

The evidence for Chinese *-r

Nathan W. Hill
SOAS, University of London
nh36@soas.ac.uk

Abstract

In 1989 Starostin proposed that Old Chinese had a final *-r that later changed to -*n* (and sometimes -*ŋ*). Baxter and Sagart subsequently incorporated Starostin's proposal in their recent 2014 Old Chinese reconstructions. This essay attempts to assemble the evidence for Old Chinese final *-r and to elaborate an explicit notation for the relative strength of this evidence for reconstructing an *-r in particular words.¹

Keywords

Old Chinese, historical phonology, rhotics, reconstruction

1 Introduction

Because the Chinese script does not unambiguously encode phonetic information, like all other aspects of Old Chinese phonology, the final consonants of Old Chinese are necessarily somewhat uncertain.² The general tack of Chinese historical phonologists is to begin by projecting the finals of Middle Chinese backward onto Old

¹ I would like to acknowledge the generous support of the European Research Council for supporting this research under the auspices of 'Beyond Boundaries: Religion, Region, Language and the State' (ERC Synergy Project 609823 ASIA). This paper was also benefited from comments received following its presentation at the University of Washington.

² In this essay, Chinese characters are provided with a reference number from Schuessler's 2009 system. Middle Chinese readings employ Baxter's 1992 system, and Old Chinese readings follow Schuessler's system. However, this author mechanically adapted the conventions of Schuessler's reconstructions to match the typographical conventions presented in Baxter and Sagart's 2014 volume to ease comparison with the latter.

Formatted: Font: 8 pt
Deleted: Here I
Deleted: a Chinese character
Deleted: (
Formatted: Font: 8 pt
Deleted:), a
Deleted: using
Deleted: (
Deleted:)
Deleted:
Deleted: and an
Deleted: using
Deleted: (2009)
Deleted: I
Deleted: of
Deleted: &
Deleted: (
Deleted: a)

Chinese and then to make adjustments of various kinds as deemed necessary.³ Schuessler is a convenient exemplar of the *opinio communis*; he distinguished final *p, *-m, *-k, *-ŋ, *-t, *-n, *-w, *-wk, and *-j.⁴ Starostin further proposed *-r to explain connections between final *-n and final *-j (Starostin 1989: 399–407), a suggestion Baxter and Sagart implemented in their reconstruction, but without systematically presenting the data on which they relied.

In the system of Baxter and Sagart “the notation ‘*[X]’ means ‘either *X, or something else that has the same Middle Chinese reflex as *X’” (Baxter and Sagart 2014a: 8). According to this explanation *-[r], *-[n], and *-[j] would have the same meaning, i.e. ‘could either be *-r or could be *-n or *-j as the case may be’. Despite the description of their notation, it seems likely that they intended the item in the brackets as somehow the favored option, if not, why did they ever write *-[r], which carries the disadvantage of not predicting the Middle Chinese value? Thus, one is compelled to assume that they in fact intended a four-valued hierarchy of certainty with *-r, *-[r], *-[n]/*-[j] and *-n/*-j as the possible setting on a scale from which ‘there is certainly an *-r’ to ‘there is certainly not an *-r’. This notation has several disadvantages. It obscures the evidence base upon which Baxter and Sagart reached their decisions. Also, these four tiers of confidence obscure the fine-grained and complex evidence available for the readings of various characters. This current study represents an attempt to rectify these disadvantages in the Baxter and Sagart system by assessing the data which Baxter and Sagart provided as systematically as possible, with particular attention to establishing the relative confidence in which final

Deleted: they seemdeemed necessary.³ Schuessler (2009) ... [1]

Deleted: &

Commented [CL1]: Is this a direct quote from B and S 2014? If so, needs citation. Ibid?

Deleted: their ownthe description of their notation, it ... [2]

Commented [CL2]: Citation needed is a direct quote from B and S

Deleted: & and Sagart reached their decisions. Also, these ... [3]

³ Karlgren’s voiced stop finals and Pulleyblank’s palatal finals are of historic interest only and need not distract the current discussion. Karlgren reconstructed *-r and *-n in Old Chinese. Subsequently, most researchers change his *-r to *-j and extend its occurrence, i.e. Karlgren’s *-r and Starostin’s *-r are not equivalent. Schuessler, Axel, *Minimal Old Chinese and Later Han Chinese*, (Honolulu: University of Hawai’i Press, 2009), 25. Some researchers, such as Zhengzhang, prefer to reconstruct *-l rather than *-j, a rather cosmetic disagreement that has no effect on the structure of Old Chinese phonology. For further on Karlgren’s analysis of voiced final stops, see Bernhard Karlgren, *Analytic Dictionary of Chinese and Sino-Japanese* (Paris: Librairie Orientaliste Paul Geuthner, 1923), 27-30 and cf. William H. Baxter, *A Handbook of Old Chinese Phonology* (New York: Mouton de Gruyter, 1992), 325-342. Pulleyblank’s perspective on palatal finals is found in Edwin G. Pulleyblank, “The Final Consonants of Old Chinese.” *Monumenta Serica* 33 (1977-8), 187-194 and cf. William H. Baxter, “Reply to Pulleyblank,” *Journal of Chinese Linguistics* 22 (1994), 145, 153-155. For Karlgren’s reconstructed *-r and *-n, see Bernhard Karlgren, Word Families in Chinese. *Bulletin of the Museum of Far Eastern Antiquities* 5 (1933): 19-37 and Axel Schuessler, “Final -l in Archaic Chinese.” *Journal of Chinese Linguistics* 2 (1974), 80-81.

⁴ The finals *-h, *-s, and *-ʔ are omitted from this final list. These are needed to explain the origin of tone in Middle Chinese, but are not relevant to the current discussion of *-r.

Formatted: Bibliography 1, Indent: Left: 0", Hanging: 0.13"

Formatted: Font: 10 pt

Deleted: (1923: 27-30) ...voiced stop finals (cf. Baxter 1992: 32) [4]

Formatted: Font: 8 pt

Formatted ... [5]

Deleted: . Some researchers, such as Zhengzhang, ...refer to. [6]

Formatted: Font: 10 pt

Formatted: Font: 8 pt

Deleted: I omit from this list final

Formatted: Font: Times New Roman

Deleted: which

*-r may be presumed in readings of particular characters. It also proposes a notation that transparently expresses the fine-grained confidence levels inherent in the data. The notation proposed here is an improvement upon the notation of Baxter and Sagart, and it is commended for all ends that their reconstructions serve.

Evidence for *-r divides into two types, (1) direct evidence for *-r readings of specific characters, and (2) indirect evidence, which links the characters having direct evidence to further characters for which there is no direct evidence.

2 Direct evidence of *-r

Three types of evidence pertain to the reconstruction of final *-r in the reading of a particular character: (1) explicit discussion in traditional literature of an alternative *-n* and *-j* pronunciations of a word; (2) the mixture of Middle Chinese *-n* and *-j* readings of a single character, and (3) rhyme contact in early poetry between a word with Middle Chinese *-n* and a word with Middle Chinese *-j* readings.⁵

Each of these three types of evidence is weaker than the preceding type. (1) The explicit discussion in traditional literature of dialect variation in the pronunciation of specific words isolates the specific time and place of the variation, this type of evidence is the strongest.⁶ (2) The mixture of Middle Chinese *-n* and *-j* readings of single characters in the *Qièyùn* 切韻 (601 CE) pertains to a much later date than discussions of dialect variation. In addition, because the *Qièyùn* does not specify variant readings as originating from particular locales, no geographic information is available about Middle Chinese *-n* and *-j* variation. (3) The rhyme contact in early poetry between a word with a Middle Chinese *-n* reading and a word with a Middle Chinese *-j* reading is more convoluted than may be obvious on first sight. Since this evidence relies on *Qièyùn* readings, it does not directly reveal anything about the

⁵ A fourth type of evidence, namely the use of a character to transcribe foreign syllables that end in *-r*, is also relevant. However, because foreign transcriptions are not directly relevant to *-n* and *-j* alternations, and their treatments give rise to a number of complications, the present analysis does not address the use of foreign transcriptions as evidence for *-r.

