Consonant Endings of Míng Dynasty Mandarin as Reflected in the Chinese Transcriptions of Uyghur Vocabulary in *Gāochāng guǎn zázì*

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Abstract

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This thesis is intended to provide a better understanding of Míng 明 dynasty Mandarin (Guānhuà 官話) consonant endings as reflected in the Chinese transcriptions of Uyghur vocabulary in *Gāochāng guǎn zázì* 高昌館雜字, a Míng dynasty text of Chinese-Uyghur terms. By analyzing all 1040 terms collected from the five editions of *Gāochāng guǎn zázì*, we determine the values of the six Middle Chinese consonant endings in Míng dynasty Guānhuà and make some interesting observations about the Middle Chinese (MC) *rù* tone in particular. Our method of analyzing consists of two steps of isolating

Uyghur syllables and Chinese transcriptional characters with particular characteristics. The first step is isolating Uyghur syllable final and word final consonant sounds (-m, -n, - ŋ, -p, -b, -t, -d, -k, -g, -q and -ɣ) and finding their correspondences in the Chinese transcriptions. The second step is collecting a list of characters with Middle Chinese nasal and stop codas (-m, -n, - ŋ, -p, -t, and -k) that were used in the transcriptions of *Gāochāng guǎn zázì* and finding their sound correspondences in the Uyghur entries. Then we analyze the Uyghur and Chinese data to discover correspondence patterns and use them to draw conclusions about the pronunciation of the Chinese transcriptional characters. Based on the data analysis, we have sufficient evidence to indicate that when the earliest editions of *Gāochāng guǎn zázì* were compiled in the early fifteenth century, Middle Chinese -m had already merged with -n. Furthermore, analysis of the transcriptional values of MC *rù* tone characters reveals that the stop endings of the *rù* tone had completely disappeared. Despite the fact that they had become open syllables (lacking even a glottal stop coda), they were still a separate tone category with shorter duration. This conclusion advances or revises the conclusions of other scholars who have looked at this material, sometimes in a less comprehensive way.

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Chapter 1 Introduction

This thesis is intended to provide a better understanding of Míng 明 dynasty Mandarin (Guānhuà 官話) consonant endings as reflected in the Chinese transcriptions of Uyghur vocabulary in *Gāochāng guǎn zázì* 高昌館雜字, a Míng dynasty text of Chinese-Uyghur terms. The term "Mandarin" (Guānhuà) was first used to refer to the common language or koiné among officials and the educated elite in the Míng (1368–1644) and Qīng 清 (1644–1911) dynasties (Coblin 2007: 7). In the present day, Mandarin is also the name of one of the Chinese dialect groups, and is also commonly used to refer to Pǔtōnghuà 普通話, the official language of the People's Republic of China. To avoid confusion among these different uses, I will always refer to the Míng-Qīng koiné as "Guānhuà", the dialect group as Mandarin and the official language of China as Pǔtōnghuà.

Chinese is a language family with mutually unintelligible dialect groups. Different scholars have described different numbers of dialect groups. One of several descriptions of the Chinese language family is that there are seven dialect groups, which are Mandarin, Wu, Gan, Xiang, Min, Hakka and Yue (Ramsey 1987: 87). Many

of the features of the dialect groups, aside from Min, can be directly correlated with features of Middle Chinese, a variety of historical Chinese that was reflected in the rhyming dictionary, *Qièyùn* 切韻, in 601 AD. Each dialect group has distinct Middle Chinese features that distinguish the dialects in that group from dialects in other groups. For example, Yue dialects are noted for the preservation of Middle Chinese stop consonant endings, -p, -t, and -k. Mandarin does not retain those endings. However, many details of exactly when and how these endings were lost in Mandarin remain unknown. The current study will anaylze how Chinese characters with Middle Chinese consonant endings, -m, -n, -ŋ, -p, -t, and -k were used in the transcriptions of Uyghur vocabulary in *Gāochāng guǎn zázì*. The analysis will give us a clearer picture on the condition of the consonant endings in Míng dynasty Guānhuà. It is safe to assume the transcriptional values of the characters are based on Míng dynasty Guānhuà pronunciation, rather than any particular regional dialect. This is a very reasonable assumption, since the text was meant to help governing officials from any part of the country learn to pronunce the Uyghur terms. They would expect to be reading the Chinese transcriptional characters in an educated koiné, which is Míng dynasty Guānhuà.

1.1 Sources

Gāochāng guǎn zázì "Miscellaneous Vocabulary of the Bureau of Gāochāng [Uyghurs]" was first compiled by the Office of Translators (Sìyí guǎn 四夷館) in the fifteenth century during the Míng dynasty as part of *Huá yí yì yǔ* 華夷譯語, a collection of foreign language and ethnic minority language dictionaries and official documents.[1] Gāochāng 高昌 was the name of an ancient city inhabited by the Uyghurs. Thus, *Gāochāng guǎn zázì* is the dictionary for the Uyghur language. Chapter 2 has more information on the textual history of *Huá yí yì yǔ* and layout scans of *Gāochāng guǎn zázì*.

There are numerous editions of *Huá yí yì yǔ*, and some of them are extremely difficult to gain access to. Féng (1981: 58) described in his article that there are different hand-copied editions or block-printed editions of *Huá yí yì yǔ*, and different set of entries among the various editions are common. This is certainly true for *Gāochāng guǎn zázì*. For the reason of simplicity, *Gāochāng guǎn zázì* will be used to refer to all editions of the Uyghur vocabulary, unless a specific title or description is

[1] Sìyí guǎn 四夷館 later changed to Sìyì guǎn 四譯館 in the Qīng dynasty. See Féng (1981: 57) for more information.

given. The content and number of entries differ in the five editions listed below. Character variants are also common among the different editions.

According to Hú and Huáng (1984), there are four editions of *Gāochāng guǎn zázì* located in Beijing. The four editions are

1) A Qīng dynasty block-printed edition, called the *Gāochāng guǎn yì shū* 高昌館譯書, which is held at the Beijing Library.
2) A Qīng dynasty hand-copied edition called *Gāochāng guǎn zázì* 高昌館雜字, which is also held at the Beijing Library.
3) *Huá yí yì yǔ - Gāochāng guǎn zázì* 華夷譯語-高昌館雜字, a Míng dynasty hand-copied edition that has ten volumes and three of the volumes belong to *Gāochāng guǎn zázì*. The Beijing Library also owns this edition. This edition has 940 entries, which is 224 more entries than the first two editions described above.
4) *Gāochāng guǎn zázì*, which is held at the Minzu University Library, is a copy of the Tōyō Bunko edition. There are only 208 entries and 62 out of the 208 entries do not appear among the 940 in the edition listed in #3.

Hú and Huáng (1984) collected and collated all the entries in the four editions of *Gāochāng guǎn zázì* and published a book titled *Gāochāng guǎn zázì duìzhào fēnlèi cíhuì* 高昌館雜字對照分類詞匯 (Collated and Categorized Vocabulary of the *Gāochāng guǎn zázì*). There are a total of 1002 entries, but only 1000 are distinct because of duplicated entries (Hú and Huáng 1984: 3).

The first three editions of the dictionary are reprinted in *Běijīng túshū guǎn gǔjí zhēnběn cóngkān* 6 *jīng bù* 北京圖書館古籍珍本叢刊 6 經部 (Ancient Books of the Beijing Library Series Volume 6 Classics). This book is my primary source for collecting data. Moreover, I was able to obtain scans for the Tōyō Bunko edition, which served as my second source. There is another edition of *Huá yí yì yǔ*, which is held at the Berlin State Library and was digitized and made available to the public on the library's website. The Royal Library at Berlin, now known as the Berlin State Library, acquired this edition in the early 1890s from Friedrich Hirth, a German scholar.[2] The Berlin edition of *Huá yí yì yǔ* consists of 24 volumes, three of which are devoted to Gāochāng Uyghurs: the vocabulary, a supplement to the vocabulary, and official documents. The

[2] See Wén (1979: 84) for more information. Wèi (1982: 118) mentions that a missionary named H. Hülle acquired this edition. However, the Berlin State Library listed this edition as Hirth Ms. 1 with the year 1579.

supplement includes the 208 entries that are in the Tōyō Bunko edition, but lacks 78 entries from the Míng hand-copied edition of *Huá yí yì yǔ - Gāochāng guǎn zázì*. The Berlin edition also has 40 terms that did not appear in the other four editions, but also has 40 duplicated entries. The new total for all the distinct entries in the dictionary as collected from the five editions is 1040.

The information presented above is summarized in Table 1.

Table 1: Summary of Five Editions of *Gāochāng guǎn zázì*.

Title/Name	*Huá yí yì yǔ - Gāochāng guǎn zázì* 華夷譯語- 高昌館雜字	*Gāochāng guǎn yì shū* 高昌館譯書	*Gāochāng guǎn zázì* 高昌館雜字	*Gāochāng guǎn zázì* 高昌館雜字	*Huá yí yì yǔ* 華夷譯語
Date	Míng dynasty hand-copied edition	Qīng dynasty block printed edition	Qīng dynasty hand-copied edition	Míng dynasty hand-copied edition	1579
Currently held at	Beijing Library	Beijing Library	Beijing Library	Tōyō Bunko (Original) Minzu University Library (Copy)	Berlin State Library
Description of the Original edition	Ten volumes Book height: 32cm Width: 19.7 cm Three volumes	Book height: 27.6 cm Width: 17.8 cm The words Gāochāng guǎn are printed on	Fore-edge has the words Tóngwén táng 同文堂 printed on it Book height:	Hand-copied edition Part of 18 volumes[3]	Hand-copied edition Part of 24 volumes Sìyí guǎn edition

[3] Email correspondence on 11/26/2017 with Yoko Shinozaki, a Tōyō Bunko representative.

	belong to *Gāochāng guǎn zázì*	the perforation between the pages	29.3 cm Width: 17.4 cm		
Modern/ reprint edition	Reprinted in *Běijīng túshū guǎn gǔjí zhēnběn cóngkān 6 jīng bù*	Reprinted in *Běijīng túshū guǎn gǔjí zhēnběn cóngkān 6 jīng bù*	Reprinted in *Běijīng túshū guǎn gǔjí zhēnběn cóngkān 6 jīng bù*		Accessible online at http://digital.staatsbibliothek-berlin.de
Content	Includes 2 additional sections that did not appear in the other four editions: a section titled *xù zēng* 續增 'supplement' and a subsequent unnamed section that has the words *Huá yí yì yǔ* on the top right corner	First entry is *tiān* 天 'sky' and last entry is *kuài lái* 快來 'come quickly'	First entry is 'sky' and last entry is 'come quickly'	Starts with the category *rénshì mén* 人事門 'People and Affairs category' and its first entry is *zhōng* 忠 'loyal' and last entry is *jīn xǐmiàn pén* 金洗面盆 'gold wash basin'	The first 716 entries are the same as the three editions held in the Beijing library. Supplement to the dictionary also contains a 'People and Affairs category' that not only contains the entries from the Tōyō Bunko edition, but also contains 40 entries that start with *kāi* 開 'open' and end with *fān hónghuā* 番紅花 'saffron', also lacks 78 entries that appear in the *xù zēng* 'supplement' section of *Huá yí yì yǔ-*

					Gāochāng guǎn zázì
Total number of entries	940	716	716	208	1004

The reason for the different number of entries in the *zázì* is difficult to explain. Some scholars think that perhaps the editors of subsequent editions of *Gāochāng guǎn zázì* ignored or deliberately omitted some entries (Wèi 1982: 119). However, it is uncertain why certain editions contain entries that are missing in other editions. Determining the precise dates when each edition was compiled, which would allow them to be chronologically sequenced, might help answer these questions, but due to my lack of access to the original manuscripts, it is impossible for me to find out the real answer. Moreover, in the scholarly secondary sources that I have consulted, the questions of dating and chronology were not addressed aside from including brief notes such as Míng dynasty hand-copied edition or Qīng dynasty block-printed edition when referring to the various editions.

1.1.1 Structure of *Gāochāng guǎn zázì*

Gāochāng guǎn zázì consists of words and phrases and are arranged in categories. Each section starts with the name of the category such as *tiānwén* 天文 'astronomy' and ends with *mén* 門 'class, category'. Aside from the Tōyō Bunko edition, four of the five editions have the same seventeen categories, which are listed below. Different categories among the five editions will be discussed below.

1. *tiānwén mén* 天文門 'Astronomy'
2. *dìlǐ mén* 地理門 'Geography'
3. *shí lìng mén* 時令門 'Time and seasons'
4. *huāmù mén* 花木門 'Flowers and plants'
5. *niǎo shòu mén* 鳥獸門 'Birds and beasts'
6. *rénwù mén* 人物門 'People'
7. *shēntǐ mén* 身體門 'Body parts'
8. *gōngshì mén* 宮室門/ *gōngdiàn mén* 宮殿門 'Palace and rooms'
9. *qìyòng mén* 器用門 'Tools'
10. *yīfú mén* 衣服門 'Clothes'
11. *zhēnbǎo mén* 珎寶門/珍寶門 'Precious items'
12. *yǐnshí mén* 飲食門/ *yǐn zhuàn mén* 飲饌門 'Food and drinks'
13. *wénshǐ mén* 文史門 'Writing'
14. *fāng yú mén* 方隅門 'Directions'
15. *shēngsè mén* 聲色門 'Colors'
16. *shùmù mén* 數目門 'Numbers'
17. *rénshì jiān tōngyòng mén* 人事兼通用門 'Personal and general affairs'

In the *Huá yí yì yǔ - Gāochāng guǎn zázì* reprinted in the *Běijīng túshū guǎn gǔjí zhēnběn cóngkān 6 jīng bù*, there are two sections in addition to the seventeen mentioned above. One section was titled *xù zēng* 續增 'supplement' and a subsequent unnamed section that has the words *Huá yí yì yǔ* on the top right corner. The Tōyō Bunko edition does not have the abovementioned seventeen categories, but instead has just three categories *rénshì mén* 人事門 'people and affairs', *tōngyòng mén* 通用門 'general affairs', and *fāngwù mén* 方物門 'various things'. The Hirth collection *Huá yí yì yǔ* at Berlin State Library also has three additional categories in addition to the seventeen above: *rénshì mén,* which contains 40 new terms, *tōngyòng mén* and *fāng wù mén*. The last two categories have no new terms, but only terms that had already appeared in the Tōyō Bunko edition and the two additional sections of *Huá yí yì yǔ - Gāochāng guǎn zázì*.

1.2 Previous Scholarship

There have been many studies done on *Huá yí yì yǔ* and the subsequent different languages and editions in the series. The materials are important to scholars studying the language, culture and writing system of the particular ethnic group in question. One example is Daniel Kane's *The Sino-Jurchen Vocabulary of the Bureau of Interpreters*

(1989), which analyzes the Jurchen dictionaries from different versions of the *Huá yí yì yǔ* series.

Similarly the Uyghur vocabulary of the *Huá yí yì yǔ* series has also been studied multiple times. The earliest study was by Julius Klaproth in his work titled *Abhandlung über die Sprache und Schrift der Uiguren* (1812). In that study, Klaproth reproduces the Uyghur vocabulary in Arabic script and then gives the transcription of the Uyghur vocabulary in Latin letters and a short definition in German. Another famous scholar, Lajos (Louis) Ligeti (1902–1987) published three separate studies in French in the 1960s on the Uyghur vocabulary, supplement to the vocabulary and documents of *Huá yí yì yǔ*. To the best of my knowledge, the majority of the scholarship on the Uyghur language materials of *Huá yí yì yǔ* is written in Chinese, Japanese, German, French and Turkish. The only studies that were written in English on the Uyghur materials were by Shogaito Masahiro (1999) and Li Yong-Song (2011). Li's and Shogaito's articles primarily focus on Version C of *Huá yí yì yǔ*, which is not the focus of this present study, which focuses on Version B.[4] Studies relevant to the focus of the present study, which is on the Chinese component of *Gāochāng guǎn zázì*, will be discussed in more details in

[4] See Chapter 2 for more information on the various versions of *Huá yí yì yǔ*.

Chapter 5. The conclusion in Chapter 6 will address the differences and similarities between my findings and the previous studies.

1.3 Scope and Purpose

The scope of this thesis is limited to examining the consonant endings of Míng dynasty Guānhuà as reflected in the Chinese transcriptions of Uyghur vocabulary in *Gāochāng guǎn zázì*. The transcriptions used for the Uyghur vocabulary came from three sources: 1) Hú Zhènhuá 胡振华 and Huáng Rùnhuá 黄润华 (1984), 2) Qí Hóngtāo 祁宏涛 (2013) and 3) Ligeti (1966, 1969).

This thesis will chiefly analyze how characters with Middle Chinese consonant endings, -m, -n, -ŋ, -p, -t, and -k behave in transcribing Uyghur syllables in *Gāochāng guǎn zázì*. As mentioned earlier, Mandarin is descended from Middle Chinese. However, Middle Chinese stop codas -p, -t, and -k are not preserved in Mandarin. Thus, we need to look at the character's pronunciation in Old Mandarin, the variety of Chinese spoken during the Yuán 元 dynasty (1279–1368). This will allow us to investigate the situation of those characters with consonant endings during Míng dynasty and discover where they were in the process of losing their endings as evidenced in the studies of Mandarin.

The present study collects all characters with Middle Chinese consonant endings, -m, -n, -ŋ, -p, -t, and -k found in *Gāochāng guǎn zázì*.[5] Then Old Mandarin reconstructed pronunciations of the characters will be given by using Níng Jìfú 宁继福's reconstruction of the *Zhōngyuán Yīnyùn*, an Old Mandarin rhyming dictionary, found in his work *Zhōngyuán yīnyùn biǎogǎo* 中原音韵表稿 (1985). Characters with Middle Chinese consonant endings will then be analyzed by gathering all instances that those characters are used to represent a Uyghur syllable. Patterns will be noted. Additionally, Uyghur syllable final and word final nasal and stop codas will be compiled and we will observe how those Uyghur syllables are being transcribed into Chinese. This will permit us to uncover patterns and address questions such as are all Uyghur syllable final and word final nasals being transcribed. If so, what can we say about nasals in Míng dynasty Guānhuà: do the patterns agree with what we have noticed from analyzing Middle Chinese nasals? The same process will be applied to Middle Chinese stop endings.

This present study consists of six chapters and an appendix. Chapter 1 is the introduction. Chapter 2 discusses the textual history of *Huá yí yì yǔ* while Chapter 3

[5] See appendix for a complete list of the characters.

provides an introduction to Uyghurs and the Uyghur script. Chapter 4 is a short introduction to Middle Chinese and Old Mandarin. Chapter 5 is the data analysis of the Middle Chinese characters with consonant endings. My conclusions are summarized in Chapter 6. By completing this study, I hope to provide readers with a clearer understanding of Míng dynasty Guānhuà as reflected in *Gāochāng guǎn zázì.* As mentioned earlier, there have been multiple studies about Uyghur materials in *Huá yí yì yǔ*. However, most of them are concerned with the Uyghur language. I am analyzing Guānhuà rather than, as most of theses studies do, Uyghur. Secondly, I have discovered some facts about transcriptional practices that have been interpreted differently by previous scholars. I hope this study will serve as an introductory study to the readers to the field of Míng dynasty Guānhuà and Uyghur materials in *Huá yí yì yǔ*.

Chapter 2 *Huá yí yì yǔ*

2.1 Textual History

The term "Huá yí yì yǔ" (Translations of Chinese and Barbarian Languages) has two meanings. In the narrow sense of the term, it is a dictionary that was compiled and published by Huǒ Yuánjié 火原潔 during the Hóngwǔ 洪武 reign (1368–1398) of the Míng dynasty.[6] It is a Mongolian-Chinese dictionary and can be found in the fourth volume of *Hán fēn lóu mìjí* 涵芬樓秘笈, a collection of rare titles compiled by Sūn Yùxiū 孫毓修 in the Republican era (1912–1949).[7] In the broad sense, *Huá yí yì yǔ* refers to a collection of bilingual Chinese and foreign or minority languages dictionaries and official documents compiled by the Office of Translators (Sìyí guǎn 四夷館, which later changed to Sìyì guǎn 四譯館 in the Qīng dynasty), Office of Interpreters (Huìtóng guǎn 會同館) and Office of Interpreters and Translators (Huìtóng sìyì guǎn 會同四譯館) of the Míng and Qīng dynasties (Féng 1981: 57). Most of the dictionaries are hand-copied editions; block-printed editions are rare (Ibid).

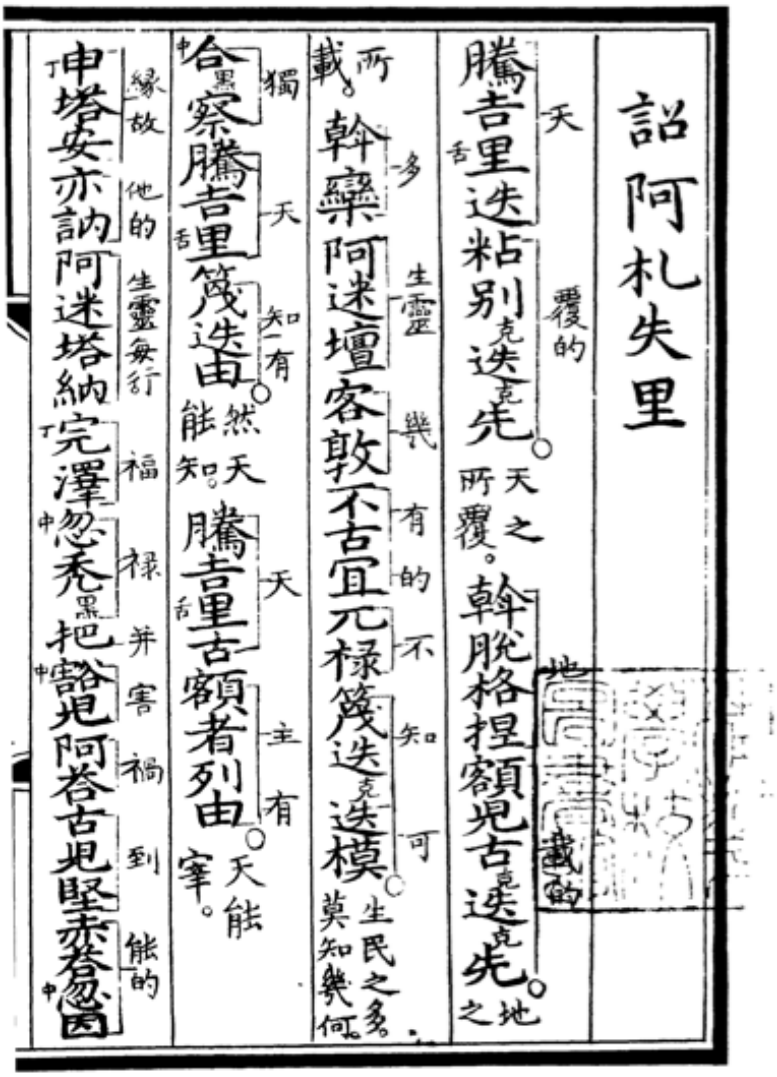
[6] See Féng (1981: 57) and Wèi (1982: 116–7) for a more detailed description.

[7] See Wèi (1982: 118) for a complete discussion of where to find reprints of Mongolian-Chinese *Huá yí yì yǔ* (Version A).

Scholars generally categorize *Huá yí yì yǔ* into four versions, designated A (*jiǎ* 甲), B (*yǐ* 乙), C (*bǐng* 丙), and D (*dīng* 丁). The A version is the Hóngwǔ edition, which was compiled in 1382 by Huǒ Yuánjié of the Hànlín 翰林 Academy and was published in 1389.[8] This version is aforementioned as the "narrow" sense of *Huá yí yì* yǔ. It focuses on the Mongolian language and the entries and official documents were written in Chinese characters instead of the Mongolian script. This version is different from the other three versions for it only has the Mongolian language. The dictionary entries are grouped into various categories such as *tiānwén mén* 天文門 'astronomy category', *dìlǐ mén* 地理門 'geography category', et cetera. See Figure 1 on the next page for a sample document page from Version A of *Huá yí yì* yǔ.

[8] See Féng (1981: 57) and Wèi (1982: 116–7) for more information.

Figure 1: Sample document page in the Mongolian-Chinese *Huá yí yì yǔ* (Version A).



