

## The Old Chinese origin of Middle Chinese voice sibilants *z/ʒ*

This paper discusses the Old Chinese origin of voiced sibilants *z-* and *ʒ-* in Middle Chinese. First, based on careful examination of *Guǎngyùn* (广韵) and other texts, we argue that, although the distinction between voiced affricates and fricatives was largely kept in the *Guǎngyùn* system, in some words the voiced affricates *dz-/dʒ-* had already merged into fricatives *z-/ʒ-* due to copying from other texts and/or sound change. Second, we argue that *z-* and *ʒ-* in Middle Chinese are either in complementary distribution or show free variation in some occasions. Therefore, they had one single origin (*/z/*) before the onset of the sound change *z- > ʒ-*. Based on these arguments, we have carried out a detailed analysis of the *xiéshēng* series and found four different origins for */z/*. They are *\*r-j-*, *\*s-g-*, *\*z-*, and *\*s-d-* respectively.

*Keywords:* Old Chinese phonology; historical reconstruction; sound change; coronal affricates.

### I

Unlike stop consonants, the fricatives in Chinese often have comparatively complicated origins, with the voiced fricative *z-/ʒ-* at the top of the list. First of all, a small number of syllables with affricate initials *dz-/dʒ-* merge with those with fricative initials *z-/ʒ-*. Already in the *Jīngdiǎn shìwén* (经典释文), compiled by Lù Dé míng 陆德明, there are traces of their merging (Wáng 1984). The *Yùnjìng* (韵镜) is exceptional in this respect, as it misarranges the sequence for the affricate *dʒ-* and the fricative *ʒ-*. Second, in the rhyme dictionary *Guǎngyùn* (广韵), although the affricates and fricatives are distinct phonemes, there is occasional confusion of the two sets. This can be explained in part by assuming that the compilers were negligent in differentiating the data when copying from previous rhyme dictionaries and character dictionaries, and in part by the factor of sound change. On the other hand, there are cases of fricatives *z-/ʒ-* merging with affricates *dz-/dʒ-*. Such mutual developments between fricatives and affricates are common in Chinese and even Sino-Tibetan languages; we shall not expound on this here with concrete examples.

Lǐ Fāngguì 李方桂 (1980: 16) has proposed that the palatal fricative *ʒ-* is an allophone of the affricate *dʒ-*, with a shared origin in Old Chinese. This viewpoint is rarely supported by Chinese phonologists. Even though there are traces of confusion between *ʒ-* and *dʒ-* in *Guǎngyùn*, they are distinctly different from each other. More importantly, each of them corresponds to different *xiéshēng* series in Old Chinese. Their *xiéshēng* sets are conspicuously different from each other. The initials of the *xiéshēng* sets of the affricate *dʒ-* include *t-*, an alveolar stop, and *tʃ-*, a palatal affricate, whereas *t-* and *tʃ-* rarely occur in *xiéshēng* sets of *ʒ-*. Their demarcation is clear. Thus, Old Chinese fricative *ʒ-* and affricate *dʒ-* should originate from different consonants in Old Chinese. We cannot jump to the conclusion that they are reflexes of the same initial consonant in Old Chinese based on sporadic cases of their confusion as reflected in *Guǎngyùn*.

## II

The fricative *z-* in Middle Chinese, different from sounds like *ts-/tsh-/dz-/s-*, which share the same place of articulation with it, can co-occur only with finals that have the main vowel *-i-* or the medial *-i-*, that is, *z-* is an initial consonant occurring in a specific phonetic environment. This is explainable only in two ways: either *z-* changes into other consonants in certain environments, parallel with the velar stop *g-* in Old Chinese, or it has an origin different from *ts-/tsh-/dz-/s-* in Old Chinese. The alveolars *ts-/tsh-/dz-/s-* belong in the same *xiéshēng* series with the retroflexes *tʂ-/tʂh-/dʂ-/ʂ-*, forming a relatively exclusive *xiéshēng* set. Except for sporadic *xiéshēng* contacts with the alveolar fricative *s-*, initial *z-* forms no *xiéshēng* series with alveolar affricates *ts-/tsh-/dz-*, and never occurs together with retroflex *tʂ-/tʂh-/dʂ-/ʂ-*. The *xiéshēng* behavior of *z-* parallels that of the semi-vowel *j-* in that it forms *xiéshēng* series with alveolar stops *th-/d-* and the semi-vowel *j-*. Therefore, Lǐ Fāngguì 李方桂 (1980: 14) holds that *z-* results from the same Old Chinese consonant group that also gave rise to *j-*, instead of *ts-/tsh-/dz-*.