⁶ One might object that because discussion of the readings of the characters in the passages constituting the first type of evidence will inevitably make reference to the *Qièyùn*, one should regard the evidence of the *Qièyùn* itself (i.e. the second type of evidence) as more secure than evidence of the first type. However, in evidence of the first type, it is the texts themselves and not the *Qièyùn*, which posit distinct readings; epistemological reference to the *Qièyùn* is therefore unnecessary. In contrast, as is discussed presently, rhyme contact between *-n* and *-j* in early poetry must make reference to the *Qièyùn*, and is consequently a less secure source of evidence.

Deleted: ,

Deleted: and

Deleted: proposing

Deleted: &

Deleted: ; I commend it

Deleted: which

Deleted: for which

Deleted: there is

Deleted: ,

Deleted: Because the

Deleted: Rhyme

Deleted: at

Deleted: blush

Deleted:

Formatted: Font: 8 pt

Deleted: s

Deleted: article

Formatted: Font: 8 pt

Deleted: that constitute

Deleted: that

Deleted: ly

pronunciation of the words in a poem at the time of its composition. Presumably in the speech of a poem's author there was no difference between the finals that would later become Middle Chinese *-n* and those that would become *-j*. The challenge of explaining such cases is not to explain the pronunciation of the original poem per se, but to explain how Middle Chinese came to have an *-n* reading in the one case and a *-j* reading in the other. By virtue of the *Ausnahmslosigkeit der Lautgesetze*, such rhymes provide evidence that both *-n* and *-j* readings of both characters involved in a relevant rhyme *could* have appeared in the *Qièyùn*, that not all such readings were transmitted is an accident of fate. If one follows the explanation of Baxter and Sagart that $*-r > -n$ is the mainstream development, whereas $*-r > -j$ is characteristic of an eastern dialect (Baxter and Sagart 2014a: 254–268), then in all cases in which Middle Chinese *-n* rhymes with Middle Chinese *-j*, the dialect(s) reflected in the *Qièyùn* could have replaced the inherited *-n* reading with an eastern *-j* borrowing and could have failed to borrow the *-j* reading, instead retaining an inherited *-n*. Because this third type of evidence implies the possibility of the second type of evidence, that of the third type is necessarily weaker than evidence of the second type.

Deleted: &

Deleted: evidence of the

As a notational convention it is convenient to distinguish these three forms of evidence as a, b, c, and to note these letters as a superscript (^a, ^b, ^c) to indicate what evidence supports the reconstruction of final $*-r$ in a given word. For example, the character 桓 (25–12f) *hwan* < $*w^c$ an is glossed by a third century scholar as pronounced as 和 (19–07e) *hwa* < $*w^c$ aj (Baxter and Sagart 2014a: 266); the Old Chinese reconstruction can make explicit this source of evidence for $*-r$ by writing 桓 *hwan* < $*w^c$ ar^a. Similarly, since the character 洒 (26–31g) has Middle Chinese readings *sejX* and *senX*, it may be represented in Old Chinese as 洒 $*s^c$ ir? ^b. In Ode 215 難 (24–35d) *nan* < $*n^c$ an 'difficult' rhymes with 那 (18–12a) *na* < $*n^c$ aj 'much', so the Old Chinese reconstructions of 難 and 那 can make explicit this source of evidence for $*-r$ by writing 難 $*n^c$ ar^c and 那 $*n^c$ ar^c.

Commented [CL3]: Will assume this refers to some value known to the author and his readership- or should it be explained.

Deleted: &

3 Indirect evidence of $*-r$

In addition to the three types of direct evidence pertaining to the reconstruction of final $*-r$ for a particular word (i.e. the reading of a particular character), there exist

two types of indirect evidence also suggestive of final *-r in words for which direct evidence is lacking. First, a character may have 諧聲 *xiéshēng* contacts with a character, **resulting in** readings for which there is direct evidence for final *-r. Second, a word written with a character that has a Middle Chinese reading in -n may rhyme with another word also written with a character that has a Middle Chinese reading in -n for which there is direct evidence of final *-r.

Deleted: with readings for which there is direct evidence evidence for final *-r. Second, a word written with a character that has a Middle Chinese readings...in -n may rhyme with another word (...Iso written with a character that has a Middle Chinese reading in -n), ... [7]

The relationship of *xiéshēng* series membership is transitive (i.e. if 蟠 is in the same series as 播, and 播 is in the same series as 譟, then 蟠 is in the same series as 譟). Thus, if 桓 *huan* is reconstructed *w^h ar^h on the basis of it being glossed as 和 (19-07e) *hwa* < *w^h aj, then, according to the '*xiéshēng* hypothesis',⁷ any character built on the phonetic 桓 probably had the rhyme *-ar in Old Chinese. Such cases of *xiéshēng* links to characters with *-r^h readings may be represented as ^A, using the capital letter to reflect the more abstract nature of the evidence. In the same way ^B may mean that the reading in question has a *xiéshēng* connection to a word that rhymes in a way that implies *-r, either a Middle Chinese -n word that rhymes with a -j word or vice versa.

Commented [CL4]: Should these characters be followed by romanizations?

The notation ^B by analogy would mean a reading that has a *xiéshēng* connection to a character with both -n and -r readings, e.g. 洒 (26-31g) has Middle Chinese readings *sejX* and *senX*, **therefore** the Old Chinese reconstruction of 晒 *syinX* (26-31i) could be written *n₁ər^B? . However, using ^B exclusively for such cases would **not offer a way** to express the cases in which a *xiéshēng* series contains both -n and -j readings, but no single character has both. **Examples in this category would include** e.g. 鷄 *nan* (24-35g) **that** has an -n reading and 儺 *na* < *n^h aj (24-35k) **that** has a -j reading, but no single character in series 24-35 has both -n and -j readings. Consequently, **it is proposed** to use ^B to mark all readings of all characters in a series

Commented [CL5]: Sorry, cannot change font

Formatted: Not Highlight

Deleted: since 洒 (26-31g) has Middle Chinese readings readings *sejX* and *senX*, therefore the Old Chinese reconstruction of 晒 *syinX* (26-31i) could be written *n₁ər^B? . However, using ^B exclusively for such cases would leaves no way ... [8]

Formatted: Not Highlight

Deleted: where no single character has both, ... [9]

Formatted: ... [10]

Deleted: I propose

Formatted: Not Highlight

Formatted: Font: 8 pt

Deleted: rime rhyme category in the *Shijing* 詩經. (... [11]

Formatted: ... [12]

Deleted: Li 1974: ...21)... Li Fang-kuei 李方桂 ...dds...d the stipulation that each Old Chinese rime ...hyme category have contains one vowel. (Li...bid., 1974: ...43, ... Baxter, "A Handbook," ...1992: ...48, and Schuessler ... [13]

Deleted: 2009: ...1)... or characters that do not occur as rhyme words in the *Shijing* ...his principle is necessarily an assumption, but ... but for words represented by characters that are in the same *xiéshēng* series and also occurring as rhyme words in the *Shijing*, the rhyming of whether or not the readings of ...these characters' readings rhyme...is a testable hypothesis. There are many such cases. such asFor example, ... [15]

Formatted: ... [14]

Formatted: ... [16]

