *qʷʰˁ<r>aj-s 'transform' (cf. the discussion of uvulars below). There has been even less agreement on the reconstruction of voiced fricatives: Karlgren had only *z-, reconstructed as one source of Middle Chinese *y-* (the *Yù sì* 喻四 initial); Li (1971) reconstructed no voiced fricatives at all. Baxter (1992) reconstructed two: *z-, the source of MC *z-*, the traditional *Xié* 邪 initial; and *ɦ-, the source of MC *h-* (phonetically [ɦ] or [ɣ]) and *hj-* ([ɦj] or [ɣj]), the traditional *Xiá* 匣 and *Yù sān* 喻三 initials respectively. The Baxter-Sagart reconstruction has no voiced fricatives: it derives MC *h-* from pharyngealized voiced stops *gˁ-, *gʷˁ-, *Gˁ-, and *Gʷˁ-, e.g. 紅 *hóng* < MC *huwng* < *gˁoŋ 'pink', 畫

huà < MC *hwɛk* < *gʷˁrek 'draw (v.)'. In most cases, MC *hj-* reflects OC *Gʷ-, e.g. 為 *wéi* < MC *hjwe* < *Gʷ(r)aj 'make, do, act as', 王 *wáng* < MC *hjwang* < *Gʷaŋ 'king'. In the Baxter-Sagart system, MC *z-* results from the assimilation of Old Chinese pre-initial *s- (often a prefix) to a following voiced obstruent: 祥 *xiáng* < MC *zjang* < *zGaŋ < *s.Gaŋ 'auspicious', 紃 *xún* < MC *zwin* < *zdun < *s-du[n] 'silk cord'.

While Karlgren had reconstructed *l- as the source of MC *l-*, recent reconstructions generally follow Jaxontov (1986) in reconstructing OC *l- as a source of MC *d-* or *y-*, and deriving MC *l-* instead from OC *r- (sometimes with preinitial material). This reconstruction is supported by early Chinese loanwords into neighboring languages; also, thus reconstructed, *l- and *r- correspond to Proto-Tibeto-Burman *l- and *r- respectively. Examples with *l: 田 *tián* < MC *den* < *lˁiŋ 'field', Proto-Hmong-Mien *ljiŋ (Ratliff 2010:254), Written Tibetan *zying* < *lying, Proto-Tibeto-Burman *b-liŋ (Matisoff 2003:280); 葉 *yè* < MC *yep* < *lap 'leaf', Jingpo *lap*, Proto-Tibeto-Burman *lap (Matisoff 2003:336). Examples with *r: 龍 *lóng* < MC *ljowng* < *[mə]-roŋ 'dragon', Proto-Hmong-Mien *-roŋ (Ratliff 2010:252), Siamese *măroŋ*, Vietnamese *rồng*. Jaxontov argued that the change of *l- to *d-*/*y-* took place in the first century CE, and that *r- subsequently changed to *l-* to fill the gap.

Certain words with Middle Chinese sonorant initials, like 六 *liù* < MC *ljuwk* < *k.ruk 'six', have unexpected high-register tones in southern dialects (Hakka *liuk 7* 'six') due to loss of a voiceless preinitial consonant: cf. Proto-Hmong-Mien *kruk (Ratliff 2010:266), Proto-Tai *krok (Pittayaporn 2009:144), Proto-Tibeto-Burman *d-kruk (Matisoff 2003:71). Thus some plain sonorants in Middle Chinese come from Old Chinese clusters of a voiceless stop plus a liquid (Norman 1991).

The reconstruction of voiceless sonorants like *m̥- goes back to Dǒng (1948). These consonants are reconstructed to explain why certain words with Middle Chinese initials like *x-*, *th-*, *trh-*, or *sy-* have graphical or etymological contacts with words having sonorant initials, e.g. 漢 *hàn* < MC *xanH* < *n̥ˁar-s '(river name)', with the same phonetic as 難 *nán* < MC *nan* < *nˁar 'difficulty'; or 埶 *shì* < MC *syejH* < *ŋ̊et-s 'setting', whose other reading, in the related meaning 'to plant', is *yì* < MC *ngjiejH* < *ŋet-s. Jaxontov (1960 [1983]), Starostin (1989), Mei (1989) prefer to reconstruct *s- + sonorants, a move inspired by Tibeto-Burman parallels (see Sagart and Baxter 2012 for arguments against this proposal).

The Middle Chinese palatals and retroflexes were not part of Old Chinese: the palatals are regarded as arising out of alveolars (祝 *zhù* < MC *tsyuwH* < *tuk-s

'to curse'), and, in front vowel contexts only, velars (支 *zhī* < MC *tsye* < *ke 'branch') in type-B syllables; retroflexes are due to the effect of medial *r on alveolar initials (展 *zhǎn* < MC *trjenX* < *treNʔ 'roll over', 榛 *zhēn* < MC *tsrin* < *tsrin 'hazel'; MC *tr-* and *tsr-* can be interpreted as retroflexes [ʈ], [tʂ]).

