Identification of the Etymon of Indo-European 'Moist', Sinitic 'South', Tibeto-Burman 'Sun, Day, Sky' and Hungarian *nap* 'Sun, Day'

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Abstract

Using etymological methods, the present study has identified two Sinitic and Germanic shared (Sino-Germanic) etymologies (etyma): 【南, 陰】. These two etyma form a rhyme correspondence. This regular sound change validates the etymological connection in question. The etymon 【南】 for 'southern sky' has been identified in Sinitic, Germanic, Baltic, Slavic, Celtic, Albanian, Hellenic, Anatolian, Armenian, Indo-Iranian, some Tibeto-Burman, some Uralic and Hungarian. The etymon 【陰】 for 'dark' has been identified in Sinitic, Germanic and Gyalrong. In words of Western linguistics, the Proto-Indo-European root **nebh-* 'moist, water from it damp, mist, fog, cloud' is newly identified in Sinitic, some Tibeto-Burman, some Uralic and Hungarian; the Proto-Germanic root **ēbanþ-/ēbunþ-* 'evening' is identified in Sinitic and Gyalrong.

Keywords: etymology, rhyme correspondence, Sinitic, Germanic, Indo-European, Sino-Germanic, Tibeto-Burman, Uralic, Hungarian, astronomical terms, sun, day

Introduction

The Indo-European term for 'moist' 〖{Proto-Indo-European **nebh-* (Pokorny, 1959, p. 315)}; equivalents e.g. Old Church Slavonic **небо** (*nebo*) 'heaven, sky'; Old Irish *nem* 'heaven, sky'; Ancient Greek νέφος (*néphos*) 'cloud'; Sanskrit नभस् (*nábhas*) 'ether, vapor, clouds, mist, fog'〗 has not been identified in other languages.

The Sinitic term for 'south' 【南】 〖{OC-W **nəm*}; equivalents e.g. Mandarin *nán* 'south'; Cantonese *naam4* 'south'; Minnan *lâm* 'south'〗 has been compared (Benedict, 1990, p. 167) to the Tibetan-Burman term for 'sun, day, sky' 〖{Proto-Tibeto-Burman **nəm*}, equivalents e.g. Tibetan *g<u>nam</u>* 'sky, heaven', *nam* 'night'; Chapang *nyam* 'sun'; Vayu *nomo < nama* 'sun, sky'〗.

The Hungarian term for 'sun, day' **nap** has been defined as 'of unknown origin' (Benkő, 1993, p. 1015).

The present study identifies these three etymological chains as one single etymon and supports this etymon with a regular sound correspondence.

Materials and methods

The present paper is a comparative and etymological study. Sinitic is compared to Germanic (and other Indo-European), Tibeto-Burman and Hungarian.

The Sinitic etyma are led by Chinese etyma (DOMs) that are historically attested Chinese glyphs (Sinograms). Their historical glosses are cited from the Chinese classical dictionaries (121-SW; 543-YP). Their historical phonological values are cited from the work *Yùn jìng* (1161-YJ) with reference to the dictionary *Guǎng yùn* (1008-GY) and transcribed according to Appendix 1. Their attested equivalents including forms and glosses are represented by Beijing Yan (Mandarin) (written in Hanyu Pinyin including non-simplified forms), Guangzhou Yue (Cantonese) (written in Jyutping), Taipei Min (Minnan) (written in Tâi-lô), Sino-Japanese[1] Go-on and Kan-on (written in orthography and Hepburn), Sino-Korean (written in orthography and the Revised Romanization) and Sino-Vietnamese (written in orthography), in this fixed order. Their historically attested Old Chinese (OC) rhymes are given according to the work of Wáng (Wáng, 1980) and reconstructively transcribed according to Appendix 2.

The Germanic etyma are based on the relevant etymological dictionaries (Nielsen, 1966; Kluge, Seeebold, 2011; Kroonen, 2013). Their attested equivalents including contemporary forms and glosses are represented by Danish, Swedish, Norwegian (Bokmål), Icelandic, Old Norse, English, Old English, Dutch, Old Low German, German, Old High German, and Gothic, in this fixed order.