Deleted:

⁷ Duàn Yùcái 段玉裁 (1735-1815) first elaborated the principle that the same phonetic component in the writing of two characters implies the words expressed by these characters have the same rhyme category in the *Shijing* 詩經. cf. Li, Fang-Kuei 李方桂, "Studies on Archaic Chinese," 221. Li added the stipulation that each Old Chinese rhyme category contains one vowel. Ibid., 243. Baxter, "A Handbook," 348, and Schuessler, "Minimal Old Chinese," 11. For characters that do not occur as rhyme words in the *Shijing*, this principle is necessarily an assumption, but for words represented by characters that are in the same *xiéshēng* series and also occurring as rhyme words in the *Shijing*, the rhyming of these characters' readings is a testable hypothesis. There are many such cases, such as 枯 *ket* < *k^hit (29-01q) and 纈 *het* < *g^hit (29-01y) rhyme in Ode 8.3 and 脫 *thwajH* < *t^hots (22-13m) and 輓 *sywejH* < *t^hots (22-13g) in Ode 23.3. Such examples probably led Duàn Yùcái to formulate his theory.

that contains *-n* and *-j* readings whether of the type seen in series 26–31 (洒晒 etc.) or in series 24–35 (鷓鴣 etc.).⁸

Unlike *xiéshēng* contact, rhyme contact is not transitive. If A rhymes with B and B with C, it is quite possible that A does not rhyme with C. If great philological care is not taken, the use of rhyme evidence would quickly lead to the presumption that all cases of Middle Chinese *-n* and *-j* descend from **-r*.⁹ The use of superscript numerals conveniently captures the non transitive nature of the rhyme evidence. For example, if 泉 (25–40a) *dzjwen* < **dzwan* 'spring, source' is thought likely to have a final **-r* because in Ode 197 it rhymes with 垣 (25–12m) *hjwon* < **wan* 'wall', and the latter is in a *xiéshēng* series that also contains the character 桓 *hwan* glossed with 和 (19–07e) *hwa* < **w^c aj*, this evidence can be noted 泉 **dzwar^A*. Turning to another example of representing indirect rhyme evidence, in Ode 250 the words written 原 (25–20a) *ngjwon* < **ŋwan* 'spring, source or origin' rhymes with both 宣 (25–12t) *sjwen* < **swar^A* 'spread (v.)' (^A again because of 桓 [25–12f] *hwan* < **w^c ar^A*) and 歎 (24–35c) *than* < **n^c ar^B* 'to sigh' (^B because of contacts such as 鷓 [24–35g] *nan* and 鴣 [24–35k] *na* < **n^c aj*). Consequently, 原 (25–20a) *ngjwon* may itself be reconstructed **ŋw^c ar^{A²B²}*.

The notational conventions are now in place for keeping track of the strength of evidence for **-r* in the reading of particular characters. One may now turn to a presentation of the evidence belonging to each type, the three direct and two indirect, and the calculation of the strength of evidence for **-r* in particular

Deleted: (List forthcoming).

Deleted: which is

Deleted:

Deleted: ;

Deleted: The discussion proceeds

Deleted: (three direct and two indirect)

Formatted: Bibliography 1, Indent: Left: 0.31"

Deleted: It is not reasonable to presume

Formatted: Font: Times, 10 pt

Deleted: that are

Deleted: that shows

Formatted: Font: 8 pt

Deleted: (

Deleted: Baxter & Sagart 2014a:

Deleted:),

Deleted: the

Deleted: saying

Deleted:

Formatted: Font: Not Italic

Formatted: Text, Indent: Left: 0.13", Hanging: 0.19"

Formatted: Font: 10 pt, Not Italic

Formatted: Font: Times New Roman, 10 pt, Not Italic

Formatted: Font: 10 pt, Not Italic

Formatted: Font: Times New Roman, 10 pt, Not Italic

Formatted: Font: 10 pt, Not Italic

Formatted: Font: Times New Roman, 10 pt, Not Italic

Formatted: Font: 10 pt, Not Italic

Formatted: Font: Not Italic

⁸ It cannot be presumed that all words written with characters in a *xiéshēng* series demonstrate contact between *-n* and *-j* had a final **-r*. For example, series 06-38 (𠂔) contains only one character that has a reading with final *-n*, namely 𠂔 (26-38i) *bjinX*, and this character also has the reading *bjijX*. Since **-r* > *-j* is a minority development, characteristic of eastern dialects, William H. Baxter, William and Laurent Sagart, *Old Chinese: A New Reconstruction* (Oxford: Oxford University Press, 2014), 264-271. The chances of an entire *xiéshēng* series reflecting this change is very small. Instead, it is safer to presume that only the word written with the character 𠂔 is to be reconstructed with a final **-r*. One may suppose, for example, that a speaker of an Eastern dialect first used this character to write this word in the pronunciation ancestral to *bjijX*, but that as this orthography became established speakers of Western dialects, communicating something ancestral to *bjinX*, they also took up the practice. Nonetheless, such late readings do nothing to challenge the transitivity of *xiéshēng* series membership per se. All characters built on 𠂔 are members of the same series and the reading 𠂔 *bjinX* is *prima facie* evidence for **-r* in the reading of any of the other characters in the series.

⁹ See Johann Mattis List's conference paper 'Using network models to analyze Old Chinese rhyme data. Recent Advances in Old Chinese Historical Phonology,' presented 5 November 2015 at SOAS, University of London and available online via <https://speakerdeck.com/player/b75367879bf540cba44316a822b81e41>.

characters.

4 Direct evidence in detail

4.1 (a) Explicit discussions of alternate pronunciations of a word

Baxter and Sagart cited evidence from discussions by early Chinese writers suggesting the need to reconstruct the readings of three characters with final *r (Baxter and Sagart 2014a: 264–267). By way of example, in his commentary on *Lǚshì Chūn–qiū* 呂氏春秋, the late Hàn commentator Gāo Yòu 高誘 (fl. 205–212) wrote:

今兗州人謂殷氏皆曰衣

"Nowadays the people of Yǎnzhōu 兗州 all pronounce the family name 殷 Yīn [*ʔ ər] as 衣 Yī [*ʔ (r)əj]" (Ibid.: 265).

Baxter and Sagart provide three cases of explicit discussions of dialect pronunciations (Ibid.: 264–267) :

- 殷 (33–09a) *'jī n < *ʔ ən* pronounced as 衣 (27–05a) *'jī j < *ʔ əj*
- 桓 (25–12f) *hwan < *w^ɸ an* pronounced as 和 (19–07e) *hwa < *w^ɸ aj*
- 癩 (23–21d) *sjenX < *senʔ* ¹⁰ 'ringworm' pronounced as 徙 (07–28a) *sjex < *seʔ* ¹¹ 'move (to)'

This evidence permits the reconstructions 殷 *'jī n < *ʔ ər^a*, 桓 *hwan < *w^ɸ ar^a*, and 癩 *sjenX < *ser^aʔ* and all readings in the series 33–09 (殷), 25–12 (桓), and 23–21 (鮮) can be reconstructed with **-r^A*.

4.2 (b) Characters with both –n and –j readings in Middle Chinese

The following characters have both –n and –j (or $\emptyset < *-j$) readings, which permits their reconstruction with final **-r^b* and all readings of characters in their series with **-r^B*.

19–02l 𪚩 *hwaeX, hwanX, hwojX*

24–17e 獻 *sa, xjonH*

¹⁰ In their 2014 online version, Baxter and Sagart reconstructed with the main vowel **-a-*.

¹¹ Baxter and Sagart reconstructed with the rhyme **-aj*. Ibid.