The Middle Chinese consonant *ʒ-* is distinct from *tʂ-/tʂh-/dʂ-* (affricates of the same place of articulation), and they generally do not occur within the same *xiéshēng* sets. The alveolars *t-/th-/d-/n-* in Old Chinese, when co-occurring with the palatal medial *-i-* (*-j-*), evolve into Middle Chinese palatals *tʃ-/tʃh-/dʃ-/ɲ-*. In the same vein, the alveolar fricatives *s-/z-* in Old Chinese, when co-occurring with *-i-* (*-j-*), ought to evolve into palatal fricatives *ʃ-* and *ʒ-* in Middle Chinese, that is to say, the earlier forms of Middle Chinese *ʃ-* and *ʒ-* should be the alveolar fricatives *s-/z-*. The palatal fricative *ʒ-* and the alveolar fricative *z-* are usually in complementary distribution, and even when they are in contrastive distribution, they are still but phonetic variations; moreover, they share the same *xiéshēng* behavior. Hence, Jīn Lǐxīn 金理新 (2002: 237–238) argues that the palatal fricative *ʒ-* and the alveolar fricative *z-* are allophones of the same consonant initial. According to the chronological order of sound change, the palatal fricative *ʒ-* in Middle Chinese should be a later form evolved from the alveolar fricative *z-*, viz. *z- > ʒ-*.

The two fricatives *z-* and *ʒ-* are allophones of the exact same consonant initial. That is why they show identical *xiéshēng* behavior and are in complementary distribution. The two variants are in contrastive distribution only in the case where one phonetic variant of *shè* 射 ('shoot') and one of *shè* 麝 ('musk') are distinct from *xiè* 谢 ('thank') and *xiè* 榭 ('pavillion'), all with the phonetic/phonological radical *shè* 射 ('shoot'). In the *Guǎngyùn* *shè* 射 has four pronunciations, including *ʒiək*, *ʒiək*, *ʒia<sup>c</sup>* and *ʒia<sup>c</sup>*, and *shè* 麝 has two pronunciations, *ʒiək* and *ʒia<sup>c</sup>*. According to the *Jīngdiǎn shìwén* (经典释文), as a verb, *shè* 射 is pronounced as *ʒiək*, whereas as a noun, it is pronounced as *ʒia<sup>c</sup>*. It is evident that *ʒia<sup>c</sup>* is a later aberrant form, distinct from the most common, customary pronunciation because of the difference in meanings. Parallel to this, the two distinct pronunciations of *shè* 麝 (*ʒiək* and *ʒia<sup>c</sup>*) have been developed to differentiate 'musk' from 'musk-producing animal'. Except for the two aberrant pronunciation variants, the alveolar fricative *z-* from the same origin does not occur in contrastive distribution with the palatal fricative *ʒ-*. Under the same phonetic conditions, *z-* never occurs where there is *ʒ-*, and vice versa.

In the *xiéshēng* sets formed with above-mentioned phonetic radicals, we sporadically observe velar stops, but no traces of palatal affricates can be seen, neither can the alveolar stops be encountered (including the three initials *zhī* 知, *chè* 彻 and *chéng* 澄). According to Dǒng Tóngxhé's (1948: 33) Old Chinese reconstruction system, in those cases where the semi-vowel *j-* forms part of a *xiéshēng* series with velars, it should be reconstructed as *\*g-*. However, the fricative *z-* within the same *xiéshēng* sets is still reconstructed as *\*z-* in Dǒng's system. Obviously, this reconstructed form fails to take into account the *xiéshēng* connection between the