For the etyma in question, etymological equivalents in other languages (other Indo-European, Tibeto-Burman) claimed by other scholars are checked in relevant etymological or comparative works, e.g. the works of Pokorny, Peiros, Starostin and Schuessler (Pokorny, 1959; Peiros, Starostin, 1996; Schuessler, 2007). Such extended equivalents are mostly cited as in references.

Non-English glosses are translated into English in the present study. Refutations of previously claimed etymological equivalents are given in footnotes.

Reconstructed forms are listed only for reference reasons. All the attested forms are compared instead of trusting the phonetic and semantic details of reconstructions, because the reconstructions are always subject to changes depending on [newly] compared attested linguistic data. Two Old Chinese (OC) reconstructions, OC-W according to the work of Wáng (Wáng, 1980) and OC-Z according to the work of Zhèng-zhāng (Zhèng-zhāng, 2013), are listed. Other reconstructions are quoted from the direct references.

Proto-Sinitic, also known as Proto-Chinese, cannot be compared because it is only a theoretical notion without reconstructed results. Proto-Sino-Tibetan cannot be compared because it is a hypothetical notion without a sufficient amount of etyma representing a sufficient number of the languages in question. Many scholars are still comparing only Tibetan, Burmese or another Tibeto-Burman branch to Sinitic e.g. the works of Shī, Huáng, Zhang, Jasques and Lai (Shī, 2000; Huáng, 2005; Zhang, Jacques, Lai, 2019). The works of Benedict and Matisoff (Benedict, 1972; Matisoff, 2003) have compared more "Sino-Tibetan languages", whereas many comparisons do not touch Sinitic. The work of Starostin and Peiros (Peiros, Starostin, 1996) compares only five "Sino-Tibetan languages": Sinitic, Tibetan, Burmese, Jingpho\Kachin and Mizo\Lushai, whereas still many comparisons do not touch Sinitic. Etyma without Sinitic

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[1] Sino-Japanese is a linguistic term for the portion of the Japanese vocabulary that is of Chinese origin or makes use of morphemes of Chinese origin (similar to the use of Latin or Greek in English). The same applies to the terms Sino-Korean and Sino-Vietnamese. They do not mean common proto populations.

equivalents cannot be labeled as "Sino-Tibetan". Etyma with equivalents only in one Tibeto-Burman branch and Sinitic may be non-genetically diffused (loaned/borrowed) from Sinitic or from the Tibeto-Burman branch. There is a website called "The Sino-Tibetan Etymological Dictionary and Thesaurus" (https://stedt.berkeley.edu), whereas its content is so far a thesaurus (book of synonyms, collection of X-English dictionaries) rather than an etymological dictionary. This is the current situation of the comparative studies between Sinitic and Tibeto-Burman. Moreover, the Sino-Tibetan hypothesis has been successively criticized (Miller 1974; Beckwith, 2002, pp. 113–158; Beckwith, 2006, pp. 179–200; Beckwith, 2008, pp. 161–201; Hé, 2004; Gěng, 2005; Guō, 2010, p. 21; Zhāng, 2012, 2013, 2014; Qú, Jìn, 2013; Qú 2021). Besides, there are hypotheses for the multiple origins of Sinitic (Lǐ, 1990; Schuessler, 2003). In sum, the notion Sino-Tibetan cannot be considered as a certain language family which includes or represents Sinitic.

Etymological equivalents are given in orthographies or transcriptions. Equivalents in Western alphabets are given in boldface if they are found in official languages covered by ISO 639-1. Equivalents in Roman alphabets are given in italics. Cyrillic alphabets are transliterated into Roman alphabets according to ISO 9. If a given equivalent word is longer than one morpheme, the targeted morpheme is underlined (if certain). In successive data, dialectal and authorial variants are separated by a slash (/); grammatical variants are separated by a backslash (\); while lexical variants are separated by a comma (,).