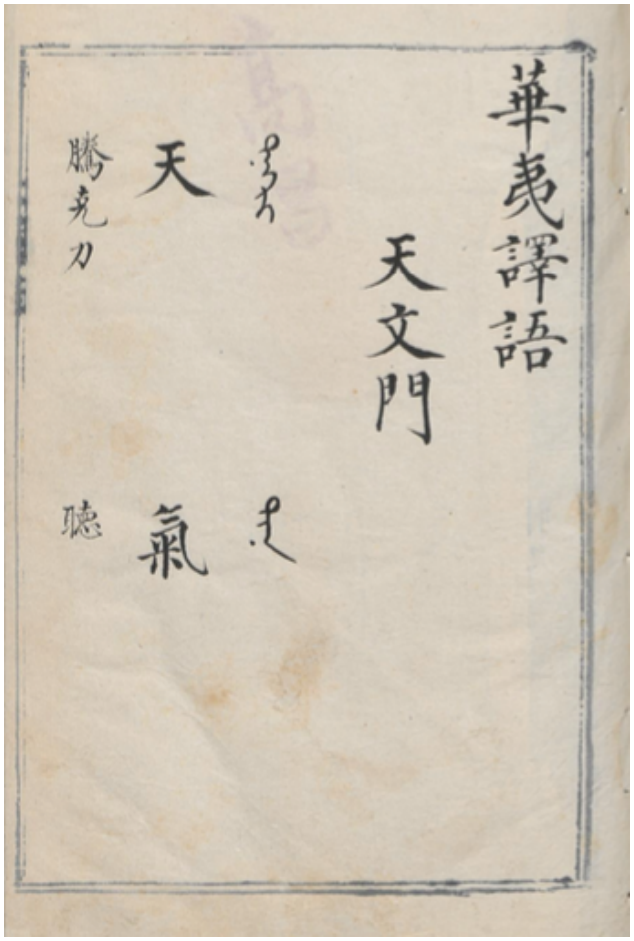
(Taken from *Hán fēn lóu mìjí* 涵芬樓秘笈 Volume 4)[9]

[9] Published by Shāngwù yìnshūguǎn 商務印書館 (Commercial Press) in 1924.

The B version is also called the Yǒnglè 永樂 *Huá yí yì yǔ*. During the fifth year of the Yǒnglè reign (1407), the Office of Translators was established and consequently started the compilation of the bilingual dictionaries (Féng 1981: 57). Initially, the languages of eight ethnic groups were included in the Office of Translators, which were Mongol (Dádá 韃靼), Jurchen (Nǚzhēn 女真), Tibetan (Xīfān 西番), Sanskrit (Xītiān 西天), Persian (Huíhui 回回), Dai (Bǎiyí 百夷), Uyghur (Gāochāng 高昌), and Burmese (Miǎndiàn 緬甸). Then in 1511, Papai (Bābǎi 八百) was added, and in 1579, Siamese (Xiānluó 暹羅) was also added, which brought the total to ten ethnic groups.[10] Each of the dictionaries in the B version has a *zázì* 雜字 'vocabulary' section and *lái wén* 來文 'documents' section (Féng 1981: 57). The entries in both sections were written in the script of each ethnic group and in Chinese. See Figure 2 below for reference. Like version A, the *zázì* of each language is also divided into different categories. There are various hand-copied editions of the B version of *Huá yí yì yǔ* (Féng 1981: 57).

[10] See Féng (1981: 57) and Wèi (1982: 117) for more information.

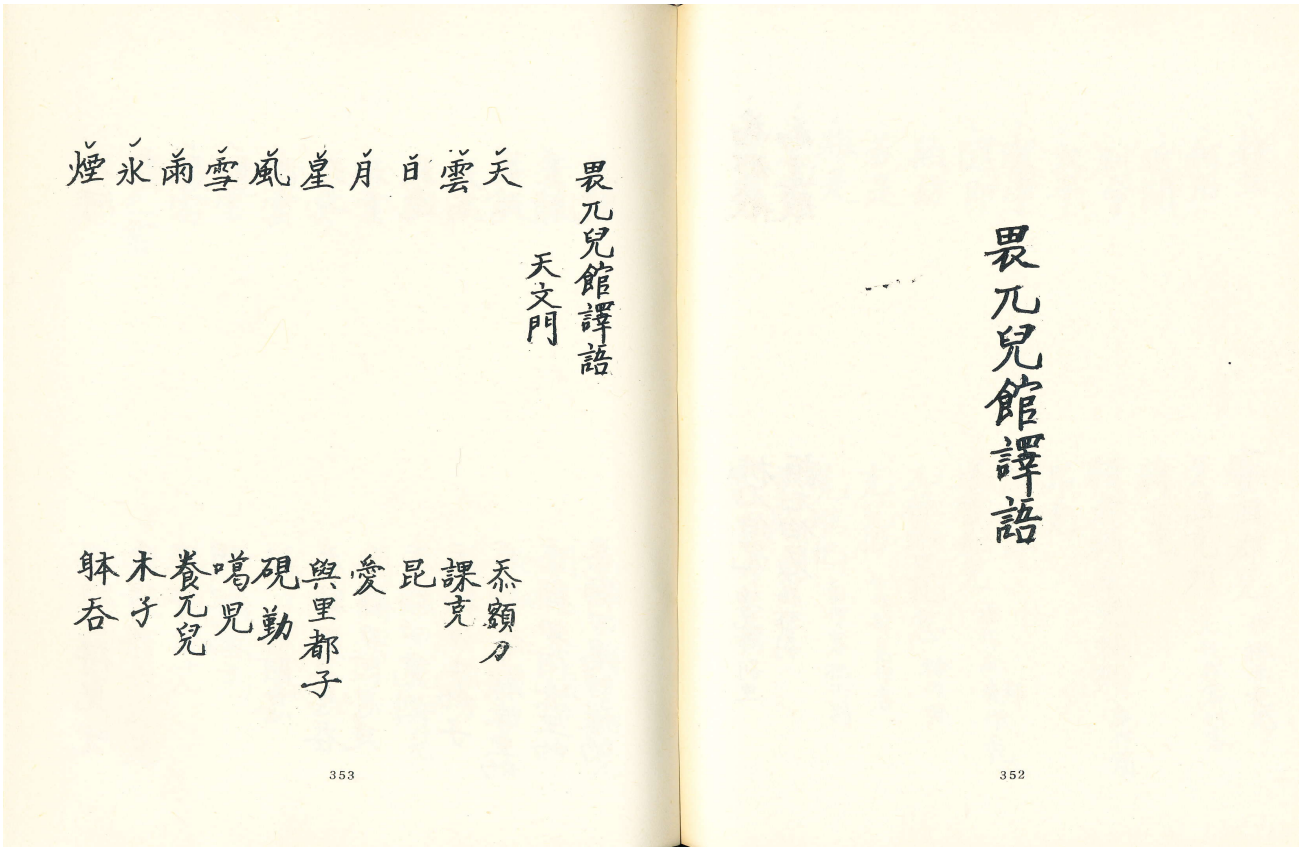
Figure 2: First page of Uyghur (Gāochāng) Vocabulary in the Berlin edition of *Huá yí yì yǔ*. This shows the first two terms in the *tiānwén mén* 天文門 'Astronomy' category, with the Uyghur word written in Uyghur script on the farthest right, then followed by the Chinese meaning, and then the Uyghur pronunciation transcribed in Chinese characters.



The C version, which is also known as the Huìtóng guǎn 會同館 *Huá yí yì yǔ*, was edited by Máo Ruìzhēng 茅瑞徵 (Máo Bófú 茅伯符) of Míng dynasty and compiled by Huìtóng guǎn (Féng 1981: 57). This version only includes *zázì*, not *lái wén.* The *zázì* of thirteen ethnic groups or places are included in this version, which are Korea

(Chāoxiān 朝鮮), Ryukyu (Liúqiú 琉球), Japan (Rìběn 日本), North Vietnam (Ānnán 安南), Central Vietnam (Zhànchéng 占城), Siam (Xiānluó 暹羅), Mongol (Dádá 韃靼), Uyghur (Wèiwùer 畏兀兒), Tibetan (Xīfān 西番), Persian (Huíhui 回回), Melaka (Mǎnlájiā 滿剌加), Jurchen (Nǚzhí 女直), and Dai (Bǎiyí 百夷). According to Féng (1981: 57), the Huìtóng guǎn version is generally believed to have been compiled later than the B version. However, the conclusion is not certain. Furthermore, the entries were not written in the script of the ethnic group, but instead in the Chinese script. For example in the *Wèiwùer guǎn yì yǔ* 畏兀兒館譯語 (Translation of Uyghur Language) from the Verision C of *Huá yí yì yǔ*, we do not see the script of the Uyghurs. See Figure 3 on the next page for reference.

Figure 3: First page of the *Wèiwùer guǎn yì yǔ* 畏兀兒館譯語 of the Huìtóng guǎn *Huá yí yì yǔ* (Version C). This shows vocabulary in the *tiānwén mén* 'astronomy' section, with the Chinese word at the top and the pronunciation of the equivalent Uyghur word, transcribed in Chinese characters, below it.



(Taken from a 1979 reprint of Version C of *Huá yí yì yǔ*)[11]

The D version of *Huá yí yì yǔ*, also known as the Office of Interpreters and Translators *Huá yí yì yǔ*, was compiled after the establishment of the Office of Interpreters and Translators in 1748 during the Qīng dynasty (Féng 1981: 57). The Office of Interpreters and Translators was formed after the merger of the Office of

[11] Published by Guītíng Publishing House 珪庭出版社 of Taiwan.

Interpreters and Office of Translators.[12] There are forty-two types of *zázì* (each for a different language or dialect) for a total of seventy-one volumes (*cè* 册). They were written in the script of each ethnic group with one exception (Féng 1981: 57–8). The most complete collection of the D version is held in China and includes western languages like French and English.[13]

Different versions and editions of *Huá yí yì yǔ* are held around the globe.[14] Overseas institutes like the British Museum, School of Oriental and African Studies, Berlin State Library, and Tōyō Bunko, all posses different versions and editions of *Huá yí yì yǔ*.[15] The content of each version and edition varies, for example, the one held at the British Museum is said to be a Míng dynasty block-printed edition, but has only *zázì* and no *lái wén* (Wén 1979: 84).

[12] See Wèi (1982: 119), Liú and Sūn (2008: 47) and Wén (1979: 83) for more details.

[13] For a complete chart of the different languages included in the four versions of *Huá yí yì yǔ*, see Féng (1981: 66–7).

[14] For a discussion of some of the known extant versions and edition, see Wèi (1982) and Wén (1979). For a study of the various versions of *Huá yí yì yǔ* held in Beijing, see Féng (1981).

[15] For a detailed discussion of the different versions and editions held in different overseas institutes, see Wèi (1982: 118–9).

2.2 *Huá yí yì yǔ* and Gāochāng Uyghur Vocabulary

This thesis focuses on the Uyghur (Gāochāng) dictionary of the B version of the *Huá yí yì yǔ*. The main reason for selecting the B version is because of the inclusion of the Uyghur script as compared with the other versions of *Huá yí yì yǔ*. As mentioned above, version A is Mongolian language only. The entries in the Uyghur section of version C of *Huá yí yì yǔ* were not written in the Uyghur script and some scholars such as Shogaito (1999) believed it to be different from the Uyghur language in the B version. Version D does not include the Uyghur language. Having the entries written in the Uyghur script is helpful in analyzing the sounds of the Uyghur language and examining the nature of the Chinese transcriptional system. As discussed in Chapter 1, I had access to only five editions of *Gāochāng guǎn zázì*, all of which are belonging to the B version of *Huá yí yì yǔ* when conducting research for this thesis. There may be more editions of *Gāochāng guǎn zázì* with different set of entries at different institutes. From the versions I have access to, 1040 distinct Uyghur terms from the five editions discussed in Chapter 1 will be analyzed in this thesis.

Chapter 3 Gāochāng Uyghurs

Scholars of Uyghur studies have a fairly good understanding of how Uyghur was pronounced in the fourteenth–fifteenth century based on transmitted texts (Tohti 2012: 7–8). It is reasonable for us to assume the Uyghur pronunciation is reflected clearly in the Uyghur script in *Gāochāng guǎn zázì.* Therefore, before we proceed to the data analysis of the Uyghur vocabulary found in *Gāochāng guǎn zázì*, we need to understand essential background information of the Gāochāng Uyghurs and the Uyghur script used to write the vocabulary.

3.1 Uyghurs and the Uyghur Script

Uyghurs were known as Yuánhé 袁紇, Wéihé 韋紇, Huíhé 回紇, Huíhú 回鶻, Wèiwù'ěr 畏兀兒 and so on in Chinese historical materials of different periods (Hú and Huáng 1984: 1). They were considered to be the ancestors of modern Uyghurs (Wéiwú'ěr zú 維吾爾族) (Tohti 2012: 2–3). To avoid confusion, the term "Uyghurs" in this study refers to Old Uyghurs, not modern Uyghurs. Old Uyghurs were part of the eastern Türk confederation and lived in the area of modern Mongolia (Johanson 2006: 285). After being defeated by the Kirgiz in 840, the majority of the Uyghurs fled to the

Tarim Basin in southern Xinjiang while a smaller group withdrew to Gānzhōu 甘州 (modern Gānsù 甘肅) (Hansen 2012: 190). The Old Uyghurs established the Kingdom of Kocho (Gāochāng 高昌) from 850-1280 in Turfan and eventually expanded to other parts of the Tarim Basin (Johanson 2006: 285; Gěng 2006: 193). Under the influence of the locals, Uyghurs gradually changed from a nomadic lifestyle to a sedentary one and developed commercial trade (Gěng 2006: 207). Not only was Turfan an important trade city in the Uyghur kingdom but was also a major Buddhist center and a printing center for literary works (Kamberi 1999: 288). Hence, Gāochāng (Kocho in Uyghur) became a cultural and commercial hub for the Uyghurs and consequently the term "Gāochāng" became synonymous with the Uyghurs for the Han Chinese.

One of the scripts widely used by the Uyghurs was the Uyghur script. The Uyghur script was adapted from the Sogdian alphabet (the cursive script) and the Uyghurs modified it to become the Uyghur script (Kara 1996: 539; Daniels 2006: 371). It is believed that the Uyghur script "arose almost causally, from day-to-day contact between Türks and Sogdians" (Sims-Williams 1981: 359).[16] The Sogdian script was

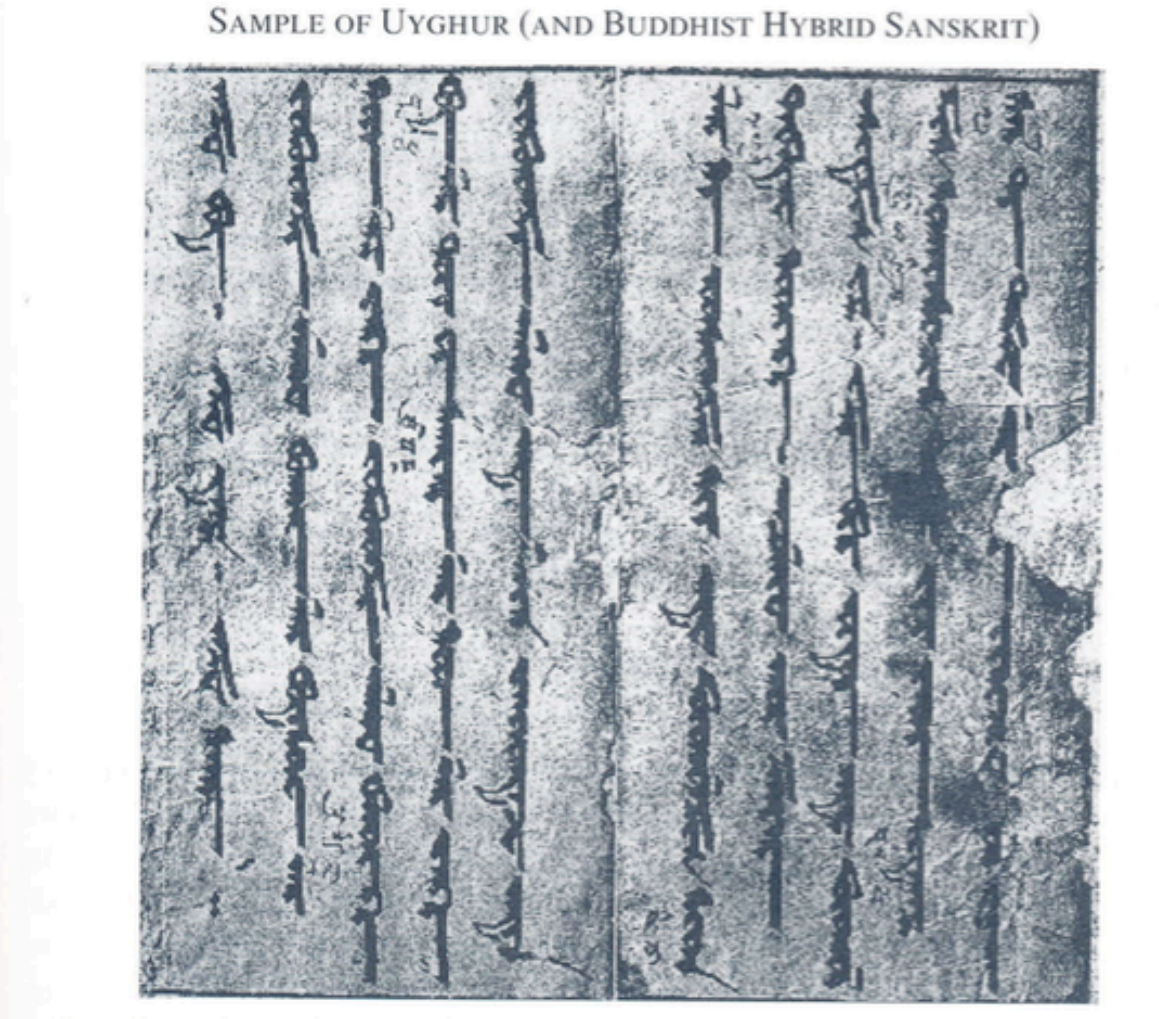
[16] For additional information on interactions between Old Turks and Sogdians, see Xú (2009).

originally written horizontally, but the Uyghurs modified it to be written vertically and in columns from left to right. Mongolians ultimately adapted the Uyghur script to write their own language in the early thirteenth century, which is now known as the Mongolian script (Thompson 2006: 523). Then in the sixteenth century, the Manchus modified the Mongolian script into the Manchu script (Thompson 2006: 524; Gěng 2006: 207).

Figure 4: A sample of an ancient Sogdian letter written in Sogdian alphabet. The letters are read from right to left.

(Taken from Daniels, Peter T., & Bright, William [Eds] 1996: 529)

Figure 5: A sample of Uyghur script written vertically.



(Taken from Daniels, Peter T., & Bright, William [Eds] 1996: 541)

Uyghur script was used in areas around Turfan and Hami until the fourteenth–fifteenth century and until the seventeenth century in Gānsù (Gěng 2006: 208; Kara 1996: 539). Therefore, it was the script used in the compilation of *Gāochāng guǎn zá zì*. The Uyghur script has 19-23 letters depending on the time period because the same

letter could represent two distinct sounds in earlier Uyghur forms (Gěng 2006: 212). Uyghur letters have different forms when they occur in the initial, medial, and final position of a word and independently (Gěng 2006: 212; Kara 1996: 539). There are nine vowels in Uyghur but the script only used three vowel signs to represent those sounds (Thompson 2006: 525). The three vowel signs are *aleph, yodh* and *waw*. See Table 2, which was created based on information taken from Thompson (2006: 525) for reference.

Table 2: Uyghur Vowel Sounds

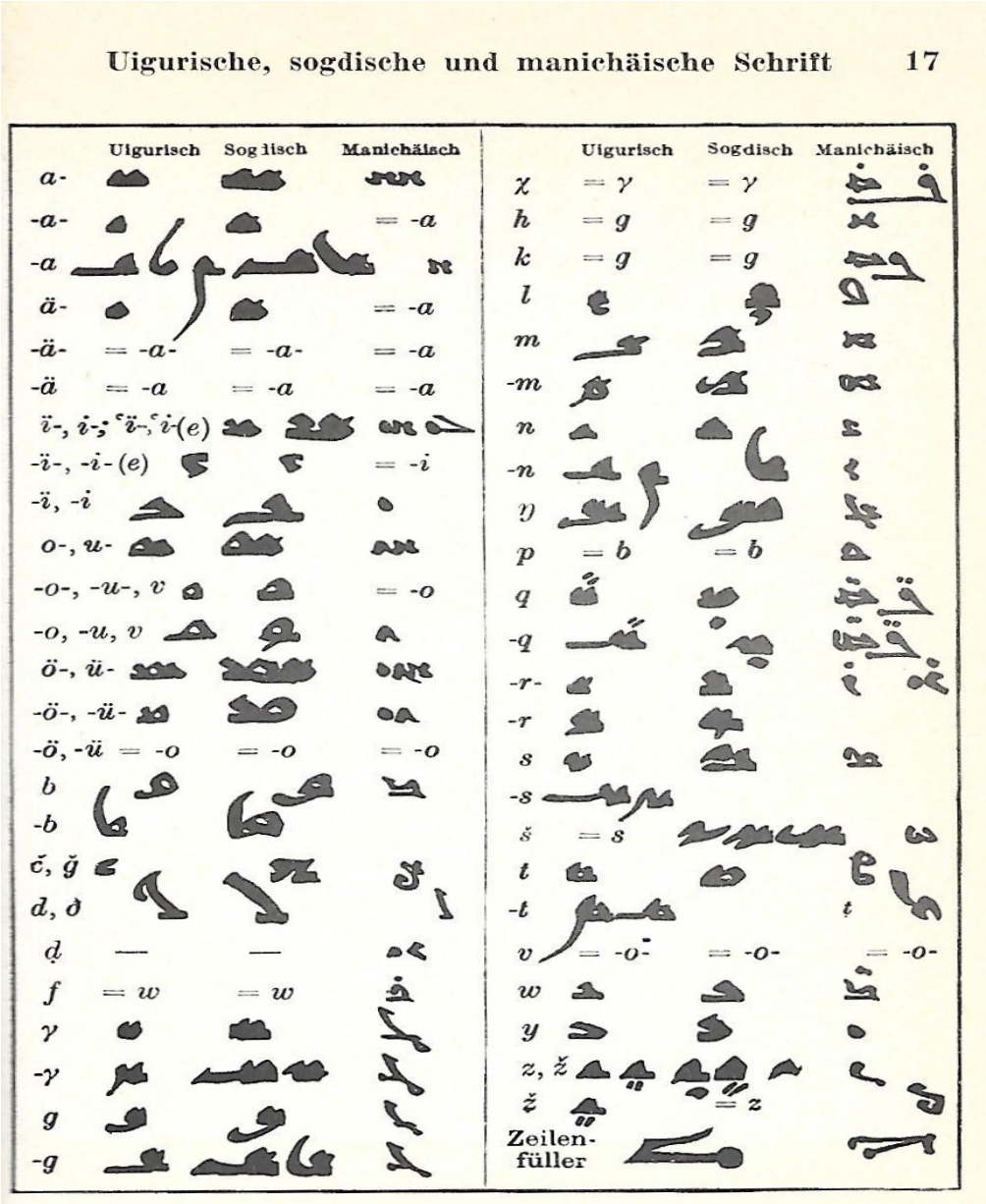
Vowel Sign	Sounds Represented
aleph	a/ä
yodh	i/ï/e
waw	in 1st syllable: o or u ligature *waw* + *yodh* : ö or ü in non-1st syllables: all four rounded vowels (o, u, ö, ü)

3.2 Romanization of Uyghur Script

Many scholars have analyzed and proposed a romanization of the Uyghur script in Latin letters. One such scholar was Annemarie von Gabain (1901–1993). In her famous 1974 work on Old Turkic grammar titled *Altturkische Grammatik*, she included a

romanization chart for the scripts of Uyghur, Sogdian and Manichaean. The chart is shown below.