Table 1. *Xiéshēng* behavior of the fricatives z- and z̄-

	z-	j-	k-	kh-	g-	t-	th-	d-	t-	th-	q-	tɕ-	tɕh-	dʑ-	ɕ-	z̄-
頤	涇	頤	姬													
食	食	食													飾	食
蠅		蠅														繩
孕		孕														
囚	囚	游														
臾		臾														
與	嶼	與	舉													
牙	邪	邪														
亦		亦														
夜		夜														
夕	夕															
射	榭	射														射
羊	祥	羊	姜	羌												
羸		羸														
衍		衍		愆								(饗)				
沿		沿														船
兗		兗														
允		允														吮
寅		寅														
𠄎		𠄎														
𠄎		𠄎														
裔		裔														

fricative z- and the semi-vowel j-. Lǐ Fāngù (1980: 60) reconstructs *yáng* 羊 and *xiáng* 祥 respectively as \*raŋ and \*rjaŋ. Similar to Dǒng's reconstruction, Li's reconstructed forms are also incapable of explaining the *xiéshēng* connection between *yáng* 羊 \*raŋ, *xiáng* 祥 \*rjaŋ and *jiāng* 姜 \*kjaŋ. Jīn Lǐxīn (2013: 283–294) discusses the pronunciations of the Old Chinese antecedents of the Middle Chinese fricative z-/z̄- and the semi-vowel j- in the above-mentioned *xiéshēng* sets. He proposes that, as can be seen from those *xiéshēng* sets, the Old Chinese origin of Middle Chinese j- is still a semi-vowel, reconstructed as \*j-, while that of the Middle Chinese fricative z-/z̄- is a semi-vowel \*j- with a prefix \*r- (the velar stop k- which forms the same *xiéshēng* series with it originates from Old Chinese \*kj-, where \*k- is a prefix). These reconstructed forms adequately settle the *xiéshēng* relationship between all involved characters. Thus, *yáng* 羊, *xiáng* 祥 and *jiāng* 姜 form *xiéshēng* series only because the three share an identical root \*jaŋ, which is explicit from their reconstructed forms \*jaŋ, \*r-jaŋ and \*k-jaŋ. We shall not expound on this issue any further here; however, besides \*rj-, there are other Old Chinese origins for Middle Chinese fricatives z-/z̄-.

Within the *xiéshēng* series in Table 2, all of them representing a typical harmonic set of soft palate sounds, we only encounter those consonants which evolve into Middle Chinese velars k-/kh-/g-/x-/ɣ-, and never those which develop into Middle Chinese alveolar stops t-/th-/d-, palatal affricates tɕ-/tɕʰ-/dʑ-, or palatal fricative ɕ-. As to the finals, outside of those *yùnbù*'s (Old Chinese rhyme categories) which do not develop into Ancient Chinese *she*'s (Middle Chi-

Table 2. *Xiéshēng* behavior of the fricatives *z-* and *ʒ-*

		j-	s-	z-	k-	kh-	g-	x-	ɣ-	t-	th-	d-	tʃ-	tʃ <sup>h</sup> -	dʒ-	ʒ-	ʒ-	
久		姜			久		枢											
公		颂	鬆	訟	公													
容		容		松														
雀		雀			樵	推		臙	雀									
谷		谷		俗	谷													
頃		穎			穎	頃												
喬		喬			橋													喬
唯		唯	雖			匯		睢	淮									
睿		睿	贖	璿														
旋				旋														
敷		敷			激	覈			橄									
役		役						殺	椌									
冃		捐		圓	洵		娟	圓	鞞									
熒		營					堯		熒									
彗			雪	彗				擘	慧									
尹		尹							軛									
勻		勻	昫	昫	均				昫									
旬			詢	旬				詢	詢									
還			還	還	還			還	還									
穴		鳩						汙	穴									衵

nese rhyme categories) that contain both *kāikǒu* 开口 (open) and *hékǒu* 合口 (closed) rhymes, all the *yùnbù*'s which can co-occur with the consonants are those which evolve into Middle Chinese *she*'s with *hékǒu* rhymes and can be encountered in characters outside of the 3rd division, such as 谷 *gǔ*. Jīn Lǐxīn (2013: 473-483) provides a detailed discussion of the pronunciations of the Old Chinese ancestors for this groups of initials. The Middle Chinese fricatives *z-/ʒ-* evolve from the Old Chinese voiced uvular stop \**g-* with a prefix \**s-*, and the vowels co-occurring with it are tense vowels.

