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The Ḥphags-pa letter ṝ <h> and laryngeal phenomena in Mongolian and Chinese

By

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Introduction

In 1269 fulfilling the request of emperor Qubilai Qayān (1215–1294) his imperial preceptor the Tibetan lama Ḥgro mgon Ḥphags pa blo gros rgyal mtshan (1235–1280) presented to the throne a new script intended primarily for writing Mongolian, but usable for all the languages of the realm. Ḥphags pa lama’s new script was in essence a modified form of the Tibetan alphabet, written vertically, with new characters added for those sounds lacking in Tibetan. Documents written with the Ḥphags-pa script have long been recognized as important sources in the study of both Mongolian and Chinese historical phonology. However this script is itself beset with problems of interpretation. One letter whose interpretation has been somewhat controversial is the letter ṝ <h> which corresponds to the Tibetan letter ṝ <h>. Summarizing the reigning interpretation of this letter Svanesson et al. suggests that in Mongolian texts this character “may have been a glottal stop, or just a hiatus marker” (2005: 110). This analysis is similar to mistaken interpretations of the Tibetan letter Ḥ <ḥ> (e.g. Matisoff [2003: 116] suggests glottal stop, Beyer [1992: 43 note 6] and Coblin [2002: 169] a zero initial) but is at odds with the actual value of this letter in Old Tibetan as a voiced velar fricative [ɣ] (Hill 2005). A change in the value of the Tibetan letter <ḥ> changed from Old Tibetan (circa 650) to Tibetan as spoken by Blo gros rgyal mtshan in the 13th century would be of no surprise a priori, nor would a difference in the value of this Tibetan letter in the 13th century and the value of the corresponding letter in Ḥphags-pa. However, if there were a mismatch between the values of the Tibetan letter <ḥ>, in either Old Tibetan or 13th

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1 I would like to thank Tristan Brown, and Alexander Vovin for invaluable help on this paper.
century Tibetan usage, and the Ḥphags-pa letter <ʰ> in Mongolian, this mismatch should be explained.

In contrast, a match between the phonetic value of the Tibetan letter <ʰ> and the Ḥphags-pa letter <ʰ>, would neither be surprising or demand explanation. Miller (2002) summarizes and adds his voice to an alternate strain of scholarship which sees the Ḥphags-pa letter ḡ <ʰ> as representing a voiced fricative of some kind. This analysis fits much better with the value of the corresponding letter in Tibetan.

In the Mongolian Ḥphags-pa materials the letter ḡ <ʰ> occurs both word initially, and word internally, in surveying the relevant data and previous discussions in the literature it is useful to treat these two uses separately.

**Word initial ṡ**

Ligeti collects the following examples of initial ḡ <ʰ> in Mongolian Ḥphags-pa texts (1961: 206–207). I give these examples in the traditional transcription of Written Mongolian (WM), and in Svantesson et al.’s (2005) transliteration of the Ḥphags-pa script (PM); with the change that ḡ is written as <ʰ>. It should be noted that like the Mongolian script itself the traditional transcription of Mongolian does not distinguish Old Mongolian /ʰ/ from Old Mongolian /ɡ/. This fact is of no phonetic meaning. The Mongolian script similarly does not distinguish /t/ from /d/ or /a/ from /e/ but in these cases they are traditionally distinguished in transcription.

WM üge, PM ḡy-ge ‘word’
WM ügeber, PM ḡy-ge-ʰer ‘word’ (instrumental)
WM üges, PM ḡy-ges ‘words’
WM üğilegsen, PM ḡy-ğu-leg-sen ‘spoken’
WM üğüldükün, PM ḡy-ğu-lel-du-kʰun ‘speak to one another kun’
WM üğegü, PM ḡy-geʰy ‘without’

WM ibegel, PM ḡi-he-ʰen ‘protection’
WM ibegel-dür, PM ḡi-heʰen-dur ‘protection’ (dative-locative)
WM irgen-e, PM ḡir-ge-ne ‘people’ (dative-locative)

As can be seen from these examples, the Ḥphags-pa letter <ʰ> as an initial corresponds to vowel initials in Written Mongolian. Elsewhere in the Ḥphags-pa script Mongolian material some of these words with initial ḡ
The Ḥphags-pa letter <ʰ>

ʰ- are indeed written with an initial vowel (i.e. the character Ṽ, e.g. Ḥ-he-hen, WM ibegel ‘protection’). Both the correspondence between initial Ḥphags-pa <ʰ> and Written Mongolian vowel initial, and the alternation between Ṽʰ- and Ṽ are within Ḥphags-pa texts lead Jayunasutu to assign <ʰ> the value of a zero initial, and regard its variation with Ṽ as meaningless.

[In the Ḥphags-pa script Mongolian material, any of the symbols Ṽ, Ṽ, Ø, appearing in front of these [words] can only be markers of zero initial, therefore they may coexist as alternates] (Jayunasutu 1989: 32).

This line of reasoning comes across two difficulties. The first is that Written Mongolian is known to have zero initial where Middle Mongolian has initial Ḥ- (Pelliot 1925). So, the fact that Written Mongolian has a zero initial is not itself sufficient to show anything about other varieties of Mongolian. Second, to regard Ṽʰ- and zero Ṽ as free variants of each other does nothing to account for their attested distribution.

The letter Ṽʰ- does not occur randomly in variation with Ṽ. As can be seen from the examples above, all examples of initial Ṽʰ- occur before the vowels /i/ and /ü/ in words which in Written Mongolian begin with vowels.² This suggests that words with initial /i/ and /ü/ were somehow articulated differently than the other vowels in the variety of Middle Mongolian underlying the Ḥphags-pa materials. To explain the presence of Ḥ- only before i and ü Ligeti suggests that:

Cette notation [...] peut être expliquée seulement comme une particularité phonétique mongole qu’on a tenu à noter [...] le glottal stop (ou une consonne faisant l’effet acoustique de ce dernier) précédant l’initiale i (ou ü).

[This notation ... may only be be explained as a phonetic particularity of Mongolian which was intended to indicate ... a glottal stop (or a consonant which had the acoustic effect of the latter) before initial i (or ü)] (1961: 230).

² The letter does Ḥ- appear to mark vowel initials in the short text studied by Tuna and Bosson (1962). In this text the letter Ṽ does not appear.