Ancient and fully etymological Sinitic etyma are put in the solid brackets 【 】 and labeled as DOM in tables. Ordinary Chinese terms are put in the blank brackets 〖 〗 or written without brackets. Unattested and reconstructed forms are marked with an asterisk (*). Attested and phonologically realized forms based on ancient Sino-linguistic data (e.g. Chinese descriptions in rhyme tables and rhyme dictionaries) are marked with a blank star (☆). Double quotation marks ("") are added when its target is quoted (on sentences) or not agreed (on forms and terms). Double arrows (⇒ or ⇐) indicate genetic diffusions ('inherited' in Western linguistics; 'born' in Sino-linguistics). Single arrows (→ or ←) indicate non-genetic diffusions ('loaned/borrowed' in Western linguistics; 'learnt/educated' in Sino-linguistics).

The methods follow traditional etymology (Vossius, 1622; Lemon, 1783; Rask, 1818; Gāo, 2008) and renewed etymology (Gao, 2012/2013, 2014, 2017, 2018, 2019a, 2019b, 2020a, 2020b, 2021; Gāo, 2014; Gao, Tender, 2020).

Results and discussion

The common format of the next etymological paragraphs is:

#Number of etymon) 【 DOM 】 〖 historical reference: $_{\text{original gloss}}^{\text{phonetic description}}$ 'gloss' (transcribed form); Mandarin form 'gloss'; Cantonese form 'gloss'; Minnan form 'gloss'; Sino-Japanese form; Sino-Korean form; Sino-Vietnamese form; {OC rhyme group; OC-W reconstruction; OC-Z reconstruction}〗 (Read: The Sinitic etymon 【DOM】 with the contents 〖…〗) is or has been compared (reference) to the Germanic etymon after the equivalents: … (reference).

This etymon has been or not been identified in other languages (reference). This paragraph is used for other language groups compared in other directions (not Sinitic ~ Germanic but Sinitic ~ other or Germanic ~ other) by other scholars.

#1)【南】〚(121-SW): 艸木至南方有枝任也('south'); (543-YP): 奴含切 方名('a direction'); (1008-GY): 那含切 火 方('fire direction'); (1161-YJ): 外轉第三十九開一等平聲舌音清濁(extrovert, final-39, labialized-, division-1, tone-A, dental initial voiced±)([☆]nȯam^A); Mandarin *nán* 'south'; Cantonese *naam4* 'south'; Minnan *lâm* 'south'; Sino-Japanese Go-on なん (*nan*); Kan-on だん (*dan*); Sino-Korean 남(*nam*); Sino-Vietnamese ***nam***; {OC rhyme 侵 *-m(p)ə; OC-W *nəm; OC-Z "*nuːm"}〛 is compared (first publication) to the Germanic etymon after the equivalents: Icelandic ***nifl*** 'fog, darkness' (only used in poems); Dutch ***nevel*** 'fog, mist'; Old Low German *nebal* 'fog, darkness'; German ***Nebel*** 'fog'; Old High German *nebul*/*nebel* 'fog, darkness'; {Proto-Germanic **nebala* 'fog' (Kroonen, 2013, p. 386)}.