Deleted: &

Deleted: (2014a: 264–267)

Deleted: ,

Deleted:

Deleted: writes

Deleted: Baxter & Sagrat

Deleted: 2014

Deleted: &

Deleted: (2014a: 264–267)

Deleted: &

Deleted: (2014b)

Deleted: &

Deleted: (2014b)

Deleted: rime

- 24–21l 癩 *tanX, taH*
 24–54b 番 *pa, phjon*
 25–32a 卵 *lwaX, lwanX*
 26–31g 洒 *sejX, senX*
 26–38i 牝 *bijjX, bjinX*
 33–02l 圻 *ngj̄ n, gj̄ j*
 m 頤 *khonX, gj̄ j*
 33–25i 姚 *sejX, senX*
 33–25j 洗 *sejX, senX*
 33–29a 賁 *pwon, pjeH*
 34–18g 鐔 *dwojH, dzywin*
 h 鍤 *dwojH, dzywin*
 p 孰 *twoj, twon*
 r 焯 *thwoj, thwon*
 34–23f 掇 *tswojH, tswonH*

Baxter and Sagart also argued for a final *-r in the word 短 (10–16a) *twanX*, 'short' because Proto-Min *toi B 'short' (on the basis of forms such as Fúzhōu /tɔi 3/ and Amoy /te 3/) suggests final *-j (ibid.: 283). As in the case of rhyme contact between -n and -j one might see this Min evidence as arguing that there *could* have been a reading 短 *twaX < *twajX in the *Qièyùn* had fate not intervened. Outside of a systematic comparison of Middle Chinese with Proto-Min, this use of Min data to argue for *-r remains merely suggestive and will not receive further consideration here.

4.3 (c) Rhyme contact among words with final -n and -j

Baxter and Sagart mentioned a number of cases in which words that end with -n rhyme directly with words that end with -j (ibid.: 257 and 262).¹²

Ode 43.1:

¹² A search through other early rhyming texts would surely yield further examples. This author is currently engaged in such a search and hope to report relevant findings in the future.

Deleted: &

Deleted: (2014a: 283)

Deleted: Ptoto

Deleted: ,

Deleted: &

Deleted: (2014a: 257, 262)

Deleted: -

Deleted: ;

Deleted: I am

Deleted: on a later occasion

泚 (07–25h) *tsh eʔ > *tshjeX*

瀾 (07–20o) *meʔ > *mjieX*

鮮 (23–21a) *sen > *sjen*

Ode 137.2:¹³

差 (18–13f) *tsh ʃ raj > *tsrhea*

原 (25–20a) *ŋw an > *ngjwon*

麻 (18–18a) *m ʃ raj > *mae*

娑 (18–15e) *s ʃ aj > *sa*

Ode 215.3:

翰 (24–02f) *g ʃ ans > *hanH*

憲 (24–18a) *ŋ ° ans > *xjonH*

難 (24–35d) *n ʃ an > *nan*

那 (18–12a) *n ʃ aj > *na*

Ode 222.2 (cf. 299.1):

芹 (33–02f) *gən > *gǎi n*

旂 (33–02p) *gəj > *gǎi j*

Ode 259.7:

番 (24–54b) *p ʃ aj > *pa*

暉 (24–21m) *th ʃ an > *than*

翰 (24–02f) *g ʃ ans > *hanH*

憲 (24–18a) *ŋ ° ans > *xjonH*

Ode 299.1 (cf. 222.2):

芹 (33–02f) *gən > *gǎi n*

旂 (33–02p) *gəj > *gǎi j*

13 Baxter and Sagart understood Ode 137 as evidence only that 原 *ngjwon* ended with *-r. They pointed out that this poem is from the 陳風 Chén fēng section of the *Shījīng*, traditionally held to contain poems hailing from 陳 Chén, a region they regard as within the area that underwent the *ar > *-aj isogloss (*Ibid.*, 266). To avoid prejudicing the investigation, Ode 137 is evaluated similar to all others.

Deleted: &

Deleted: (2014a: 266)

Deleted: and

Deleted: Baxter & Sagart 2014a:

Deleted: I treat

Deleted: like all others

Zhōuyi 周易¹⁴

幡 (24–54r) *b^ɕ aj > ba

翰 (24–02f) *g^ɕ ans > hanH

Zuózhuàn 左傳 (Fourth century BCE), Duke 僖 Xī, year 5¹⁵

辰 (33–13a) *dən > dzyin

振 (33–13p) *tən > tsyin

旂 (33–02p) *gəj > gji j

賁 (33–29a) *p^ɕ wən > pwon

焯 (34–18r) *th^ɕ wən > thwon

軍 (34–13a) *kwən > kjun

奔 (33–28a) *p^ɕ wən > pwon

This evidence permits the reconstruction of the characters 瀾 (07–20o) mjieX, 泚 (07–25h) tshjeX, 那 (18–12a) na, 娑 (18–15e) sa, 麻 (18–18a) mae, 差 (18–13f) tsrhea, 鮮 (23–21a) sjen, 翰 (24–02f) hanH, 憲 (24–18a) xjonH, 暉 (24–21m) than, 難 (24–35d) nan, 番 (24–54b) pa, 幡 (24–54r) ba, 原 (25–20a) ngjwon, 芹 (33–02f) gji n, 旂 (33–02p) gji j, 辰 (33–13a) dzyin, 振 (33–13p) tsyin, 奔 (33–28a) pwon, 賁 (33–29a) pwon, 軍 (34–13a) kjun, and 焯 (34–18r) thwon with final *-r^ɕ and the reconstruction of the series 07–20 (爾), 07–25 (此), 18–12 (那), 18–15 (沙), 18–18 (麻), 18–13 (左), 23–21 (鮮), 24–02 (軌), 24–18 (憲), 24–21a (單), 24–35 (嘆), 24–54 (采), 25–20 (原), 33–02 (斤), 33–13 (辰), 33–28 (奔), 33–29 (賁), 34–13 (軍), and 34–18 (臺) with the final *-r^ɕ.

¹⁴ [Ibid., 259-260.](#)

¹⁵ [Ibid., 255.](#) In this study, Baxter and Sagart's proposal that the text is "late enough that original *-ur has already diphthongized to *-wər" is followed (see [Ibid., 255](#)), and the presentation is simplified accordingly. The effected words are 賁 *p^ɕur > *p^ɕwər > pwon, 焯 *t^ɕur > *t^ɕwər > thwon, 軍 *k^ɕur > *k^ɕwər > kjun, and 奔 *p^ɕur > *p^ɕwər > pwon. Behr also pointed to this passage and added 晨 at the beginning; therefore, he regarded the rhyming pattern as extending somewhat longer than Baxter and Sagart. [Wolfgang Behr, Reimende Bronzeinschriften und die Entstehung der chinesischen Endreimdichtung \(Bochum: Projekt Verlag, 2008\), 492.](#)

Deleted: (Baxter & Sagart 2014a: 259–260)

Deleted: 4th c

Deleted: .

Deleted: (Baxter & Sagart 2014a: 255):

Formatted: Indent: Left: 0", Hanging: 0.25"

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: 10 pt

Formatted: Bibliography 1

Formatted: Font: Times New Roman, 10 pt

Deleted: I follow

Formatted: Font: 10 pt

Deleted: &

Deleted: 2014a:

Deleted: simplify the

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Deleted: (2008: 492)

Deleted: points

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Deleted: he adds

Deleted: ,

Deleted: i

Deleted: e. he sees

Deleted: &

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Deleted: do

5 Indirect evidence

5.1 Xiéshēng connections

The *xiéshēng* series 07–20 (爾), 24–35 (嘆), 25–16a (丸) *hwan* and 25–24a (崑) appear not to contain individual characters with both *-j* and *-n* readings, but instead contain both characters with *-n* readings and characters with *-j* (or $\emptyset < *-j$) readings. Readings of characters appearing in these series may be reconstructed with $*-r^B$.

