Interdisciplinary and Transcultural Approaches to Chinese Literature

MATTEO RICCI AND THE MISSIONARY ROLE IN THE EVOLUTION OF CHINESE LEXICON

Zhao Ming

ROUTLEDGE

Matteo Ricci and the Missionary Role in the Evolution of Chinese Lexicon

This is a systematic study of Matteo Ricci's (1552–1610) enormous impact on the development of modern scientific and intellectual terminology in China.

Taking the Sino-Western cultural exchanges initiated by Western Jesuit missionaries in the late-Míng dynasty as its starting point, this book comprehensively presents the new terms coined by Ricci (and his collaborators) in his religious, geographical, geometrical, and astronomical Chinese writings. It uses a multitude of examples adopted from Ricci's Chinese works as well as from ancient Chinese documents to discuss etymological evolution. Ricci's early coinages of terms and their subsequent history demonstrate the role of interaction and scholarly collaboration between the late Míng Jesuits and Chinese intellectuals in the formation of modern Chinese lexicon. The research conclusions of this book will further advance Míng-dynasty studies and contribute to a new understanding of the creation of modern Chinese lexicon.

This book is a vital resource for students, scholars, and linguists studying and researching in the history of Chinese and early Mandarin. This volume will also be very interesting among students and scholars of Chinese literature and history, particularly among scholars who work in Míng history and literature.

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Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2024
by Routledge
4 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
605 Third Avenue, New York, NY 10158

Routledge is an imprint of the Taylor & Francis Group, an informa business

Funded by The University of Hong Kong (HKU)

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-032-78982-8 (hbk)
ISBN: 978-1-032-78996-5 (pbk)
ISBN: 978-1-003-49015-9 (ebk)

DOI: 10.4324/9781003490159

Typeset in Galliard
by codeMantra

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Acknowledgments

I want to express special thanks to the anonymous reviewers for reading my manuscript and for their very good suggestions for improvement; special thanks to Prof. Dr. Riccardo MORATTO and Prof. Dr. Defeng LI, the editors of this series for Routledge that has provided me with the chance to publish my book among similar contributions to the field; special thanks to Clarissa Lim and Khin Thazin, editors at Routledge's Asian Studies department, for their efficient care of my manuscript; special thanks also to Louis Cha Fund of HKU "Theoretical innovation of Chinese lexicon under the background of cultural exchanges between East and West" that provided the funding for OA of this book.

Introduction

There have been two important climaxes in the import of foreign culture into China. The first was the introduction of Indian Buddhist culture in the late Western Han, and the second was the arrival of modern Western culture in the late Míng 明 dynasty (1368–1644 CE).[1] In both of these large-scale introductions of foreign cultures, religion played an important and pioneering role in promoting intercultural communication. Buddhist culture not only introduced a large number of terms into Chinese vocabulary, but also prompted a change in the Chinese lexicon's pattern of monosyllabic words through disyllablization. But what kind of influence did Catholic culture bring to the Chinese vocabulary? To date, this question remains unexamined.

In 1540, the King of Portugal asked the Pope to send missionaries to the East. In 1541, Francis Xavier was the first Jesuit missionary to undertake the journey. He arrived in Goa, India, on 6 May 1542, and later traveled to Malacca, Malaysia, to preach the gospel. However, it was still very difficult to spread the gospel in mainland China because at that time all foreigners (including missionaries), except for officially dispatched envoys, were strictly prohibited by the Míng government from entering the realm. In 1578, the Jesuits sent Alessandro Valignano (1539–1606) to Macao and then Michele Ruggieri (1543–1607) settled there in 1579. Matteo Ricci (1552–1610) and Francesco Pasio (1554–1612) arrived three years later, while Valignano went to Goa, a state on the southwestern coast of India in the Konkan region. After many negotiations with local officials in Guǎngdōn+g by Valignano, Ruggieri, Ricci, and Pasio, the missionaries were finally allowed to land in Zhàoqìng 肇慶, a city in Guǎngdōng 廣東 province, in 1583, thus setting foot on Chinese soil for the first time in the Míng dynasty. Pasio later went on to Japan. As Ruggieri and Ricci preached, they also made the late Míng dynasty an important era in the second major period of foreign cultural imports.

With the arrival of the Jesuit missionaries in the late Míng, their scientific theories began to influence Chinese academic thought. As they spread their Catholic teachings, Jesuit missionaries also introduced a large number of Western scientific and technological terms in the late Míng, with Matteo Ricci (Chinese: Lì Mǎdòu 利瑪竇) spearheading this process and achieving outstanding results.