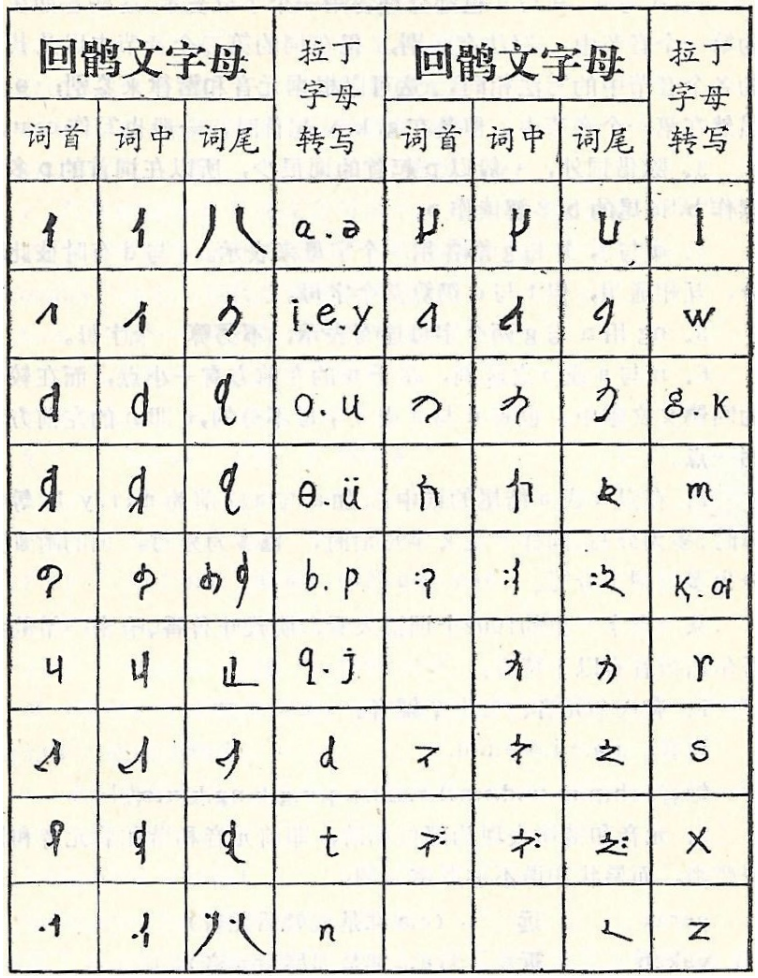
Figure 6: Letters of Uyghur, Sogdian and Manichaean scripts are organized by sounds. In each script, some letters represent more than one sound.



(Taken from Gabain 1974: 17)

Similarly, Hú and Huáng (1984: 5) have organized a Latin alphabet chart for the Uyghur script seen in *Gāochāng guǎn zázì*. However, Hú and Huáng use the Uyghur New Script, which is also called *yëngi yëziq* that was mainly used in China before 1982 and was based on Chinese *Pīnyīn* (Duval and Janbaz 2006: 2-3). To represent some sounds that are not in Pǔtōnghuà and therefore have no simple *Pīnyīn* representation, modified Latin letters like ķ and ɑ̧ are used. See Figure 7 on the following page for reference.

Figure 7: *Gāochāng guǎn zázì* sounds in Uyghur New Script (Hú and Huáng 1984: 5).



In this thesis, the main Uyghur sounds we are concerned with are syllable-final consonants, which are labials (-p and -b), dentals (-t and -d), velars and uvulars (-k, -g, -q and -ɣ) and the three nasals (-m, -n and -ŋ). Those sounds are selected due to the fact they are the closest counterparts to the six Middle Chinese consonant endings: -m, -

n, -ŋ, -p, -t, and -k. By looking at how those Uyghur consonant endings are transcribed into Chinese, we can then examine how characters with different Middle Chinese consonant endings are being used. Are all stop endings represented in Chinese transcriptions? If so, what was the method? After analyzing all the Uyghur and Chinese data, we will have a better understanding of Míng dynasty Guānhuà consonant endings as reflected in *Gāochāng guǎn zázì*.

Chapter 4 Middle Chinese and Old Mandarin

Before we proceed to the analysis of *Gāochāng guǎn zázì* characters with Middle Chinese consonant codas, we need to understand two important stages in the history of the Chinese language: Middle Chinese and Old Mandarin. In this chapter, we will discuss some of the key features of Middle Chinese and Old Mandarin. This chapter is not a comprehensive study of Middle Chinese and Old Mandarin, but rather a general overview so the readers can understand the main features of the Chinese language at different stages before and during the early Míng dynasty. It is crucial to understand the linguistic features of both Middle Chinese and Old Mandarin, because only then can we can examine the features of the Early Mandarin that was reflected in *Gāochāng guǎn zázì* and attempt to comprehend the standard language of the early Míng dynasty at that time. To avoid confusion, in this study, Old Mandarin refers to the speech reflected in *Zhōngyuán Yīnyùn* 中原音韻 of the Yuán dynasty and Early Mandarin refers to pre-modern Míng-Qīng Guānhuà.

4.1 Middle Chinese

Historical Chinese can be divided into chronological stages such as Old Chinese, Middle Chinese, and Old Mandarin.[17] The major sources we have for the reconstruction of the Middle Chinese and Old Mandarin are texts specifically rhyme dictionaries. Middle Chinese is based on *Qièyùn* 切韻 (601), a rhyme dictionary from the Suí 隋 dynasty (581–618) and its later revised and expanded version, *Guǎngyùn* 廣韻 (compiled 1007–1008) of the Sòng 宋 dynasty (960–1279).

Qièyùn was compiled by Lù Fǎyán 陸法言. It served as a source of standard literary pronunciations during the Táng 唐 dynasty (618–907). Scholars have long disagreed on the geographical location of the Chinese language that was represented by the *Qièyùn*, even whether a single system was represented. Some believed it represented the Chang'an 長安 dialect, while some believed it represented the Hénán 河南 dialect (Lǐ 1986: 23). However, Lǐ Xīnkuí 李新魁 believed that the "*Qièyùn* was not a single phonological sysytem, but compiled from the common language represented by

[17] Scholars also included Eastern Han Chinese as one of the stages of historical Chinese after Old Mandarin and before Middle Chinese. However, due to the reason of simplicity, we have only listed the stages that are most relevant to our study.

the Hénán dialect at that time and adaptations from ancient and dialect sounds (the specific basis is the *fǎnqiè* spelling from various rhyme dictionaries and character dictionaries since the Northern and Southern Dynasties)" (Ibid).[18] *Qièyùn* included a total of 12,158 characters belonging to 193 rhyme groups, arranged in five volumes. Unfortunately, the complete version of *Qièyùn* is no longer extant; there are only fragments. Throughout Chinese history, many scholars added to the *Qièyùn* and the most well-known revision is the *Guǎngyùn* (full name *Dà Sòng chóngxiū Guǎngyùn* 大宋重修廣韻), edited by Chén Péngnián 陳彭年 and Qiū Yōng 邱雍.

Many scholars have done research on the reconstruction of the Middle Chinese reflected in the *Qièyùn* and *Guǎngyùn*. The main source for the reconstruction of Middle Chinese in this thesis is Edwin G. Pulleyblank's *Lexicon of Reconstructed Pronunciation in Early Middle Chinese, Late Middle Chinese, and Early Mandarin* (1991).[19] Pulleyblank categorized Middle Chinese into the *Qièyùn* Early Middle Chinese (EMC) and Late Middle Chinese (LMC), the new standard speech of Chang'an, the capital of the Táng dynasty, which he reconstructed from materials such as rhyme tables i.e. *Yùnjìng* 韻鏡

[18] The original Chinese sentence is《切韻》不是一個單一的音系，而是以當時河南音為代表的共同語語音為基礎，並採其他一些古音和方音的音類（具體的依據是南北朝以來各家韻書，字書的反切）編成的。

[19] What Pulleyblank refers to as "Early Mandarin" is termed "Old Mandarin" in this study. See the next section.

(1991: 3). In this thesis, whenever the term Middle Chinese is mentioned, it refers to EMC of the *Qièyùn*, unless otherwise noted.

4.1.1 Basic Features of Middle Chinese

The syllable structure of EMC is not described in Pulleyblank (1991), but he does provide a description of syllable structure for LMC (10). Thus, we will include the syllable structure of LMC as a general reference for the Middle Chinese syllables.

C_1 (C_z) V_1 (V_2) (C_3)
C_1 : Any of the initials
C_z : Medial glide, j or w
V_1 : One of the 5 vowels which are ə, a, i, u and y
V_2 : vowel a cannot follow ə
C_3 : Final consonant or glide

The Middle Chinese initials in the table below are adapted from Pulleyblank's EMC initials (1991: 15).

Table 3: Reconstruction of Middle Chinese Initials

		Bilabial	Labiodental	Dental	Retroflex	Alveolo-palatal	Palatals	Velar	Laryngeal
	Unaspirated	p		t	tr		tɕ	k	ʔ
Stops	Aspirated	p^h		t^h	tr^h		$tɕ^h$	k^h	
	Voiced	b		d	dr		dʑ	g	
Fricative	Unaspirated			s		ʂ	ɕ		x
	Voiced			z		ʐ	ʑ		ɣ
Sibilants				ts	tʂ				
				ts^h	$tʂ^h$				

				dz	dʐ				
Sonorants		m	w	n	nr		ɲ	ŋ	
Lateral Approximant				l			j		

There are 206 rhyme groups in *Guǎngyùn* and each group is further split into groups of homophonous characters, where the pronunciation of each group is given by a *fǎnqiè* 反切 formula.[20] Furthermore, there are 16 *shè* 攝 'rime groups' in *Yùnjìng* 韻鏡, categorized as outer and inner rimes where rimes with similar vowels and endings are grouped together. The following table is adapted from Pulleyblank (1991: 11) with added labeling.

Table 4: Reconstruction of (Late) Middle Chinese *shè* 攝 'rime groups'

Outer *shè*	Reconstructed Values	Inner *shè*	Reconstructed Values
1. Guǒ 果	a, ua		
2. Jiǎ 假	aː, ia, ya	3. Yù 遇	əă/uă, iă/yă, uă, yă
4. Xiè 蟹	aj, aːj, iaj, uaj, yaj	5. Zhǐ 止	ɻ, ʐ, i, uj, yj
6. Xiào 效	aw, aːw, iaw, uaw	7. Liú 流	əw, iw, uw
8. Dàng 宕	aŋ, aːŋ, iaŋ, uaŋ, yaŋ, ak, iak, uak, yak	9. Zēng 曾	əŋ, iŋ, uŋ ək, ik, uk, yk
10. Gěng 梗	aːjŋ, iajŋ, yajŋ aːjk, iajk, yajk		

[20] *Fǎnqiè* is a traditional method for showing the pronunciation of Chinese characters by using two characters together. The initial of the first character combines with the final and tone of the second character to form the pronunciation of the third character.

11. Jiāng 江	aːwŋ aːwk	12. Tōng 通	əwŋ, iaŋ, uwŋ, ywŋ əwk, iak, uwk, ywk
13. Shān 山	an, aːn, ian, uan, yan an, aːt, iat, uat, yat	14. Zhēn 臻	ən, in, un, yn ət, it, ut, yt
15. Xián 咸	am, aːm, iam ap, aːp, iap	16. Shēn 深	əm, im əp, ip

Due to the topic of this thesis, we will look specifically at the six consonant codas in Middle Chinese, which are -m, -n, -ŋ, - p, -t, and -k. The four tones of Middle Chinese are *píng* 平 'Level', *shàng* 上 'Rising', *qù* 去 'Departing", and *rù* 入 'Entering'. Syllables ending in -p, -t and -k belong exclusively to *rù* tone.

4.2 Old Mandarin

The standard Chinese language had continued to change after the fall of the Táng dynasty. Unfortunately, we do not have enough evidence to reconstruct the standard language until the Yuán dynasty (1279–1368). The two most important works on the speech of the Yuán dynasty are Měnggǔ Zìyùn 蒙古字韻 (14th century), a 'Phags-pa script rhyming dictionary, and *Zhōngyuán Yīnyùn* 中原音韻 (1324), a rhyming dictionary for *qǔ* 曲 poetry by Zhōu Déqīng 周德清 (1277–1365). Pulleyblank (1991: 4) concluded that the speech of the two "[is] based on the same underlying dialect, which can be recognized as ancestral to the present dialect of Beijing, especially in its

colloquial layer". He refers to this speech as Early Mandarin. Other scholars such as Tung T'ung-ho (Dǒng Tónghé) 董同龢 (1911–1963) believed that "*Zhōngyuán Yīnyùn* was the sound recording of Early Guānhuà" (1968: 57).[21] Guānhuà refers to the standard koiné among the court officials and educated. In this thesis, the speech of *Zhōngyuán Yīnyùn* will be referred to Old Mandarin and we will use Níng Jìfú 宁继福's reconstruction of the *Zhōngyuán Yīnyùn* found in his work *Zhōngyuán yīnyùn biǎogǎo* 中原音韵表稿 (1985).

4.2.1 Basic Features of Old Mandarin

The following table is adapted from Níng (1985) and I have arranged the initials according to place and manners of articulation. Aspiration is indicated by a raised ^{h} instead of ' as in Níng (1985). There is also a zero initial Ø.

Table 5: Reconstruction of Old Mandarin Initials

		Bilabial	Labiodental	Dental	Retroflex	Alveolo-palatal	Velar	Laryngeal
	Unaspirated	p		t			k	
Stops	Aspirated	p^{h}		t^{h}			k^{h}	
Fricative	Unaspirated		f					x
Sibilants				s	ʂ			
				ts	tʂ			
				ts^{h}	$tʂ^{h}$			

[21] The original Chinese sentence is 中原音韻就是早期官話的語音實錄.

Sonorants		m	ʋ	n			ŋ	
Lateral Approximant				l	ɾ			
								Ø

There are nineteen rhyme groups in *Zhōngyuán yīnyùn*. Characters in the same rhyme group share the same final. The reconstructed values for each rhyme group are listed below in the same order as in Níng (1985: 6).

Table 6: Reconstruction of Old Mandarin Rhyme Groups

Rhyme Group	Reconstructed Values
Zhīsī 支思	ï
Qíwēi 齊微	i, ei, ui,
Xiāntiān 先天	iɛn, iuɛn
Liánxiān 廉纖	iɛm
Chēzhē 車遮	iɛ, iuɛ
Jiāmá 家麻	a, ia, ua
Jiēlái 皆來	ai, iai, uai
Hánshān 寒山	an, ian, uan
Yánxián 監咸	am, iam
Jiāngyáng 江陽	aŋ, iaŋ, uaŋ
Xiāoháo 蕭豪	ɑu, au, iau
Gēgē 歌戈	ɔ, iɔ, uɔ
Huánhuān 桓歡	uɔn
Zhēnwén 真文	ən, iən, uən, iuən,
Qīnxún 侵尋	əm, iəm,
Gēngqīng 庚青	əŋ, iəŋ, uəŋ, iuəŋ
Yóuhóu 尤侯	əu, iəu,
Dōngzhōng 東鐘	uŋ, iuŋ
Yúmú 魚模	u, iu

There are four tones, which are Upper Level (陰平 *yīnpíng*) and Lower Level (陽平 *yángpíng*), Rising (上聲 *shàngshēng*), and Departing (去聲 *qùshēng*). The Middle Chinese Entering tone had been lost in Old Mandarin (Pulleyblank 1991: 10). Only nasal codas -m, -n and -ŋ remained.

In the *Zhōngyuán Yīnyùn,* after each tone, there are the words *rùshēng zuò píngshēng* 入聲作平聲, *rùshēng zuò shàngshēng* 入聲作上聲, and *rùshēng zuò qùshēng* 入聲作去聲, which translate to 'Entering tone as Level tone", "Entering tone as Rising tone" and "Entering tone as Departing tone". Moreover, Zhōu Déqīng mentioned that there is a difference for the Entering tone characters. Therefore, scholars had suspected that there was still Entering tone in Zhōu's dialect (Tung 1968: 58).[22]

4.3 Míng Dynasty Guānhuà

After the fall of the Yuán dynasty, Míng dynasty was established in 1368 and lasted till 1644. Guānhuà of the Míng and Qīng dynasties had long been referred to as Mandarin (Guānhuà) (Coblin 2000: 537). Thus, that is why the language of *Zhōngyuán Yīnyùn* is referred to as Old Mandarin. In his article, Coblin discussed a Korean

[22] Zhōu Déqīng was a southerner (native of Jiāngxī Gāo'ān 江西高安). Modern southern dialects such as *Yuè* 粵 still preserved the Middle Chinese Entering tone.

sinologist named Sin Sukchu 申叔舟 (1417–75) and his transcriptions of the standard readings of fifteenth century Guānhuà (538). Sin's transcriptions had "all *rù* tone syllables had the final glottal stop" and the presence of syllable final -m (Coblin 2000: 538). Therefore, we have to wonder when there was a stage in Míng dynasty Guānhuà that had glottal stops for Middle Chinese *rù* tone and the preservation of -m syllable final ending, then what stage of the sound changes is reflected in *Gāochāng guǎn zázì*? The Chinese transcriptions will help us identify which stage in this process the Chinese pronunciation was at the time when it was used for transcribing the Uyghur vocabulary. Even though the Uyghur transcriptions post-date Middle Chinese and Old Mandarin by a significant amount of time, but the Middle Chinese and Old Mandarin reconstructed pronunciations are important for helping us trace the historical changes taking place in Guānhuà, and as a convenient benchmark for grouping characters with shared historical features (such as stop codas).

Table 7: *Gāochāng guǎn zázì* Characters with each of the six Middle Chinese consonant endings and their reconstructions.

Characters	Middle Chinese (6th–12th centuries)	Old Mandarin (12th–14th centuries)	Míng dynasty Guānhuà (14th–16th centuries)	Pǔtōnghuà (20th – present day)
林	lim	liəm	ljɨm	lín
恨	ɣən	xən	ɣɨn	hèn
統	tʰawŋ	tʰuŋ	t'wɨŋ	tǒng
塔	tʰap	tʰa	t'aʔ	tǎ
失	ɕit	ʂi	ʂjɨjʔ	shī
力	lik	li	ljɨjʔ	lì

The reconstruction of Míng dynasty Guānhuà comes from Kim (1991). From Table 7, we can see sound changes in consonant-ending Chinese syllables from Middle Chinese to Old Mandarin to Míng dynasty Guānhuà and to Pǔtōnghuà. Scholars believe that there were two types of Guānhuà pronunciations, *nányīn* 南音 'southern pronunciation' (associated with the area including Nánjīng) and *běiyīn* 北音 'northern pronunciation' (associated with the area including Běijīng). *Nányīn* was seen as the more prestigious type of Míng-dynasty Guānhuà pronunciation (Coblin 2007: 7). The Míng dynasty Guānhuà reconstructions of Kim (1991) belonged to the *nányīn* (Coblin 2007: 9). Scholars have described that the Old Mandarin of *Zhōngyuán Yīnyùn* belonged

to the northern type (Norman 1997: 23, 27).[23] However, during the Míng dynasty, a form of southern Mandarin became the standard (Ibid). The B version of the *Huá yí yì yǔ*, which includes the Gāochāng (Uyghur) portion, did not start its compilation until after 1407. Will the data found in *Gāochāng guǎn zázì* agree with Sin's findings? What can we learn about the form of Guānhuà that was reflected in *Gāochāng guǎn zázì?* Coblin (2000: 542) even went on to say "*Zhèngyīn* [standard reading] system of ca. 1450, not based on the pronunciation of a single dialect or area but was instead a composite entity reflecting the sound systems of a congeries of southerly Central Plains-type dialects, including those of the lower Yangtze watershed, such as Nankingese". What can we learn from the way Chinese characters with final consonants were used to transcribe the Uyghur terms? Were Middle Chinese *rù* tone stop codas preserved? Did the stop codas associated with *rù* tone in Middle Chinese become glottal stop or had they completely disappeared? Furthermore, based on the data analysis, what can we conclude about the form of *Guānhuà* used in *Gāochāng guǎn zázì*? Before we can answer

[23] During the 13th century, the distinction of nányīn/běiyīn probably did not exist in the same sense as it did in the Míng dynasty.

all these questions, we need to do a detailed analysis of the six Middle Chinese consonant endings.

Chapter 5 Data Analysis

Middle Chinese (MC) had six consonant final endings, which included three stops -p, -t, -k, and three nasals -m, -n, -ŋ. Over time, the development of the six consonant final endings varied greatly across different Chinese dialect groups. For example, Pǔtōnghuà does not have any of the stop codas and characters that ended with MC -m had merged with MC -n characters. Yet there are dialects such as Yue that still retains the six Middle Chinese consonant endings. This section discusses how characters with MC consonant codas were used in *Gāochāng guǎn zázì* (*GCGZZ*) in order to figure out the situation of the consonant endings in Míng dynasty Guānhuà. Had MC bilabial nasal coda characters already merged with MC dental nasal coda characters? What about stop codas? These are just a few of the questions that this thesis hopes to answer by examining how characters with MC consonant codas were used in the transcription of Uyghur terms.

Each consonant coda will be discussed in its respective section and then compared to the reconstructions from *Zhōngyuán yīnyùn* (*ZYYY*) to illustrate the state of

that coda during Míng dynasty when *GCGZZ* was complied.[24] As mentioned in Chapter 2, the B version of the *Huá yí yì yǔ*, which includes the Gāochāng (Uyghur) portion, did not start its compilation until after 1407, when the Office of Translators was established. We do not know much about the specific person(s) who compiled the *GCGZZ*.[25] Since *Huá yí yì yǔ* was meant to educate and train students and scholars on the languages of the Míng court's neighbors, it is appropriate to assume that the Chinese characters used in the transcriptions of the Uyghur terms were widely used in Míng dynasty Guānhuà and were chosen to reflect the Uyghur pronunciation as closely as possible. Furthermore, it is reasonable to assume that they were selected on the basis of the *nányīn* 'southern pronunciation' koine readings, which would be the pronunciations that officials from all over China who might use the *zázì* would likely know. Thus, by analyzing the Chinese transcriptional characters with consonant codas in *GCGZZ*, we hope to get an understanding of the development of the six MC consonant endings in the early period of the Míng dynasty.

[24] *Zhōngyuán yīnyùn* was compiled in the Yuán dynasty by Zhōu Déqīng. Scholars disagrees on the location of the vernacular Chinese language that it represents. However, scholars generally agree that it is a form of Old Mandarin, which is reconstructed based on its structure. For more information, see Pulleyblank (1978) and Coblin (2000).

[25] However there are numerous articles about the structure of and student enrollment at the Office of Translators such as Liào and Sūn (2016), Rèn (2014) and Wáng (1987).

In my analysis, Uyghur vocabulary data from *GCGZZ* will be presented first with the meaning in Chinese and then its transcription in Chinese characters, which are both directly reproduced from *GCGZZ*. Finally, the romanized pronunciation of the Uyghur script will be given according to the reconstructions of three different scholars, Hú and Huáng (1984), Qí (2013) and Ligeti (1966, 1969), where applicable.[26] Lastly, an English gloss of the Chinese meaning will be given below the meaning. Therefore, all Uyghur vocabulary examples provided will be in the following format:

Meaning, Transcription, Uyghur 1, Uyghur 2, Uyghur 3

'English gloss'

The romanization in Hú and Huáng (1984) follows the convention of Uyghur New Script that was mainly used in China before 1982 (mentioned in section 3.2) while Qí (2013) and Ligeti (1966, 1969) follow the commonly used Latin script romanization system for Turkic languages in the international academic circle. Middle Chinese (MC) and Old Mandarin (OM) reconstructions of characters are from Pulleyblank (1991) and Níng (1985). All reconstructed pronunciations of the characters

[26] Hú and Huáng (1984) and Qí (2013) do not have reconstructions of the 40 terms found in the supplement of the Berlin edition.

are in the appendix. Pīnyīn is used as a convenient way to refer to the characters, and not intentionally used to indicate their transcriptional sound values. Additionally, Uyghur transcriptions are **bolded** as way to distinguish from MC and OM reconstructions in running text. Finally, for easier interpretation of data, I have underlined Chinese transcriptional characters and their corresponding Uyghur pronunciations in all examples.

5.1 Middle Chinese Nasal Codas

There are a total of twenty characters with MC bilabial nasal coda, sixty characters with MC dental nasal coda and forty-seven characters with MC velar nasal coda collected from the different editions of *GCGZZ*.[27] I will analyze the general patterns of each of the three nasal codas and provide explanations to exceptions when possible.

5.1.1 MC Bilabial Nasal Coda (-m)

Based on the reconstructions of Old Mandarin presented in *ZYYY*, all 20 of the characters with MC bilabial nasal coda still retained their nasal endings in 1324 when *ZYYY* was compiled. In *GCGZZ*, characters with MC bilabial nasal coda corresponded to

[27] A list of the words can be found in the appendix.