07–20a 爾 *nyeX*

07–20k 獮 *sjenX*

24–35g 鷓 *nan*

24–35k 讎 *na*

25–16a 丸 *hwan*

25–16e 孰 *'jweX*

25–24a 崑 *twan*

25–24p 瑞 *dzyweH*

5.2 Rhyme contacts

Baxter and Sagart mentioned the following examples of a word written with a character that has a Middle Chinese reading in *-n* rhyming with another word (also written with a character that has a Middle Chinese reading in *-n*), in which the latter character has direct evidence of final $*-r$.¹⁶

Ode 5.1:

誥 (33–25n) $*srər^B > srin$

振 (33–13p) $*tər^c > tsyin$

¹⁶ [Ibid., 258 and 295.](#)

Deleted: &
Deleted: (2014a: 258, 295)

Formatted: Font: Times New Roman
Formatted: Font: Times New Roman
Formatted: Font: Times New Roman
Formatted: Font: Times New Roman
Formatted: Font: Times New Roman

Ode 49.2:

奔 (33–28a) *p^ς ər^c > *pwon*¹⁷

君 (34–12a) *k^w ɛn > *kjun*

Ode 69.1:

乾 (24–02c) *k^ς ar^c > *kan*

歎 (24–35c) *n^ς ar^B > *than*

難 (24–35d) *n^ς ar^c > *nan*

Ode 73.2:

噶 (34–18t) *t^h ur^{CB} > *thwon*

璊 (24–57f) *m^ς ɛn > *mwon*

奔 (33–28a) *p^ς ər^c > *pwon*

Ode 197.8:

山 (24–45a) *sr^ς an > *srean*

泉 (25–40a) *dzwan > *dzjwen*

垣 (25–12m) *war^A > *hjwon*

Ode 250.2:

原 (25–20a) *ŋ^w ar^c > *ngjwon*

繁 (24–52b) *ban > *bjon*

宣 (25–12t) *swar^A > *sjwen*

歎 (24–35c) *n^ς ar^B > *than*

嘯 (24–17h) *ŋar^B > *ngjenX*

原 (25–20a) *ŋ^w ar^c > *ngjwon*

Ode 254.7:

蕃 (24–54m) *par^{BC} > *pjon*

垣 (25–12m) *war^A > *hjwon*

翰 (24–02f) *g^ς ar^cs > *hanH*

¹⁷ It is also possible to see 鶉之奔 *dur *tə *p^{ur} > *dzywin tsyi pwon* in 49.1 and 49.2 as intentional line internal rhyming.

Formatted: Font: 7 pt

Deleted: .

Deleted: , but this possibility is not further pursued here

Deleted: .

Ode 259.1:

翰 (24-02f) *g^ɕ ar^cs > *hanH*

蕃 (24-54m) *par^{BC} > *pjon*

宣 (25-12t) *swar^A > *sjwen*

Ode 244.4:

垣 (25-12m) *war^A > *hjwon*

翰 (24-02f) *g^ɕ ar^cs > *hanH*

Ode 254.7:

藩 (24-54s) *par^{BC} > *pjon*

垣 (25-12m) *war^A > *hjwon*

翰 (24-02f) *g^ɕ ar^cs > *hanH*

Ode 259.1:

翰 (24-02f) *g^ɕ ar^cs > *hanH*

蕃 (24-54m) *par^{BC} > *bjon*

宣 (25-12t) *swar^A > *sjwen*

Ode 262.4:

宣 (25-12t) *swar^A > *sjwen*

翰 (24-02f) *g^ɕ ar^cs > *hanH*

Ode 263.5:

暉 (24-21m) *th^ɕ ar^c > *than*

翰 (24-02f) *g^ɕ ar^cs > *hanH*

漢 (24-10c) *n^ɕ ans > *xanH*

Chǔcí 楚辭, Jiǔ biàn 九變 (Third century BCE)¹⁸

乾 (24-02c) *k^ɕ ar^c > *kan*

Deleted: 3rd c.

Deleted: (Baxter & Sagart 2014a: 260):

¹⁸ [Ibid., 260.](#)

歎 (24–35c) *n̥.ʃ ar^B > *than*

Ode 254.1

瘴 (24–21l) *tʃ ar^{bʔ} > *tanX*

板 (24–49j) *prʃ anʔ > *paenX*

諫 (23–07b) *krʃ ans > *kaenH*

亶 (24–23a) *tʃ anʔ > *tanX*

然 (24–36a) *nan > *nyen*

管 (25–01h) *k^w anʔ > *kwanX*

遠 (25–15f) *wanʔ > *hwonX*

The *Jingdiǎn shiwén* 經典釋文 and the received version of the *Liji* 禮記 both offer 瘴 (24–23–) in place of 瘴 (24–21l) in citing Ode 254. A bamboo version of the *Liji* excavated at Guōdiàn 郭店 writes this word with 担 (24–22–). The characters 瘴 (24–23–) and 担 (24–22–) belong to the series built on 亶 (24–22/24–23),¹⁹ similar to 亶 *tanX* (24–23a), which is also a rhyme word in this poem (*Ibid.*: 259). This author accepts the explanation of 瘴 (24–21l) as a textual corruption in this poem and does not take it as evidence of *–r in the words with which it rhymes.

The calculation of the superscripts is unglamorous. Rhyme-derived superscript notation for those characters that have other evidence of final *–r previously discussed, is deferred until the conclusion. Those characters for which rhymes provides the first, indirect, evidence of final *–r are: 漢 *xanH* < *n̥.ʃ ar^{2cʰs} (24–10c), 山 *srean* < *srʃ ar^{Aʰ} (24–45a), 繁 *bjon* < *bar^{2cʰAʰ2Bʰ} (24–52b), 璫 *mwon* < *mʃ ər^{cʰCʰ} (24–57f), 泉 *dzjwen* < *dzwar^{Aʰ} (25–40a), 君 *kjun* < *k^w ər^{cʰ} (34–12a).

6 Conclusions

Following is a list of reconstructions of specific characters ordered according to strength of the evidence for *–r. The reconstructions by Baxter and Sagart are provided in braces for reference.²⁰ As previously noted, despite their explanation to

¹⁹ Baxter and Sagart combined series 24-22 and 24-23. *Ibid.*, 259.

²⁰ These correspond to Baxter and Sagart's online version.

Deleted: like

Deleted: Baxter & Sagart 2014a

Deleted: I accept

Deleted: with

Deleted: to

Deleted: Here follows

Deleted: of Baxter & Sagart (2014b)

Deleted: As explained above

Formatted: Font: 7 pt

Deleted: &

Deleted: (2014a: 259)

Deleted: .

the contrary, the reconstruction of Baxter and Sagart distinguished four levels of confidence in the reconstruction of *-r which they notate respectively *-r, *- [r], *- [n]/*- [j], and *-n/*-j. The confidence levels calculated here are not parallel with the confidence levels at which they arrived. They reconstructed a confident *-r even for words such as 山 (24-45a) *srean* < *sr^ɕ ar^ʰ { *s-ŋrar } and 泉 (25-40a) *dzjwen* < *dzwar^{A2} { *s-N-g w ar }, where the evidence for *-r is quite indirect. There are also cases where they were skeptical of a final -r, even though the confidence calculation made here is quite high, e.g. 泚 (07-25h) *tshjeX* < *ts^h er^ɔ { *[ts^h]e(j)ɔ } and 娑 (18-15e) *sa* < *s^ɕ ar^ɕ { *[s]ɕ a[j] }. However, such instances of disagreement with the confidences presented here underline the need for further careful scrutiny of the evidence base upon which *-r is proposed. Given the current state of knowledge, the direct use of Baxter and Sagart's reconstructions of *-r in comparative studies is premature.²¹