Uvulars *q-, *qʰ-, and *G- were first reconstructed by Pān (1997) as the Old Chinese precursors of Middle Chinese ʾ- (glottal stop, the *Yǐng* 影 initial), *x-* (a voiceless guttural fricative, the *Xiǎo* 曉 initial), *h-* (a voiced guttural fricative, the *Xiá* 匣 initial), and *hj-* (the *Yù sān* 喻三 initial), which had until then been treated as inherited unchanged from Old Chinese. Pān's proposal makes better sense of mutual contacts among these initials in phonetic series and in word families. Sagart and Baxter (2009) adopted Pān's proposal, with some modifications.

2.2. Vowels

Karlgren's nonphonologized inventory of Old Chinese vowels (*i, *u, *ŭ, *ô, *o̧, *e, *ĕ, *ə, *o, *o̧, *ɛ, *å, *a, *ă, *â) was replaced in the seventies by Li's more elegant system with seven vowels or diphthongs: *i, *ə, *u, *a, *iə, *ia, *ua (1971). More recently, Zhèngzhāng (1987), Starostin (1989) and Baxter (1992), elaborating on

observations by Jaxontov, independently arrived at a still simpler system, reconstructing only six vowels: *i, *e, *ə, *a, *u, *o (with minor notational variantions), resulting in over fifty distinct Old Chinese rhymes. This reconstruction suggests that the traditional analysis of *Shījīng* rhymes was not sufficiently fine-grained: for example, in the six-vowel reconstruction, the finals reconstructed by Li as *-an, *-uan, and *-ian (all traditionally assigned to the single rhyme category 元 *Yuán*) are replaced by *-an, *-on, and *-en respectively, suggesting that they should not regularly rhyme with each other. Baxter (1992) showed that the rhyme evidence does indeed support this and other predictions of the six-vowel reconstruction, and that the traditional rhyme analysis must therefore be refined.

2.3 Tones

The dominant view today is that Old Chinese had no tones, and that tones arose before Middle Chinese from final *-ʔ and *-s, a suffix (Haudricourt 1954a, Pulleyblank 1962, Mei 1970). See lemma on tonogenesis.

2.4. Complex onsets

Onsets with two consecutive stops separated by a vowel are sometimes seen in early Chinese loans to Vietic languages like Rục: in such cases the equivalent loans into Vietnamese have lenited initials (Ferlus 1982). Thus 紙 *zhǐ* < MC *tsyeX* 'paper', a Chinese invention of the early Hàn period, appears in Rục as *kəcáy* and in Vietnamese as *giấy* [zʌi B1]. Similarly, 賊 *zéi* < MC *dzok* 'bandit' appears in Rục as *kəcʌ́k* and in Vietnamese as *giặc* [zak D2]. Vietnamese orthographic *gi-* is a voiced fricative [z], the result of lenition of the affricate which one would normally expect to correspond to the Middle Chinese initials of 'paper' and 'bandit'. By coincidence, these two words were independently borrowed by Lakkia, a Tai-Kadai language, as *khjei 3* 'paper' and *kjak 8* 'bandit'. In these two words, Lakkia shows a velar onset, paralleling the kə- preinitial in Rục. In consideration of this evidence, Baxter and Sagart reconstruct Old Chinese *k.teʔ for 'paper' and *k.dzˤək for 'bandit', where *k.t and *k.dzˤ are tightly attached heterosyllabic clusters. In Lakkia, *k.dzˤ first evolved to *g.dz through voicing assimilation; these clusters then simplified through loss of the second consonant —a behavior already known to have occurred in Lakkia, cf. L-Thongkum (1992), Ostapirat (2006:1092, fn. 16)— ultimately resulting in *k-* with high and low register tones respectively. (The use of a period <.> instead of a hyphen <-> after a preinitial in the Baxter-Sagart

reconstruction indicates that no morphological function has been identified for the preinitial consonant *k; this opens the possibility that Old Chinese had some non-monosyllabic word stems.)