Uyghur syllables that ended with **-l, -m, -n, -ŋ, -p** and **-Ø**. Out of the 20 MC bilabial nasal coda characters, only 5, *qīn* 欽, *shǎn* 陕, *qiān* 僉, *chàn* 鞯, and *diǎn* 點 corresponded solely to Uyghur syllables that end with **-m**. They were reconstructed as having -i- medial and -m final in *ZYYY* and the Uyghur syllables they represented were ***kim/qïm, šäm***, ***säm, čam*** and ***tam*** respectively. Those five characters were only used to transcribe six Uyghur syllables collectively. Thus, we do not know enough if those characters still retained the bilabial nasal coda in that period or they had merged with MC -n characters. It was possible that the editor(s) were trying to find the closest sound matches in Chinese and coincidentally the characters they chose had -m codas in MC. However, in the case of *qiān* 僉, it was used to transcribe the Uyghur transcription of the Chinese terms *qiānshì* 僉事, but the Uyghur transcription were ***sämši***, which did not represent the pronunciation of the Chinese characters, but instead just a direct copy of the Chinese characters for the Uyghur vocabulary. Another possible explanation for the discrepancy could be due to older transcriptional practices of Chinese borrowings into Uyghur.

Out of the 20 characters, only 4 have more than one Uyghur sound correspondence in *GCGZZ*.[28] Those four characters are *lín* 林, *shěn* 審, *ǎn* 俺 and *qīn* 欽. The character *lín* 林 was used in the transcriptions of eighteen distinct Uyghur words.[29] Fourteen out of those eighteen Uyghur words, *lín* 林 was used to correspond to Uyghur syllables that begin with a **r-** or **l-,** an **i/ï** vowel, and end with **-n**, which accounts for 77.77% of the total character usage of *lín* 林. Along with *lín* 林, twelve other characters also corresponded to Uyghur syllables that end with **-l** and/or **-n**, and which illustrates that in the early Míng period, those characters had already merged with MC -n ending characters. The only difference between the sounds /l/ and /n/ is the manner of articulation. Therefore, when editor(s) wanted to represent Uyghur syllables that end with **-l**, characters that end with -n were the closest choice because there is no -l coda in the Chinese language.

[28] A Uyghur sound correspondence means if the Chinese character was used in three transcriptions, but representing by the same part of the same Uyghur word all three times, then that is only one sound correspondence. Hence, if the Chinese character were used in five transcriptions, but corresponded to distinct three distsinct Uyghur words, then there are three Uyghur sound correspondences for that character.

[29] For example, *zhòng xīng* 眾星 in Uyghur is ***tälim yultuz*** and are transcribed as 忒林允秃思. *Duō* 多 is ***tälim*** 忒林. *Lín* 林 in this case corresponded to one Uyghur word, ***tälim*** meaning 'many, numerous'.

The general pattern for MC bilabial nasal coda was that it had merged with characters with -n finals during the Míng dynasty and editor(s) used them to transcribe Uyghur syllables with **-m**, **-n** and **-l** ending. However, editor(s) also used MC -m characters to represent **-ŋ**, **-p** and **-Ø** Uyghur syllables. The exceptions are explained below.

To reiterate, all Uyghur vocabulary examples provided will be in the following format.

Meaning, Transcription, Uyghur 1, Uyghur 2, Uyghur 3

'English gloss'

Vowels ***a*** and ***ä*** *and* consonant ending **-ng** in Ligeti's transcriptions (Uyghur 3) are reproduced as **a**, **ä** and **-ŋ** in this study.

1) *ăn* 俺 was used to correspond to a **-Ø** ending in Uyghur.

1. 曾祖 俺林主几阿卜更 ə̲linqüg-i abukəm ä̲linčüg-i abuqïm ä̲linčük-i äbügäm

'father of grandfather'

In this case, *ăn* 俺 represented the initial sound **ä**. Since it is followed by the sound **-lin-**, it is possible that there is anticipatory assimilation of the **-l-** sound.

Therefore, when the Uyghur word was uttered, the editor might hear the **ä** sound as **äl-**, which could lead to the use of the character *ǎn* 俺 for the initial sound.

2) Correspondences of *lín* 林 and *cān* 參 to Uyghur **-ŋ** sounds.

2. 深　　塔林　　təring　　täriŋ　　täriŋ

'deep'

3. 參政　　參政　　sangjem　　saŋčïm　　saŋčïm

'Administration Vice Commissioner'

Lín 林 corresponded to sound ***riŋ*** at the final position of a Uyghur word suggests several possibilities. The first possibility is the editor(s) were not careful with transcribing the Uyghur sounds and did not chose a Chinese character that had a velar nasal coda for the correspondence; There are characters such as *lìng* 令 that would be better approximate sound matches for Uyghur ***riŋ***. A second possibility is at that time, velar nasal sounds with high front vowel /i/ underwent assimilation of ending to vowel and became **-in** in the Uyghur, so editor(s) heard **rin**, instead of ***riŋ***. As for *cān* 參, the Uyghur transcription of the Chinese term *cānzhèng* 參政 was **saŋčïm**, which did not represent the Uyghur pronunciation of the Chinese words as also in the case of *qiānshì* 僉事. The rendering of *cānzhèng* 參政 could also be due to older transcriptional

practices of Chinese borrowing into Uyghur. Another possibility is that the editor divided the pronunciation of the Uyghur word into **saŋ-čïm** and the articulation of the Uyghur **-ŋ** could be mistakenly taken as assimilation to the following **č** sound. However, we have other instances where the following Uyghur **č** sound did not perceived to be assimilated to the previous nasal sounds. Two examples are provided below. Characters *jīn* 斤 and *yǎng* 仰 have the MC -n ending and MC -ŋ ending, respectively and Uyghur syllables that they transcribed also has the same nasal ending.

4. 至今　　俺的黑以斤察　　amtï-qï yitginčä[30]

'until now'

5. 樣　　仰只　　yangje　　yaŋčï　　yaŋčï

'kind, sort'

3) *dǎn* 膽 is used to transcribe Uyghur syllable **tap**.

6. 愛軍　　扯力泥膽喇　　qərik-ni təbləp　čärik-ni täbläp　čärig-ni taplap

'beloved troops'

[30] Hú and Huáng (1984) and Qí (2013) did not transcribe this Uyghur term. See footnote 26 for more information.

This is the only occurrence where a MC -m character was used to represent a Uyghur stop coda, which suggests that MC stop codas -p, -t and -k had completely disappeared and since nasal codas are the closest, Uyghur sounds with stops are being represented by nasals. This is an intriguing idea that shall be examined again when we explore how Uyghur syllable final and word final nasal and stop codas were being transcribed in the following sections.

From all the evidence provided above, we are certain that Chinese characters with MC -m endings had merged with -n endings. Moreover, we noticed that in Uyghur, there was perhaps the assimilation of ending to high front vowel, which resulted in **-iŋ** becoming **-in**.

5.1.2 MC Dental Nasal Coda (-n)

Sixty characters with MC dental nasal coda were used in transcribing Uyghur sounds. In the Old Mandarin reconstruction of *ZYYY* and in Pǔtōnghuà, MC -n endings are still preserved. In *GCGZZ*, characters with this coda are used to transcribe Uyghur syllables ending in **-l, -m, -n, -ŋ, -t** and **-Ø**. Of these, -n characters corresponded to Uyghur syllables that end in **-l, -m,** or **-n** in the majority of cases. Out of the sixty characters, fifty-nine (98.3% of MC -n characters) had a correspondence to one, two or

all three of the finals mentioned previously. As discussed in the last section, it is logical for Uyghur sounds with **-m** or **-l** ending to be transcribed with a MC -n character because /l/ varies from /n/ only in its manner of articulation and /m/ only in its place of articulation. Thus, -n characters are the best choices for transcribing Uyghur **-l** and **-m** sounds. Additionally, there were cases where the editor(s) used the same Chinese characters as the Chinese terms being translated instead of transcribing the actual Uyghur pronunciation. One example is *qiānhù* 千戶, Uyghur **samḳu /samhu/ sämqu** and the Chinese characters used to transcribe the Uyghur were also *qiānhù* 千戶.[31] This results in a non-transcriptional rendering of the Uyghur word that does not match its actual pronunciation.

There are three exceptions to the general pattern of corresponding to **-l, -m**, and **-n** finals. Some MC -n characters also corresponded to **-ŋ, -t** and **-Ø**. Each exception will be explained to the best of my ability below.

[31] My guess is that the terms are Chinese borrowings into Uyghur that the Chinese editor(s) were assuming that the sounds would be the same in Uyghur. Another possibility is that the term is actually an earlier borrowing from Uyghur with the sound correspondence dictated by other considerations.

1) Characters *kūn* 坤, *nuǎn* 煖, and *sǎn* 傘 had a zero final **-Ø** Uyghur sound correspondence.

7. 女婿	坤得苦即	kütəgüsi	kütägüsi	küdägüsi
‘son in law’				
8. 日日	坤坤寧克	kün küningə	kün küningä	kün küningä
‘everyday’				
9. 忠	煖答	noda	noda	nuta[32]
‘loyalty’				
10. 雜字	傘庫兒必的	saḳurt bitig	saqurt bitig	saɣurt bitig
‘vocabulary’				

Characters *nuǎn* 煖 and *sǎn* 傘 only corresponded to a zero final Uyghur syllable once while *kūn* 坤 had two. All their other correspondences in Uyghur were nasals. It is interesting that even though Ligeti (1969: 43) transcribed *zhōng* 忠 ‘loyalty’ as *nuta* and included references from other works, he noted that the Uyghur orthography for *zhōng*

[32] We have more examples where Ligeti transcribed the Uyghur sound as **t** while Hú and Huáng and Qí transcribed it as **d** such as in 緬甸 免店 məndən mändän mäntän.
‘Burma’

忠 ‘loyalty’, clearly was *nwd’*. But the Chinese transcription had *nun (num)* followed by *ta* or *da*, yet, he believed **nuta** should be a better rendering. This suggests that perhaps when the speaker uttered the Uyghur pronunciation, the editor(s) heard the voicing of the following voiced consonant and chose a character with a -n ending to better reflect the voicing of the Uyghur, because Guānhuà at that time lacks voiced obstruents, the closest approximation to the Uyghur voiced **d** is Guānhuà *nt*, with the nasal supplying the voicing feature (and possibility at least partially voicing of the following *t* sound to [d] by assimilation). If that was the case, then it would make sense why the three characters *kūn* 坤, *nuǎn* 煖, and *sǎn* 傘 had a -Ø final Uyghur sound correspondence; it was a way for the editor(s) to represent the following voiced consonant in Uyghur by using an -n character in examples 7, 8 and 9. Moreover, in example 8, the editor(s) chose *kūn* 坤*,* instead of a character with an open syllable final, to represent the first syllable could be due to anticipatory assimilation of the following nasal sound in **küningä**. As for example 10, I do not have a clear idea on why the -n sound was not reflected aside from anticipatory voicing of the following consonant.

2) Characters *lán* 闌, *shēn* 申, *sǎn* 傘 and *mín* 民 have Uyghur **-ŋ** correspondences.

11. 豆蔻　　苦兒思闌　　ḳurslang　qurslaŋ　qurslaŋ

‘nutmeg’

12. 獅子　　阿兒思闌設兒　arslang xir　arslaŋ šir　arslaŋ šer

‘lion’

13. 升　　以申　　ixing　išiŋ　išiŋ

‘liter’

14. 千　　民　　ming　miŋ　miŋ

‘thousand’

15. 藍　　傘克力　　səngkəri　säŋkäri　säŋgäri

‘blue’

In examples 11 and 12, *lán* 闌 transcribed the Uyghur syllable **laŋ**. It is interesting that the editor(s) did not choose a character with -ŋ coda to represent the sound and instead used *lán.* I do not have a possible explanation for this exception. As for examples 13 and 14, they are in accordance with our hypothesis that characters with **-iŋ** endings became **-in** in Uyghur, which is an assimilation of ending to vowel. Example 15 could be assimilation to the following velar sound. When the speaker

uttered the Uyghur word, the editor(s) mistakenly believed that the velar quality of the first syllable was due to the following velar sound. Thus, *sǎn* 傘 was used to transcribe the word instead of a character with a velar nasal ending.

3) The character *kuǎn* 欵 also corresponded to Uyghur **-t**.

16. 慶賀　　欵祿喇尊　　qutluγlasun[33]

'celebrate'

Example 16 further proves that MC codas -p, -t and -k had completely disappeared. In order to represent Uyghur syllables with stop codas, editor(s) had to use characters with nasal codas. Thus, this is the reason why -n characters were used to correspond to Uyghur **-p** and **-t** syllables as shown in examples 6 and 16. After considering all the patterns described in this section, it is apparent that MC -n ending is preserved and exceptions to the pattern of corresponding to Uyghur **-l, -m**, and **-n** finals can be attributed to voicing assimilation of the following consonant and assimilation of ending to vowel **-iŋ** becoming **-in**.

[33] Hú and Huáng (1984) and Qí (2013) did not transcribe this Uyghur term. See footnote 26 for more information.

5.1.3 MC Velar Nasal Coda (-ŋ)

There are forty-seven characters with MC velar nasal codas used in the transcription of Uyghur syllables in the *GCGZZ*. According to the reconstruction of *ZYYY*, all of them except *kěn* 肯 had preserved their velar nasal endings in Old Mandarin. By analyzing the Uyghur correspondences of the forty-seven characters, we found that the Uyghur corresponding finals included **-l, -m, -n, -ŋ,** and **-Ø**. Thirty-nine out of the forty-seven characters (82.97%) had correspondences to Uyghur syllables ending in a velar nasal.[34] All forty-seven characters occurred for a total of 143 times and they corresponded to non **-ŋ** finals in Uyghur 62 times (43.35%). The characters that did not have any velar nasal correspondences are *tīng* 聽, *dìng* 定, *mìng* 命, *níng* 寧, *áng* 昂, *yǒng* 永, *gōng* 恭, and *zhèng* 政. We will examine in a later section the reasons why they do not have Uyghur **-ŋ** correspondences. The only occurrence of a MC velar nasal character corresponding to a **-Ø** Uyghur syllable was when *kǒng* 孔 was used erroneously to transcribe the Uyghur word **kägürtdä** for 韭 'chives' in the Qīng dynasty hand-copied edition. In the other editions, the character *hǒu* 吼 (OM *xəu) was used to transcribe the same Uyghur syllable.

[34] We have many characters that only had one Uyghur correspondence, which was a velar nasal ending.

In addition, we have more evidence for our hypothesis that the Uyghur syllables with **-iŋ** finals had assimilated to **-in**. There are fifteen characters with MC -iŋ ending and only five solely corresponded to Uyghur syllables ending with a velar nasal. The fifteen characters are *tīng* 聽, *ding* 定, *mìng* 命, *níng* 寧, *níng* 寧, *yǐng* 影, *shěng* 省, *bīng* 兵, *dīng* 丁, *tǐng* 挺, *píng* 平, *nìng* 佞, *míng* 明, *yīng* 英, and *dèng* 橙. The last five characters are the only ones that did not correspond to any other codas aside from Uyghur syllables with a velar nasal coda. The remaining ten characters corresponded to Uyghur syllables ending in **-l, -m, -n** and/or **-ŋ**. There are examples in which those characters preserved the velar nasal coda in the initial, medial, and final syllable position in Uyghur. However, there are significantly more examples in which the ten characters corresponded to Uyghur **-l, -m** and/or **-n** than **-ŋ**, which demonstrates that assimilation of ending to vowel occurred in **-iŋ** finals and became **-in** in Uyghur.[35] Furthermore, it is reasonable to assume that the assimilation of ending to vowel occurred because as we mentioned earlier, linguistically speaking, the difference of /n/ from /l/ and /m/ is either in the manner or place of articulation. Thus, it seems logical to consider that

[35] We have examples in which characters with non -iŋ finals corresponding to **-n** Uyghur syllables, but never to **-l** and only rarely to **-m**.

characters with -iŋ finals are being used to transcribe Uyghur **-in**, which in turn can also represent **-l** and/or **-m** syllables.

The general pattern is that among the MC velar nasal characters, MC -iŋ finals are the only ones that corresponded to Uyghur **-l** in addition to **-m**, **-n**, and **-ŋ**. Furthermore, it is quite common to find characters alternating between **-n** and **-ŋ** Uyghur correspondences especially in cases where it is following by another syllable that begins with a velar nasal, which is assimilation to the following velar sound. However, we do have instances in which assimilation do not occur. We listed some character examples with both cases below.

1) *níng* 寧

17. 日日　　坤坤寧克　　kün küningə　　kün küningä　　kün küningä

'everyday'

18. 你每　　塞寧　　səning　　säniŋ　　säniŋ

'you (pl.)'

2) *tǒng* 統

19. 豬　　統庫思　　tonguz　　tonguz　　tonguz

'pig'

20. 窗　　統祿　　tünglük (tünlük)　tüŋlük　　tu̱nglük

‘window’

3) *wēng* 翁

21. 易　　翁該　　ongay　　ongay　　ongai

‘easy’

22. 經過　　翁克喇　　önggäräp

‘pass through’

4) *dōng* 東

23. 柴　　兀東　　odung (otun)　oduŋ(otun)　otuŋ(otun)

‘firewood’

24. 本　　卜東　　budun　　budun　　bu̱dün

‘base, foundation’

5) *yǎng* 仰

25. 築　　仰尺　　yanqep　　yančïp　　yančïp

‘to build’

26. 從新　　仰起剌(喇)密失　yangelatmex　yaŋïlatmïš　yaŋïlatmïš

‘start anew’

27. 報　　仰都兒呼　　yandurġu　　yandurγu　　yanturɣu

‘to report’

28. 様　　仰只　　yangje　　yaŋčï　　yaŋči

‘to beat’

In examples 17–20, we can definitely see assimilation to the following velar sound at work, because the velar nasal is preserved when it is in the final position or before a lateral approximant. In examples 21–22, the assimilation did not occur in one instance but did for the other. I am not certain why this is the case. As for example 23, we can see that there is an uncertainty in interpreting the Uyghur orthography, which results in *dōng* 東 corresponding to Uyghur **-n** or **-ŋ**. If **otun** is the correct transcription, then we could assume that *dōng* only corresponds to **-n** in the final position. However, we do not have enough data to figure out if the velar nasal of *dōng* is preserved in another position in a Uyghur word because there are only three occurrences of *dōng* and all are Uyghur syllables in final position. Finally for examples 25–28, we have instances where *yǎng* 仰 was used to transcribe both Uyghur **yan** and **yaŋ**. Moreover, we see conflicting evidence of the preservation of the velar nasal before a voiceless

post-alveolar affricate in one Uyghur word and the lost of the nasal before the same sound in another word (example 25 and example 28).

As mentioned earlier, characters *tīng* 聽, *dìng* 定, *mìng* 命, *níng* 寧, *áng* 昂, *yǒng* 永, *gōng* 恭, and *zhèng* 政 did not have any velar nasal correspondences in Uyghur. We will discuss the reasons why below and along with interesting notes about the characters *gèng* 更 and *kěn* 肯.

Characters *tīng* 聽, *dìng* 定, *mìng* 命, and *níng* 寧 have the same final and like what we have described before, velar nasal ending assimilated to the high front vowel in Uyghur, **-iŋ** becoming **-in**. Thus, it is logical to find those characters (all with the same OM final *iəŋ) corresponding to Uyghur non-velar nasal finals. In this case, these 4 characters only corresponded to Uyghur **-l** and/or **-n**.

6) *áng* 昂

29. 西天　　昂答克　　əndəkə　ändäkä　äntkä

'India'

30. 鞠躬　　昂几　　anget　aŋït　angït

'to bow'

Both instances of *áng* preceded a consonant sound (dental and velar), which could be assimilation of nasal ending to the following sound. This could also be an example that the closest match involves a mismatch in one segment in order to match the other segments. Another possibility is that when the terms were pronounced in Uyghur, there was anticipatory assimilation of the following consonant following the initial Uyghur **än/an** syllable, which led the editor(s) to believe that the initial syllable should be transcribed with the character *áng* 昂.

7) *yǒng* 永, *gōng* 恭

31. 珠　　永諸　　ünjü　ünčü　ünčü

'bead, pearl'

32. 差遣　　永設　　yumxap　　yumšap　　yumšap

'to send, to dispatch'

33. 軟善　　永沙呀法失　yumxaḳ yawax　yumšaq yawaš　yumšaq yavaš

'gentle, sweet'

34. 拜　　羽恭　　yükün　　yükün　　yu̧kün

'to bow, visit'

35. 朝　　羽恭克力　　yükünkəli　　yükünkäli　　yüküngäli

‘to pay respect to’

These are all the Uyghur words that used *yǒng* 永 and *gōng* 恭 in the Chinese transcription. Perhaps the loss of the velar nasal for *yǒng* 永 could be due to the following sound being a voiceless post-alveolar sound. Another possibility is that the roundness of the vowel in both *yǒng* 永 and *gōng* 恭 played a role in how the characters were used in transcribing Uyghur syllables. This is a case that the closest Chinese sound match involves a mismatch in the coda, which we will discuss in more details in section 5.2.2.

8) *zhèng* 政

36. 參政　　參政　sangjem　　saŋčïm　　saŋčïm

‘Administration Vice Commissioner’

Zhèng 政 was used to represent the Uyghur pronunciation **saŋčïm**, which as we have discussed in an earlier section, the Chinese transcription does not represent the Uyghur pronunciation for Chinese borrowings into Uyghur. However, in this case, the **-m** correspondence could be caused by the OM reconstruction of *zhèng* 政 *tʂiəŋ and its possible assimilation of ending to vowel. As a result, the assimilated pronunciation would be *tʂiən, which would to likely represent the Uyghur **čïm** syllable. Also this is

the only example with *zhèng* 政*,* so we have a very limited dataset for discovering a common pattern.

9) *gèng* 更

37. 祖　　阿卜更　　abukəng　　abuqïŋ　　äbügäŋ

'ancestor'

38 曾祖　俺林主几阿卜更　əlinqüg-i abukəm　älinčüg-i abuqïm　älinčük-i äbügäm

'father of grandfather'

Gèng 更 is used to transcribe the last syllable of the Uyghur word for *zǔ* 祖 'ancestor'. Ligeti (1969: 133) mentioned that the **äbügäm** is the possessive form of **äbügä** (father of grandfather). Thus, in this case, the editor(s) instead of using a character that represent the Uyghur syllable closest, he/they chose the same Chinese character to represent the two Uyghur words, possibly due to the fact that they recognized the root of both words was **äbügä**.

10) *kěn* 肯

39. 商議　　肯克失都　　kəngkəxtük (kəngəxtür)　käŋkäštük　kängäštük[36]

'to consult'

[36] Ligeti (1969: 172) noted that the Uyghur writing has an error in which the word became *kängäštür*.

Kěn 肯 had already lost it velar nasal coda by the time of *ZYYY* because its OM reconstruction is *k^{h}ən, which showed that the change from -ŋ to -n had already occurred by the 14th century. Thus, it is appropriate for it to correspond to a non-velar nasal Uyghur syllable. This is the only example with *kěn*, so we have very limited data to determine whether or not *kěn* had retained its velar nasal coda in Míng dynasty Guānhuà at the time of the compilation of *GCGZZ*.

By analyzing characters with the three Middle Chinese nasals used in Chinese transcriptions in *GCGZZ*, we found that MC -m characters had merged with -n characters in a way that is consistent with most scholars' reconstructions of Míng-era Guānhuà. As for MC -n characters, the characters corresponded to finals within our expectation. However, using the character *lán* to represent Uyghur **-laŋ** still puzzles me since there are Chinese characters with a velar nasal coda that are better matches for Uyghur **-laŋ**. From analyzing data of MC -ŋ characters, we noticed that Uyghur **-iŋ** seemed to have ending assimilating to the vowel and resulted in **-in**. Then we also have cases where the velar nasal characters like *yǒng* 永 and *gōng* 恭 that do not have any correspondences to Uyghur **-ŋ** finals. Perhaps it is due to the fact that the closest matches are correspondences with mismatching segments. We also have a few

examples that demonstrated the loss of MC stop codas because we found instances where stop codas in Uyghur were transcribed using characters with MC nasal codas. We will further examine the correspondences of MC stop codas in a later section.

5.2 Uyghur Syllable Final and Word Final Nasal Codas

This section examines the three Uyghur nasal codas, **-m, -n** and **-ŋ**, in syllable final and word final positions. By analyzing the instances of the Uyghur nasal codas and how syllables with those codas were transcribed into Chinese, I hope to learn what Chinese characters were used to represent those Uyghur nasal sounds. Are all the Uyghur syllable-final and word-final nasal codas preserved in the Chinese transcription? What linguistic information of Old Mandarin can we learn from the Chinese transcriptional characters used in *GCGZZ*?