### III

Besides the two origins touched upon in the previous section, a third origin of the Middle Chinese fricatives *z-/ʒ-* is the Old Chinese fricative \**z-*. This ancestor of *z-/ʒ-* forms *xiéshēng* series with those Old Chinese consonants which change into Middle Chinese alveolar stops *th-/d-* (the unaspirated stop *t-* and palatal affricates *tʃ-/tʃ<sup>h</sup>-/dʒ-* are not encountered in these *xiéshēng* series). The *xiéshēng* series for this variant of *z-/ʒ-* are distinct from those of the previous two. The Middle Chinese reflexes of this *xiéshēng* series include altogether seven consonants, namely, *th-/d-*, *ʒ-/ʒ-/j-* and *s-/z-*. For details, Jīn Lǐxīn (2013: 377-379) can be referred to. First of all, we shall examine the distribution of the three initials *z-/ʒ-/j-*.

Table 3. The distribution of the initials z-/ʒ-/j- across rhyme groups

	之			职		蒸		
	平	上	去	去	入	平	上	去
j	台	以	异		弋			贖 <sup>1</sup>
ʒ								贖
z		似						

  

	幽			觉		冬		
	平	上	去	去	入	平	上	去
j	攸	誘	袖			融		
ʒ								
z			袖 <sup>2</sup>					

  

	宵			药				
	平	上	去	去	入	平	上	去
j	姚		窈	燿	躍			
ʒ								
z								

  

	侯			屋		东		
	平	上	去	去	入	平	上	去
j	俞	瘳	觐			庸	勇	用
ʒ								
z								诵

  

	鱼			铎		阳		
	平	上	去	去	入	平	上	去
j	余	予	豫		譚	易		煬
ʒ		抒						
z	徐	抒					象	

  

	支			锡		耕		
	平	上	去	去	入	平	上	去
j	愜	愜 <sup>3</sup>		易	易	盈	郢	
ʒ		𨔵						
z								

<sup>1</sup> The character *shèng* 贖 has two variant pronunciations in the *Guǎngyùn*: *jiŋ<sup>c</sup>* and *ʒiŋ<sup>c</sup>*, both sharing the same meaning.

<sup>2</sup> According to the pronunciations provided in *Jīngdiǎn shìwén*, the characters 袖, 岫 (*xiù*) have two pronunciation variants, *ziu<sup>c</sup>* and *jiu<sup>c</sup>*.

<sup>3</sup> The character *yí* 愜 is attested only in the *Shuōwén*, without any attestation in any other document from the pre-Qin era to the two Han dynasties.

	歌			月		元		
	平	上	去	去	入	平	上	去
j	蛇	池	施	拙	拙 <sup>4</sup>	延		羨
ɤ	(蛇)				舌			
z						次	纒	羨 <sup>5</sup>

	歌			月		元		
	平	上	去	去	入	平	上	去
j	隋 <sup>6</sup>	隋		锐	说	緣		掾
ɤ								
z	隋							

	微			物		文		
	平	上	去	去	入	平	上	去
j	遺	墮	遺					
ɤ					朮			
z				豕				

	脂			质		真		
	平	上	去	去	入	平	上	去
j	夷		肄		逸		引	蚓
ɤ						神		
z		兕						

				葉		谈		
	平	上	去	去	入	平	上	去
j					葉	(閭)		
ɤ								
z						燄		

				緝		侵		
	平	上	去	去	入	平	上	去
j				隶		譚 <sup>7</sup>	潭	
ɤ								
z					隰	尋		

<sup>4</sup> The character *yè* 拙 has two pronunciations in the *Guǎngyùn*: *jièi<sup>C</sup>* and *jiè<sup>D</sup>*. The former pronunciation makes it a character variant of *yè* 曳 (拽), whose pronunciation in the *Guǎngyùn* and in the *Jīngdiǎn shùwén* is also *jièi<sup>C</sup>*.