This etymon has been identified in other Indo-European languages: {Baltic: Latvian ***debess*** 'sky, heaven'; Lithuanian ***debesis*** 'cloud'} {Slavic: Czech ***nebe*** 'sky, heaven'; Slovak ***nebo*** 'sky, heaven'; Polish ***niebo*** 'sky, heaven'; Russian **небо** (*nebo*) 'sky, heaven', **нёбо** (*nëbo*) 'palate'; Belarusian **неба** (*neba*) 'sky, heaven', **нёбо** (*nëbo*) 'palate'; Ukrainian **небо** (*nebo*) 'sky, heaven'; Bulgarian **небе** (*nebe*) 'sky, heaven'; Serbo-Croatian **небо**/*nebo* 'sky, heaven'; Slovene ***nebo*** 'sky, heaven, palate'; Old Church Slavonic **небо** (*nebo*) 'heaven, sky'}; {Celtic: Irish ***neamh*** 'heaven, sky'; Old Irish *nem* 'heaven, sky'; Welsh ***nef*** 'heaven'; Old Welsh *nem* 'heaven'; Cornish ***nev*** 'heaven'; Old Cornish *nef* 'heaven'; Breton ***neñv*** 'sky'; Old Breton *nem* 'sky'}; {Romance: Latin ***nebula*** 'fog, cloud, vapor'; Italian ***nebbia*** 'fog, mist', ***nebula*** 'nabula'; Spanish ***niebla*** 'fog'; Portuguese ***névoa*** 'fog, mist, haze'; Romanian ***negură*** 'fog'} (Romance ← Germanic via Visigoth and Ostrogoth); Albanian ***avull*** 'steam'; {Hellenic: Greek **νέφος** (*néfos*) 'smog'; Ancient Greek νέφος (*néphos*) 'cloud'}; {Anatolian: Hittite *nēpis* 'sky, heaven'}; [Old] Armenian **ամպ** (*amp*) 'cloud'; {Indo-Iranian: Avestan\Zend *nabah-* 'airspace, sky, heaven'; Kurdish *nam* 'moisture'; Persian نم (*nam*) 'moisture'; Sanskrit नभस् (*nábhas*) 'mist, fog, vapor, clouds, ether'}; {Proto-Indo-European **(e)nebh-* 'moist, water from it damp, mist, fog, cloud' (Pokorny, 1959, p. 315); **dʰnebʰ-* (Kroonen, 2013, p. 386)}. {⇐ Proto-Xuanyuan (Sino-Germanic) **nȯmpə* 'fog, mist < damp, steam, moisture, cloud < sun < southern sky > south'}

Additional remarks about the origins of Sinitic: The works of Gāo (Gāo, 2008, pp. 109–114; Gao, 2012, pp. 241–243; Gao, 2019c, pp. 145–147) put forward that the Shennong nation 神農氏 (a.k.a. Yandi clans 炎帝部落) of Chinese prehistory is the shared origin of Sinitic and Uralic languages and peoples marked by the human Y-chromosome DNA haplogroup N-M231, while the Xuanyuan nation 軒轅氏 (a.k.a. Huangdi clans 黃帝部落) of Chinese prehistory is the shared origin of Sinitic and Indo-European languages and peoples; Sinitic is basically made by a convergence of a Sino-Uralic basis and a Sino-Germanic (read Sino-Indo-Germanic) superstrate. Gāo's proposition is cited and supported by studies of molecular genetics and archaeology (Lǐ, Jīn, 2020, 105–107), although Lǐ and Jīn consider the former as 'Uralic substrate of Sinitic' and the latter as 'Sino-Tibetan basis'. We think that Sino-Tibetan is not a valid node, because the etyma shared by Sinitic and Tibeto-Burman form a lower set of the Sino-Germanic shares. Lǐ and Jīn related the Sino-Uralic homeland ('the Uralic substratum of Sinitic') to the Hongshan culture where ancient DNA haplogroup N-M231 is largely detected.

This etymon has been identified (Benedict, 1990, p. 167) in some Tibeto-Burman languages: Tibetan *g*nam 'heaven, sky', *nam* 'night'; Magari *nam-khan* ~ *nyam-khan* 'sun', *nam-sin* ~ *nyam-sin* 'day'; Chapang *nyam* 'sun'; Vayu *nomo* < *nama* 'sun, sky'; Bahing\Kiranti *nam* 'sun'; Nung *nam* 'sun/sky'; Mikir *ar*nam 'god' ('wind' in compound); Dulong *nam53* 'sun'; Zaiwa *tsan51-nam55* 'summer: year-sun'; {Proto-Tibeto-Burman **nam* 'sun' (LaPolla, 1987, p. 7); **nəm* 'sun'

(Benedict, 1990, p. 167)}. Tibetan ~ Magari ~ Chepang ~ Vayu ~ Bahing\Kiranti ~ Nung ~? Mikir (Benedict, 1972, p. 148); Tibeto-Burman + Dulong +? Zaiwa (LaPolla, 1987, p. 7); Sinitic ~ Tibeto-Burman (Benedict, 1990, p. 167); Sinitic ~ Tibetan ~ "Burmese *nam* 'sky' (Luce)" (Peiros, Starostin, 1996); Sinitic ~? Tibeto-Burman (Schuessler, 2007, p. 396). {⇐ Xuanyuan (Sino-Germanic)}