5.2.1 Uyghur Syllable Final and Word Final -m

There are 45 occurrences of Uyghur syllable-final and word-final **-m**. All the Chinese characters used in the transcriptions of those Uyghur syllables are characters with nasal codas. 13 out of 45 occurrences are transcriptions using MC -m characters. Those characters are *lín* 林*, ǎn* 俺*, qīn* 欽*, chàn* 靼*, shǎn* 陕*, diǎn* 點*,* and *qiān* 僉. There are 8 occurrences of MC -ŋ characters being used to transcribed the Uyghur **-m** coda

and those characters are *yǒng* 永*, ding* 丁*, zhèng* 政*, gèng* 更 and *shěng* 省. The remaining 24 occurrences of Uyghur syllable final and world final **-m** were transcribed with MC -n coda characters. Those characters are *kūn* 坤*, dān* 丹*, lán* 闌*, shuān* 拴*, zūn* 尊*, gàn* 干*, suān* 酸*, yǎn* 眼*, tǎn* 坦*(yuán* 垣*), nuǎn* 煖*, dūn* 敦*, chēn* 嗔*,* and *qiān* 千. MC -n characters are used in over half of the occurrences (53.33%) of Uyghur syllable final and word final **-m** coda. This usage of MC -n characters to transcribe Uyghur **-m** syllables implies two possibilities. The first possibility is there was no longer the preservation of MC -m coda in Old Mandarin. MC -m had merged with -n characters. Thus, the only choice for transcribing syllables ending in Uyghur **-m** was with characters with -n coda. The second possibility it that the MC -m coda was still preserved but the best match for the Uyghur **-m** syllables was characters with MC -n or -ŋ coda. However, in the previous section, we found out that MC -m characters used in the Chinese transcriptions of the *GCGZZ* Uyghur vocabulary had merged with -n characters. Thus, our findings about MC -m coda and Uyghur syllable final and word final **-m** established that MC -m coda had merged with MC -n coda.

The 8 occurrences of MC -ŋ characters used to transcribe Uyghur syllable final and word final **-m** can be categorized into the following categories.

1) Best vowel match takes precedence of coda, in cases where the closest match to vowel and coda in Uyghur syllable does not exist in Chinese.

40. 差遣　　永設　　yumxap　　yumšap　　yumšap

'to send, to dispatch'

41. 怠惰　　襖酸省答　　osol semdaḳ　osul sïmdaq　osul sïmtaɣ

'lazy'

42. 許　　靄丁　　aydeṇ　　aydïm　　aitïm

'to grant'

In the three examples above, the Uyghur syllable final **-m** codas were transcribed with MC -ŋ coda characters. This is due to the fact that those Uyghur syllables ending in -m or -n have vowel and coda combinations that do not exist in Chinese and the best sound matches for those Uyghur syllables are characters with -ŋ codas. For example, the first Uyghur syllable of *chāiqiǎn* 差遣 is **yum** and there is no character in Chinese that has a back vowel /u/ and end in -n. Thus, the editor(s) chose *yǒng* 永 to represent the Uyghur **yum** syllable because *yǒng* 永 has the back vowel /u/ in its Old Mandarin pronunciation. The same process applied to *shěng* 省 and *dīng* 丁. There are no Chinese syllable with a -n ending and has the same or close approximate

initial to the Uyghur, so the best choices for the Uyghur syllables were *shěng* 省 (OM *siəŋ) and *dīng* 丁 (OM *tiəŋ).

2) Older transcriptional practices

43. 參政　　參政　　sangjem　　saŋčïm　　saŋčïm

'Administration Vice Commissioner'

The Chinese characters *cānzhèng* 參政 are used both for the Chinese term being transcribed and the transcription of the Uyghur pronunciation. However, the Uyghur pronunciation is **saŋčïm**. This shows that the Chinese characters used do not represent the Uyghur pronunciation of the borrowed Chinese term, but merely a direct orthographical representation of the Chinese term. It is interesting to note that in the Uyghur pronunciation for *cānzhèng* 參政, the nasal codas of the two syllables are switched as compared to the Chinese pronunciation. In Níng's *ZYYY* reconstruction (1985), *cānzhèng* 參政 are reconstructed to be *ts^{h}am tʂiəŋ. Therefore, it could be a scribal error that *cānzhèng* 參政 was transcribed as **saŋčïm** not as **samčïŋ**. Another reason is that **saŋčïm** was the pronunciation of an old transcription of *cānzhèng* 參政.

3) Different possessive forms

44. 祖　　阿卜更　　abukəng　　abuqïŋ　　äbügäŋ

‘ancestor’

45. 曾祖　俺林主几阿卜更　əlinqüg-i abukəm　älinčüg-i abuqïm　älinčük-i äbügäm

‘father of grandfather’

The character *gèng* 更 was used to transcribe the Uyghur syllable final **-m** possibly due to a scribal error. The character was used to represent the Uyghur syllable **gäŋ** in **äbügäŋ**. Then the character was used again to transcribe **gäm** in **äbügäm**, the first person possessive form of **äbügäŋ**. A possible explanation is that the best sound match for **gäm** was still *gèng* 更, so the character was used again to transcribe the Uyghur syllable. However, we have the character *gān* 甘 (OM *kam), that could be a possible choice for the Uyghur syllable **gäm**. It is not clear why characters like *gān* 甘 was not chosen. The best explanation we have is perhaps the editor(s) recognized the root of both Uyghur terms was **äbügä**, so the same set of Chinese characters were used in the transcriptions of both terms regardless of the mismatch in coda of *gèng* 更 to **gäm**.

After examining the Chinese transcriptions of Uyghur syllable final and word final **-m**, we have enough evidence that MC -m had already merged with MC -n. This finding concurs with our findings from section 5.1.1 that MC -m characters had merged with -n characters by the time GCGZZ was compiled.

5.2.2 Uyghur Syllable Final and Word Final -n

There are 209 occurrences of Uyghur syllable final and word final **-n**. 24 out of the 209 occurrences are transcribed with MC -m characters (11.48%) and 28 are transcribed with MC -ŋ characters (13.39%). And the rest are with MC -n characters. Out of the 24 MC -m occurrences, the character *lín* 林 occurred 16 times, and it only occurred 3 times in transcribing Uyghur syllable final and word final **-m** coda. The higher percentage of *lín* 林 being used for transcribing Uyghur **-n** suggests that the MC -m characters had already been merged with -n as we have discussed in the previous sections.

The MC -ŋ characters used to transcribe Uyghur syllable final and word final **-n** were *tīng* 聽*, dìng* 定*, mìng* 命*, yǐng* 影*, dīng* 丁*, áng* 昂*, yǒng* 永*, níng* 寧*, gōng* 恭*, wēng* 翁*, dōng* 東*, yǎng* 仰, and *tǐng* 挺. Out of the 13 characters, only *dīng* 丁 was used 8 times, while others ranged from 1-4 times. Characters *yǒng* 永 and *dīng* 丁 were also used to

transcribed Uyghur syllable final and word final **-m**, which further suggests our observation in section 5.2.1 that the best vowel match takes precedence of coda, in cases where the closest match to the vowel and coda in Uyghur syllable does not exist in Chinese. It is also very interesting that the MC -ŋ characters all belong to only three MC *shè* 攝, which suggests that vowel quality played a role in their use as transcriptional characters.

Table 8: MC -ŋ characters that corresponded to Uyghur syllable final and word final **-n**, organized according to MC *shè* 攝. Reconstructed values are based on Níng (1985).

MC *shè* 攝	Reconstructed Vowel Value	Characters
Dàng 宕	a	*áng* 昂, *yǎng* 仰
Gěng 梗	iə	*tīng* 聽, *dìng* 定, *mìng* 命, *yǐng* 影, *dīng* 丁, *níng* 寧, *tǐng* 挺
Tōng 通	u	*yǒng* 永, *gōng* 恭, *wēng* 翁, *dōng* 東

It is very possible that the editor(s) chose characters from those three MC *shè* because there was no matching -n ending Chinese characters with the same or similar vowels. Thus the best choice was to use MC -ŋ Chinese characters that have the same or similar vowels as the Uyghur entries to transcribe the syllables. It is certainly true

for Tōng *shè* 通攝. There is no OM *-un final. However, for Gěng *shè* 梗攝, there is the OM *-iən final that editor(s) could use *mín* 民 for *mìng* 命, *yīn* 因 for *yǐng* 影, *rèn* 紉 (OM *niən) for *níng* 寧. As for Dàng *shè* 宕攝, the only OM -n equivalent that I could find was ān 安 (OM *an) for *áng* 昂 and àn 案 (OM *ian) for *yǎng* 仰. I do not have an explanation for why those MC -n characters were not chosen to represent the Uyghur syllable final and word final **-n** in those instances.

5.2.3 Uyghur Syllable Final and Word Final -ŋ

There are 103 occurrences of **-ŋ** in Uyghur syllable final and word final positions. There are only 8 occurrences that are transcribed with MC non -ŋ coda characters. Those 8 occurrences are analyzed below.

1) With MC -m

46. 深　　塔林　　təring　　täriŋ　　täriŋ

'deep'

This is the only occurrence for Uyghur syllable final and word final **-ŋ** to be transcribed with a MC -m character. The use of *lín* 林 indicates that the MC -m had already merge with MC-n because *lín* 林 was used to transcribe Uyghur **riŋ** syllable. If the MC -m was preserved, then *lín* 林 would not be the most preferable choice due to

the nasal ending. The match would seem more logical if the MC -m had merged with -n. There are Chinese characters with OM *liəŋ such as *líng* 凌 that could be used to represent the Uyghur syllable **riŋ**. Instead the editor(s) used *lín* 林 to represent the syllable, which implied that the there was the ending to vowel assimilation of **täriŋ** to **tärin** in Uyghur and editor(s) chose *lín* 林 to represent the Uyghur syllable.

2) With MC -n

47. 豆蔻　苦兒思闌　ḳurslang　qurslaŋ　qurslaŋ

'nutmeg'

48. 獅子　阿兒思闌設兒　arslang xir　arslaŋ šir　arslaŋ šer

'lion'

49. 升　以申　ixing　išiŋ　išiŋ

'liter'

50. 藍　傘克力　səngkəri　säŋkäri　säŋgäri

'blue'

51. 千　民　ming　miŋ　miŋ

'thousand'

52. 千秋　民曲思　ming küz

‘a thousand autumns (a long time)’

53. 參政　　參政　　sangjem　　saŋčïm　　saŋčïm

‘Administration Vice Commissioner’

Out of the seven examples, two occurrences are with the character *lán* 闌 being used to transcribe the Uyghur **laŋ** syllable. It is very fascinating that there are Chinese syllables that have the OM *laŋ pronunciation such as *làng* 浪 and *lǎng* 朗 that would be a better choice, but instead the editor(s) chose *lán* 闌 to represent the Uyghur syllable ending with a velar nasal. Perhaps how the Uyghur entry was pronounced played a role in the editor(s)’ decision to use *lán* 闌. If the syllable was stressed or unstressed, then the editor(s) might chose a character that had the best match including the pitch, so the character *lán* 闌 was chosen. Another possibility is the Uyghur speaker also deleted **-g** after **-n-**, so the pronunciation of the syllable became /**lan**/. In example 49, the occurrence of *shēn* 申 used to transcribe the Uyghur **-ŋ** implied two possibilities: 1) there is no Chinese character with a -ŋ coda that had the same or similar vowel as *šïŋ*, so the editor(s) just chose the best sound match with a nasal coda for the syllable. 2) The ending assimilation to the vowel, where **iŋ** became **in** in Uyghur, and the editor(s) heard the syllable as ***šin***, so *shēn* 申 was chosen.

As with the case for *sǎn* 傘, there is a possible explanation. Because of the following velar consonant, the Míng editor erroneously divided the Uyghur entry, based on the sound, into **san-ga-ri,** instead of **sang-ga-ri**, so the character *sǎn* 傘 was chosen. Examples 51 and 52 are with the character *mín* 民. There are Chinese characters with the OM *miəŋ pronunciation such as *míng* 明 that could be used to transcribe Uyghur **miŋ**. This is another case of ending to vowel assimilation where **iŋ** becomes **in** in Uyghur. As with the example of *cān* 參, we had previously mentioned the possibilities are that it was an older transcription or that the codas had mistakenly be switched due to a scribal error.

By analyzing nasal codas in Uyghur syllable final and word final positions, we can conclude that the editor(s) attempted their best to find characters that had same nasal coda as the nasal coda in the Uyghur syllable that they were transcribing. However, in some cases, the coda of the transcriptional character might be of a different place of articulation such as MC -ŋ for Uyghur **-m** or **-n**. We also noticed that MC -m had merged with -n characters, so we have the high percentage of MC -n characters for transcribing Uyghur **-m** syllables. Second, we noticed the tendency of

Uyghur **iŋ** final becoming **in** in all the instances we have discussed. This led us to believe that there was the assimilation of ending to vowel in Uyghur.

After completing our analysis of MC nasal codas, we are confident to say that MC -m had merged with MC -n, while MC -n and MC -ŋ were preserved at the time that *CCGZZ* was compiled. As we concluded our analysis of MC nasal codas, we will now move on to analyze MC stop codas and try to find a clearer understanding of the MC stop codas in Míng dynasty Guānhuà.

5.3 Previous Studies on Entering Tone in *Gāochāng guǎn zázì*

This section discusses the earlier studies done on the *rù* 'entering' tone characters in *GCGZZ*. Several scholars have done research on *GCGZZ* and entering tone. The main contributors to this topic are Ōuyáng Róngyuàn 欧阳荣苑 and Sarashina Shinichi 更科慎一. Each of them wrote two articles regarding the topic of entering tone characters in *GCGZZ*. Their work will serve as the starting point for my analysis, so I will begin by summarizing their methods and results.

Ōuyáng (2007) analyzed the entering tone characters from 1002 *GCGZZ* entries collected in Hú and Huáng (1984). The 40 terms that appeared in the Berlin edition, discussed in section 1.1, were not analyzed in her article. Ōuyáng found that entering

tone characters used in *GCGZZ* belonged to two categories, which she listed as 1) those with no entering tone endings (*rù shēng yùnwěi* 入声韵尾) and 2) those still with entering tone endings (-p, -t, -k) in the Uyghur correspondences (Ōuyáng 2007: 25). In the first category, she found only two entering tone characters *yù* 玉 and *mài* 脉 used to transcribe Uyghur syllables without stop endings. For the second category, the situation of the entering tone ending is much more complicated. She described that the preservation and the lack of corresponding stop endings for most of entering tone characters used in *GCGZZ* were unclear.

Entering tone characters that appeared in the two categories as described in Ōuyáng (2007) are provided below.

Group 1: with no entering tone endings in the Uyghur correspondences (2 characters)
yù 玉, *mài* 脉

Group 2: with entering tone endings in the Uyghur correspondences (30 characters)
lù 祿, *lì* 力, *lǎ* 喇, *sā* 撒, *é* 額, *yù* 欲, *shè* 設, *chá* 察, *sāi* 塞, *kě* 渴, *bì* 必, *xī* 夕, *yè* 葉, *yì* 亦, *shū* 淑, *hā* 哈, *chǐ* 尺, *zú* 足, *liè* 列, *gè* 各, *gé* 格[37], *yuē* 約, *de* 的, *bo* 卜, *bó* 伯, *wù* 兀, *nà* 納, *shī* 失, *hēi* 黑, *dé* 得

[37] A mistake by Ōuyáng since she indicates that there is only one occurrence in the dictionary and it corresponds to a sound without an ending (Ōuyáng 2007: 27)

Ōuyáng concluded that the situation for entering tone characters was unclear since most characters correspond to Uyghur syllables with stop endings and in other cases, without. For example, *yuē* 約 has five correspondences. Out of the five correspondences, 3 corresponded to **yɑk** or **yuk** while 2 corresponded to **yu**. She expressed that the "entering tone endings in the spoken language have not yet completely disappeared" 当时的入声字韵尾在当时的口语中没有完全消失 (Ōuyáng 2007: 27). She further mentioned that historical information about the authors and editors of *GCGZZ* is sparse and more research is needed. Ōuyáng (2007) is a short 3-page article on entering tone characters in *GCGZZ*, which simply provided the ending correspondences for the characters, but did not explore in more details if there were any patterns for the occurrences of correspondences with stop endings versus without.

In her 2013 follow up study, Ōuyáng primarily discussed the importance of Uyghur materials in the study of historical Chinese phonology. In this article, she made a chart, which showed the thirty-two entering tone characters from her 2007 study of the *GCGZZ* entering tone characters and calculated the percentage of occurrences of each entering tone character that corresponded to Uyghur syllables with and without endings. Ōuyáng corrected her error of putting *gé* 格 in the second category in her

previous study and now included it in the first category of entering tone characters that did not correspond to an ending. She also indicated that *nà* 納, *gè* 各, *zú* 足, and *kě* 渴 all corresponded to Uyghur endings. Her chart is reproduced on the following page. Reading the headings from left to right, the first column indicates the character's numbering position in the table. Second column is the entering tone character. Third column is the number of occurrences. Fourth column is the number of occurrences that corresponded to no endings (i.e open syllables), while the fifth column is the number of occurrences that corresponded to endings. The last column is the ratio (percentage) of correspondences to stops endings.

Figure 8: *GCGZZ* entering tone characters and their number of occurrences to Uyghur syllables with and without endings as shown in Ōuyáng (2013).

编号	入声字	出现次数	无韵尾	有韵尾	有入声韵尾比例
1	玉	9	9	0	0%
2	脉	6	6	0	0%
3	格	1	1	0	0%
4	喇	110	60	50	45%
5	撒	28	20	8	29%
6	察	25	19	6	24%
7	塞	10	6	4	40%
8	必	51	49	2	4%
9	叶	3	2	1	33%
10	淑	8	5	3	38%
11	哈	101	90	11	11%
12	尺	62	49	13	21%
13	列	7	4	3	43%
14	的	104	86	18	17%
15	卜	65	59	6	9%
16	兀	69	61	8	12%
17	失	103	93	10	10%
18	黑	29	27	2	7%
19	得	29	22	7	24%
20	伯	14	11	3	21%
21	纳	1	0	1	100%
22	各	1	0	1	100%
23	足	4	0	4	100%
24	约	5	2	3	60%
25	亦	7	1	6	86%
26	夕	9	2	7	78%
27	渴	3	0	3	100%
28	欲	6	2	4	67%
29	设	5	2	3	60%
30	额	10	4	6	60%
31	力	85	42	43	51%
32	禄	65	17	48	74%

(Taken from Ōuyáng 2013: 30)

Ōuyáng (2013) concluded that the entering tone in Chinese had not completely disappeared or at least had been preserved in the northwest dialects because 78% of the total occurrences of entering tone character correspondences showed the mixed situation of preservation and the lack of endings (Ōuyáng 2013: 30). Aside from putting all her data from her 2007 study into a table, Ōuyáng did not offer any new information in her 2013 follow up study of entering tone characters in *GCGZZ*.

Entering tone characters in *GCGZZ* were also studied by Qí Hóngtāo 祁宏涛 in his 2013 PhD dissertation. The primary focus of his study was on the transliteration of the Old Uyghur language and Uyghur correspondences in the Chinese language as a mean to collect more information for the study of Chinese phonology. Qí offered an in-depth analysis of all Uyghur and Chinese consonants, vowels and syllable structures in *GCGZZ*. For example, he founded Uyghur initials “b、p、d、t、š、y、s、l、m can combine with all eight vowels” (Qí 2013: 32). However, like Ōuyáng (2007), Qí based his analysis of 1002 Uyghur entries, which also lacks the 40 terms from the Berlin edition. Nonetheless, Qí (2013) is an extensive study of the Uyghur transcriptions and Chinese transcriptional characters in *GCGZZ*. In his analysis of entering tone characters

and their correspondences in Uyghur, he concluded that stop endings of entering tone has disappeared in the speech of that period (Qí 2013: 191).

Another PhD dissertation on *GCGZZ* was written in 2016 by Shǐ Shūqín 史淑琴. In her abstract, she briefly mentioned, "*rù* rhymes did not existed". However, I was unable to acquire a full copy of her dissertation. Only the first 9 pages of her dissertation were available to me, so her analysis of entering tone characters cannot be explained in details.

Japanese scholar Sarashina Shinichi published two articles in 2000 on the distribution of the Chinese characters used in the transcription of Uyghur terms in *GCGZZ*. He used four editions of *GCGZZ* for data collection, which were the three editions founded in *Běijīng túshū guǎn gǔjí zhēnběn cóngkān 6 jīng bù* (for more information see Chapter 1) and the Uyghur materials discussed in Ligeti (1966), which do not have the additional terms from the supplement of the Berlin edition.[38] Sarashina (2000a) has six sections and starts with an introduction of the history of *Huá yí yì yǔ*. Subsequently, Sarashina discussed the various editions of *GCGZZ* and then listed all the Chinese characters used in *GCGZZ* in tables according to their Old Mandarin tonal

[38] Those terms are included in Ligeti (1969).

categories, which were *yīnpíng shēng* 陰平声 (yin level tone), *yángpíng shēng* 陽平声 (yang level tone), *shàng shēng* 上声 (rising tone), *qù shēng* 去声 (departing tone), and *rù shēng* 入声(entering tone). He further categorized *rù sheng* 入声 *into qīng rù shēng* 清入声 (clear entering tone), *cì zhuó rù shēng* 次濁入声 (secondary muddy entering tone), and *quán zhuó rù shēng* *全濁入声* (whole muddy entering tone). There was also a category for *diào lèi bùmíng* *調類不明* (tonal category unclear).[39] By combining all the entering tone characters from the three entering tone categories, there were 54 such characters. He concluded that entering tone characters were the most used especially that of the clear entering tone and secondary muddy entering tone. There were only a small number of examples for whole muddy entering tone characters, so he was not able to reach a definite conclusion regarding that set of data. Furthermore, Sarashina mentioned an interesting idea that clear entering tone and secondary muddy entering tone characters were maintained as an independent tonal category (Sarashina 2000a: 48). This idea will be explored in more details in my analysis of MC *rù* tone. It was

[39] My guess for why he separated entering tone into three categories was perhaps due to voicing categorization of Middle Chinese initials, which were *qīng* 清 'clear', *cì zhuó* 次濁 'secondary muddy', and *quán zhuó* *全濁* 'whole muddy', which could be rougly translated as 'voiceless', 'voiceless aspirated' and 'voiced'.

helpful to the readers that Sarashina (2000a) put characters into various tonal category tables. However, the tables did not show the correspondences of each character, but rather showed the number of occurrences of characters in Uyghur initial, medial, final, or standalone positions. The chart for whole muddy entering tone characters is reproduced below.

Figure 9: Number of occurrences of whole muddy entering tone characters.

⑦全濁入声字 12 個

字	単	頭	中	末	淑	0	2	2	1
夕	0	1	2	4	合計	0	3	4	5

(Taken from Sarashina 2000a: 46)

Headings for the columns are *zì* 字 'character', *dān* 單 'standalone position' *tóu* 頭 'initial position', *zhōng* 中 'medial position', *wèi* 末 'final position'. The characters that belonged to the category of muddy entering tone are *xī* 夕 and *shū* 淑.

Sarashina (2000b) is a follow up to his 2000a article. He continued to focus on the distribution of the Chinese characters used in transcriptions of Uyghur entries in *GCGZZ*. For example, he found that *qù* 去 tone characters were mostly used in final positions in the transcription (Sarashina 2000b: 78), which you can see from the chart

reproduced below. In his discussion of entering tone characters, Sarashina concluded that the situation was more complex than other tones. Secondary muddy entering tone characters were used mostly in initial and final positions. Clear entering tone characters were used in all positions and whole muddy entering tone characters had very few examples, so it was hard to describe them (Sarashina 2000b: 87). The following chart shows the distribution of the Chinese characters occurrences grouped according to their tonal categories. Column headings are *dān* 單 'standalone position' *tóu* 頭 'initial position', *zhōng* 中 'medial position', *wèi* 未 'final position' and *héjì* 合計 'total'. Row headings are *píng shēng* 平声 'level tone', *shàng shēng* 上声 'rising tone', *qù shēng* 去声 'departing tone', and *rù shēng* 入声 'entering tone'. Each tonal category is further categorized as *qīng* 清 'clear', *cì zhuó* 次濁 'secondary muddy', and *quán zhuó* 全濁 'whole muddy'. The last row is the *héjì* 合計 'total' for all characters used in different positions across the four tonal categories.

Figure 10: Number of occurrences of *GCGZZ* characters used in various positions in Uyghur transcriptions.