<sup>5</sup> The characters *xiàn* 羨 and *yàn* 羨 have two pronunciation variants, *zièn<sup>C</sup>* and *jin<sup>C</sup>*, in the *Guǎngyùn*.

<sup>6</sup> The character *wéi* 隋 is attested only in the *Shuōwén*, without any attestation in any other document from the Pre-Qin era to the two Han dynasties.

<sup>7</sup> The character *dǎn* 譚 has two pronunciation variants, *jim<sup>A</sup>* and *thom<sup>A</sup>*, in the *Guǎngyùn*; likewise, *xín* (or *tán*, or *chán*) 譚 and *xún* 譚 also have two pronunciation variants, *jim<sup>A</sup>* and *zim<sup>A</sup>*.

The fricatives *z-* and *ʒ-* are contrastive only in one case; otherwise, they are in complementary distribution. Three characters with the fricative initial *ʒ-* (*shū* 纾, *shū* 杼 and *zhù* 杼) are in contrastive distribution with *shū* 舒 that shows an initial *z-*; all four characters belong to the Old Chinese *yú* 鱼 rhyme category and to the Middle Chinese *yǔ* 语 rhyme group with *shǎngshēng* (上声). The characters *shū* 纾, *shū* 杼 and *zhù* 杼 all have variant pronunciations. In the *Guǎngyùn*, the two pronunciations of *shū* 纾 are *ʒio<sup>B</sup>* and *ʒio<sup>A</sup>*. According to the *Jīngdiǎn shìwén*, *shū* 纾 should be pronounced *ʒio<sup>A</sup>*<sup>8</sup>. In the *Guǎngyùn*, the two pronunciations of *shū* 杼 are *zio<sup>B</sup>* and *ʒio<sup>B</sup>*. According to the glossing of *shū* 杼 in the *Shuōwén*, the *Jīngdiǎn shìwén*, and the *Guǎngyùn*, *zio<sup>B</sup>* and *ʒio<sup>B</sup>* are merely phonetic variants without any difference in meaning<sup>9</sup>. The character *zhù* 杼 has two pronunciations in the *Guǎngyùn*: *dio<sup>B</sup>* and *ʒio<sup>B</sup>*. Except for these three characters with variant pronunciations, the two fricatives *z-* and *ʒ-* are generally complementary. It can be safely inferred that they represent variants of the same initial.

When the fricative *z-* is palatalized, it changes into the fricative *ʒ-*, which in turn is prone to more change, resulting in the semi-vowel *j-*. The reverse cycle of sound change between these three sounds is also quite common. The semi-vowel *j-* in Chinese is reflected in most dialects of the Hmong language as *ʒ-* (for example, 羊 is pronounced *ʒoŋ<sup>2</sup>* in Yǎnhào language), whereas in Sino-Vietnamese the typical reflex is *z-*, e.g. 养 is pronounced *zaj<sup>4</sup>*. In some Kam-Tai languages they even shift to alveolar plosives, e.g. 养 is pronounced *t:aj<sup>4</sup>* in the Mulam language.

As we have mentioned many times in previous sections, the two fricatives *z-* and *ʒ-* are in complementary distribution. Apart from the two origins mentioned in section 2, that is, *\*rj-* and *\*sc-*, and several characters with initials *z-* and *ʒ-*, which evolve from the alveolar stops, *z-/ʒ-* are in obvious complementary distribution with the semi-vowel *j-*. Syllabically, the fricatives *z-/ʒ-* are in contrastive distribution with the semi-vowel *j-* only in a few cases. Among these exceptional cases, except for two characters *yǐ* 以 and *sòng* 诵, which do not have variant pronunciations, all the others are characters with variant pronunciations, the majority of which are sheer variants without any difference in meaning. Aside from these characters with variant pronunciations, the fricatives *z-/ʒ-* are complementary with the semi-vowel *j-*. Moreover, *z-/ʒ-* and *j-* also form phonetic variants; such variant pronunciations are common in Ancient Chinese rhyme dictionaries such as the *Guǎngyùn* (see Table 4).