DOI: 10.4324/9781003490159-1

In 1582, Ricci arrived at the Portuguese settlement of Macau, where he prepared for his missionary work in China. He established his first settlement in Zhàoqìng in 1583,[2] then in Sháoguān 韶關 in 1589,[3] Nánchāng 南昌 in 1595,[4] Nánjīng 南京 in 1598,[5] and finally in Běijīng 北京, the capital of the Míng dynasty, in 1598[6] and again in 1601, remaining there until his death in 1610. In total, Ricci lived in China for 27 years, from 1583 to 1610. During his years there, he made many academic achievements including drawing a world map, revising the Chinese calendar, and writing Chinese books. Therefore, we should credit Ricci not only with spreading the Catholic gospel but also with opening a window for dialogue and building a long-term platform for exchange between China and the West, especially for the transmission of Western culture and technology.

Ricci's personal virtues and his high adaptability to the Chinese language, Chinese customs, art, and literature made possible the outstanding success of his missionary work in China. In addition, he was an expert in various fields of science, especially in mathematics, astronomy, and geography. By actively participating in various gatherings, giving public and private speeches, compiling books and pamphlets, drawing maps, and making various tools, he effectively spread Western culture and scientific knowledge to China.

Ricci wrote many books on religion and morality in Chinese.[7] The most famous among them are: *Jiāoyǒu lùn* 交友論 [On friendship], completed in Nánchāng in 1595; *Jīrén shípiān* 畸人十篇 [Ten chapters from a strange man], finalized in Běijīng in 1608; and *Tiānzhǔ shíyì* 天主實義 [The True Meaning of the Lord of Heaven], first issued in Nánchāng in 1595 and then published in Běijīng in 1603. At the same time, he also translated a large number of scientific works, most of which are complete translations, abridgements, or revisions of the works of Christopher Clavius (1538–1612). These include translated works on astrolabes, celestial bodies, arithmetic, measurement, and isoperimetric graphics. Ricci's most famous scientific work is probably his abridged translation of *Euclidis elementorum libri XV, 1574*, *Il Primo Libro di Geometria*. By devoting himself to research for several years and completing this translation together with Chinese scientists including Xú Guāngqǐ 徐光啓 (1562–1633), Ricci established his prominent position in the history of mathematics in China. The translation was finally published in Běijīng in 1607 under the title of *Jǐhé yuánběn* 幾何原本 [Euclid's Elements]. In 1672, at the request of Emperor Kāngxī 康熙 (1654–1722), parts of *Euclid's Elements* were translated into Manchu. It was not until 1865 that the remaining volumes were translated into Chinese by the English Protestant missionary Alexander Wylie (1815–1887) and the Chinese mathematician Lǐ Shànlán 李善蘭 (1880–1882).

We can say that Ricci introduced Europe to China. He established the first permanent missionary station in China and, like a senior Chinese official, enjoyed a stipend given by the emperor. After he died, the emperor granted permission for him to be buried in Běijīng.

People are often surprised that Ricci mastered spoken and written Chinese so well in just a few short years. His mastery can be confirmed from Ricci's

personal correspondence and his correspondence with dignitaries, as well as from his Chinese missionary writings. From the moment he set foot in Macau until he became famous, his Chinese language level continued to improve and he became increasingly fluent. Between 1582 and 1593, he studied and practiced both oral and written Chinese. From 1593 until his death in 1610, he was full of religious zeal and tirelessly wrote books on religious theory and other fields. While he was accustomed to working independently, especially when translating and compiling treatises, when writing Chinese books he never refused the help of Chinese experts and scholars and welcomed their collaboration. This shows not only that Ricci achieved high status in China's upper-class society but also that his religious beliefs were recognized by Chinese officials and his extensive knowledge in the fields of science and mathematics made him highly respected. His fluency in Chinese and deep understanding of Chinese culture led him to include a large number of Chinese terms in his works. These terms not only survived in the Chinese of the late Míng dynasty, but a considerable number of them have been passed down to later generations and adopted in modern Chinese. These terms not only bear witness to his achievements in learning Chinese but also objectively changed the lexical appearance of Chinese vocabulary in the Míng dynasty, including not only the vocabulary itself but also syllables, word-formation methods, word meanings, and morphemes. The Chinese language in the Míng and Qīng 清 (1636–1912 CE) dynasties represents an important historical stage that is closest to the appearance of modern Chinese. Therefore, in this sense, it is not an exaggeration to say that Ricci changed the formation of modern Chinese lexicon. Furthermore, since language and culture are inseparable, and the vocabulary of a language often reflects the social culture of a language, the Chinese terminology created by Ricci reflects his contribution to the cultural exchange between China and the West from the perspective of linguistics.

While Ricci's contributions to modern Chinese culture are multifaceted, covering religion, geography, mathematics, geometry, and astronomy, this book only examines the translation of Ricci's works from the perspective of lexicology. Nonetheless, due to his profound impact, his larger influence in various fields is discernible even at this remove.