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The main reason why Ligeti sees these examples as glottal stops, is that in Chinese texts the Ḧphags-pa letter <ʰ> is usually taken to mark a glottal stop (Ligeti 1961: 229, Nakano 1971: 75–80, Coblin 2007: 45–46)\(^3\). In further support of his analysis Ligeti points to Bobrovnikov’s description of Kalmyk, where:

Буква ʰ в начале слова произносится с придыханием как i, или hi. Напр., [ʰиригень или hirgen народь. [The letter <ʰ> in the beginning of a word it is said with aspiration as i or hi. For example <ʰirgen> jirgen or hirgen ‘people’] (Bobrovnikov 1849: 8).

However, this descriptions of aspiration before initial /i/ would seem to fit better with an analysis of <ʰ> as /ɣ/, /ʰ/ or /h/ than with Ligeti’s glottal stop /ʔ/.

Ligeti also points to what he takes to be the same phenomenon in Khalkha (Ligeti 1961: 230), where

bei energischer artikulation vor dem vokale, an deutlichsten vor u, ü, und i, [wird] ein schwacher hauch hörbar. Wir haben also im khU. den schwacher gehauchten vokaleinsatz (gradual glottid).

[with energetic articulation before the vowels, especially before u, ü, and i, a weak aspiration is audible. We have thus a weakly aspirated vowel onset (gradual glottid) in Ugra Khalkha] (Ramstedt 1902: 36).

The phonetic term ‘gradual glottid’ has gone into disuse. Baynes provides the following definition: “The glottid is gradual [...] when flatus passes through the vowel position before the chords are sufficiently approximated for voice or after they are separated” (1888), and sets it on a scale

1. clear glottid, 2. gradual glottid, 3. check glottid (including the German Knacklaut and Arabic hamza [ʔ]), 4. a “bleat” as seen the the Arabic ‘ayin [ʕ]. A potential locus classicus for the term ‘gradual glottid’ can be found

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3 Poppe rejects the idea that <ʰ> represents a glottal stop in Mongolian (1957: 22), and even questions whether it did so in Chinese, citing the work of Hope (1953). Poppe suggests that the vowels i and ü “were pronounced with greater tenseness” (1957: 32). Somewhat inconsistently Poppe believes that intervocally <ʰ> does represent zero, but initially it marks this greater ‘tenseness’ relative to the other vowels.
The Ṣphags-pa letter <н> in Sweet’s phonetics handbook, where it is opposed to the glottal stop as a form of vowel initial.

The glottis is gradually narrowed passing through the various positions for breath and whisper till voice is produced. This gives the ‘gradual’ beginning ([н]a) which is the ordinary way of beginning a vowel [...]. If the stress begins on the glides they are at once recognised a independent elements, [н] giving (н), the ordinary aspirate or letter h. (Sweet 1877: 63).

One may doubt whether Ramstedt’s “schwach gehauchten vokaleinsatz” is really the same as “the ordinary way of beginning a vowel”. This much is clear, Ramstedt heard some kind of aspiration, but has chosen to describe it as other than an [н]. Ligeti is mistaken to equate Ramstedt’s ‘gradual glottid’ with a glottal stop.

Bese suggests linking Ligeti’s glottal stop interpretation of the Ṣphags-pa letter <н> with a phenomenon in the the Western Khalkha dialect which he describes. In this language vowel initial words are subphonemically articulated with a “glottal plosive consonant [... ] most easily observed before, i, e, [and] ў” (1961: 279 emphasis in original). Bese provides the examples: <ene> en ‘this’, <uruyol> үрүл ‘lip’, <uran> үрә ‘craft’, and <ire-> үр ‘come’ (1961: 278). As in the cases of Bobrovnikov (1849) and Ramstedt (1902), here too one has reason to wonder whether the sound described is in fact a glottal stop. Bese remarks that “A foreigner is sometimes apt to hear this glottal plosive consonant as χ or ϕ.” (1961: 278 note 6, emphasis in original). Ladefoged and Maddieson report that glottal stops are articulated in the majority of languages as “a very compressed form of creaky voice or [...] stiff phonation” (1996: 75). The associated wave forms show little turbulence, in direct contrast to fricatives, such as χ, which are indeed defined by their turbulent airstream (Ladefoged and Maddieson 1996: 137). Perhaps Bese’s ‘glottal plosive’ is also in fact some kind of fricative.

Bese (278 notes 7 and 8) cites what he takes to be similar phenomena in the Chahar Dialect studied by Hattori (1951), and the Kharachin Dialect studied by Nomura (1957). Hattori describes his ‘glottid phoneme’ in these terms:

以上考察によって、蒙古語のこの方言の語頭音節はCV（即ち一つの子音音素十一つの母音音素）であるか、それで始まることが明かとなるが、母音で始まるように見える場合もある。
これらの母音は CV の V に該当する母音よりもやや長く、普通「はつきりした声音て」<clear beginning>で始まり、強い発音では声門破裂音で始まることがある。私は、これらの母音の初めの部介或いは破裂音に該当する一つの子音音素/'/を想定し、「声帯音音素」<glottid phoneme>と呼ぼうと思う。

[According to the foregoing inquiry, in this dialect of Mongolian the syllable initial is CV (i.e. one consonant phoneme + one vowel phoneme); and with that the onset is clarified. Yet there are also cases which seem to begin with a vowel. These vowels are slightly longer than the vowels which occur as the V in CV initials, beginning with normal 'clear beginning', they have an onset with a strong sound, a glottal plosive. Analyzing a consonant phoneme /'/ which corresponds to a plosive or part of (部介) these vowel onsets, I would like to call it a ‘glottid phoneme’.] (Hattori 1951: 81).

For Hattori, this glottal initial is as much a product of the phonemic analysis as it is phonetic accuracy. He cites the vowel initial of English, German, and Japanese as being the same phenomenon differently analyzed. These parallels makes it beyond question that Hattori is in fact describing a glottal stop [ʔ]. This glottal phoneme occurs, by definition, before all vowels.

Nomura does not provide detail about the sound he heard calling it “a glottid phoneme which corresponds phonetically with the 'clear beginning'”, and citing Hattori (1951) for his use of these terms (Nomura 1957: 133). One must take him at his word and assume he too is describing a glottal stop [ʔ]. In his materials this sound occurs before /i, a, u, ä, ö, j/ and /w/.