Deleted: &

Deleted: distinguishes

Deleted: arrive a

Deleted: t

Deleted: are

Deleted: &

Deleted: (e.g. as in Hill 2014)

- 桓 (25-12f) *hwan* < *w^ɕ ar^a { *[g]w^ɕ ar }
- 癸 (23-21d) *sjenX* < *ser^{a?} { *[s]ar? }
- 殷 (33-09a) *'ji n* < *ʔ er^a { *ʔ^ɕ rə[r] }
- 番 (24-54b) *pa* < *p^ɕ ar^{bc} { *p^ɕ ar }, *phjon* < *p^h ar^b { *p^h ɕ ar }
- 賁 (33-29a) *pwon* < *p^ɕ er^{bc} { *p^ɕ ur }, *pjeH* < *par^{bs} { *por-s }
- 焯 (34-18r) *thwoj*, *thwon* < *t^h ɕ ur^{bc} { *t^h ɕ ur }
- 輅 (19-02l) *hwæX* < *g^ɕ ror^{b?} { *[g]ɕ <r>or? }, *hwanX* < *gor^{b?} { *[g]ɕ or? }, *hwojX* < *g^ɕ ur^{b?} { *[g]ɕ ur? }
- 獻 (24-17e) *sa* < *sŋ^ɕ ar^b { *s-ŋ^ɕ ar },²² *xjonH* < *ŋ^o ar^{bs} { *ŋ^o ar-s }
- 卵 (25-32a) *lwaX*, *lwanX* < *r^ɕ or^{b?} { *k.r^ɕ or? }
- 洒 (26-31g) *sejX*, *senX* < *s^ɕ ir^{b?} { *[s]ɕ er? }
- 牝 (26-38i) *bjiX*, *bjinX* < *bir^{b?} { *[b]ir? }
- 圻 (33-02l) *ngji n* < *ŋer^b { *[ŋ]er }, *gji j* < *ger^b
- 瘴 (24-21l) *tanX* < *t^ɕ ar^{b?} { *t^ɕ an? }, *taH* < *t^ɕ ar^{bs}
- 頤 (33-02m) *khonX* < *k^h ɕ er^{b?} , *gji j* < *ger^b

Formatted: Font: 10 pt

Formatted: Bibliography 1, Indent: Left: 0", Hanging: 0.19"

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: 10 pt

Formatted: Font: 7 pt

Deleted: (2009)

Deleted: o

Deleted: es

Deleted: does

Deleted: (e.g.

Deleted: on p.

²¹ See Nathan W. Hill, "Cognates of Old Chinese *-n, *-r, and *-j in Tibetan and Burmese," *Cahiers de Linguistique Asie Orientale* 43 (2), 91-109.

²² Schuessler did not include the reading 獻 (24-17e) *sa*, but did reconstruct *sŋ- in series with similar patterns. See his examples, 21-11 (Schuessler, "Minimal Old Chinese," 232).

姪 (33–25i) *sejX, senX* < *s^ɕ ər^{bʔ} {*[s]^ɕ ərʔ }
 洗 (33–25j) *sejX, senX* < *s^ɕ ər^{bʔ} {*[s]^ɕ ərʔ }
 諄 (34–18g) *dwojH* < *d^ɕ ur^bs, *dzywin* < *dur^b
 黷 (34–18h) *dwojH* < *d^ɕ ur^bs, *dzywin* < *dur^b
 敦 (34–18p) *twoj, twon* < *t^ɕ ur^b {*t^ɕ ur}
 掇 (34–23f') *tswojH, tswonH* < *ts^ɕ ur^bs
 翰 (24–02f) *hanH* < *g^ɕ ar^{cc²5A²4B²4C²} s {*[g]^ɕ ar}
 暉 (24–21m) *than* < *t^h ɿ ar^{cc²} {*t^h ɿ ar}
 原 (25–20a) *ngjwon* < *ŋ^w ar^{ca²2B²} {*N–ɣ w ar}
 難 (24–35d) *nan* < *n^ɕ ar^{cc²C²} {*n^ɕ ar}
 奔 (33–28a) *pwon* < *p^ɕ ər^{cc²C²} {*p^ɕ ur}
 振 (33–13p) *tsyin* < *tər^{cc²} {*tər}
 瀾 (07–20o) *mjieX* < *mer^{cʔ} {*m.ner}
 泚 (07–25h) *tshjeX* < *tsh^h ər^{cʔ} {*[tsh^h]e(j)ʔ }
 那 (18–12a) *na* < *n^ɕ ar^c {*n^ɕ ar}
 娑 (18–15e) *sa* < *s^ɕ ar^c {*[s]^ɕ a[j]}
 麻 (18–18a) *mae* < *m^ɕ rar^c {*C.m^ɕ raj}
 差 (18–13f) *tsrhea* < *tsh^h ɿ rar^c {*tsh^h raj}
 鮮 (23–21a) *sjen* < *ser^c {*[s][a]r}
 憲 (24–18a) *xjonH* < *ŋ^ˀ ar^c s {*q^h ar–s}
 幡 (24–54r) *ba* < *b^ɕ ar^c {*[b]^ɕ ar}
 芹 (33–02f) *gji n* < *gər^c {*C.[ɣ]ər}
 旃 (33–02p) *gji j* < *gər^c {*C.[ɣ]ər}
 辰 (33–13a) *dzyin* < *dər^c {*[d]ər}
 軍 (34–13a) *kjun* < *k^w ər^c {*[k]^w ər}
 垣 (25–12m) *hjwon* < *war^{A3c²2B²2C²} {*[ɣ] w ar}
 宣 (25–12t) *sjwen* < *swar^{A4c²4B²2C²} {*s–q^w ar}
 巘 (24–17h) *ngjenX* < *ŋar^{Bc²A²B²} {*ŋ(r)ar}
 歎 (24–35c) *than* < *n^ˀ ɿ ar^{B2c²A²B²2C²} {*n^ˀ ɿ ar}
 蕃 (24–54m) *bjon* < *par^{BC3c²2A²} {*par}
 藩 (24–54s) *pjon* < *par^{BCc²A²} {*[b]ar}

噶 (34–18t) *thwon* < *tʰ ur^{BcC²}
 訖 (33–25n) *srin* < *srær^{Bc²} {*sræ r}
 乾 (24–02c) *kan* < *kʰ ar^{Cc²2B²} {*[k]ʰ ar}
 繁 (24–52b) *bjon* < *bar^{2c²A²2B²} {*[b]ar}
 璫 (24–57f) *mwon* < *mʰ ər^{c²C²B²} {*mʰ ur}
 漢 (24–10c) *xanH* < *nʰ ʰ ar^{2c²s} {*nʰ ʰ ar-s}
 君 (34–12a) *kjun* < *kʷ ər^{c²} {*C.qur}
 山 (24–45a) *srean* < *srʰ ar^{A²} {*s-ŋrar}
 泉 (25–40a) *dzjwen* < *dzwar^{A²} {*s-N-g w ar}

A list of the reconstructions of specific characters ordered according to the numbering of Schuessler is perhaps a convenience to the reader.