This etymon has been identified (Gāo, 2008, p. 187) in some Uralic languages: Estonian ***lõuna*** 'south, lunch'; Finnish ***lounas*** 'southwest, lunch'; Udmurt\Votyak *nunal/ninal/n̦inal/ nə̂nal/nunal* 'day', <u>*lum-tęl*</u> '<u>south</u> wind'; Komi\Zyrian *lun/vun* 'day, sun light'; {"Proto-Finno-Permic" **lowna* 'day, midday' (Rédei, 1988, p. 693)}. {← Xuanyuan (Sino-Germanic)}

Additional remarks: This comparison contains an irregular sound change to Uralic (-mp- > -wn-). It has not been validated with a rhyme correspondence but a semantic pair: Both 'south' and 'north' are compared in Sinitic and Uralic. Cf. 【北】〖(121-SW): 乖也('back side'); (543-YP): 布墨切方名('a direction'); (1161-YJ): 內轉第四十二開一等入聲脣音清(introvert, final-42, labialized-, division-1, tone-D, labial initial voiced-) ($^{☆}$pọ̇ək^{D}); Mandarin *běi* 'north'; Cantonese *baak1/bak1* 'north'; Minnan *pok/pak* 'north'; Sino-Japanese ほく (*hoku*); Sino-Korean 북(*buk*); Sino-Vietnamese ***bắc***; {OC rhyme 職 *-kə; OC-W *pək; OC-Z *puːg}〗 has been compared (Gāo, 2008, p. 133) to the Uralic etymon after the equivalents: Estonian ***põhi\põhja*** 'basis, north'; Finnish ***pohja*** 'basis', (***posio*** 'tent's rear' ← Sami\Lappish); Sami\Lappish ***boaššu***/*påssjō*/ *poaššu/pọ̆ăš̄š̌^{A}/pu̦aš̌š̌^{A}* 'tent's rear' (Lehtiranta, 1989, p. 106; Itkonen, Kulonen, 2001, p. 383). {Uralic ⇐ Shennong (Sino-Uralic) *pọ̇Xkə 'back side' ⇒ Sinitic}

This etymon is identified (first publication) in Hungarian: ***nap*** 'sun, day'. {⇐ Xuanyuan (Sino-Germanic); or ← Xuanyuan (Sino-Germanic) via Slavic}

The next etymon #2 is studied in order to form a rhyme correspondence with the etymon #1.

#2) 【陰】〖(121-SW): 闇也('dark'); (543-YP): 於今切黤也影也水南山北也闇也幽無形深難測謂之陰('dark, shadow, south of mountain or north of river, lunar'); (1008-GY): 於金切陰陽也('lunar'); (1161-YJ): 外轉第三十八合三等平聲喉音清(extrovert, final-38, labialized+, division-3, tone-A, laryngeal initial voiced-)($^{☆}$ʔ^{w}eəm^{A}); Mandarin *yīn* 'lunar'; Cantonese *jam1* 'lunar'; Minnan *im/iam* 'lunar'; Sino-Japanese Go-on おん (*on*); Kan-on いん (*in*); Sino-Korean 남음(*eum*); Sino-Vietnamese ***âm***; {OC rhyme 侵 *-m(p)ə; OC-W *i̦əm; OC-Z "*qrum"}〗 is compared (first publication) to the Germanic etymon after the equivalents: Danish ***aften*** 'eve'; Swedish ***afton*** 'eve'; Norwegian ***aften*** 'eve'; Icelandic ***aftann*** 'eve'; Old Norse *aftann/eftann* 'eve'; English ***eve/evening***; Old English *ǣfen/ēfen*; Dutch ***avond*** 'eve'; Old Low German *āvand/āband* 'eve'; German ***Abend*** 'eve'; Old High German *āband/ābund* 'eve'; {Proto-Germanic **ēbanþ-/ēbunþ-* 'evening' (Kroonen, 2013, p. 113)}. {⇐ Proto-Xuanyuan (Sino-Germanic) *ʔ^{w}empə 'eve < dark > lunar'}

This etymon has been identified (Zhang, Jacques, Lai, 2019, p. 88) in Gyalrong: Brag-bar *ta-ncâp* 'dark side of the mountain'; Japhug *ɴqiaβ* 'dark side of the mountain'. {⇐ Xuanyuan (Sino-Germanic); or ← Xuanyuan (Sino-Germanic) via Sinitic}

Overview

The etyma #1 【南】 and #2 【陰】 form a rhyme correspondence (Table 1).