In summary, of the various phenomena which have been linked to Ligeti’s conjecture that the initial Ḫphags-pa letter <ʰ> represents initial glottal stop, in the dialects described by Bobrovnikov, Ramstedt, and Bese this ‘glottal stop’ is not a stop, but some kind of fricative, and occurs with a distribution similar to that of the initial Ḫphags-pa letter <ʰ>, i.e. primarily before /i/ or /u/. In contrast, the ‘glottal phonemes’ of Hattori and Nomura are in fact glottal stops [ʔ], and they occur before all or most vowels. There is no particular reason to link these to the Ḫphags-pa letter <ʰ>. None of the evidence discussed so far precludes the possibility that the initial Ḫphags-pa letter <ʰ> represented a glottal stop, but it also in no way suggests it. If one were to infer a value for <ʰ> from these data it
would be [h] or [ɦ], with [ɦ] as a better candidate because the Ṣphags-pa letter ḡi <ṅ> already represented [h]. However, because these dialects reflect a possible typological similarity rather than a phonetic correspondence at the lexical level, their witness alone is insufficient to establish the phonetic value of initial <ṅ>.

It is reasonable to accept that the occurrence of both <ṅ> and zero as the initial of some words, and the restriction of <ṅ> to before /i/ and /u/ implies phonetic information about these initials. The precise phonetic interpretation of this information should be compatible with the use of <ṅ> intervocally. The phonetic value of initial <ṅ> will be returned to after consider this letter’s use intervocally.

**Intervocalic <ṅ>**

Intervocalic <ṅ> corresponds regularly to Old Mongolian /h/ (Poppe 1957: 32; Svanstesson et al. 2005: 128–139). Here are the relevant examples from the glossary in Svanstesson et al. (2005), in the traditional transcription of Written Mongolian (WM), Svanstesson et al.’s Old Mongolian reconstruction (OM), and a transliteration of the Ṣphags-pa script transcriptions (PM).

- WM ᠠᠭᠤᠯᠠ, OM *aγula, PM aɣula ‘mountain’
- WM ᠠᠤᠮᠠᠭᠤᠳ, OM *aɪmɑ(h)uṭ, PM aɪmaḥuḍ ‘districts’
- WM ܒᠠᠭ, OM *pahu, PM bɑh ‘to go down’
- WM ᠴᠠᠭᠠᠨ, OM *צʰakahan, PM ḡaqa’han ‘white’
- WM ᠴᠢᠯᠠᠭᠤᠨ, OM *ṭhila(h)u/n, PM ḡila’hun ‘stone’
- WM ḡeγe-re, OM *təhere, PM dəhe ‘above’
- WM ḡoɭoɣɑn, OM *tolaha/n, PM doloḥan ‘seven’
- WM 懔ęde/n, OM *ṭeya/n, PM ṣhudun ‘door’
- WM ḡörəgesən, OM *kɒrəhesyn, PM gorəhe ‘beast’
- WM ḡrəγe, OM *hɪryher, PM hiruɭer ‘blessing’
- WM jɑɣuŋ, OM *čahu/n, PM jahun ‘hundred’
- WM jɪrəɣɑɣɑ/n, OM *čɪkho/a/n, PM ḡırqoʰan ‘six’
- WM ɶeɡe, OM *ɢeɬer, PM ɢeɬer ‘self’
- WM qalaɣɑn, OM *kʰalahun, PM qalaḥun ‘warm’
- WM ʂɑɣu, OM *sahu, PM sah ‘to sit’
- WM sibɑɣɑn, OM *sɨpahu/n, PM šibaḥun ‘bird’
- WM ṣuɭgɑr, OM *yɛɭhɣ, PM yjuɭur ‘point’
The phonetic value of the letter <ɨ> and how the reflex of the Old Mongolian phoneme /h/ was pronounced intervocally in Middle Mongolian are essentially the same question. There are several schools of thought on this matter. One suggests that the Old Mongolian intervocalic /h/ had completely disappeared in Middle Mongolian, and the letter <ɨ> represents ‘hiatus’, i.e. the fact that the vowels on either side of it do not coalesce into a diphthong. A second view holds that /h/ was still pronounced in Middle Mongolian with some suggesting a glottal stop and others suggesting a fricative. Another view commonly held in conjunction with one of the previous two is that at least in some cases the letter <ɨ> is used to mark a long vowel. Miller (2002) cites and summarizes in a convenient fashion the various positions taken by scholars over the years.

In a characteristic example of the ‘hiatus’ view of the letter <ɨ> used intervocally Poppe writes that “In the Yüan epoch, · [ɨ] in intervocalic position served to indicate a hiatus between two adjacent vowels belonging to two separate syllables” (1957: 23). Miller (2002: 185–186) suggests two reasons that researchers have entertained this interpretation. The first is the false notion that the cognate Tibetan letter <ɨ> represented a ‘vocalic support’ and had no phonetic value. The second probable reason for the hiatus interpretation is that in Sinograph transcriptions of Middle Mongolian sequences of the type VhV are often written simply as VV, e.g. 亦 哇 額 <yì dié é> /idee/ corresponding to Written Mongolian idege ‘food’ (Saitō 2003: 105). Similar transcriptions also occur in the Arabic material, e.g. ایدائین <âydâân> /idâín/ WM idegen ‘food’ (Saitō 2003: 112).

Glottal Stop
Ligeti in some cases extends his interpretation of <ɨ> as an Anlaut glottal stop discussed above to intervocalic position.

Long Vowels
Poppe suggests that “It is possible, however, that the sign · [ɨ] between identical vowels (as in q-an) served to indicate long vowels” (Poppe 1957: 23). In support of this claim he cites Clauson and Yoshitake (1929) as well as a letter from and a conversation with Clauson. Clauson’s reason for suggesting that <ɨ> is used to mark long vowels is that in the Ṣhpags-pa transliteration of Sanskrit dhāraṇī it is used to do so. This use of <ɨ> is based on the use of a small subscripted <ɨ> in Tibetan script transliterations of Sanskrit to mark long vowels (Clauson and Yoshitake 1929: 859). An objection can be raised to this line of argument. The Ṣhpags-pa script
was developed as a script primarily for Mongolian, and its use for other languages is secondary. Only one document in Ḥphags-pa, the Mògāokù 莫高窟 epigraph, is extant in Sanskrit (Nakano 1971: 147). To argue on the basis of the use of the Ḥphags-pa script in this rather marginal instance, that the letter <ḥ> represents a long vowel also in Mongolian is to make too much of the evidence. The letter <ḥ> is not used to mark long vowels in Tibetan. Tibetan has no long vowels. It is more likely that the use of this letter in Mongolian would be consistent with its use in Tibetan, than its use in Sanskrit.