As we have indicated, these variant pronunciations, most of which are not accompanied by any difference in meaning, only reflect sound variations in different dialects, or sound change in different historical periods. During the Later Hàn 汉 Dynasty and the Three Kingdoms period, the semi-vowel is already used to transcribe *y-* in Sanskrit, and semi-vowels from two different origins have already merged (for detailed reference, see Yú Mǐn 俞敏 1999: 59). Therefore, the variant pronunciations mentioned above can be explained as sound change from different historical periods. The fricatives *z-/ʒ-* and the semi-vowel *j-* seem to be contrastive only in rhyme *yú* 鱼 from Old Chinese rhyme category *yú* 鱼 (*yú bù* 鱼部): the character *xú* 徐 has the fricative *z-* as the initial, while *yú* 余 has the semi-vowel *j-* as the initial. In light of the examination of the usage of the character *xú* 徐 in historical documents and of the pronunciations given for this character by teachers of Confucian Classics from various dynasties, it can be ascertained that the initial of *xú* 徐 in the *Guǎngyùn* is the fricative *z-*, which is a retention from Old Chinese pronunciation; we shall not dwell on this here.

<sup>8</sup> In the *Zuǒzhuàn* (左传): 令尹自毁其家以纾楚国之难 "The chief sacrificed his home so as to ease the pain of the state of Chu". *Jīngdiǎn shìwén*: 纾, 音舒, 一音直汝反.

<sup>9</sup> In the *Zuǒzhuàn*: 难必纾矣 "The trouble must be relieved". *Jīngdiǎn shìwén*: 杼, 直吕反, 又时吕反.

Table 4. Examples of variant pronunciations for *z-/ʒ-/j-*

Character		Pronunciation with <i>j-</i>		Pronunciation with <i>z-/ʒ-</i>	
羴	<i>yí</i>	以脂切	广雅云：犍羊也 'wether'	徐姊切	犍羊 'wether'
轴	<i>yòu</i>	余救切	牛黑眈 'black-canthused oxen'	似佑切	牛黑眈 'black-canthused oxen'
改	<i>yǐ</i>	羊已切	大坚 'adornments worn by officials in the Han dynasty to drive off evil spirits'	详里切	
已	<i>yǐ</i>	羊已切	止也。此也，甚也，讫也，又音似 'stop; here / this; very much; come to an end; another pronunciation is <i>sì</i> '	详里切	
鐔	<i>xín</i>	余针切	剑鼻 'sharp tip of a sword'	徐林切	剑鼻 'sharp tip of a sword'
鱻	<i>xún</i>	余针切	鱼名 'name of fish'	徐林切	鱼名 'name of fish'
勩	<i>xiàng</i>	余两切	勉也 'endeavor'	徐两切	勉也 'endeavor'
斜	<i>xié</i>	以遮切	斜谷，说文抒也 'place name; <i>shū</i> 'push, scoop' in the <i>Shuōwén</i> '	似嗟切	上同（邪） 'same as the above ( <i>xié</i> )'
藜	<i>yé</i>	以遮切	穗也 'ear of a grain, spike, tassel'	似嗟切	藜蒿 'a kind of artemisia'
燂	<i>yàn</i>	以贍切	光也 'light (n.)'	徐盐切	同燂 'same as <i>xún</i> 'cook with fire, half-cooked meat'
羨	<i>xiàn</i>	予线切	延也，进也 'invite to enter, let enter'	似面切	贪慕，又馐也 'envy, admire; also 'have extra''
遶	<i>yàn</i>	予线切	移也 'move'	似面切	遮也 'shelter, cover'
蛇	<i>yí</i>	弋支切	蜿蜒 'move in a winding way'	食遮切	毒虫 'poisonous insect'
虺	<i>yí</i>	羊至切	重物次第 'sequence of repetition'	神至切	重物次第
野	<i>yě</i>	羊者切	田野，说文云郊外也 'field; <i>Shuōwén</i> says 'at the outskirts''	承与切	田野 'field'
鱠	<i>yōng</i>	余封切	鱼名 'name of fish'	蜀庸切	鱼名 'name of fish'
鋌	<i>chán</i>	以然切	小矛 'small spear'	市连切	小矛 'small spear'
贍	<i>shēng</i>	以证切	增益，一曰送也，又物相赠 'increase, or send; also also present gifts'	实证切	
媵	<i>yìng</i>	以证切	送女从嫁 'send a daughter to the in-laws (to get married)'	实证切	