		単	頭	中	末	合 計
平声	清	30	21	23	142	216
	次濁	4	4	8	60	76
	全濁	1	4	0	3	8
上声	清	9	186	30	21	246
	次濁	2	67	7	2	78
	全濁	0	0	0	1	1
去声	清	8	2	4	15	29
	次濁	4	2	0	5	11
	全濁	1	1	4	9	15
入声	清	28	107	34	124	293
	次濁	12	42	13	87	154
	全濁	2	2	3	5	12
合 計		101	438	126	474	1139

(Taken from Sarashina 2000b: 78)

A general consensus between the two scholars is that the situation of the entering tone characters is much more complex than the other three tonal categories. What I want to accomplish in my analysis is to further build on the foundations provided by the scholars and to find patterns for the entering tone characters. I will discuss my findings in Chapter 6 and then compare them to the studies discussed above.

This will add to our understanding of the historical development of MC stop codas during the Míng dynasty.

5.4 Uyghur Syllable Final and Word Final Non-Nasal Consonant Codas

This section examines how Uyghur entries with non-nasal consonant codas in syllable final or word final positions were being transcribed in *GCGZZ*. By analyzing the Chinese characters used in the transcriptions of those Uyghur entries, I hope to discover the condition of the MC *rù* tone characters in early Míng dynasty. This will provide some insights into which stage *rù* tone codas in Guānhuà were in during the compilation of *GCGZZ*.

The Uyghur non-nasal consonant codas that we are examining are bilabial stops (-p and -b), dental stops (-t and -d), and velar and uvular stops and fricative (k, g, q and ɣ). Those sounds are selected due to fact they are the closest counterparts to the three MC stop codas: -p, -t, and -k. For the reason of simplicity, we will analyze velar and uvular sounds together in one section.

To reiterate, all Uyghur vocabulary examples provided will be in the following format.

Meaning, Transcription, Uyghur 1, Uyghur 2, Uyghur 3

'English gloss'

Vowels ***a*** and ***ä*** *and* consonant ending **-ng** in Ligeti's transcriptions (Uyghur 3) are reproduced as **a**, **ä** and **-ŋ** in this study**.**

5.4.1 Uyghur Bilabial Stop Codas (-p and -b)

For the bilabial stops **-p** and **-b** in Uyghur syllable final or word final positions, the Chinese characters used to represent those sounds include MC *rù* tone and MC non-*rù* tone. We have cases of MC -p characters used to transcribe Uyghur **-p** but we have more cases of MC -t and -k characters used for Uyghur **-p**. For example, we have the Uyghur entry **sup** represented by the character *sù* 速 (MC *səwk), which had a -k ending in MC. Similarly, we have Uyghur **-p** sounds being transcribed with *lǎ* 喇 (MC *lat). This intermixing usage of characters with all three MC *rù* tone codas suggests several possibilities: 1) in order to find the best sound matches, the coda is ignored, so even if at that time the MC stop codas were still existed, the editor(s) ignored the endings and instead used the best match for the syllable, regardless of the character's coda. 2) MC stop codas had merged into a glottal stop. Thus when the Uyghur speaker pronounced a word with a bilabial stop, the editor(s) chose a character that used to

have a MC stop coda, but now with a glottal stop, as the closest possible match. This would explain the mixed usage of MC -p, -t and -k characters for Uyghur **-p** syllables. 3) Characters with MC stop codas had completely lost their codas and resulted in an open syllable. Therefore, the editor(s) just chose the characters with the best match for the syllable. We shall look at all the data and general patterns to determine which of the three possibilities seems most valid.

Aside from the intermixing of MC *rù* tone characters to transcribe Uyghur syllable final or word final **-p** syllables, there are numerous cases of the characters *bó* 伯 and *bo* 卜, with bilabial initials in MC and OM, being used to represent the Uyghur bilabial stop in a syllable final position. Because these two characters are used so frequently, they require separate discussion.

1) *bó* 伯

54. 土　　禿伯喇　　topraḳ　topraq　topraq

‘soil, earth’

55. 土產　　禿伯喇尺黑祿兒　　topraḳ qeġelar　topraq čïqïlur　topraq čïqïlur

‘local products’

56. 婦　　阿伯尺　　abqe　äbči　äpči

‘married woman’

57. 惱　　傲伯克喇　　əpkələp　öpkäläp　öpkäläp

‘to be angry, anger at’

58. 動　　得伯喇　　təbrəp　täbräp　täbräp

‘to move’

59. 終　　搠伯的　　qəptik　čöptik　čöptig

‘to end’

60. 嚴　　傲伯克力　　əpkəlip　öpkälip　öpkälip

‘to be strict’

61. 刮風　　烟得伯喇(刺)的　　yəl təbrətti　yïl täbrätti　yäl täbrätdi

‘windy’

62. 勞逸　　得伯剌失孤[40]　　təbrəxkü　täbräškü　täbräšigü

‘to work’

[40] There is a scribal error in the Tōyō Bunko, which the Chinese transcription is 得伯失喇孤.

2) *bo* 卜

63. 湯瓶　　阿卜察麻　　abqam-a　abčam-a　abčam-a

‘soup bottle’

64. 金湯瓶　　俺吞阿卜察麻　altun abqam-a　altun abčam-a　altun abčam-a

‘gold soup bottle’

65. 玉湯瓶　　哈失阿卜察麻　ḳax abqam-a　　qaš abčam-a　qaš abčam-a

‘jade soup bottle’

The characters *bó* 伯 and *bo* 卜 were used to represent the Uyghur bilabial stops in a syllable final position where another consonant follows immediately in the (C)VCC environment. Take example 56 for instance, the syllable boundary in Uyghur is **ab/qe, äb/či, äp/ či**. The **ä** sound is represented by the Chinese character *ā* 阿, **b/p** is represented by *bó* 伯 and the last syllable **či** is represented by *chǐ* 尺.

However, we have more examples of bilabial stop sounds not indicated by the use of *bó* 伯 and *bo* 卜, even in the (C)VCC environment. One example is *hù* 護 ‘to protect’ entry in *GCGZZ*. The Uyghur transcription is **iptip/ iptip/iptip** and the Chinese characters used to represent the pronunciation are 以的. We can see the Uyghur syllable boundaries are **ip/tip**. The initial syllable **ip** is represented by *yǐ* 以

and **tip** by *de* 的. However, we do not see the syllable final **-p** in **ip** represented *bó* 伯 or *bo* 卜. Initially, I thought the vowel in the syllable might have played a role in determining whether the use of *bó* 伯 or *bo* 卜 is needed in the Chinese transcription because all the examples have the vowels **o, ö, a** and **ä** before the bilabial. However, we have more examples of syllables with these vowels that do not use *bó* 伯 and *bo* 卜 to represent the bilabial stop sounds. A few examples are included below.

66. 橋　　苦祿　　kəprək　　köprük　　köprüg

'bridge'

67. 碟　　得失　　təpxi　　täpši　　täpši

'plate, platter'

In example 66, you can see the same (C)VCC environment as example 54, which Uyghur syllable final **-p** is followed by **-r-.** However, example 66 does not include the use of *bó* 伯 to represent the syllable final **-p** as it did in example 54. There is no clear explanation for why some syllable final bilabial sounds are represented by *bó* 伯 and *bo* 卜, while some do not. Perhaps the inclusion of *bó* 伯 and *bo* 卜 are due to the editor(s)' perception of the Uyghur pronunciation. They might perceive the syllable final bilabial stops in those Uyghur words to be more prominent in the articulated Uyghur

pronunciation, so they included *bó* 伯 and *bo* 卜 to represent the prominence of the bilabial stop sounds.

Furthermore, the inclusion of characters *bó* 伯 and *bo* 卜 to reflect the Uyghur syllable final bilabial stops further implies that the loss of stop-coda syllables. The characters would not be needed if *rù* tone was still in existence because Guānhuà speakers would already know to pronounce the transcription characters with a stop coda. On the other hand, it could be possible that the MC *rù* tone characters used in the transcription had a different stop coda such as -t, -k or -ʔ and the editor(s) wanted to denote the correct stop coda. Thus, the inclusion of the characters *bó* 伯 and *bo* 卜 were used to show the correct syllable final stop codas. For example 58, all three Uyghur transcriptions have a syllable final **-b** for the first syllable transcribed in Chinese as *dé* 得. If *dé* 得 still retained its MC -k coda and the editor wanted to denote the correct syllable final, then the best way represent to the bilabial stop coda would be including *bó* 伯 in the transcription. However, we have examples of *bó* 伯 and *bo* 卜 being added to non-*rù* tone characters. This suggests that *bó* 伯 and *bo* 卜 were added behind open syllable Chinese characters to denote the stop coda in Uyghur. This in turn suggests

that characters with MC *rù* tone used in transcriptions with *bó* 伯 and *bo* 卜 could possibly be open syllables too.

Second, there is also a case where a MC -m character is used to transcribe a Uyghur syllable with a bilabial stop.

68. 愛軍　　扯力泥膽喇　　qərik-ni təbləp　čärik-ni täbläp　čärig-ni taplap

‘beloved troops’

The MC pronunciation of *dǎn* 膽 is *tam. As we discussed in the previous MC nasal codas chapter, MC -m sounds had already merged with MC -n words in Old Mandarin at the compilation of the GCGZZ. Therefore, it is logical that we have an example of a character with a MC-m used to represent Uyghur syllable final bilabial sound, because by then the MC -m coda had became -n in Old Mandarin and the closest match to MC characters with bilabial stops are characters with nasal codas. This use of MC -m character to represent Uyghur **-p** suggests that MC *rù* tone characters had completely lost their endings, and the best match for representing the Uyghur **tap** is the character *dǎn* 膽.

Another interesting observation is the use of MC non-*rù* tone characters to represent both Uyghur open syllables and Uyghur syllable final bilabial stops.

3) *kǔ* 苦

69. 橋　苦祿　kɵprək　köprük　köprüg

‘bridge’

70. 看　苦祿　kɵrüp　körüp　körüp

‘to look’

4) *ní* 泥

71. 欺壓 把夕泥　basenep　basïnïp　basïnïp

‘to oppress’

72. 弟　以泥　ini　ini　ini

‘younger brother’

5) *lǔ* 魯

73. 言問　雪思泥速魯都兒 sɵz-ni suroptur (suraptur) söz-ni suroptur(suraptur)

söz-ni soruptur

‘to ask’

74. 家小　阿魯公　aylu küng　aylu küŋ　ilüküŋ = älüküŋ

‘family’

6) *má* 麻

75. 加陞　　那麻都兒　namaptur　namaptur　nämäptür

‘to increase’

76. 花椒　　呀兒麻　yarma　yarma　yarma

‘chili peppers’

7) *sū* 蘇

77. 興起　　土兒苦蘇　turġuzup　turɣuzup　turɣuzup

‘to rise’

78. 水　　蘇 (蕪)　suw　suw　suv

‘water’

8) *kù* 庫

79. 生　　土庫　　tuġup (＜tuḳ＋up)　tuɣup(＜tuq＋up)

toɣup(＜tuq＋up)

‘to be born, to live’

80. 河　　兀庫思　өgüz　ögüz　ögüz

‘river’

9) *xǐ* 洗

81. 硃砂　洗省乞兒　sipsingkir　sipsiŋkir　sibsiŋgir

‘cinnabar’

82. 醋　洗兒克　sirkə　sirkä　sirkä

‘vinegar’

10) *tǔ* 土

83. 史　土尺烟　tupqeyan　tupčïyan　tobčïyan

‘history, past’

84. 九　土庫思　toġuz　toɣuz　toquz

‘nine’

Using MC non-*rù* tone characters to transcribe both Uyghur open syllables and Uyghur syllable final bilabial stops indicates that *rù* tone in Old Mandarin had already disappeared at that time. If *rù* tone were still in existence, then entries with Uyghur syllable final **-p** would be transcribed mainly with *rù* tone characters even if the ending did not completely match. Nonetheless, we should not disregard that some Uyghur syllables were hard to transcribe and it could be possible that the best sound matches were non-*rù* tone characters. Before we can have a certain conclusion about MC *rù*

tone, we need to look at additional data and ask parallel questions involving stops at other places of articulation.

There are also examples where a MC non-*rù* tone character was used in another edition of the *GCGZZ* to represent the same sound that was transcribed using a MC *rù* tone character in another edition. The non-*rù* characters are *shā* 沙 and *sū* 蘇 in the examples below.

85. 均平　　倘叔 （沙）　　tangxap　　täŋšäp　　täŋšäp

‘average’

86. 傳流　　土都蘇 （速）　　tudusu　　tudusu　　tutuzu

‘to transmit’

In the examples provided above, the characters inside the parentheses are the variations found in another edition of GCGZZ. The variations are from the Tōyō Bunko edition. We do not know when the Tōyō Bunko edition was compiled, so we do not know when MC non-*rù* characters started to be used interchangeably with MC *rù* tone characters.

Finally, we also have examples of MC non-*rù* tone characters used to solely represent Uyghur syllables with consonant codas.

11) *kè* 課

87. 懼怕 苦兒課靄麻泥 ḳorḳup aymanep qorqup aymanïp qorqup aimanïp

‘to be afraid’

88. 福祿 卜烟課 buyan ḳut buyan qut buyan qut

‘blessings’

12) *nú* 奴

89. 騎坐 母奴都兒 münüptür münüptür münüptür

‘to ride’

The use of non-*rù* characters for Uyghur syllables with consonant codas suggests that Chinese character with the best sound match to the Uyghur syllable does not have a consonant coda.

Based on the data shown above, characters used to transcribe Uyghur bilabial stops in a syllable final position range MC non-*rù* to MC *rù* tone. But with examples of the inclusion of *bó* 伯 and *bo* 卜 used to transcribe the Uyghur bilabial stops, we have evidence that indicates the loss of the MC -p coda in Míng dynasty Guānhuà.

5.4.2 Uyghur Dental Stop Codas (-t and -d)

Uyghur syllable final and word final dental stops were used in a similar way as bilabial stops. There is an intermixing of MC *rù* tone characters used to transcribe syllable final and word final dental stops. A few examples are provided below, in which characters with MC -k coda were used to transcribe Uyghur syllable final **-t**.

90. 應　　阿夕　　aset　asït　asït

'should'

91. 胡妄　　把剌(喇)木　　balamut　balamut　balamut

'reckless'

We also have examples where an inclusion of an extra character was used to represent the Uyghur dental stop sound in a transcription. The characters are *dá* 答 and *de* 的.

92. 西天　　昂答克　　əndəkə　　ändäkä　　äntkä[41]

'India'

[41] In the first two transcriptions, *dá* 答 represented Uyghur **də/dä**, while Ligeti transcribed it as **t** based on cognates of the Uyghur term in other Turkic languages.

93. 六十　　俺的密 (蜜)失　　altmex　　altmïš　　altmïš

‘sixty’

94. 七十　　以的密 (蜜)失　　yitmix　　yitmiš　　yitmiš

‘seventy’

The above examples further prove that stop codas of MC *rù* tone was very likely gone because editor(s) had to use an extra character to represent a stop coda in Uyghur. However, we only have a small number of examples with an extra character. This practice had not been consistently used throughout *GCGZZ*. There are many cases where the Uyghur syllable final **t,** which occurred before another consonant is not transcribed using an extra character such as example below.

95. 報捷者　聽以庫兒庫即　　til yitkürküsi[42]　til yitkürgüši　　til yitkürgüši

‘messenger’

Third, we also have a case of MC nasal used to transcribe Uyghur syllable final **-t**. This further implies that the loss of MC *rù* tone because the closest sound match the editor could find was a character with a MC dental coda -n. The only difference

[42] Hú and Huáng did not include **t** in his transcription the first time this term appeared on page 63, but did include **t** on page 86 in the glossary.

between a dental stop and a dental nasal is the manner of articulation. In example 96, the editor could use an open syllable Chinese character to transcribe **qut**. However, the editor chose *kuǎn* 欵, a MC -n character, to represent the **-t** consonant coda in Uyghur. Another possibility is that the following consonant is **-l-**, in which anticipatory voicing assimilation caused the preceding **-t** to have a nasal like quality. Thus, the editor chose *kuǎn* 欵 to represent the syllable.

96. 慶賀　　欵祿喇尊　　qutluɣlasun

'celebrate'

Additionally, we also found MC non-*rù* tone characters used to represent both Uyghur syllable final dental stop codas and Uyghur open syllables. Some examples are shown below.

1) *ào* 傲

97. 火　　傲　　oot　oot　oot

'fire'

98. 廚房　　阿失力傲　　axleḳ au　　ašlïq aw　　ašlïq äv

'kitchen'

2) *ā* 阿

99. 天曉　湯阿的　tang atte　taŋ attï　taŋ atdï

‘sunrise’

100. 高　阿的思　adez　adïz　ädiz

‘tall, high’

3) *gū* 孤

101. 天黑　卜兒孤(苦)板的　bürküt bolde　bürküt boldï　bürküt boldï

‘dusk’

102. 腸　以扯孤　iqəkü　ičäkü　ičägü

‘intestine’

4) *bǎ* 把

103. 秤　把蠻　batman　batman　batman

‘scale’

104. 城　把力　baleḳ　balïq　balïq

‘town, city’

5) *jǐ* 几

105. 幼　　以几　　yigit　yigit　yigit

‘young’

106. 舊　　阿思几　　əski　äski　äski

‘old’

6) *kù* 庫

107. 鴉鵲石　　呀庫塔失　　yaḳut tax　　yaqut taš　　yaqut taš

‘blue jewel’

108. 鳥　　庫失　　ḳux　quš　quš

‘bird’

7) *má* 麻

109. 寄放　　阿麻　　amat　amat　amat

‘to leave with’

110. 花椒　　呀兒麻　　yarma　　yarma　　yarma

‘chili pepper’

8) *yǐ* 以

111. 至今　　俺的黑以斤察　　amtï-qï yitginčä

‘until now’

112. 遠　　以喇　　yeraḳ yïraq yïraq

‘far’

9) *ya* 呀

113. 卧　　呀　　yat　　yat　　yat-

‘to lay’

114. 近　　呀恨　　yaḳen　yaqïn　yaqïn

‘nearby, close’

Editor(s) used *kù* 庫 and *má* 麻 to both transcribe Uyghur syllable final or word final **-p** and **-t** and did not indicate the different Uyghur coda by adding an extra character. This goes to show that at that time, MC *rù* tone is already very likely to have disappeared in Old Mandarin because the editor(s) did not distinguish the **-p** and **-t** codas in Uyghur. In a later section, we will look at MC *rù* tone characters in more details and how they were used to have a greater understanding of the condition of the MC *rù* tone.

Moreover, we also have cases of MC non-*rù* used to represent Uyghur syllable final or word final dental codas.

10) *kě* 可

115. 高地　　可期　kətki　kötki　kötki

‘high ground, peak’

11) *kè* 課

116. 福祿　　卜烟課　　buyan kut　　buyan qut　　buyan qut

‘blessings’

However, we must note that *kě* 可 was only used to in one transcription, which is provided above. As for *kè* 課, there are only two Chinese transcriptions with *kè* 課 and only for syllable finals **-p** and **-t**.

Moreover, we also found the several examples in which the **t** sound after **r** in Uyghur was not represented in the Chinese transcription. Two examples are provided below. It is intriguing to note how editor(s) decided to use the character *er* 兒 to indicate the Uyghur **r** sound consistently, which we will discuss in a later section, but not an extra character for **t**.

117. 雜字　　傘庫兒必的　saḳurt bitig　saqurt bitig　saɣurt bitig

‘vocabulary’

118. 四　　禿兒　　tərt　tört　tört

‘four’

5.4.3 Velar and Uvular Stop and Fricative Codas (k, g, q and ɣ)

In addition to the Uyghur syllable final voiceless velar stop **k** and voiced velar stop **g** sounds, Uyghur syllable can also end in voiceless uvular stop **q** and voiced uvular fricative **ɣ**. To the editor(s), one of the challenges was how to effectively transcribe those sounds using Chinese characters because for Chinese speakers, they might have sounded very similar due to their place and manner of articulation.

For the Uyghur velar and uvular coda sounds, we also found examples of intermixing usage of MC *rù* tone characters.

119. 獸　　克葉　　kəyik　käyik　käyik

‘beast’

120. 驢　　以設　　ixək　išäk　išäk

‘donkey’

121. 熱　　以夕板的　　isik (eseḳ) bolde　　isig boldï　　isig boldï

‘hot’

122. 塞　　速密失　　soḳmex　　soqmïš　　suqmïš

‘to fill up, to stuff’

In example 119, *yè* 葉 had MC -p. Examples 120 and 131 with MC -t while example 122 with MC -k. Out of the four examples, example 122 probably was the closest to the Uyghur coda because *sù* 速 had MC -k (MC *səwk). The other three examples implied that MC *rù* stop codas were very likely to have been lost because if stop codas were still preserved, the Chinese transcription would not make sense because the codas would mismatch and sound different from the Uyghur.

As with the cases of Uyghur bilabial and dental stop codas, we have the use of an extra character *kè* 克 to indicate the Uyghur stop coda **k** or **g**.

123. 罟罟帽　土馬哈卜兒克　　tumaḳ bürkə　　tumaq bürkä　　tomaɣ-a börk

‘Monglian hat’

124. 貴　　把克剌(喇)孤　　bəkələkü　　bäglägü　　bäglägü

‘expensive, valuable’

This further proves that when *GCGZZ* was compiled, MC *rù* tone had already disappeared because in order to properly reflect the Uyghur stop codas, editor(s) had to employ the use of an extra character to indicate the stop codas in Uyghur.

Moreover, we found MC non-*rù* tone characters representing Uyghur velar and uvular stop and fricative codas in syllable final or word final positions. Out of those characters, ten characters *má* 麻*, ā* 阿*, kǔ* 苦*, tǔ* 土*, bǎ* 把*, ào* 傲*, ya* 呀*, shā* 沙*, xǐ* 洗 and *yǐ* 以 were used to transcribe Uyghur velar and uvular consonants as well as bilabial and dental stops. We will also provide data for 6 additional MC non-*rù* characters that transcribed Uyghur velar and uvular stop and fricative codas in syllable final or word final positions.

1) *má* 麻

125. 池　　訓麻　　kəlmək　kölmäk　　kölmäk

‘pond’

126. 郡縣　　靄麻　　aymaķ　　aymaq　　aimaq

‘county’

127. 諸　　哈麻　　ḳamaķ　qamaq　　qamaɣ

‘various’

2) *chě* 扯

128. 花　　扯扯　　qəqək čäčäk čäčäk

‘flower’

129. 夜　　克扯　　kəqə qäčä käčä

‘night’

3) *nù* 怒

130. 椿　　暑怒　　sünük sünük šünük

‘Ailanthus altissima (tree)”

131. 水銀　　苦怒蘇 (蘇）　künük suw künük suw könüg suv

‘mercury’

132. 烏木　　阿必怒思　　abenuz　　abïnuz　　abïnus

‘Black wood tree’

4) *nà* 那

133. 乳牛　　以那　　inək inäk inäk

‘dairy cattle’

134. 穀　　苦那　　ḳonaḳ qonaq qonaq

‘grain’

135. 妙　撒那尺　sanaḳqeḳ　sanaqčïq　sanaɣčïɣ

‘indigenous’

136. 母　阿那　ana　ana　ana

‘mother’

5) *kǔ* 苦

137. 胸　苦酸　kəksəm　köksüm　köksüm

‘chest’

6) *dū* 都

138. 大門　把都哈必　bədük ḳabe　bödük qabï　bädük qapï

‘main entrance’

139. 十分　阿兒都　artuḳ　artuq　artuq

‘very’

140. 井　苦都　ḳuduḳ　quduq　quduɣ

‘well’

141. 宮　兀兒都　ordo　ordu　ordu

‘palace’

7) *ǎo* 襖

142. 誇獎　襖 (袄)的　ɵkti　ökti　ögdi

‘to praise’

143. 子　襖力　oġle (＜oġul + e)　oɣlï　oɣlï

‘son, child’

144. 怠惰　襖酸省答　osol semdaḳ　osul sïmdaq　osul sïmtaɣ

‘lazy’

8) *tǔ* 土

145. 九月　土蒜尺哀　toġ(u)zunq ay　toɣ(u)zunč ay　toqzunč ai

‘ninth month’

146. 盔　土祿哈　tuḳluḳ-a　yuqluq-a[43]　tuɣluɣ-a

‘armor’

9) *ā* 阿

147. 騸馬　阿答　aġta　aɣta　aqta

‘gelding’

[43] My guess is that it was a transcriptional typo in Qí (2013).