Ligeti also believes that medial <ḥ> to indicate a glottal stop and to indicate vowel length can be rigorously differentiated.4

L’orthographe syllabique de l’écriture ’phags-pa [Hphags-pa] nous permet de distinguer sans difficulté (sauf le cas où l’écriture est trop serrée) les orthographes a-a et ā. S’il s’agit de ā, le a-čhuṅ [ḥ] est collé au signe de la consonne précédante, lorsqu’on a affaire à a-a, les deux signes sont séparés par un petite espace.

[The syllabic orthography of Ḥphags-pa permits us to distinguish without difficulty (except in the case where the writing is too tight) the spellings a-a and ā. When it is ā the <ḥ> is connected to the preceding consonant sign, when it is a-a the two signs are separated by a small space.] (Ligeti 1961: 236).

Ligeti suggests four reasons why <ḥ> should be considered as marking long vowels. 1. The Tibetan letter <ḥ> is used to mark long vowels in Sanskrit. 2. The Ḥphags-pa letter <ḥ> is used to mark long vowels in Sanskrit in the 居庸關 Jūyōnguān inscription. 3. The letter is rarely used in Chinese to indicate a long vowel. Ligeti gives the example bāo 寶, which he transliterates as bō. Ligeti mentions that this character is more frequently written baw (1961: 235).

The first two points have been treated above. It is clear that the Ḥphags-pa letter <ḥ> is used to mark long vowels in Sanskrit because the Tibetan letter <ḥ> is used to mark long vowels when transcribing Sanskrit. These two points amount to one point, and indeed a week point consid-

4 Ligeti also suggests that in the case of differing vowels perhaps a diphthong is intended, "dans l’écriture tibétique, le a-čhuṅ [ḥ], en cette même position, peut servir à désigner, en tant que «support semi-vocalique», une diphonie. [i]n the Tibetan script Ḥ, in this same position can serve as a ‘semivowel support’, to designate a diphthong]" (1961: 233). This view, can however be rejected since it is based upon a misunderstanding of the use of the letter <ḥ> in Tibetan.
ering the use of this convention in only one document. It is worth pointing out also that in the Tibetan practice the letter $<h>$ is written small and beneath an akṣara when it represents a long vowel. Since the Ḥphags-pa script is vertically arranged whereas the Tibetan script is horizontally arranged this vertical orientation of a diacritic marking long vowels in the Ḥphags-pa script would be expected to be small and written to the side. Ligeti’s third point, that $<h>$ is also used to mark long vowels in Ḥphags-pa Chinese appears to be a view unique to him. The Ḥphags-pa transcription of the character bāo 寶, which he transliterates as bō, would be more precisely transliterated as $<boh>$, implying a pronunciation such as [bofi] or [boʊ].

Old Mongolian /VhV/ does yield /Vː/ in the modern Mongolian languages. Hence, to suspect as Svantesson et al. (2005: 110) do that $<h>$ represents vowel length is not unreasonable. However, Ligeti suggests that the presence or absence of a small space was used to mark a glottal stop on the one hand and a long vowel on the other hand. There is no reason to believe that this distinction is phonetically meaningful, based either on Tibetan orthographic practice or on modern Mongolian phonology. That a script would use a small space to consistently distinguish a more or less random variation between the pronunciations /Vː/ and /VVVː/ is at face value an implausible senerio. It is perhaps sensible to distinguish these two orthographic forms in transcription, but until better evidence can be brought to bear suggesting this distinction is phonetically meaningful, it is best to see it simpy as the meaningless variation in the length of a space that can occur when one writes by hand.

Fricative

A minority of scholars hold the alternative view that the letter $<h>$ was still pronounced in Middle Mongolian as some kind of fricative. Rybatzki writes: “The status of the hiatus (‘’) is problematic, in that it is in almost perfect complementary distribution with $h$ (= $x < *x$) and could possibly still synchronically be regarded as an allophone of the latter” (2003: 64).

Evidence for the actual pronunciation of /-h-/ in Middle Mongolian is available from the Sinograph transcriptions of Mongolian. In addition to the Sinograph transcriptions of Old Mongolian -VhV-, as VV there are other transcriptions which indicate that this segment was still pronounced. In front vocalic words Old Mongolian -h- frequently is transcribed as -y-, e.g. 亦 唯 延 $<yì diē yàn>$ /ideyen/ WM idegen ‘food’ (Saitō 2003: 106) or 迂 兀 吻 延 $<diē wù yú yàn>$ /deuyuyen/ WM degūyūgen ‘son (reflexive genitive/accusative)’ (Saitō 2003: 115 n. 15). Transcription with
The Ḥphags-pa letter < דברים

<y> for Old Mongolian /-h/- is also found in Arabic material, e.g.  
<ایدِیم> /idīm/ WM idegen 'food',  
<تولِیم> /tölüyän/ WM tölügen 'payment, recompense' (Saitō 2003: 112), or  
<نیوی> /niyu/ WM niyu- 'hide, conceal' (Saitō 2003: 117 n. 20). Old Mongolian  
/-h/- is also transcribed as -w- 中 忍 古 郡 都 瓦 兒  
<میدل هی تونگ بیه این دوو وای> /qorinduwar/ WM qorinduwar 'twentieth' (Saitō 2003: 112),  
<بوسولیه> /bwawsny> /böwäsünı/ WM bögesün-i 'louse' (Saitō 2003: 117 note 20). Pointing to such variation Saitō concludes that the transcribed segment was still pronounced, and in these cases “مونگول語の  
音声史においてこの[ɦ]を仮定するのは音声学的に見て極く自然であり  
postulating this [ɦ] in the Mongolian historical phonology is from a  