The three Middle Chinese initials *z-/ʒ-/j-* come from the same Old Chinese consonant initial. For the sake of differentiating the fricatives *z-/ʒ-* and the semi-vowel *j-*, Jīn Lǐxīn (2013: 377–385) reconstructs the Old Chinese origin of *z-/ʒ-* as a voiced fricative \**z-* with a prefix \**m-*. It is obvious that if the Middle Chinese fricatives *z-/ʒ-* have a different Old Chinese origin from the semi-vowel *j-*, they will not be in complementary distribution across syllables. As such, the reconstructed prefix \**m-* should be deleted. The common origin of the alveolar fricative *z-*, the palatal fricative *ʒ-* and the semi-vowel *j-* in Middle Chinese is the Old Chinese alveolar \**z-* which co-occurs with tense vowels:

- 𪛗 MC *daŋ* < OC\**zaŋ*;  
 汤 MC *thaŋ* < OC\**saŋ*;  
 易 MC *jaŋ* < OC\**zaŋ*;  
 汤 MC *ɕiaŋ* < OC\**saŋ*.

## IV

Besides the three origins discussed in sections 2 and 3, the fricatives *z-/ʒ-* had a fourth origin in Old Chinese.

Table 5. *Xiéshēng* behavior of the fricatives *z-* and *ʒ-*.

	j-	s-	z-	k-	kh-	g-	x-	ɣ-	t-	th-	d-	tɕ-	tɕh-	dʒ-	ʒ-	ʒ-
習	熠		習								熠	熠	譔	褶		
襲			襲									襲				
寺			寺						等		待	時		時	詩	
詹	檐								擔	澹	澹	詹	檐	瞻		
占	沾								沾	沾		占			苦	
勺	约								釣			勺		勺		
川			巡				训			馴			川			馴
盾			循						頓	楯	盾					盾
甚	醞								媿	黷	湛	斟	覲	甚		
尤	尤								眈		沈	枕		訖	沈	
多	移								多		趁	眇	侈	侈		
召	軺								貂	超	召	招	招	召		
炎	炎									毯	谈		袞	刻		
者			緒						都	楮	屠	诸		署	暑	
粥	鬻											粥				
育	育															
辰												振		辰	娠	唇
酉	酉												醜			

The character *yuē* 约 has two pronunciations in the *Guǎngyùn*: *iak* and *iau*<sup>c</sup>. The relationship between the two pronunciations is such that the former is a verb while the latter is a noun. The *Shuōwén* describes it as 约, 从勺声 *yuē*, *cóng sháo shēng* "yuē follows phonetic radical sháo 勺". In the *Guǎngyùn*, *yuē* is listed under the initial *yǐng* 影 (zero initial), reflecting an irregular sound change. When rhymes of division III (三等韵 *sānděngyùn*) occur in conjunction with zero initial, if the medial *-i-* is pronounced with a stronger than normal friction, it changes into the semi-vowel *j-*. As a consequence, characters with initial *yǐng* 影 (zero initial) change into characters with initial *yù* 喻 (*j-*). A case in point is *yì* 溢, pronounced as *jit* in the *Guǎngyùn*. *Yi* is a later derivate of the character *yì* 益, which is pronounced as *iak* in the *Guǎngyùn*. Conversely, when the semi-vowel *j-* is reduced in strength of friction, it changes into initial *yǐng*. As a result, the initial which should be the semi-vowel *j-* changes to a zero initial, i.e. \**jiak* > *iak*.

As can be seen from Table 5, the *xiéshēng* set formed with the phonetic radicals in the left-most column is a typical set largely comprised of alveolar stops and palatal affricates. What is slightly different is that the *xiéshēng* set also includes fricatives *z-/ʒ-* and semi-vowel *j-*, which do not form *xiéshēng* sets series with palatal affricates *tɕ-/tɕh-/dʒ-* and the alveolar stop *t-*. It may thus be inferred that the fricatives *z-/ʒ-* and the semi-vowel in the above *xiéshēng* sets has an Old Chinese origin different from what we have talked about in the previous sections. Their root consonant in Old Chinese should be the alveolar stop \**d-*.