Deleted: (2009)

瀾 (07–20o) *mjieX* < *mer^{c?}
 泚 (07–25h) *tshjeX* < *tsh ər^{c?}
 那 (18–12a) *na* < *nʰ ar^c
 娑 (18–15e) *sa* < *sʰ ar^c
 麻 (18–18a) *mae* < *mʰ rar^c
 差 (18–13f) *tsrhea* < *tsh ʰ rar^c
 輶 (19–02l) *hwaeX* < *gʰ ror^{b?} , *hwanX* < *gor^{b?} , *hwojX* < *gʰ ur^{b?}
 鮮 (23–21a) *sjen* < *ser^c
 癩 (23–21d) *sjenX* < *ser^{a?}
 乾 (24–02c) *kan* < *kʰ ar^{Cc²2B²}
 翰 (24–02f) *hanH* < *gʰ ar^{cc²5A²4B²4C²}s
 漢 (24–10c) *xanH* < *nʰ ʰ ar^{2c²s}
 獻 (24–17e) *sa* < *s-ŋʰ ar^b , *xjonH* < *ŋ ʰ ar^bs
 嘯 (24–17h) *ngjenX* < *ŋar^{Bc²A²B²}
 憲 (24–18a) *xjonH* < *ŋ ʰ ar^cs
 瘳 (24–21l) *tanX* < *tʰ ar^{b?} , *taH* < *tʰ ar^bs
 暉 (24–21m) *than* < *tʰ ʰ ar^{cc²}
 歎 (24–35c) *than* < *nʰ ʰ ar^{B2c²A²B²2C²}

難 (24-35d) *nan* < *n^ɸ ar^{cB²C²}
 山 (24-45a) *srean* < *sr^ɸ ar^{A²}
 繁 (24-52b) *bjon* < *bar^{2c²A²2B²}
 番 (24-54b) *pa* < *p^ɸ ar^{bc}, *phjon* < *p^h ar^b
 蕃 (24-54m) *bjon* < *par^{BC3c²2A²}
 幡 (24-54r) *ba* < *b^ɸ ar^c
 藩 (24-54s) *pjon* < *par^{BCc²A²}
 璊 (24-57f) *mwon* < *m^ɸ ər^{c²B²C²}
 桓 (25-12f) *hwan* < *w^ɸ ar^a
 垣 (25-12m) *hjwon* < *war^{A3c²2B²2C²}
 宣 (25-12t) *sjwen* < *swar^{A4c²4B²2C²}
 原 (25-20a) *ngjwon* < *ŋ^w ar^{EA²2B²}
 卵 (25-32a) *lwaX*, *lwanX* < *r^ɸ or^{b?}
 泉 (25-40a) *dzjwen* < *dzwar^{A²}
 洒 (26-31g) *sejX*, *senX* < *s^ɸ ir^{b?}
 牝 (26-38i) *bjijX*, *bjinX* < *bir^{b?}
 圻 (33-02l) *ngjī* *n* < *ŋər^b, *gjī* *j* < *gər^b
 芹 (33-02f) *gjī* *n* < *gər^c
 頤 (33-02m) *khonX* < *k^h ər^{b?}, *gjī* *j* < *gər^b
 旂 (33-02p) *gjī* *j* < *gər^c
 殷 (33-09a) *ʃī* *n* < *ʃər^a
 辰 (33-13a) *dzyin* < *dər^c
 振 (33-13p) *tsyin* < *tər^{cB²}
 妣 (33-25i) *sejX*, *senX* < *s^ɸ ər^{b?}
 洗 (33-25j) *sejX*, *senX* < *s^ɸ ər^{b?}
 誥 (33-25n) *srin* < *srər^{Bc²}
 奔 (33-28a) *pwon* < *p^ɸ ər^{cB²C²}
 賁 (33-29a) *pwon* < *p^ɸ ər^{bc}, *pjeH* < *par^{bs}
 君 (34-12a) *kjun* < *k^w ər^{c²}
 軍 (34-13a) *kjun* < *k^w ər^c
 鎔 (34-18g) *dwojH* < *d^ɸ ur^{bs}, *dzywin* < *dur^b

- 繳 (34–18h) *dwojH* < *d^ɕ ur^bs, *dzywin* < *dur^b
- 敦 (34–18p) *twoj*, *twon* < *t^ɕ ur^b
- 焯 (34–18r) *thwoj*, *thwon* < *th^ɕ ur^{bc}
- 啍 (34–18t) *thwon* < *th^ɕ ur^{BCc²}
- 掇 (34–23f') *tswojH*, *tswonH* < *ts^ɕ ur^bs

The proceeding lists do not include the many hundreds of characters for which *xiéshēng* contacts are the only evidence of *-r. Instead, this information is more conveniently presented at the level of the whole *xiéshēng* series. To do this, the system of Hill is useful.²³ As employed here, -NR means that -n readings predominate in the *xiéshēng* series and -IR means that -j readings predominate.

- 07–20 (爾) NEIR^{BC}
- 07–25 (此) TSEIR^C
- 18–12 (那) NAIR^C
- 18–13 (左) TSAIR^C
- 18–15 (沙) SAIR^C
- 18–18 (麻) MAIR^C
- 19–02 (果) KOIR^B
- 23–21 (鮮) SENR^{AC}
- 24–02 (軌) KANR^C
- 24–17 (虜) ÑANR^B
- 24–18 (憲) ÑANR^C
- 24–21 (單) TANR^{BC}
- 24–35 (嘆) NANR^{BC}
- 24–54 (采) PANR^{BC}
- 25–12 (亘) WANR^A ²⁴
- 25–16 (丸) WANR^B ²⁵

²³ See Nathan W. Hill, "Proposal for a transcription of Chinese Characters in the study of early Chinese language and literature," *Bulletin of Chinese Linguistics* 8, 64-79.

²⁴ QUANR^A according to Baxter and Sagart, Baxter and Sagart, "The Baxter-Sagart reconstruction," 2014.

²⁵ QUANR^B according to Baxter and Sagart (Ibid.)

Deleted: ē

Deleted: (2015)

Deleted: (or QUANR^A according to Baxter & Sagart 2014b)

Deleted: (or QUANR^B according to Baxter & Sagart 2014b)

Formatted: Font: 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Font: Times New Roman, 10 pt

Formatted: Indent: Left: 0", First line: 0"

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

25–20 (原) KUANR^C

25–24 (端) TONR^B

25–32 (卵) ovo ²⁶

26–31 (西) SIR ²⁷

26–38 (七) PIR^B

33–02 (斤) KYNR^{BC} ²⁸

33–09 (殷) YNR^A

33–13 (辰) TYNR^C

33–25 (先) SYN^R^B

33–28 (奔) PYN^R^C

33–29 (賁) PYN^R^{BC}

34–13 (軍) KUYNR^C

34–18 (臺) TUNR^{BC}

34–23 (允) TSUNR^B

Deleted: (pronounced *r orʰ?)

Deleted: (or

Deleted: SYIR^B according to Baxter & Sagart 2014b)

Deleted: (or QYNR^{BC} according to Baxter & Sagart 2014b)

References

Baxter, William H. 1992. *A Handbook of Old Chinese Phonology*. New York: Mouton de Gruyter.

Baxter, William H. 1994. "Reply to Pulleyblank." *Journal of Chinese Linguistics* 22: 139–160.

Baxter, William H. and Laurent Sagart. 2014a. *Old Chinese: A New Reconstruction*. Oxford: Oxford University Press.

Baxter, William H. and Laurent Sagart. 2014b. The Baxter–Sagart reconstruction of Old Chinese (Version 1.1, 20 September 2014). <http://ocbaxtersagart.lsa.it.lsa.umich.edu>

Behr, Wolfgang. 2008. *Reimende Bronzeinschriften und die Entstehung der chinesischen Endreimdichtung*. Bochum: Projekt Verlag.

Deleted:

Commented [CL6]: Last accessed?