Besides these cases of reflex of Old Mongolian /-h/- being transcribed  
with <y> or <w>, there are also instances transcribed with <ɦ>. The  
opening lines of the Secret History has 成 吉 思 中 合 罕  
<چنگ جی سی>  
<میل هه هان> /činggis qahan/ WM činggis qaγan 'Genghis Khan' (Kuri-  
bayashi and Choijinjab 2001: 6). In the Leiden manuscript are such  
Arabic transcriptions as باریوس <barihuw>r for Written Mongolian  
bariyul ‘handle, grip’ (67b-13-5), or کوه <kuw’haḥ> for WM köge  
‘hindrance’ (67a-1-4) (Saitō 2006, cf. also Pelliot 1925: 249 n. 2). Even  
in the Ḥphags-pa script itself <ɦ> occurs “[i]n the interior of words […] in  
the words ihe-en/ihe-en [ihehen/ihehen] protection, and iheγi’i protector,  
where it correspond to Mo. [Written Mongolian] g” (Poppe 1957: 31). In  
fact, the corresponding verbal root in Written Mongolian is  
ibe- ‘protect’ (Poppe 1957: 124). Thus, this example shows the b ~ g alternation typical  
for Old Mongolian -h-. As mentioned above, the same segment is also  
written with <ɦ> in this word (PM ɦi-heḥen-dur, WM ibegel-dür). In  
Persian loans from Mongolian the reflex of Old Mongolian j-h/- is  
regularly reflected as <ɦ>, e.g. Persian keher < Written Mongolian kege-r-e  
‘desert’ (Minorsky 1957: 68). In all of these cases the reflex of Old  
Mongolian /-h/-, usually taken to be a mere hiatus in Middle Mongolian,  
has been transcribed as <ɦ>, indicating that it must have been pronounced  
something like [h].

Miller suggests that even those examples of Old Mongolian /VhV/ tran-  
scribed with Sinographs as VV, which most likely gave rise to the ‘hiatus’  
theory, may in fact be chimerical, and better understood as VhV.

[T]he most frequently encountered Chinese transcription syllables  
found in these texts in positions corresponding to the so-called  
Middle Mongolian intervocalic hiatus are Chin.[ese] 额 ę < M[id-
dle]chin.[ese] *ngə, and Chin.[ese] 兖 wū < M[iddle]chin.[ese] *ngu, i.e., both morphemes in an earlier stage of the language had been syllables with an initial nasal-velar consonant. [...] we may conclude that no bold leap of the imagination is required in order to equate a surviul of this initial into O[ld]Man.[darin] with the [h] attested in the Q [Hphags-pa] sources. (Miller 2002: 189–190).

However, these two characters 駿 and 兖 in addition to being used to transliterate the sequences corresponding to Hphags-pa he and hu, are also used to transliterate sequences corresponding to word initial vowels e and u, as can be seen from the following two examples.

WM emegel, OM *emehel, SM 額 瑟 鋪 <é mie é k> /emeel/ ‘saddle’


Although one cannot follow Miller in believing that these Chinese syllables began with [ɦ], the variation among transcriptions with zero, <y, h> and <w> is sufficient to demonstrate that the Mongolian syllables being described did themselves begin with [ɦ].

Having established that the Hphags-pa letter <ɦ> used intervocalically has the value of a voiced glottal fricative, it is reasonable to suggest that it also had this value in word initial position. As discussed above, of the phenomena which have been previously linked to the use of the Hphags-pa letter <ɦ> before the vowels /iu/ and /i/, the relevant sound in the dialects which Bobrovnikov, Ramstedt, and Bese describe is some kind of fricative, and occurs with a distribution similar to that of the initial Hphags-pa letter <ɦ>. In face of these facts, the phonetic value of [ɦ] can without obstacle be extended to the letter <ɦ> in all positions.

A number of additional facts are available which strengthen the supposition that <ɦ> represents [ɦ] irrespective of its place in a word. Miller draws attention to a 14th century list of the Hphags-pa letters, provided with Chinese equivalents.

Describing the Q [Hphags-pa] script in chapter 7 of his Shū-shī hui-yāo 書史會要 of 1376, Tào Zōngyí 陶宗儀 explicitly states that the graph Q <ɦ> [Hphags-pa <ɦ>] is to be pronounced as
The Ḥphags-pa letter <ḥ>


Coblin objects that “these character equivalents of course date from much earlier than the time of the framing of the Ḥphags-pa [Ḥphags-pa] script. They should not be used as ancillary evidence for the sound values of the Ḥphags-pa [Ḥphags-pa] letters” (2007: 6). Although Coblin’s point is well taken, Tāo Zōngyí 陶宗儀 must have had some ground for equating certain characters from the traditional lists with certain letters from the Ḥphags-pa alphabet. If this reason were not the pronunciation of these letters in his own time, what could it have been?

Finally, Miller also draws attention to the fact that the character ○ in Korean han’gül as described by Sampson (1985: 126–127) and Martin (1992: 54) also indicates [fi] (Miller 2002: 200). Miller suggests that this character “derives from the epigraphic originals of Q and WT <ḥ> [Ḥphags-pa and Written Tibetan <ḥ>]” (Miller 2002: 199). Miller provides no argument for this equation. Although it is widely thought that the Ḥphags-pa alphabet influenced the invention of Korean han’gül (cf. Leyard 1966), this specific equation appears not to have been previously suggested. Ledyard (1997: 58) specifically denies a Ḥphags-pa precedent for the han’gül of the laryngeal series. However, other instances where he does see a parallel such as Ḥphags-pa ĳ and han’gul ○ seem no more plausible, and perhaps he would accept Miller’s equation if it had occurred to him. The explanation for the shape of the letter ○ given in the Hunmin Ch’ŏng’ŭm 訓民正音例 is “the outline of the throat” (Ledyard 1966: 229).

The discussion so far has repeatedly pointed to [fi] as the value of the Ḥphags-pa letter <ḥ>. However, its ancestor the Tibetan letter <ḥ> in Old Tiberan represented not the sound [fi] but instead [y] (Hill 2005). These sound are probably similar enough that their disparity need not undermine the hypothesis of [fi] as the value of the Ḥphags-pa letter <ḥ> in Mongolian. In fact, consideration of the historical facts eliminates the discrepancy altogether. The value [y] for Old Tibetan is relevant to the Tibetan language before it split into various dialects, i.e. in the relatively early part of the Old Tibetan period 650–900. The Ḥphags-pa script made its appearance in 1269 long after Tibetan had begun to diverge into its various daughter languages. The relevant question for the application of Tibetan evidence to the interpretation of the Ḥphags-pa letter <ḥ> is not the letter’s value in Old Tibetan, but rather how words written with the Tibetan letter <ḥ> were pronounced in the language of Blo gros rgyal
mtshan, the script’s inventor, and his confrères. The imperial preceptor hailed from Sa skya in Central Tibet. I do not have any materials on the pronunciation of Tibetan in Sa skya today, let alone in the 13th century, however across Central Tibet the segment in question has generally developed into [fi].