The fricative *z-* is in complementary distribution with *ʃ-*, but in contrastive distribution with the palatal affricate *dʃ-*, e.g. *sì* 寺 vs. *shì* 寺. Old Chinese possessed a very flexible prefix *\*s-* which could occur before velar and uvular stops, so, naturally, there is no reason why it could not occur before alveolar stops. Thus, this Old Chinese origin of the fricatives *z-/ʃ-* is reconstructed as *\*sd-* in Jīn Lǐxīn 2013: 352. In light of the *xiēshēng* series of alveolar stops, the fricatives *ʃ-* and *z-* in Middle Chinese are valid developments of *\*sd-* in Old Chinese. In addition to fricatives *z-/ʃ-*, Jīn Lǐxīn (2013: 352) argues that *\*sd-* is also the Old Chinese ancestral form of the Middle Chinese semi-vowel *j-* in the above *xiēshēng* sets.

The character *yì* 熠 has two pronunciations in the *Guǎngyùn*, namely *jip* (*yáng rù qiè* 羊入切) and *yip* (*wéi lì qiè* 为立切). The latter is a gloss reading of the character *yù* 煜 (MC *yip*). This character is attested in the *Shījīng* 诗经 ('The Book of Songs'): 町睡鹿场, 熠耀宵行 *tīng tuǎn lù chǎng, yì yào xiāo xíng* (from the *Dongshan* Ode). According to *Jīngdiǎn shìwén*, *yì* is pronounced as *\*jip* (*yǐzhí fǎn* 以执反). In addition to the two pronunciations *\*jip* and *\*yip*, *yì* has a third reading *zip* in the *Jíyùn* (集韵). *Yì* 熠 derives its reading from the phonetic radical *xí* 習; the semi-vowel initial *j-* is only a variant pronunciation of the fricative *z-*. This is not at all different from what we have previously observed about the variant pronunciations between the semi-vowel *j-* and the fricatives *z-/ʃ-*. The variants reflect the different stages of sound change: *z- > ʃ- > j-*.

In the *xiēshēng* sets mentioned above, the semi-vowel *j-* is contrastive relative to both the alveolar stop *d-* and the palatal affricate *dʃ-*. On the other hand, except for one character *yì* 熠 with variant pronunciations, it is thoroughly complementary with the fricatives *z-/ʃ-*. Consequently, the fricatives *z-/ʃ-* and the semi-vowel *j-* should be evolved from the exact same Old Chinese initial. This particular aspect has been discussed in detail by Jīn Lǐxīn (2013: 349–354), so it is not necessary to repeat the argumentation here.

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*Цзинь Лисинь, Хо Вэньвэнь. Древнекитайские истоки среднекитайских звонких сибиллянтов z- и ʒ-*

В статье анализируются древнекитайские истоки звонких сибиллянтов *z-* и *ʒ-* в среднекитайском языке. Сперва, исходя из тщательного анализа словаря рифм *Гуаньюнь* (广韵) и других текстов, авторы утверждают, что несмотря на то, что различие между звонкими аффрикатами и фрикативными в целом сохранялось в системе *Гуаньюнь*, в отдельных словах звонкие аффрикаты *dz-/dʒ-* уже совпали с фрикативными *z-/ʒ-* из-за диалектного влияния других текстов и/или в результате фонетических изменений. Далее утверждается, что инициалы *z-* и *ʒ-* в среднекитайском языке находятся в отношении либо дополнительной дистрибуции, либо (в отдельных случаях) свободного варьирования; следовательно, для них можно предполагать единое развитие из исходной фонемы */z/*. Основываясь на этих предположениях, авторы проводят детальный анализ фонетических серий китайской иероглифики и выявляют четыре различных источника происхождения фонемы */z/*, а именно, древнекитайские инициалы и начальные кластеры *\*r-j-*, *\*s-g-*, *\*z-* и *\*s-d-*.

*Ключевые слова:* древнекитайская фонология, историческая реконструкция, звуковые изменения, переднеязычные аффрикаты.