Table 1. Rhyme correspondence (Rc#2021JGao-2310-2144-T1): Old Chinese rhyme 侵 *-m(p)ə ⇔ Minnan *-am* ⇔ German *-Vbe*

DOM	Mandarin	Cantonese	Minnan	Danish	Swedish	English	Dutch	German
【南】	*nán*	*naam4*	*lâm*	--	--	--	*nevel*	*Nebel*
	'south'	'south'	'south'				'fog, mist'	'fog'
【陰】	*yīn*	*jam1*	*im/iam*	*aften*	*afton*	*eve*	*avond*	*Abend*
	'lunar'	'lunar'	'lunar'	'eve'	'eve'	'eve'	'eve'	'eve'

Conclusions

Using etymological methods, the present study has identified two Sinitic and Germanic shared (Sino-Germanic) etymologies (etyma): 【南, 陰】. These two etyma form a rhyme correspondence. This regular sound change validates the etymological connection in question. The etymon 【南】 for 'southern sky' has been identified in Sinitic, Germanic, Baltic, Slavic, Celtic, Albanian, Hellenic, Anatolian, Armenian, Indo-Iranian, some Tibeto-Burman, some Uralic and Hungarian. The etymon 【陰】 for 'dark' has been identified in Sinitic, Germanic and Gyalrong. In words of Western linguistics, the Proto-Indo-European root **(e)nebh-* 'moist, water from it damp, mist, fog, cloud' is newly identified in Sinitic, some Tibeto-Burman, some Uralic and Hungarian; the Proto-Germanic root **ēbanþ-/ēbunþ-* 'evening' is identified in Sinitic and Gyalrong.

Appendix 1: Transcription of 1161-YJ 韻鏡 (Gao, 2020b, p. 35)

1) 聲紐 (initials)

舌音齒 dental alveolar		喉音 laryngeal				齒音 dental					牙音 velar				舌音 alveolar				唇音 labial			
清濁	清濁	清濁	左濁	左清	清	左濁	左清	濁	次清	清	清濁	濁	次清	清	清濁	濁	次清	清	清濁	濁	次清	清
ŋ̊	l̥	ʕ	ɦ	h	ʔ	ð	θ	dʑ	tʂʰ	tʂ	ŋ	g	kʰ	k	n	d	tʰ	t	m	b	pʰ	p

2) 韻腹韻尾 (rimes)（with《廣韻》韻部《七音略》註釋《四聲等子》韻攝）

内轉(introvert)(ə) （incl.外轉第十七至二十[false 外(æ)]）	外轉(extrovert)(a) （excl.外轉第十七至二十[false 外(æ)]）
東~屋第一開(əŋ)、 冬鍾~沃燭第二開合(œŋ)（⇒通攝(/oŋ/)）	江~覺第三開合(ɒŋ)（⇒江攝(/åŋ/)）
支第四開合(ɯɹ)重内、脂第六開(əɹ)、 支第五合(ʷiɹ)、脂第七合(ʷəɹ)輕内、之第八開(ɯɹ)重内	佳第十五開(aɹ)、 佳第十六合(ʷaɹ)
微~廢第九開(əj)輕内、 微~廢第十合(ʷəj)輕内（⇒止攝(/əj/)）	咍皆齊~夬第十三開(aj)、 灰皆齊~夬第十四合(ʷaj)（⇒蟹攝(/aj/)）
魚第十一開(ə)、虞模第十二開合(œ)（⇒遇攝(/œ/)）	麻第二十九開(a)、麻第三十合(ʷa)（⇒假攝(/a/)）
歌第二十七合(ʷə)、戈第二十八合(ʷe)（⇒果攝(/ə/)）	
痕臻真~沒櫛質第十七開(æn)、 魂諄~沒術第十八合(ʷæn)	寒刪仙先~曷黠薛屑第二十三開(an)、 桓刪仙先~末黠薛屑第二十四合(ʷan)
欣~迄第十九開(æŋ)、 文~物第二十合(ʷæŋ)（⇒臻攝(/ən/)）	山元仙~鎋月薛第二十一開(aŋ)、 山元仙~鎋月薛第二十二合(ʷaŋ)（⇒山攝(/an/)）
侯尤幽第三十七開(əw)（⇒流攝(/əw/)）	豪爻蕭宵第二十五開(aw)、 宵第二十六合(ʷaw)（⇒效攝(/aw/)）
唐陽~鐸藥第三十一開(əŋ)、 唐陽~鐸藥第三十二合(ʷəŋ)（⇒宕攝(/aŋ/)）	庚清~陌昔第三十三開(aŋ)、 庚清~陌昔第三十四合(ʷaŋ)
登蒸~德職第四十二開(əŋ)、	耕清青~麥昔錫第三十五開(aŋ)