Written Tibetan ho-ma ‘milk’
oma [fomā], South Mustang (Kretschar 1995 vol iv: 216)
ho³ ma², Central, Gzhis ka rtse (Jin 1958: 31)
omā [fomā], Central, Gzhis ka rtse (Haller 2000: 22)

Written Tibetan hod, ‘light’
fig., Skyid-grong, Lende (Huber 2005: 332)
ho²³, Central, Lhasa (Jin 1958: 10)
ö [foc] South Mustang (Kretschar 1995 vol iv: 223)

Hphags pa blo gros rgyal mtshan used a derivative of the Tibetan letter <ḥ> in the script that bears his name to represent exactly the same sound in Mongolian that the corresponding Tibetan letter represented in his own mother tongue, i.e. [fi].

Middle Mongolian has an Anlaut voiceless glottal fricative, written with the Hphags-pa letter ṝ <ḥ>, if one adds [fi] to the Middle Mongolian sound system this results with both [h] and [fi] as sound in Middle Mongolian. There are very few languages that have a phonemic distinction between [h] and [fi] (Maddieson 1984: 57). If the two sound [h] and [fi] were in complementary distribution and could be analyzed as allophones of the same phoneme, Middle Mongolian would not need to bear this rare typological trait. Just such a solution is possible. The letter ṝ <ḥ> does not occur as an Inlaut except rarely in cases also written with <ḥ>, e.g. ihehen/ihihehen ‘protection’ discussed above. The letter <ḥ> occurs as an Anlaut only before /ū/ and /i/. Miller points out that “Middle Mongolian initial h- is not generally recorded in HPhags-pa script before Middle Mongolian -ū-” (1962: 443). In Poppe (1957) there is only one word where <ḥ> proceeds the vowel /ü/, namely WM üre, PM hyre ‘fruit, merit’. Initial <ḥ> is also rare before the vowel /i/. There are two words where <ḥ> proceeds the vowel /i/ WM ičegüri, PM hičųhüri ‘shame’ and WM irügel, PM hiruḥer ‘benediction’. So, the segments [h] and [fi] are nearly

5 For some thoughts on this word and its initial h see Miller (1962: 443) and the sources quoted therein.
The Ḫphags-pa letter <ʰ>

in complimentary distribution. The case for the phonemic unity of [ʰ] and [ʰi] would be strengthened if these three words were also found spelled as ḧyre, ḥičhuḥur, and ḥiruḥer, but the absence of such forms is of no particular consequence when consideration is given to the relatively small size of the Ḫphags-pa corpus overall. The hypothesis that initial <ʰ> is a voiced allophone of <ʰ> occurring before the vowels /ɨ/ and /ü/ would be elegantly confirmed if evidence of initial /ʰ-/ could be found in the four words WM üge ‘word’, ügei ‘without’, ibegel ‘protection’, and irgen ‘people’ which have initial <ʰ> in the Ḫphags-pa material. These words are not included in Pelliot’s (1925) list of word that begin with /ʰ/. Svantesson reconstructs WM üge ‘word’ and irgen ‘people’ without an initial /ʰ/. However, it is worth noting that Bobrovnikov singles out the word iregén ‘people’ as an example of <ɨ> being pronounced with aspiration and transcribes this word as jirgen and hirgen (1849: 8).

This investigation of the Ḫphags-pa letter <ʰ> as used in writing Mongolian has shown that this letter represents the sound [ʰi] both in Anlaut and Inlaut positions, and that this sound is an allophone of the phoneme /ʰ/ with [ɨ] occurring intervocally and initially before the vowels /ɨ/ and /ü/ whereas [ʰ] occurs before the other vowels.

The Ḫphags-pa letter ʰ in Chinese

Although the Ḫphags-pa script was developed primarily for writing Mongolian, it was also intended to write all the languages of the realm. A significant amount of materials are extant in Chinese written in the Ḫphags-pa script. The question naturally arises what light if any the solution just proposed for the letter <ʰ> in Mongolian Ḫphags-pa can bear on the use of this same letter in Ḫphags-pa Chinese materials.

The letter <ʰ> as used in writing Chinese corresponds to the Middle Chinese initial category yǐng 影. The opinio communis holds both that this yǐng 影 initial represents a glottal stop in Middle Chinese, and that the letter <ʰ> represents a glottal stop in Ḫphags-pa Chinese (Ligeti 1961: 229, Nakano 1971: 75–80, Coblin 2007: 45–46). This interpretation of the letter <ʰ> as used in Chinese is thus at odds with the interpretation [ɨ] for the letter in Mongolian given above. Two approaches are available to explain this enigma. The first is to reconsider the wisdom of interpreting the letter <ʰ> as a glottal stop in Chinese. The second is to explain how the decision to write a glottal stop with <ʰ> might have been sensible despite <ʰ> having had the value [ɨ] in Mongolian.
Karlsgren (1915: 377–379, 1923: 20 qtd. in Hope 1953: 2) was the first to suggest that the ǎng 影 sound should be understood as a glottal stop in Middle Chinese. Karlsgren discusses the value of the ǎng 影 initial in relationship to the ǔ 喻 initial. His argument can be summarized as follows (1915: 377–379). In general the Chinese dialects and the foreign readings of the relevant characters lack initial consonants. Those dialects which do have a consonant here have the same consonant as they do for Middle Chinese enigma. This he credits to analogy. When assigning a point of articulation to these two initials only uvular and glottal are possible because the other positions are taken by other Middle Chinese initials. He rejects uvular articulation because no contemporary dialects point to this articulation. The rhyming tables mark the ǎng 影 initial with an open circle like they do the initial k-, and they mark the ǔ 喻 initial with a partially filled circle like the initial g-. However, because the xin 心 initial, which he reconstructs as s-, is also marked with this semifilled circle, Karlsgren rejects the interpretation of this distinction as one of voicing. Instead he explains that k- is exploded, whereas g- and s- are ‘plus doux’, and suggests that ǎng 影 is a glottal stop initial and ǔ 喻 a vocalic initial.

This line of reasoning contains many errors. There are certainly various places of articulation that were available if he had been more creative. The zero initial in the modern dialects is just as strong evidence against a glottal stop as it is against an avular. The distinction between ‘k’ and ‘g’ is exactly one of voicing, and g- is exploded just as k- is. Finally, it seems strange that Karlsgren implies that he analyzes zero initial as a kind of laryngeal. Karlsgren’s case that the ǎng 影 initial is a glottal stop is rather weak.