While Rục and Lakkia provide direct and converging evidence for complex initials, the distinctions uncovered in Proto-Mĭn 閩 by Norman (1973 and subsequent work) point to the existence in Old Chinese of different *kinds* of complex onsets. Norman reconstructed six series of stops: plain voiceless, voiceless aspirated, voiceless softened, plain voiced, voiced aspirated and voiced softened, written (using labials as an example) as *p, *ph, *-p, *b, *bh, and *-b. Norman (1986) observed that his Proto-Mĭn softened initials (*-p, *-t, *-ts, *-tš, *-k, *-b, *-d, *-dz, *-dž, *-g), which lenite to sounds like *v-*, *l-,* and *Ø-* in certain northern Mĭn dialects, often correspond to prenasalized stops in Proto-Hmong-Mien, e.g. 步 *bù* < MC *buH* 'step', Proto-Mĭn *-b, and Mien *bia 6* from earlier *mb-. He proposed that these initials originated in Old Chinese prenasalized consonants. However, Hmong-Mien prenasalized onsets correspond not only to softened initials like *-p and *-b, but also to the plain and aspirated voiced initial types like *b and *bh. For example, Proto-Hmong-Mien *ndzr- corresponds to Proto-Mĭn *d- in 直 *zhí* < MC *drik* 'straight', and Proto-Hmong-Mien *ɲɟ- corresponds to Proto-Mĭn *dh- in 柱 *zhù*

< MC *drjuX* 'pillar'. Prenasalization therefore cannot be what distinguishes Norman's softened voiced stops from his other kinds of voiced stops.

The Baxter-Sagart system instead accounts for the proto-Mĭn initial types as follows: (1) Proto-Mĭn voiceless unaspirates and aspirates are inherited from Old Chinese (possibly with preinitial material), e.g. OC *p-, *C.p- > Proto-Mĭn *p-, OC *p^h-, *C.p^h- > Proto-Mĭn *ph-. (2) Norman's plain voiced stops come from Old Chinese plain voiced stops, and from stops with the stative-intransitive nasal prefix *N- (see lemma on word families): e.g. OC *b- and *N-p- > Proto-Mĭn *b-. Examples: 飯 OC *bonʔ-s > MC *bjonH* > *fàn* 'cooked grain', Proto-Mĭn *b-; 直 OC *N-t<r>ək > MC *drik* > *zhí* 'straight', pMĭn *d-. (3) Norman's voiced aspirates come from Old Chinese stops with the *m- prefix, or from voiced stops or affricates with voiceless preinitials, e.g. OC *m-p-, *k.b- > Proto-Mĭn *bh-. Examples: 柱 *m-t<r>oʔ > MC *drjuX* > *zhù* 'pillar', Proto-Mĭn *dh-; 賊 *k.dzˁək > MC *dzok* > *zéi* 'bandit', Proto-Mĭn *dzh- (cf. Rục *kəcʌ́k* 'bandit', cited above). (4) Norman's softened stops, both voiceless and voiced, reflect Old Chinese voiced and voiceless stops with loosely attached preinitials—preinitials having a central vowel after the preinitial consonant, e.g. OC *Cə.p- > Proto-Mĭn *-p, OC *Cə.b- > Proto-Mĭn *-b. Examples: 字 OC *mə-dzə-s > MC *dziH* > *zì* 'character', Proto-Mĭn *-dz- (Proto-Mienic *ndzaŋ

C); 擔 OC *mə-tˤam > MC *tam* > *dān* 'carry on the shoulder', Proto-Mǐn *-t- (Proto-Hmong-Mien *ntam A); 脰 OC *kə.dˤok-s > MC *duwH* > *dòu* 'neck', Proto-Mǐn *-d- (Rục *kadók* 'nape'). Thus softening in Northern Mǐn occurs intervocalic position—a process similar to that observable synchronically in nearby Fúzhōu 福州.

Thus on the basis of Northern Mǐn, Baxter and Sagart distinguish between complex onsets without an intervening central vowel (e.g. 賊 *k.dzˤək > MC *dzok* > *zéi* 'bandit') and onsets with a central vowel (e.g.脰 *kə.dˤok-s > MC duwH > *dòu* 'neck'). This distinction is independent of whether the preinitial is a prefix or part of the root. (The distinction corresponds to that in Sagart 1999 between tightly attached or "fusing" preinitials and loosely attached or "iambic" ones, except that all preinitial consonants were treated there as morphological prefixes.) In the Baxter-Sagart system, with some exceptions, loosely attached onsets are still for the most part lost in Middle Chinese. The evolution of tightly attached onsets is more complex: whether the preinitial consonant is reflected in Middle Chinese or lost depends both on the identity of the consonants involved and on dialectal developments.

INDEX ITEMS: Old Chinese, Archaic Chinese, Middle Chinese, Ancient Chinese, *chóngniŭ* 重紐 distinction, Sino-Xenic pronunciations, Sino-Korean pronunciation, Sino-Japanese pronunciation, Sino-Vietnamese pronunciation, Old Chinese morphology, word families, Qièyùn 切韻, Duàn Yùcái 段玉裁 (1735–1815), Wáng Niànsūn 王念孫 (1744–1832), Jiāng Yŏugào 江有誥 (d. 1851), Bernhard Karlgren (1889–1978)

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