10) *mǎ* 馬

148. 阿魯骨馬　阿魯骨馬　arġumaḳ　arɣumaq　ar-ɣumaq

‘Ferghana horse’

149. 剪絨　馬木兒　maqmur

‘shearing’

150. 霧　馬南　manan　manan　manan

‘fog’

11) *bǎ* 把

151. 師　把失　baḳxe baqšï　baqšï

‘teacher, expert’

152. 園圃　把卜兒祿　baḳ burluḳ　baɣ burluɣ　baɣ borluq

‘garden’

12) *ào* 傲

153. 智者　傲古只　uḳḳuqe　uqqučï　uqɣučï

‘wiseman’

154. 箭　傲　oḳ　oq　oq

‘arrow’

13) *ya* 呀

155. 好人　　呀失起失　　yaḳxe kixi　　yaqšï kiši　　yaqšï kiši

‘good person’

156. 雨　　呀木兒　　yaġmur　　yaɣmur　　yaɣmur

‘rain’

14) *shā* 沙

157. 軟善　　永沙呀法失　　yumxaḳ yawax　　yumšaq yawaš　　yumšaq yavaš

‘gentle, sweet’

158. 徒　　沙必　　xabe　　šabï　　šabï

‘disciple’

15) *xǐ* 洗

159. 哭　　洗答以喇　　seġdap yeġlap　　sïɣdap yïɣlap　　sïɣtap yïɣlap

‘to cry’

16) *yǐ* 以

160. 哭　　洗答以喇　　seġdap yeġlap　　sïɣdap yïɣlap　　sïɣtap yïɣlap

‘to cry’

All the non-*rù* characters that were used to represent Uyghur stop and fricative codas and open syllables imply that the loss of MC *rù* stop codas. The codas of Uyghur entries were not systematically and consistently transcribed. The characters used to transcribe those entries ranged from MC *rù* tone to non-*rù* tone, which shows that at that time characters with MC *rù* tone stops was were not differentiated from non-*rù* tone.

As a last note, there is an example where the Uyghur velar coda after **r** was not transcribed in Chinese transcription, but the **r** sound was transcribed by *er* 兒. This is a pattern we have seen in section 5.4.2.

161. 謹　　阿兒信古祿　　ərk̲singülük　ärk̲singülük　ärk̲singülük

‘solemnly’

Based on all the patterns that we have discussed, such as the inconsistences and ignoring of the Uyghur syllable or word final stop and uvular fricative codas in Chinese trasncriptions, it is extremely likely that MC stop codas were no longer in existence. In the next section, we will look at MC *rù* tone characters in more details.

5.5 Middle Chinese Stop Codas *(rù* tone*)*

In the previous section, we examined how Uyghur syllable final and word final non-nasal codas were transcribed into Chinese. Based on those patterns of the transcriptions, it appeared very likely that MC *rù* tone had disappeared during the compilation of the *GCGZZ*. In order to test that conclusion about the MC *rù* tone, we will look at how MC *rù* tone characters were used to transcribe Uyghur syllables in *GCGZZ*.

There are a total of 57 MC *rù* tone characters used in the Uyghur transcriptions across the different editions. Out of those 57, MC -p is found with for 6 characters, MC -t with 18 and MC -k with 33 as shown in Table 9 on the next page. MC and OM reconstructions of the charcacters can be found in the appendix.

Table 9: *GCGZZ* MC *rù* tone characters organized by stop codas.

-p	-t		-k			
葉	喇/剌	密	玉	尺	克	督
哈	撒	歇	脉	足	秃	忒
塔	設	骨	祿	各	木	託
答	察	訥	力	格	莫	
帖	渴	雪	額	約	即	
法	必	悅	欲	的	曲	
	列	扎	塞	卜	目	
	兀	八	夕	伯	速	
	失		亦	黑	搠	
	乞		淑	得	窄	

By analyzing all the occurrences of the 57 MC *rù* tone characters, I found that all the characters are used in one or more of the following situations.

1) Preceding *er* 兒 or *sī* 思 to transcribe syllable final and word final **-r** and **-z/-s** sounds, respectively.[44]

162. 市廛　　把撒兒　　bazar bazar bazar

'market'

163. 一　　必兒　　bir bir bir

'one'

[44] In these examples, underlining indicates MC *rù* tone characters and the Uyghur sound sequences that they represent.

164. 冰　　木思　　muz　muz　muz

‘ice’

165. 西瓜　　哈兒卜思　　ḳarbuz　qarbuz　qarbuz

‘water’

166. 上　　玉思敦　　üstün　üstün　üstün

‘up, above’

167. 切　　克思　　kəs　käs　käs

‘to cut’

The ability to precede *er* 兒 or *sī* 思 illustrates that the codas of the MC *rù* tone characters had already disappeared and likewise there was no remaining glottal stop. If the codas or a glottal stop were preserved, it would not be preferable for the editor(s) to use the *rù* tone characters with *er* 兒 or *sī* 思 to transcribe a Uyghur syllable ending in **-r** or **-z/s**. It would create a mismatched pronunciation in Chinese. Let’s assume *mù* 木 retained the MC -k coda in OM and when combined with *sī* 思, the Chinese pronunciation would be *muk-sɿ, which would be dissimilar from the Uyghur **muz**. Moreover, the same situation would occur if *rù* tone had a glottal stop, it would be *muʔ- sɿ, which would create an unfit transcription of the Uyghur pronunciation,

especially given that non-*rù* open-syllables of the shape *mu* also exist in Chinese and would have been available to transcribe those Uyghur syllables. Additionally, the usage of MC *rù* tone with *er* 兒 or *sī* 思 together to form one syllable indicates the possibility of the MC *rù* tone having short duration after the loss of the codas. Having short duration would allow the *rù* tone characters to combine with *er* 兒 or *sī* 思 as a way to better represent the Uyghur syllables ending in **-r** or **-z/s** in Chinese.

It is also interesting to note that 30 out of the total 57 MC *rù* tone characters were used with *er* 兒 as compared with only 16 non *rù* tone characters. The total number of occurrences for *er* 兒 is 214. Out of 214 times, *er* 兒 preceded by a non-*rù* tone character occurred 99 times while *er* 兒 preceded by a *rù* tone character occurred 115 times. There are fewer *rù* tone characters in the Chinese language than non-*rù* tone characters. Therefore it is remarkable that *rù* tone characters were used more than non-*rù* tone characters. This founding agrees with Sarashini (2000a: 46) on how *rù* tone characters were used most often in the transcriptions. According to Sarashini (2000b: 78), *rù* tone characters occurred a total of 459 times out of 1139, which is 40.29% of the times. From what I found in my data, particularly in the specific case of Uyghur syllables ending in **-r** and **-z**, the fact that *rù* tone characters are used so much more

often than non-*rù* characters suggests that they were better suited to transcribing those Uyghur syllables. Otherwise why not just always use MC open syllable characters? They would not be better suited if they had stop endings. So it must be because they "blend" with the following character representing **-r** or **-z/s** better. The best hypothesis to explain that is that they were short but had no coda.

2) Transcribe a Uyghur open syllable CV in various positions.

168. 綿子	必答都	bedadu	bïdadu	bïtatu
'cotton				
169. 烏木	阿必怒思	abenuz	abïnuz	abïnus
'Black wood tree'				
170. 皮	塔力	təri	täri	täri
'skin, peel'				
171. 墨	脉克	məkə	mäkä	mäkä
'ink'				
172. 鎖	撒	sa	sa	sa
'lock'				

173. 薄　　羽哈　　yuk-a yuq-a yuq-a

‘thin’

174. 法　　煖察　　nomqa nomča nom-ča

‘law, measures’

MC *rù* tone characters were also used to transcribe Uyghur open syllables in initial, medial and final positions. This further solidifies our hypothesis that MC *rù* tone had lost its coda. If the *rù* tone codas were still in existence, it would be hard to see why they would be used in this context instead of non-*rù* syllables. The use of closed syllables to transcribe Uyghur open syllables might not had been the best choice when there are open syllables Chinese characters that could be used for open syllables transcriptions such as the characters *yǐ* 以 (non-*rù*) versus *yì* 亦 (*rù*).

3) As non-nasal coda syllable finals and word finals.

175. 狗　　亦　　it　　ït　　it

‘dog’

176. 生　　亦　　yik　　yig　　yig

‘raw’

177. 腿　　卜　　but　but　but

‘leg’

178. 牛　　兀　　ud　ud　ud

‘cow’

179. 磁器　　尺泥哈呼　　qene ḵapḳu　čïnï qapqu　čini qabqu

‘china’

180. 怠惰　　襖酸省答　　osol semdaḳ　osul sïmdaq　osul sïmtaɣ

‘lazy’

181. 藩籬　　阿必　　abeḳ　abïq　abïq

‘wooden fence’

182. 舖面　　克必　　kəbit　käbit　käbit

‘store’

MC *rù* tone characters were also used to transcribe Uyghur syllables and words with non-nasal codas. The same *rù* tone character such as *yì* 亦 and *bì* 必 listed above can be used to transcribe Uyghur entries that end in different codas. The flexibility of using the same *rù* tone character to represent different Uyghur codas implies that the loss of stop codas for MC *rù* tone. It would be very unlikely that an editor would use a

character with a consonant coda, for example MC -t, to represent a Uyghur syllable with a **-k** coda when the same character was also used to transcribe Uyghur open syllables too (compare *bì* 必 in **abïnus** in example 132 and *bì* 必 in **abïq** and **käbit** in examples 181 and 182). This practice of using MC *rù* tone characters to represent both open and closed syllables implies that the MC *rù* tone stop codas had disappeared and there was no glottal stop remaining. This resulted in a tone category with a short duration, which was different from the other three MC tones. Moreover, since those characters were now open syllables, the editor(s) were able to use those characters for transcribing Uyghur open and closed syllables.

4) Representation of a single Uyghur consonant.

183. 五 必失 bix biš biš

'five'

184. 石 塔失 tax taš taš

'stone, rock'

185. 走 克（哈）尺的 kəqti (ḳaqte) käčti qäčtï

'to walk'

186. 喜　　塞問尺　　səwinq　　säwinč　　sävinč

‘happy, delighted’

187. 湯瓶　　阿卜察麻　　abqam-a　　abčam-a　　abčam-a

‘soup bottle’

188. 胡椒　　母兒察　　murq　　murč　　murč

‘pepper’

189. 罟罟帽　　土馬哈卜兒克　tumaḳ bürkə　tumaq bürkä　tomaɣ-a börk[45]

‘Mongolian hat’

In the previous section, we noticed that occasionally an MC *rù* tone character was used to transcribe a single Uyghur consonant sound in a syllable final or word final position.[46] When we looked at all the MC *rù* tone characters, we found more examples of this practice. Characters *shī* 失 and *chǐ* 尺 were used to transcribe the Uyghur syllable final sounds **š** and **č**. This discovery also further confirms our hypothesis that MC *rù* tone had distinctly short duration because the fact that *rù* tone syllables were clearly used to transcribe single consonants shows that something about their pronunciation

[45] Ligeti (1966: 145) noted that the entry was written as **börkä**, but it should be read as **börk**, so he transcribed it as **börk**.

[46] Those characters are *bó* 伯, *bo* 卜, *dá* 答, *de* 的, and *kè* 克.

makes them better suited to the transcription than non-*rù* tone syllables. A shorter duration seems like a good hypothesis about what that phonological feature is that makes them preferable.

5) Use of non-*rù* tone to transcribe Uyghur syllable final and word final codas.

190. 諸　　哈麻　　ḳamaḳ　　qamaq　　qamaɣ

'various'

191. 哭　　洗答以喇　　seġdap yeġlap　　sïɣdap yïɣlap　　sïɣtap yïɣlap

'to cry'

As mentioned in section 5.4, we discovered that non-*rù* characters were used to transcribe Uyghur syllable final and word final codas. This shows that stop codas of MC *rù* tone had been gone because of the flexibility of non-*rù* tone and *rù* tone characters to transcribe both Uyghur closed and open syllables. The main difference is very likely that MC *rù* tone now had a very short duration as compared with the other tones, which made them more suitable for transcribing Uyghur syllables with non-nasal codas. Moreover, the idea of *rù* tone may be its own separate category was also suggested by Sarashina (2000a: 48) "清入声と次濁入声は, 入声としての独立の調類を保っていたと考えられる" [Clear (Voiceless) and secondary muddy (voiceless aspirated)

rù tone are considered to be maintained as an independent tonal category]". Sarashina draws this conclusion by analyzing the tonal categorizes of all the Chinese transcriptional characters found in *GCGZZ* and those characters' distribution in the initial, medial, and final positions in transcribing the Uyghur entries.[47] Among the tones, he further grouped the MC *rù* tone by the voicing of the initials. Sarashina based his conclusion on his findings that there is no bias in the usage of the MC *rù* tone across the different positions and there are no characteristics for the *rù* tone characters. In his follow-up article regarding the distribution of the Chinese transcriptional characters in *GCGZZ*, Sarashina explained in slightly more detail that the distribution of voiceless unaspirated and voiceless aspirated *rù* tone had either merged with other tones or there was a high probability that they maintained as an independent tonal category that had values close to the other tones (2000b: 86). Sarashina reached his conclusion based on analyzing the distribution of the character's position in the Chinese transcription of the Uyghur term. On the other hand, I have analyzed MC *rù* tone characters by examining their Uyghur ending correspondences. We reached a similar conclusion that MC *rù* tone

[47] The 5 tonal categories are ***yīnpíng*** 陰平, ***yángpíng*** 陽平, ***shàngshēng*** 上聲, ***qùshēng*** 去聲 and ***rùshēng*** 入聲. See section 5.3 for more details.

may still be an independent tonal category when *GCGZZ* was complied. Furthermore, I stated that MC *rù* tone had short vowel duration even when there was no stop coda or glottal stop.

All the evidence above demonstrates that during the compilation of *GCGZZ* (15th century), MC *rù* tone was very likely to have lost the stop codas. However, they might have maintained a separate tonal category with a distinctively short duration. We have modern northern dialects such as the Zhānglì 章利 dialects spoken in eastern Shāndōng 山東 province that has an independent tonal category with no glottal stops in the finals for some MC *qīng rù shēng* 清入声 (clear entering tone) characters (Zhāng and Liú 2010: 132). Thus, the development of *rù* tone with no stop codas but still maintained as an independent category is plausible in the history of Chinese. Moreover, Coblin in his 2007 study of Guānhuà, discussed that there were two types of Guānhuà pronunciations, *nányīn* 南音 'southern pronunciation' and *běiyīn* 北音 'northern pronunciation'. *Nányīn* was seen as the more prestigious type of pronunciation (Coblin 2007: 7). He further suggested that *nányīn* glottal stop was ignored in the *běiyīn* because there was no syllable final glottal stop in *běiyīn* (Coblin 2007:31). Therefore, the *běiyīn* renderings of *nányīn* syllables with glottal stop resulted in open finals.

Coblin's description of *běiyīn* fits with our results that MC *rù* tone had no glottal stop, but was still maintained as a separate category. The distinction of open final *rù* tone as a separate tonal category was *běiyīn*'s effort to imitate the *nányīn*'s syllable final glottal stop.

Chapter 6 Conclusion

This current study aims to identify the consonant endings of Míng dynasty Guānhuà as reflected in the Chinese transcriptions of Uyghur vocabulary in *Gāochāng guǎn zázì*. By analyzing all 1040 terms collected from the five editions of *Gāochāng guǎn zázì*, not only did we find out about the conditions of the six Middle Chinese consonant endings in Míng dynasty Guānhuà but moreover made some interesting observations about the Middle Chinese *rù* tone in particular.

Based on the data analysis, we have sufficient evidence to indicate that when the earliest editions of *Gāochāng guǎn zázì* were compiled in the early fifteenth century, Middle Chinese -m had already merged with -n. We have examples where MC -m ending characters such as *lín* 林 corresponded to Uyghur syllables that end with **-l** and **-n**. This finding illustrates that in the early Míng period, those characters had already merged with MC -n ending. According to reconstructions of Old Mandarin underlying in *Zhōngyuán Yīnyùn,* MC -m was still distinct from -n. Hú and Huáng (1984: 10) mentions that the transcriptions of the Uyghur vocabulary such as *qiānshì* 僉事 (Ligeti: **sämšï**) and *qiānhù* 千戶 (Ligeti: **sämqu**) that MC -m was still preserved. However, the

result of the analysis has indicated that the MC -m ending had merged with -n, which agrees with both Sarashina (2000b: 75) and Qí (2013: 191) in the finding of the merging of -m with -n ending. I believe that transcriptions of terms such as *qiānshì* 僉事 and *qiānhù* 千戶 with a -m ending may be due to the preservation in a few terms of older transcriptional practices. We have several instances of where the Chinese transcriptions are copied directly over from the Chinese terms that were being translated into Uyghur. Most of those terms are Chinese borrowings into Uyghur. Therefore, the Chinese transcriptions do not reflect the Uyghur pronunciation. *Qiānshì* 僉事 and *qiānhù* 千戶 are just two of those terms.

Secondly, as seen in the Chinese transcriptions, MC -n and -ŋ endings correspond to mostly to Uyghur syllable final and word final **-n** and **-ŋ** sounds respectively. Nonetheless, there are examples where we can see the effort to render the Uyghur pronunciation but due to the constraints of the Guānhuà of that time, the best Chinese character correspondence may have a different ending. Take the following example 40 from section 5.2.1 for instance.

40. 差遣　　永設　　yumxap　　yumšap　　yumšap

'to send, to dispatch'

One possibility to explain why *yǒng* 永, which ends in -ŋ, was chosen to represent a Uyghur syllable ending in **-m** here because of the lack of a better match as we have mentioned in Chapter 5. There is no character in Chinese that has a back vowel u and end in -n. Thus, the editor(s) chose *yǒng* 永 to represent the Uyghur **yum** because *yǒng* 永 is the closest match that has the back vowel u in Old Mandarin. Overall, -n and -ŋ mainly corresponds to Uyghur **-n** and **-ŋ** sounds, which Sarashina (2000b: 75) also finds to be the case. When we looked at the nasal codas in Uyghur syllable final and word final positions, we notice that Uyghur syllable with **-m** codas were transcribed with MC -n characters, which further confirms our idea that the MC -m has merged with -n.

Furthermore, when we analyzed MC *rù* tone, we discovered that stop endings of the *rù* tone has disappeared as indicated by several situations. 1) The ability to precede *er* 兒 or *sī* 思 to transcribes Uyghur syllable/word final **-r** and -**z**/**-s** sound. The ability to precede *er* 兒 or *sī* 思 illustrates that stop codas of MC *rù* tone characters had already disappeared and likewise no remaining glottal stop. If the codas or a glottal stop were preserved, it would have made more sense for the editor(s) to use a non-*rù* tone open-syllable character together with *er* 兒 or *sī* 思 to transcribe a Uyghur syllable ending in **-**

r and -**z**/-**s**. 2) The ability to represent Uyghur open syllable CV in various positions. Logically speaking, the use of closed syllables to transcribe Uyghur open syllables might not had been the best choice when there are open syllables Chinese characters that could be used for open syllables transcriptions such as the characters *yǐ* 以 (non-*rù*) versus *yì* 亦 (*rù*). My conclusions about the loss of MC stop endings as reflected in *Gāochāng guǎn zázì* concur with other scholars' works on the topic. In Qí (2013: 191), he concluded there was the loss of the Rù tone as reflected in *Gāochāng guǎn zázì* based on his findings that *rù* tone finals corresponded to a wide range of Uyghur endings such as -ø, -b, -p, -d, -t, -g, -k, -q, -ɣ. Sarashina (2000b: 75) comments on the lack of distinction among MC -p, -t, and -k characters in the use of Chinese transcriptions and there is no articulation of those sounds in the oral cavity. In other words, Sarashina believes that stop endings of MC *rù* tone are not pronounced anymore, which I believe implies the loss of the three MC stop endings. However, there is no mention of glottal stop in the Míng dynasty speech as reflected in *Gāochāng guǎn zázì*, so I do not know what his conclusion is on the subject. Based on my own data analysis, there was no glottal stop for MC *rù* tone as reflected in *Gāochāng guǎn zázì*. In two other studies, Ōuyáng (2007, 2013) mentions that *rù* tone had not completely disappeared. She draws

her conclusions on the fact that most entering tone characters correspond to Uyghur syllables with stop endings, although in other cases they do not. Moreover, Ōuyáng only analyzed 32 *rù* tone characters, which was far less that the total 57 characters I have analyzed in this thesis. Her conclusion is different from mine because she neglected to examine patterns in the Uyghur correspondences of those *rù* tone characters. She simply relied on that fact that most entering tone characters corresponded to Uyghur syllables with and without stop endings. This led her to believe that *rù* tone stop endings had not yet disappeared.

As we analyzed the *rù* tone characters, we found several characters such as *bó* 伯 and *bo* 卜 to represent Uyghur stops in the (C)VCC environment. The use of extra characters to represent sounds such as Uyghur bilabial sounds in a syllable final position where another consonant follows immediately further proves that when *GCGZZ* was compiled, MC *rù* tone stop codas had already disappeared. In order to properly reflect the Uyghur stop codas, editor(s) had to employ the use of an extra character to indicate the stop codas in Uyghur. Moreover, I have observed that even though the *rù* tone characters no longer had the stop codas, but they maintained a very short duration as shown in our discussion of the usage with *er* 兒 or *sī* 思 to transcribe a

Uyghur syllable ending in **-r** and **-z/s**. This allowed them to be used as a correspondence to a single consonant sound in Uyghur. Hence, I have concluded that MC *rù* tone, even though without -p, t, -k and a glottal stop, they were still a separate tone category. Sarashina (2000a: 48) when examining the distribution of the Chinese characters used in the transcriptions, he noted that *qīng rù shēng* 清入声 'clear entering tone', and *cì zhuó rù shēng* 次濁入声 'secondary muddy entering tone' characters can be considered as a separate tonal category. He based his conclusion on his findings that *rù* tone characters can be used in any positions: standalone, initial, medial, and final when transcribing Uyghur syllables. There is not enough examples for *quán zhuó rù shēng* 全濁入声 'whole muddy entering tone' so he did not include those characters in his conclusion. Sarashina and I reached our conclusions about MC being still preserved as a separate tonal category independently by using different approaches; Sarashina with the distribution of characters while I analyzed patterns in the Uyghur correspondences of MC *rù* tone characters. Additionally, when I looked at my data for whole muddy entering tone characters, I found that they were used in the same way as other entering tone characters. For example, *shū* 淑, a muddy entering tone character, can be combined with *er* 兒 to transcribe the following Uyghur term:

192. 湯　　淑兒伯　　xorpa　　šorpa　　šorba

‘soup, broth’

Therefore, I believe all MC *rù* tone characters regardless of their initials had short duration and were preserved as a separate tonal category even without the presence of stop endings.

The findings of this thesis agreed and also disagreed with some of previous research done on the topic of Guānhuà consonant endings as reflected in the Chinese transcriptions of Uyghur vocabulary in *Gāochāng guǎn zázì*. There is a consensus on the merging of MC -m with -n endings. With this thesis, there is more evidence for the loss of the three stop codas of MC *rù* tone in Míng dynasty Guānhuà as seen in *Gāochāng guǎn zázì*. In Chapter 5, we mentioned that our findings of open syllable *rù* tone being a separate tonal category fits with Coblin (2007) on *běiyīn* renderings of *nányīn* syllables with glottal stop result in open finals. Coblin’s description of *běiyīn* fits with our results that MC *rù* tone had no glottal stop, but still maintained as an independent category is plausible in the history of Chinese. There are modern northern dialects such as the Zhānglì 章利 dialects spoken in eastern Shāndōng 山東 province that has an independent *rù* tonal category with no glottal stops in the finals for some MC *qīng rù*

shēng 清入声 (clear entering tone) characters. Nonetheless, to draw a firm conclusion about Guānhuà it would be good to have evidence from other sources that corroborates what we see regarding *rù* tone being maintained as a separate tonal category, even after *rù* tone closed syllables became open syllables as reflected in *Gāochāng guǎn zázì*. I shall leave this task to the future researchers.

Appendix

There are six tables in the appendix with each table corresponding to one of the six Middle Chinese (MC) consonant endings (-m, -n, -ŋ, -p, -t, -k). Each table lists all the characters with the same MC coda that I have collected from the five editions of *Gāochāng guǎn zázì*. There are twenty MC bilabial nasal coda (-m) characters, sixty MC dental nasal coda (-n) characters, forty-seven MC velar nasal (-ŋ) coda, six MC bilabial stop coda (-p) characters, eighteen MC dental stop coda (-t) characters, and thirty-three MC velar stop coda (-k) characters. Character variants found in different editions will be placed together with a slash (/) between them. Characters in each table are arranged in alphabetical order by *Pīnyīn* romanization.