Subsequently three types of evidence have been used to support the glottal stop reconstruction: the transcription of Chinese in the 唐 Tăng dynasty with Tibetan script, the transcriptions made by Sin Sukchu 申叔舟 (1417–1475), and the Wu dialects of today.

Csongor finds that the ǎng 影 initial of Middle Chinese is transcribed in Tăng dynasty Tibetan transcriptions by the Tibetan character ོ (1960: 113–114). The Tibetan letter ོ represents vocalic onset in Old Tibetan, this initial may have been articulated with a glottal stop initial, but it should be noted that the Tibetan script is not capable of noting a glottal stop as opposed to a vocalic onset (Hill 2005: 108–109). Consequently the transcription of the ǎng 影 initial by ོ cannot be taken as evidence for a glottal stop per se in Tăng Chinese.
Coblin points out that in 15th century “Sin Sukchu [申叔舟 (1417–1475)] recorded a glottal stop at exactly the points where the ‘Phags-pa letter’ - [Hphags-pa letter <ḥ>] occurs” (2007: 45). The han’gul character which Coblin following Kim (1991) takes to represent the glottal stop is ᄀ <q>. In contemporary Korean this character is no longer used. Kim provides no evidence for its phonetic value either in Middle Korean or in Chinese. While it is true yŏng 影 initials are transcribed with ᄀ <q>, this is an artificial practice produced because of an attempt to transliterate all of the initial categories of the rhyme books. In “1446 Hwun [25a] explicitly states that the glottal onset was not distinguished from the smooth in native Korean words” (Martin 1992: 49). To suggest that the yŏng 影 initial was a glottal stop because it was transcribed ᄀ <q> is a purely circular argument, in fact all the use of this letter shows is that the Korean phonologists, like Karlsgren, wanted to distinguish the yŏng 影 in transcription even lacking evidence for its pronunciation. The letter ᄀ <q> as a final is used

in non-Chinese expressions only for the prospective modifier [lq] ‘(...) that is) to do/be’, which the effect of reinforcing the simple obstruents [...] when they began a following noun in close juncture [...] the coda ...lq represents a morphophonemic phenomenon rather than a string of two phonemes. (Martin 1992: 49–50)

In Middle Korean the letter ᄀ <q> was used as a sort of diacritic, used either to artificially distinguish the yŏng 影 initial when transcribing Chinese, or to mark gemination in indigenous words. The letter ᄀ <q> had no phonetic value itself, and its use to transcribe the yŏng 影 initial is in no way evidence that the latter was a glottal stop.

A number of researchers have pointed to the presence of a glottal stop in the Wu dialects in these syllables (Coblin 2007: 45). However, Hope questions the extent to which this is true or relevant (Hope 1953: 15). In particular some Wu dialects have a glottal stop, some do not, and some have one optionally. It is relatively easy for a language to develop a glottal stop to accompany a vowel initial. The evidence of the Wu dialects is not compelling without an argument for their reconstructibility at the Proto-Wu level.

All of the evidence pointed to for reconstructing the yŏng 影 initial as a glottal stop is inconclusive, and only the presence of a glottal stop in the Wu dialects is even suggestive of this conclusion. The use of the letter <ḥ> in Hphags-pa Mongolian would instead suggest a voiced glottal fricative
[ʃ]. However, despite the lack of evidence that the yīng 影 initial is a glottal stop it does seem clear that it is voiceless.

On might expect the “throat sounds” to be laryngeals. There is no doubt that the first of them, initial yīng 影, was, as Karlgren argued, a glottal stop. It is represented in the foreign dialects and many modern dialects as a zero initial, but it acts like a voiceless initial in the LMC [Late Middle Chinese] register split in the tonal system and in other respects patterns like the voiceless unaspirated initials at other places of articulation. (Pulleyblank 1984: 64).

In general the voicing of Tibetan letters is the opposite of the value of corresponding Ṣhpags-pa letters in writing Chinese, e.g. Tibetan  <k> [k] and Ṣhpags-pa ལ <k> [g] and Ṣhpags-pa ལ <g> [k], Tibetan  <p> [p] and Ṣhpags-pa ལ <p> [b] but Ṣhpags-pa ལ <b> [p]. This voicing mismatch in the stops is itself an often contemplated mystery. However, Hattori has proposed the following solution, which (1946: 67), Hope (1953: 35); Norman (1988: 51), and Coblin (2007: 38) also agree to.

常時の蒙古人及び支那人は、蒙古語音と支那語音を比較する場合に、蒙古語の有聲乃至は半有声の音を支那語の無聲無気音と、蒙古語の無聲無気音を支那語の無聲有氣音と同一視するのがことと常識であったために、支那語の無聲有氣音は八思巴字の濁音字母で、支那語の無聲有氣音は八思巴字の次清音字母で寫すという主義が確立した。そこで、蒙古語にはない支那語の濁音（有聲乃至は帯気音）を表す必要が生じ、西蔵字の清音字から作った字母をこれに當てることとなった。

[Because of the time, that Mongolians and Chinese when they compared the sounds of Mongolian and Chinese, would equate the sounds which are voiced or semi-voiced in Mongolian with the voiceless unaspirates of Chinese, and the voiceless unaspirates of Mongolian with the voiceless aspirates of Chinese was common sense, the principle was established that Chinese voiceless unaspirates are transcribed with Ṣhpags-pa voiced letters and Chinese voiceless aspirates with Ṣhpags-pa voiceless letters. So, when the need arose to represent the Chinese zhuò 濃 (voiced or aspirates) letters made from the voiceless of the Tibetan script were assigned to these.] (Hattori 1946: 67).
The Ḫphags-pa letter <ʰ>

To match this general voicing mismatch perhaps the letter <ʰ> should be taken as representing [h] in Chinese, or in general the voiceless correspondent of the letter 𨕢 <ʰ> which Nakano understands as indicating [6] (1971: 80) <ʰ>. On the other hand, the fricatives do not generally show this voicing mismatch. Whatever the solution may be it would behoove Chinese phonologists to carefully reexamine the evidence of the Ḫphags-pa script, and more the association of the yīng 影 initial with a glottal stop more generally. As Coblin has stressed Ḫphags-pa Chinese is not necessarily a direct descendent or a direct ancestor of any other attested form of Chinese (2007: 44), therefore there is perhaps room to believe that the letter <ʰ> did not represent a glottal stop in Ḫphags-pa Chinese, even if one accepts that the yīng 影 initial was a glottal stop in other forms of Chinese. The conclusion which best reconciles the Ḫphags-pa evidence with the evidence of the Middle Chinese rhyme books is that the yīng 影 initial in Ḫphags-pa Chinese was articulated as a voiceless glottal fricative.