登蒸~德職第四十三合(ʷəŋ)（⇒曾攝(/əŋ/)）	耕青~麥錫第三十六合(ʷaŋ)（⇒梗攝(/eŋ/)）
侵~緝第三十八合(ʷəm)（⇒深攝(/əm/)）	覃咸鹽添~合洽葉帖第三十九開(am)、 談銜嚴鹽~盍狎業葉第四十合(ʷam)、 凡~乏第四十一合(ʷäm)（⇒咸攝(/am/)）
modification of D tone codas: -ŋᴰ⌒-kᴰ; -jᴰ⌒-jsᶜ; -nᴰ⌒-tᴰ; -ɲᴰ⌒-ʈᴰ; -ɳᴰ⌒-cᴰ; -mᴰ⌒-pᴰ.	

3) 聲調 (tones): 平–ᴬ. 上–ᴮ. 去–ᶜ. 入–ᴰ.

4) 韻頭 (medials)

	一等	二等	三等	四等
開	ȯ[ɯ]	ȯ[ɣ]	e[ɛ]	ẹ[i]
合	ʷȯ[ʷɯ]	ʷȯ[ʷɣ]	ʷe[ʷɛ]	ʷẹ[ʷi]
開合	o[u]	o[o]	œ[ø]	œ[ỹ]

5)韻腹 (nucleus)（據《七音略》）

轉	重中重	輕中重	重中輕	輕中輕
重內	ɯ[ɯ·]	ɯ[ɯ]	i[i·]:ʉ[ʉ·]	i[i]
輕內	ə[ɤ·]:o[o·]	ə[ɤ]	e[e·]	e[e]:œ[ø]
假外	æ[ʌ·]	æ[ʌ]	ä[ɛ·]	ä[ɛ]
外	a[ɑ·]:ɒ[ɒ·]	a[ɑ]	ä[a·]	ä[a]

5) 其餘術語對應 (other technical terms)

Sino-linguistics	清	次清	濁	清濁	開	合	開合
Linguistics	voiced-	aspirated+	voiced+	voiced±	labialised-	labialised+	labialised± = rounded+
Linguistics in Chinese	清	送气	浊	无视清浊	非唇化	唇化	圆唇

Appendix 2: Reconstructive transcription of OC rhymes (Gao, 2020b, p. 35)

之 *-ə	侯 *-o	魚 *-a	微 *-lə	歌 *-la	脂 *-ðə	支 *-ða
職 *-kə	屋 *-ko	鐸 *-ka	物 *-tə	月 *-ta	質 *-θə	錫 *-θa
蒸 *-ŋ(k)ə	東 *-ŋ(k)o	陽 *-ŋ(k)a	文 *-n(t)ə	元 *-n(t)a	眞 *-ɳ(θ)ə	耕 *-ɳ(θ)a
	幽 *-wə	宵 *-wa				
	覺 *-ʍə	藥 *-ʍa	緝 *-pə	盍 *-pa		
			侵 *-m(p)ə	談 *-m(p)a		

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