The headings for all tables are presented in the following format.

1. Char. = Character with *Pīnyīn*
2. *shè* 攝 = 'rime groups' of *Yùnjìng* 韻鏡[48]
3. MC = Early Middle Chinese reconstructions from Pulleyblank (1991)
4. *ZYYY* = *Zhōngyuán yīnyùn* 中原音韻 rhyme groups[49]
5. OM = Old Mandarin reconstructions from Níng (1985)

Pulleyblank (1991) marks tones in his MC reconstructed pronunciations, but they are omitted here. *Rù* tone characters can be identified by the presence of a coda -p, -t, or -k in the reconstructed MC form. For OM, aspiration is indicated by a raised ^{h} instead of ʻ as in Níng (1985). OM tonal categories as indicated in Níng (1985) are also omitted in the tables. A blank slot under a heading indicates information unavailable regarding that character.

[48] See section 4.1.1, pages 24–25 for more information.

[49] See section 4.2.1, Table 6 for a list of *ZYYY* rhyme groups.

Table I. *Gāochāng guǎn zázì* Characters with Middle Chinese Bilabial Nasal Coda (-m)

	Char.	*shè* 攝	MC	*ZYYY*	OM
1	*ǎn* 俺[50]	Xián 咸	ʔiam	Yánxián 監咸	ŋam[51]
2	*cān* 參	Xián 咸	tsʰəm	Yánxián 監咸	tsʰam
3	*chàn* 靏[52]	Xián 咸	tɕʰiam	Liánxiān 廉纖	tʂʰiɛm
4	*dǎn* 膽	Xián 咸	tam	Yánxián 監咸	tam
5	*diǎn* 點	Xián 咸	tɛm	Liánxiān 廉纖	tiɛm
6	*diàn* 店	Xián 咸	tɛm	Liánxiān 廉纖	tiɛm
7	*kǎn* 坎	Xián 咸	kʰəm	Yánxián 監咸	kʰiam
8	*lián* 廉/廉	Xián 咸	liam	Liánxiān 廉纖	liɛm
9	*lín* 林	Shēn 深	lim	Qīnxún 侵尋	liəm
10	*nán* 南	Xián 咸	nəm	Yánxián 監咸	nam
11	*qiān* 僉	Xián 咸	tsʰiam	Liánxiān 廉纖	tsʰiɛm
12	*qiān* 謙	Xián 咸	kʰɛm	Liánxiān 廉纖	kʰiɛm
13	*qīn* 欽	Shēn 深	kʰim	Qīnxún 侵尋	kʰiəm
14	*sān* 三	Xián 咸	sam	Yánxián 監咸	sam
15	*shǎn* 陝	Xián 咸	ɕiam	Liánxiān 廉纖	ʂiɛm
16	*shēn* 深	Shēn 深	ɕim	Qīnxún 侵尋	ʂiəm
17	*shěn* 審	Shēn 深	ɕim	Qīnxún 侵尋	ʂiəm
18	*shèn* 甚	Shēn 深	dʑim	Qīnxún 侵尋	ʂiəm
19	*tān* 坍[53]	Xián 咸	tʰam		

[50] The derived modern Pǔtōnghuà 普通話 pronunciation from Middle Chinese would be *yàn*, instead of *ǎn*.

[51] Yáng Nàisī 楊耐思 (1981: 182) reconstructs *ǎn* 俺 as *nam.

[52] *Chàn* **靏** is a character variant for *chàn* 韉.

20	*tán* 談	Xián 咸	dam	Yánxián 監咸	tʰam

Table II. *Gāochāng guǎn zázì* Characters with Middle Chinese Dental Nasal Coda (-n)

	Char.	*shè* 攝	MC	*ZYYY*	OM
1	*ān* 安	Shān 山	ʔan	Hánshān 寒山	an
2	*bān* 班	Shān 山	paɨn	Hánshān 寒山	pan
3	*bǎn* 板	Shān 山	paɨn	Hánshān 寒山	pan
4	*chēn* 嗔[54]	Zhēn 臻	tɕʰin	Zhēnwén 真文	tʂʰiən
5	*chuān* 川	Shān 山	tɕʰwian	Xiāntiān 先天	tʂʰiuɛn
6	*chuǎn* 喘	Shān 山	tɕʰwian	Xiāntiān 先天	tʂʰiuɛn
7	*chūn* 春	Zhēn 臻	tɕʰwin	Zhēnwén 真文	tʂʰiuən
8	*dān* 丹	Shān 山	tan	Hánshān 寒山	tan
9	*dūn* 敦	Zhēn 臻	twən	Zhēnwén 真文	tuən
10	*dùn* 鈍	Zhēn 臻	dwən	Zhēnwén 真文	tuən
11	*gān* 干	Shān 山	kan	Hánshān 寒山	kan
12	*guān* 冠[55]	Shān 山	kwan	Huánhuān 桓歡	kuɔn
13	*guàn* 貫	Shān 山	kwan	Huánhuān 桓歡	kuɔn[56]
14	*hǎn* 罕	Shān 山	xan	Hánshān 寒山	xan
15	*hèn* 恨	Zhēn 臻	ɣən	Zhēnwén 真文	xən

[53] This modern writing of the word does not appear in *Guǎngyùn* (*GY*). However, its old form was *tān* 坦 and belongs to the *tān* 舑 homophone group with the reconstructed MC pronunciation as *tʰam.

[54] There are two transcriptions with *chēn* 嗔 that were written with a different character in other editions. *Chēn* 嗔 was replaced with 1) *zhēn* 真 in Qīng dynasty hand-copied edition and 2) *shēn* 申 for an entry in the Tōyō Bunko edition.

[55] Another common Pǔtōnghuà pronunciation is *guàn*, which is to put on a hat.

[56] A second *ZYYY* entry appears in the Hánshān 寒山 rhyme group and Níng reconstructed it as *kuan.

16	*jīn* 斤	Zhēn 臻	kɨn	Zhēnwén 真文	kiən
17	*jǐn* 謹	Zhēn 臻	kɨn	Zhēnwén 真文	kiən
18	*kuān* 寬	Shān 山	k^hwan	Huánhuān 桓歡	k^huɔn
19	*kuǎn* 欵[57]	Shān 山	k^hwan	Huánhuān 桓歡	k^huɔn
20	*kūn* 坤[58]	Zhēn 臻	k^hwən	Zhēnwén 真文	k^huən
21	*lán* 闌/蘭/攔[59]	Shān 山	lan	Hánshān 寒山	lan
22	*lián* 連	Shān 山	lian	Xiāntiān 先天	liɛn
23	*lún* 倫	Zhēn 臻	lwin	Zhēnwén 真文	liuən
24	*mán* 蠻	Shān 山	maɨn	Hánshān 寒山	man
25	*mǎn* 滿	Shān 山	mwan	Huánhuān 桓歡	muɔn
26	*mián* 綿	Shān 山	mian	Xiāntiān 先天	miɛn
27	*miǎn* 免	Shān 山	mian	Xiāntiān 先天	miɛn
28	*mín* 民	Zhēn 臻	min	Zhēnwén 真文	miən
29	*nán* 難[60]	Shān 山	nan	Hánshān 寒山	nan
30	*nuǎn* 煖	Shān 山	nwan	Huánhuān 桓歡	nuɔn
31	*pàn* 判	Shān 山	p^hwan	Huánhuān 桓歡	p^huɔn
32	*qiān* 千	Shān 山	ts^hɛn	Xiāntiān 先天	ts^hiɛn
33	*qiǎn* 遣	Shān 山	k^hian	Xiāntiān 先天	k^hiɛn
34	*sǎn* 傘	Shān 山	san	Hánshān 寒山	san
35	*shēn* 申[61]	Zhēn 臻	ɕin	Zhēnwén 真文	ʂiən

[57] This is a character variant of *kuǎn* 款.

[58] In the Qīng dynasty block printed edition edition, the word *shēn* 坤 was erroneously used for two entries that were written as *kūn* 坤 in other editions.

[59] In different editions, *lán* 闌 was used interchangeably with *lán* 蘭 and *lán* 攔. All three words belong to the same homophone group in *GY*, which means they have identical pronunciation.

[60] *Nàn* is also another common pronunciation of the word.

[61] As mentioned in a previous footnote, *shēn* 申 replaced *chēn* 嗔 for transcribing the Uyghur word **išin**.

36	*shuān* 拴	Shān 山	tsʰwian	Hánshān 寒山	ʂuan
37	*shùn* 順	Zhēn 臻	ʐwin	Zhēnwén 真文	ʂiuən
38	*suān* 酸	Shān 山	swan	Huánhuān 桓歡	suɔn
39	*suàn* 蒜	Shān 山	swan	Huánhuān 桓歡	suɔn
40	*sūn* 孫	Zhēn 臻	swən	Zhēnwén 真文	suən
41	*tǎn* 坦[62]	Shān 山	tʰan	Hánshān 寒山	tʰan
42	*tuān* 湍[63]	Shān 山	tʰwan	Huánhuān 桓歡	tʰuɔn
43	*tūn* 吞	Zhēn 臻	tʰən	Zhēnwén 真文	tʰən
44	*wān* 灣	Shān 山	ʔwaɨn	Hánshān 寒山	uan
45	*wēn* 溫	Zhēn 臻	ʔwən	Zhēnwén 真文	uən
46	*wèn* 問	Zhēn 臻	mun	Zhēnwén 真文	ʊən
47	*xiān* 先	Shān 山	sɛn	Xiāntiān 先天	siɛn
48	*xīn* 新	Zhēn 臻	sin	Zhēnwén 真文	siən
49	*xìn* 信	Zhēn 臻	sin	Zhēnwén 真文	siən
50	*xùn* 訓	Zhēn 臻	xun	Zhēnwén 真文	xiuən
51	*yān* 烟/煙	Shān 山	ʔɛn	Xiāntiān 先天	iɛn
52	*yǎn* 眼	Shān 山	ŋəɨn	Hánshān 寒山	ian
53	*yīn* 因	Zhēn 臻	ʔin	Zhēnwén 真文	iən
54	*yǐn* 引[64]	Zhēn 臻	jin	Zhēnwén 真文	iən

[62] In the Qīng dynasty block printed edition edition, a transcription with *tǎn* 坦 was mistaken written with *yuán* 垣.

[63] In the Tōyō Bunko and the digitized Hirth collection editions, the entry *láo* 勞 'labor, sufferings' (**tolɣaq** in Uyghur) was transcribed with the characters *tuān hā* 湍哈 while other editions have *chuǎn hā* 喘哈, which is an incorrect transcription.

[64] Two entries that were written with *yǐn* 引 in the Míng dynasty hand-copied edition were written with *yǐng* 影 in the other four editions (Tōyō Bunk, Qīng dynasty block printed edition, Qīng dynasty hand-copied edition, and Hirth Collection edition).

55	*yuān* 淵	Shān 山	ʔwɛn	Xiāntiān 先天	iuɛn
56	*yǔn* 允	Zhēn 臻	jwin	Zhēnwén 真文	iuən
57	*zhān* 氈	Shān 山	tɕian	Xiāntiān 先天	tʂiɛn
58	*zhēn* 真	Zhēn 臻	tɕin	Zhēnwén 真文	tʂiən
59	*zhèn* 鎮	Zhēn 臻	trin	Zhēnwén 真文	tʂiən
60	*zūn* 尊	Zhēn 臻	tswən	Zhēnwén 真文	tsuən

Table III. *Gāochāng guǎn zázì* Characters with Middle Chinese Velar Nasal Coda (-ŋ)

	Char.	*shè* 攝	MC	*ZYYY*	OM
1	*áng* 昂	Dàng 宕	ŋaŋ	Jiāngyáng 江陽	ŋaŋ
2	*bīng* 兵	Gěng 梗	piajŋ	Gēngqīng 庚青	piəŋ
3	*cāng* 蒼	Dàng 宕	tsʰaŋ	Jiāngyáng 江陽	tsʰaŋ
4	*chōng* 沖	Tōng 通	druwŋ	Dōngzhōng 東鍾	tʂʰuŋ
5	*dèng* 櫈	Zēng 曾	təŋ	Gēngqīng 庚青	təŋ
6	*dīng* 丁	Gěng 梗	tɛjŋ	Gēngqīng 庚青	tiəŋ
7	*dìng* 定	Gěng 梗	dɛjŋ	Gēngqīng 庚青	tiəŋ
8	*dōng* 東	Tōng 通	təwŋ	Dōngzhōng 東鍾	tuŋ
9	*dǒng* 董	Tōng 通	təwŋ	Dōngzhōng 東鍾	tuŋ
10	*gēng* 更	Gěng 梗	kaɨjŋ	Gēngqīng 庚青	kiəŋ
11	*gōng* 公	Tōng 通	kəwŋ	Dōngzhōng 東鍾	kuŋ
12	*gōng* 功	Tōng 通	kəwŋ	Dōngzhōng 東鍾	kuŋ
13	*gōng* 恭	Tōng 通	kuawŋ	Dōngzhōng 東鍾	kuŋ
14	*háng* 杭	Dàng 宕	ɣaŋ	Jiāngyáng 江陽	xaŋ

15	*kěn* 肯[65]	Zēng 曾	kʰəŋ	Zhēnwén 真文	kʰən
16	*kǒng* 孔[66]	Tōng 通	kʰəwŋ	Dōngzhōng 東鍾	kʰuŋ
17	*lǎng* 朗	Dàng 宕	laŋ	Jiāngyáng 江陽	laŋ
18	*liáng* 良	Dàng 宕	liaŋ	Jiāngyáng 江陽	liaŋ
19	*lóng* 隆	Tōng 通	luwŋ	Dōngzhōng 東鍾	liuŋ
20	*lóng* 龍	Tōng 通	luawŋ	Dōngzhōng 東鍾	liuŋ
21	*lǒng* 隴	Tōng 通	luawŋ	Dōngzhōng 東鍾	liuŋ
22	*máng* 忙	Dàng 宕	maŋ	Jiāngyáng 江陽	maŋ
23	*mǎng* 蟒	Dàng 宕	maŋ	Jiāngyáng 江陽	maŋ
24	*míng* 明	Gěng 梗	miajŋ	Gēngqīng 庚青	miəŋ
25	*mìng* 命	Gěng 梗	miajŋ	Gēngqīng 庚青	miəŋ
26	*náng* 囊[67]	Dàng 宕	naŋ	Jiāngyáng 江陽	naŋ
27	níng 寧/ 寧	Gěng 梗	nɛjŋ	Gēngqīng 庚青	niəŋ
28	*nìng* 佞	Gěng 梗	nɛjŋ	Gēngqīng 庚青	niəŋ
29	*píng* 平	Gěng 梗	biajŋ	Gēngqīng 庚青	pʰiəŋ
30	*sōng* 松	Tōng 通	zuawŋ	Dōngzhōng 東鍾	siuŋ
31	*sǒng* 聳	Tōng 通	suawŋ	Dōngzhōng 東鍾	siuŋ
32	*tāng* 湯	Dàng 宕	tʰaŋ	Jiāngyáng 江陽	tʰaŋ
33	*tǎng* 倘[68]			Jiāngyáng 江陽	tʰaŋ

[65] The velar nasal ending was already lost during the time when *ZYYY* was compiled. However, modern Cantonese still retains it.

[66] In the Qīng dynasty hand-copied edition, this word was mistakenly used to transcribe the Uyghur word **kägürtdä** for *jiǔ* 韭 'chives'. In other editions, the word *hǒu* 吼 (OM *xəu) was used to transcribe the Uyghur pronunciation.

[67] This character appears in the Míng dynasty hand-copied edition. However, this character was written with *nǎng* 曩 (MC *naŋ) in the Qīng dynasty block printed edition, Qīng dynasty hand-copied edition and Hirth Collection edition.

34	*téng* 騰	Zēng 曾	dəŋ	Gēngqīng 庚青	t^həŋ
35	*tīng* 聽	Gěng 梗	t^hɛjŋ	Gēngqīng 庚青	t^hiəŋ
36	*tǐng* 挺[69]	Gěng 梗	dɛjŋ	Gēngqīng 庚青	t^hiəŋ
37	*tóng* 同	Tōng 通	dəwŋ	Dōngzhōng 東鍾	t^huŋ
38	*tǒng* 統	Tōng 通	t^hawŋ	Dōngzhōng 東鍾	t^huŋ
39	*wēng* 翁	Tōng 通	ʔəwŋ	Dōngzhōng 東鍾	uŋ
40	*xǐng* 省[70]	Gěng 梗	siajŋ	Gēngqīng 庚青	siəŋ
41	*yǎng* 仰	Dàng 宕	ŋiaŋ	Jiāngyáng 江陽	ŋiaŋ
42	*yǎng* 養	Dàng 宕	jiaŋ	Jiāngyáng 江陽	iaŋ
43	*yīng* 英	Gěng 梗	ʔiajŋ	Gēngqīng 庚青	iəŋ
44	*yǐng* 影	Gěng 梗	ʔiajŋ	Gēngqīng 庚青	iəŋ
45	*yǒng* 永	Gěng 梗	wiajŋ	Gēngqīng 庚青	iuəŋ[71]
46	*zhèng* 政	Gěng 梗	tɕiajŋ	Gēngqīng 庚青	tʂiəŋ
47	*zǒng* 總	Tōng 通	tsəwŋ	Dōngzhōng 東鍾	tsuŋ

[68] This character does not appear in *GY*, but in *Jíyùn* 集韻 of the Sòng dynasty, it has the *fǎnqiè* 反切 spelling of "*tǎn lǎng" qiè* 坦朗切. Matching the initial, head of the rhyme group (*yùnmù* 韻目), and tone, *tǎng* 倘 would be found in the *GY* homophone group *tǎng* 曭 (MC *t^haŋ).

[69] It is interesting to note that derived Pǔtōnghuà pronunciation for *tǐng* 挺 from MC would be *dìng*, not *tǐng* as it is now.

[70] Another common modern pronunciation for the character is *shěng,* which was developed from the second *GY* reading (MC *ʂiajŋ).

[71] Along with this reading, in *ZYYY*, *yǒng* 永 also appears in the Dōngzhōng 東鍾 rhyme group (OM *iuŋ). The dual pronunciations could be due to dialectal mixture.

Table IV. *Gāochāng guǎn zázì* Characters with Middle Chinese Bilabial Stop Coda (-p)

	Char.	*shè* 攝	MC	*ZYYY*	OM
1	*dá* 答	Xián 咸	təp	Jiāmá 家麻	ta
2	*fǎ* 法	Xián 咸	puap	Jiāmá 家麻	fa
3	*hā* 哈	Xián 咸	ŋəp		
4	*tǎ* 塔	Xián 咸	tʰap	Jiāmá 家麻	tʰa
5	*tiě* 帖	Xián 咸	tʰɛp	Chēzhē 車遮	tʰiɛ
6	*yè* 葉	Xián 咸	jiap	Chēzhē 車遮	iɛ

Table V. *Gāochāng guǎn zázì* Characters with Middle Chinese Dental Stop Coda (-t)

	Char.	*shè* 攝	MC	*ZYYY*	OM
1	*bā* 八	Shān 山	pəɨt	Jiāmá 家麻	pa
2	*bì* 必	Zhēn 臻	pjit		
3	*chá* 察	Shān 山	tʂʰəɨt	Jiāmá 家麻	tʂʰa
4	*gǔ* 骨	Zhēn 臻	kwət	Yúmú 魚模	ku
5	*kě* 渴	Shān 山	kʰat	Gēgē 歌戈	kʰɔ
6	*lǎ* 喇/*lá* 剌	Shān 山	lat		
7	*liè* 列	Shān 山	liat	Chēzhē 車遮	liɛ
8	*mì* 密	Zhēn 臻	mit	Qíwēi 齊微	mui
	mì 蜜[72]	Zhēn 臻	mjit	Qíwēi 齊微	mi
9	*nè* 訥	Zhēn 臻	nwət	Yúmú 魚模	nu

[72] The character appears in the Qīng dynasty block printed edition, where it is used to represent the same Uyghur syllable that is transcribed with *mì* 密 in other editions. Since they are used to represent the same Uyghur syllable, but have different MC and OM reconstructions, I have placed them in different rows.

10	*qǐ* 乞	Zhēn 臻	kʰɨt	Qíwēi 齊微	kʰi
11	*sǎ* 撒[73]			Jiāmá 家麻	sa
12	*shè* 設	Shān 山	ɕiat	Chēzhē 車遮	ʂiɛ
13	*shī* 失	Zhēn 臻	ɕit	Qíwēi 齊微	ʂi
14	*wù* 兀	Zhēn 臻	ŋwət	Yúmú 魚模	u
15	*xiē* 歇	Zhēn 臻	xiat	Chēzhē 車遮	xiɛ
16	*xuě* 雪	Shān 山	swiat	Chēzhē 車遮	siuɛ
17	*yuè* 悅	Shān 山	jwiat	Chēzhē 車遮	iuɛ
18	*zhā* 扎	Shān 山	tʂaɨt	Jiāmá 家麻	tʂa

Table VI. *Gāochāng guǎn zázì* Characters with Middle Chinese Velar Stop Coda (-k)

	Char.	*shè* 攝	MC	*ZYYY*	OM
1	*bó* 伯	Gěng 梗	paɨjk	Jiēlái 皆來	pai
2	*bo* 卜	Tōng 通	pəwk	Yúmú 魚模	pu
3	*chǐ* 尺	Gěng 梗	tɕʰiajk	Qíwēi 齊微	tʂʰi
4	*dé* 得	Zēng 曾	tək	Qíwēi 齊微	ti
5	*de* 的	Gěng 梗	tɛjk	Qíwēi 齊微	ti
6	*dū* 督	Tōng 通	tawk	Yúmú 魚模	tu
7	*é* 額	Gěng 梗	ŋaɨjk	Jiēlái 皆來	iai
8	*gé* 格	Gěng 梗	kaɨjk	Jiēlái 皆來	kiai
9	*gè* 各	Dàng 宕	kak	Xiāoháo 蕭豪	kɑu
10	*hēi* 黑	Zēng 曾	xək	Qíwēi 齊微	xi

[73] This character does not appear in *GY*, but in *Jíyùn* of the Sòng dynasty, it has the *fǎnqiè* spelling of "*sāng hé" qiè* 桑曷切, which indicates the MC -t coda.

11	*jí* 即	Zēng 曾	tsik		
12	*kè* 克	Zēng 曾	kʰək		
13	*lì* 力	Zēng 曾	lik	Qíwēi 齊微	li
14	*lù* 祿	Tōng 通	ləwk	Yúmú 魚模	lu
15	*mài* 脉	Gěng 梗	məɨjk	Jiēlái 皆來	mai
16	*mò* 莫	Dàng 宕	mak	Gēgē 歌戈	mɔ
17	*mù* 木	Tōng 通	məwk	Yúmú 魚模	mu
18	*mù* 目	Tōng 通	muwk	Yúmú 魚模	mu
19	*qū* 曲	Tōng 通	kʰuawk	Yúmú 魚模	kʰiu
20	*sè* 塞	Zēng 曾	sək	Zhīsī 支思	sɻ
21	*shū* 淑	Tōng 通	dʑuwk	Yúmú 魚模	ʂu
22	*shuò* 搠[74]				
23	*sù* 速	Tōng 通	səwk	Yúmú 魚模	su
24	*tè* 忒	Zēng 曾	tʰək		
25	*tū* 禿	Tōng 通	tʰəwk	Yúmú 魚模	tʰu
26	*tuō* 託	Dàng 宕	tʰak	Xiāoháo 蕭豪	tʰɑu
27	*xī* 夕	Gěng 梗	ziajk	Qíwēi 齊微	si
28	*yì* 亦	Gěng 梗	jiajk		
29	*yù* 玉	Tōng 通	ŋuawk	Yúmú 魚模	iu
30	*yù* 欲	Tōng 通	juawk	Yúmú 魚模	iu
31	*yuē* 約	Dàng 宕	ʔiak	Gēgē 歌戈	iɔ
32	*zhǎi* 窄	Gěng 梗	tʂaɨjk	Jiēlái 皆來	tʂai
33	*zú* 足	Tōng 通	tsuawk	Yúmú 魚模	tsiu

[74] This character does not appear in *GY*, but in *Jíyùn* of the Sòng dynasty, it has the *fǎnqiè* spelling of "*sè jiǎo" qiè* 色角切, which indicates the MC -k coda.

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