Commented [CL7R6]:

Commented [CL8R7]:

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

Formatted: Font: Times New Roman

²⁶ Pronounced as *r orʰ?

²⁷ SYIR^B according to Baxter and Sagart (Ibid.)

²⁸ QYNR^{BC} according to Baxter and Sagart (Ibid.)

Hill, Nathan W. 2014. "Cognates of Old Chinese *-n, *-r, and *-j in Tibetan and Burmese." *Cahiers de Linguistique Asie Orientale* 43(2): 91–109.

Deleted: .

Hill, Nathan W. 2015. "Proposal for a transcription of Chinese Characters in the study of early Chinese language and literature." *Bulletin of Chinese Linguistics* 8: 64–79.

Deleted:

Karlgren, Bernhard. 1923. *Analytic Dictionary of Chinese and Sino-Japanese*. Paris: Librairie Orientaliste Paul Geuthner.

Karlgren, Bernhard. 1933. "Word Families in Chinese." *Bulletin of the Museum of Far Eastern Antiquities* 5: 9–120.

Li, Fang-Kuei 李方桂 1974. "Studies on Archaic Chinese." trans. Gilbert L. Mattos, *Monumenta Serica* 31: 219–87.

Deleted:

Deleted: trans.

List, Johann Mattis 2015 "Using network models to analyze Old Chinese rhyme data. Recent Advances in Old Chinese Historical Phonology." Paper presented at the November 5, 2015, SOAS, University of London. Available via <https://speakerdeck.com/player/b75367879bf540cba44316a822b81e41>

Deleted: (forthcoming).

Commented [CL9]: Conference name?

Deleted: ,

Deleted: Nov 5

Deleted: Conference presentation

Deleted: a

Deleted: at

Pulleyblank, Edwin G. 1977–8. The Final Consonants of Old Chinese. *Monumenta Serica* 33: 180–206.

Schuessler, Axel. 1974. "Final -l in Archaic Chinese." *Journal of Chinese Linguistics* 2: 79–87.

Schuessler, Axel. 2009. *Minimal Old Chinese and Later Han Chinese*. Honolulu: University of Hawai'i Press.

Starostin, Sergej A. 1989. *Rekonstrukcija drevnekitajskoj fonologičeskoj sistemy* [Reconstruction of the phonological system of Old Chinese]. Moscow: Nauka.

Zhengzhang Shangfang. 2000. *The Phonological System of Old Chinese*. Paris: École des Hautes Études en Sciences Sociales, Centre de Recherches Linguistiques sur l'Asie Orientale.

Deleted: Starostin, Sergej Anatol'evič . 1989. *Реконструкция древнекитайской фонологической системы*. Moscow: "Наука." Главная редакция восточной литературы.

古漢語 *-r 尾音的證據

丘內藤

倫敦大學亞非學院

提要

斯塔羅斯金 (1989) 提出古漢語存在 -r 尾音的看法，認為這個尾音後來演變為 -n (在有的情況下是 -j)。白一平、沙加爾 (2014a) 在他們新近的古音構擬中接受了這一看法。本文擬搜集古漢語 -r 尾音的證據，詳細闡述這些證據在特殊詞語中構擬 -r 尾音的重要作用。

關鍵詞

古漢語、歷史音韻學、r 音、古音構擬

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [1] Deleted **Cecelia Levin** **2/10/17 2:17:00 PM**

they seem

Page 2: [2] Deleted **Cecelia Levin** **2/11/17 5:20:00 PM**

their own

Page 2: [2] Deleted **Cecelia Levin** **2/11/17 5:20:00 PM**

their own

Page 2: [2] Deleted **Cecelia Levin** **2/11/17 5:20:00 PM**

their own

Page 2: [2] Deleted **Cecelia Levin** **2/11/17 5:20:00 PM**

their own

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [3] Deleted **Cecelia Levin** **2/10/17 3:16:00 PM**

&

Page 2: [4] Deleted **Cecelia Levin** **2/10/17 2:18:00 PM**

(1923: 27-30)

Page 2: [4] Deleted **Cecelia Levin** **2/10/17 2:18:00 PM**

(1923: 27-30)

Page 2: [4] Deleted **Cecelia Levin** **2/10/17 2:18:00 PM**

(1923: 27-30)

Page 2: [4] Deleted **Cecelia Levin** **2/10/17 2:18:00 PM**

(1923: 27-30)

Page 2: [4] Deleted **Cecelia Levin** **2/10/17 2:18:00 PM**

(1923: 27-30)

Page 2: [4] Deleted **Cecelia Levin** **2/10/17 2:18:00 PM**

(1923: 27-30)

Page 2: [4] Deleted (1923: 27-30)	Cecelia Levin	2/10/17 2:18:00 PM
Page 2: [4] Deleted (1923: 27-30)	Cecelia Levin	2/10/17 2:18:00 PM
Page 2: [5] Formatted Font: Times New Roman, 10 pt	Cecelia Levin	2/10/17 3:28:00 PM
Page 2: [5] Formatted Font: Times New Roman, 10 pt	Cecelia Levin	2/10/17 3:28:00 PM
Page 2: [6] Deleted .	Cecelia Levin	2/10/17 3:09:00 PM
Page 2: [6] Deleted .	Cecelia Levin	2/10/17 3:09:00 PM
Page 2: [6] Deleted .	Cecelia Levin	2/10/17 3:09:00 PM
Page 5: [7] Deleted with	Cecelia Levin	2/10/17 5:54:00 PM
Page 5: [7] Deleted with	Cecelia Levin	2/10/17 5:54:00 PM
Page 5: [7] Deleted with	Cecelia Levin	2/10/17 5:54:00 PM
Page 5: [7] Deleted with	Cecelia Levin	2/10/17 5:54:00 PM
Page 5: [8] Deleted since	Cecelia Levin	2/10/17 6:28:00 PM
Page 5: [8] Deleted since	Cecelia Levin	2/10/17 6:28:00 PM
Page 5: [9] Deleted where	Cecelia Levin	2/11/17 1:39:00 PM
Page 5: [9] Deleted where	Cecelia Levin	2/11/17 1:39:00 PM
Page 5: [10] Formatted	Cecelia Levin	2/11/17 1:44:00 PM

Not Highlight

Page 5: [10] Formatted	Cecelia Levin	2/11/17 1:44:00 PM
-------------------------------	----------------------	---------------------------

Not Highlight

Page 5: [10] Formatted	Cecelia Levin	2/11/17 1:44:00 PM
-------------------------------	----------------------	---------------------------

Not Highlight

Page 5: [11] Deleted	Cecelia Levin	2/10/17 6:33:00 PM
-----------------------------	----------------------	---------------------------

rime

Page 5: [11] Deleted	Cecelia Levin	2/10/17 6:33:00 PM
-----------------------------	----------------------	---------------------------

rime

Page 5: [12] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman

Page 5: [12] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman

Page 5: [12] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [13] Deleted	Cecelia Levin	2/10/17 6:36:00 PM
-----------------------------	----------------------	---------------------------

Li 1974:

Page 5: [14] Formatted	Cecelia Levin	2/10/17 7:06:00 PM
-------------------------------	----------------------	---------------------------

Font: Not Italic

Page 5: [14] Formatted	Cecelia Levin	2/10/17 7:06:00 PM
-------------------------------	----------------------	---------------------------

Font: Not Italic

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [15] Deleted	Cecelia Levin	2/10/17 6:45:00 PM
-----------------------------	----------------------	---------------------------

2009:

Page 5: [16] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman

Page 5: [16] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman

Page 5: [16] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman

Page 5: [16] Formatted	Cecelia Levin	2/10/17 7:03:00 PM
-------------------------------	----------------------	---------------------------

Font: Times New Roman