The analysis of the yīng 影 initial as a glottal stop appears to be an entrenched tenet of historic Chinese phonology, so anticipating that historic Chinese phonologists are loathed to part with this belief, it is worth addressing whether even if one takes for granted the view that in Ḫphags-pa Chinese the letter <ʰ> represents a glottal stop, one can explain why this letter would be used in this way in Ḫphags-pa Chinese when it did not have this use in Tibetan or in Mongolian. In order to explain this anomaly consideration must be given to the sound system of Ḫphags-pa Chinese and the graphic system of the Ḫphags-pa script in general, and specifically the use of the letter ㄆ. Most researchers (e.g. Hashimoto 1978–79: 100) have taken the letter ㄆ to represent a zero initial. In contrast, Cheng takes it as a voiced velar fricative [ɣ] (1985: 80), and Coblin as a voiced glottal fricative [ɦ] (2007: 48). If Cheng or Coblin are correct than the use of the Ḫphags-pa letters ㄆ [ɣ/ɦ] and .addTarget [ʔ] are the exact opposite of their Tibetan ancestors ऌ [ʔ/ʔ] and _OM (y/ɦ). Hope noticing this reversal sees it as the same phenomenon of the voicing mismatch in the stops (1953: 35–36). This solution is not at first glance applicable to the mismatch of ㄆ [ɣ/ɦ] and .addTarget [ʔ] with .Month [ʔ/ʔ] and ㄒ [y/ɦ], because they are not a voiced and voiceless pair. Hope is able to see the reversal of ㄆ [ɣ/ɦ] and .addTarget [ʔ] as part of the same phenomenon of voice mismatch in the stops because he sees the difference in the stops as one of tone and not voicing, and he also sees the difference between .Month ‘clear null’ and ㄒ ‘muddy null’ as one of tone (Hope 1953: 36). In his favour, in the Central Tibetan languages the initial /ɦ/ corresponding ㄒ has been analyzed by some linguists as not
phonemic but rather a phonetic effect of the low tone zero initial (Haller 2000: 22). But even so, why would the value of these two characters be reversed? Hope says it is by 'extending the analogy' (1953: 36) present in the stops. This presumed analogy could be diagramed thus.

Tibetan ཁ <g> 'muddy k' : Hphags-pa Chinese ཁ & <g> 'clear k'
Tibetan ར འ <h> 'muddy null' : Hphags-pa Chinese ར ‘clear null’

However such an analogy was not extended in the case of the dental fricatives. The Hphags-pa characters ལ <s> and ར ༤ <z> correspond perfectly to their Tibetan ancestors ར ༤ <s> and ར ༤ <z>. If Hope is right that the main distinction in the stops is one of tone rather than voicing, and that analogy is sufficient to explain the reversal of these two characters, the problem can be regarded as solved. But because neither of these assumptions, particularly the latter is compelling, one should consider other solutions.

If Cheng and Coblin are wrong about the phonetic value of ར the correspondence becomes Chinese Hphags-pa ར [ȵ] and ར [ʔ] with Tibetan ར [ȵ] and ར [ʔ] and Mongolian Hphags-pa ར [ŋ] and ར [ŋ]. The use of ར to represent [ʔ] rather than [ŋ] can be relatively accounted for if Hphags-pa Chinese lacked the sound [ŋ]. If this were the case, then the Hphags-pa script as used to represent Mongolian would have a character superfluous for writing Chinese, and Chinese would have a sound [ʔ] which the Hphags-pa script had no preexisting letter for. Because the letter ར was not needed to represent [ŋ] in Chinese it was free to represent [ʔ] instead.

One might object that since there certainly are Hphags-pa letters invented specifically for Chinese which are not employed in Mongolian, why did Blo gros rgyal mtshan not simply invent a new letter for [ʔ]. When new letters were invented for the Hphags-pa script that not were directly based on Tibetan originals they were derived either by modifying preexisting Tibetan characters or Devanāgarī characters (Hashimoto 1978: 85–92). Devanāgarī has no letter for the glottal stop. No Devanāgarī characters exists to serve as the prototype for a Hphags-pa letter that would represent a glottal stop. In the Tibetan alphabet there is also no character for a glottal stop, the only glottal characters being h and [ŋ]. Since the letter ར represented a glottal fricative, a sound lacking in Chinese, it could be used for the glottal stop without the need to invent a new letter.6

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6 Some researchers understand the Tibetan letter ར to represent [ʔ]. This might lead one to expect ར, or a modified version of it to represent [ʔ] in Chinese. For whatever rea-
The Ṣḥphags-pa letter <береж

This explanation supposes that the Chinese underlying the Ṣḥphags-pa transcriptions has no voiced glottal fricative [ŋ]. However, this assumption is not generally agreed to, Coblin analyzes Ṣṇ as a voiced glottal fricative, and Nakano understands Ṣ for [ŋ] to represent [ŋ] (1971: 80). Another weakness in the suggestion that Ṣ represents a glottal stop, Ṣṇ a zero initial [∅], and there is no voiced glottal fricative in Ṣḥphags-pa is the evidence that Cheng points to that Ṣṇ be interpreted as [ŋ] (1985: 80). Namely, that the 古今 韻 會 発 要 Güjin yùnhuí jiùyào describes this letter with the phrase 角次 濃 次 音 ‘voiced velar fricative’ (Cheng 1985: 80, Coblin 2007: 48).

In conclusion, I offer two proposals. Either Ṣ represents a voiceless glottal fricative in Chinese, or Ṣṇ represents a glottal stop and Chinese Ṣḥphags-pa has no voiced glottal fricative. Neither of these solutions is fully satisfactory, and hopefully this enigma will receive a more satisfactory solution in the hands of Chinese phonologists now equipped with a better understanding of the use of this letter in Mongolian.

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son this is not the strategy employed. Perhaps because as in my own view Ṣṇ never has represented [ŋ] in Tibetan.

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