This book offers a systematic study of the enormous impact of Ricci on the development of modern religious and scientific terminology in China. First, Ricci produced a significant amount of the technical vocabulary still in use today; second, he transformed the modern lexical system; and third, these linguistic additions and changes influenced China's larger intellectual and cultural history. However, while Ricci's great contributions have been discussed in various fields, there are still no lexicological studies of Ricci that demonstrate the role that he and other missionaries played in the evolution of the Chinese lexicon in the Míng dynasty. This book provides a systematic collection of the words coined by Ricci and includes explanations of their meanings, provides citations for each word, analyzes how Ricci makes good use of Chinese words and morphemes to make new words, and then further analyzes

his influence on the Chinese lexicon in the Míng dynasty. At the same time, this book also analyzes Ricci's method for coining new terms in his Chinese works, the relationship between terminological neologisms and the modern Chinese vocabulary system, and the composition of these terminological neologisms. The new words created by Matteo Ricci are not only well suited to the development of Chinese lexicography in the Míng dynasty but are also unique because of the characteristics of Latin, which accompanied the introduction of scientific knowledge. This book also uses ancient Chinese materials to analyze how these terms have promoted the evolution of the Chinese lexical system on the basis of their conforming to the Chinese word creation method.

Notes

1 Although Nestorianism was introduced to China during the Tang dynasty, it did not significantly contribute to or influence China at that time.
2 Zhàoqìng is a prefecture-level city in Guǎngdōng Province, China.
3 Sháoguān is a prefecture-level city in northern Guǎngdōng Province.
4 Nánchāng is the capital of Jiāngxī 江西 Province, China.
5 Nánjīng is the capital of Jiāngsū 江蘇 province of China.
6 Ricci arrived in Běijīng in September 1598 and spent one month there. Then he left Běijīng due to the Japanese invasions of Korea (1592–1598) and returned to Nánjīng.
7 Most of Ricci's Chinese works were written in *Guānhuà* 官話, literally "the language used by officials," now translated as "Mandarin."

1 The historical background to Ricci's missionary role in the evolution of the Chinese lexicon

1.1 The historical background of Ricci's mission to China

As the main group to open a direct, large-scale, spiritual-cultural exchange between the West and China, the Jesuit missionaries in the late Míng dynasty won a certain amount of favor among the intellectuals of the time, and a large number of their works were welcomed by Confucian intellectuals. Due to the comprehensive national strength of the Míng dynasty, Western missionaries such as Matteo Ricci realized that their missionary work in China could not adopt the military conquest strategy commonly used by Catholic churches at that time, but must embrace strategies suitable to China's national conditions, as well as to Confucianism. At the same time, due to the impact of drastic social changes in the late Míng dynasty, Chinese intellectuals such as Xú Guāngqǐ, who were deeply influenced by the tenet of *jīngshì zhìyòng* 經世致用 ("learning should contribute to good governance"),[1] believed that gaining some understanding of Catholicism and Western scientific and technological knowledge could be beneficial to the progress of Chinese society. These scholars thus devoted themselves to making connections and promoting cultural exchanges between China and the West.

In the meantime, late Míng society was full of crises. During the Wànlì 萬曆 era (1573–1620), the Míng dynasty was changing from a time of flourishing to decadence. Ten years before the reign of Emperor Zhū Yìjūn 朱翊鈞, his mother, the Dowager Lǐ Shì 李氏 (1546–1614), presided over the Míng dynasty. During this period (1573–1583), the social economy continued to develop, while foreign military forces also won successive victories. In 1582, the emperor Zhū Yìjūn began to govern, but did so ineffectually. By 1587, he was failing to run the country, instead using his status as emperor to take a long period of leave away from his courtiers, which was unprecedented in the history of China. Meanwhile, he was busy building luxurious imperial tombs for himself, hollowing out the central government of the Míng dynasty, emptying the treasury, and causing a decline in national strength. The late Míng dynasty, which was based on a small-scale peasant economy and the dominance of Confucianism, began to teeter on the verge of collapse. The growing risks prompted some people to seek a remedy for national salvation.[2]

DOI: 10.4324/9781003490159-2

The arrival of Ricci not only offered late Míng intellectuals a few glimpses of the novel charms of another culture, but also provided them with an opportunity to think differently.

In the context of the rise of Western learning, some people began to look for ideas, material objects, and techniques from the West that could be used in China, and they imagined that certain problems in late Míng society could be solved with Ricci's aid. Although the late Míng dynasty was politically corrupt and the national treasury was empty, in terms of ideological value, its cultural environment exhibited pluralism and vitality, and the pursuit of novelty became a trend at the time. People were generally very curious to learn about the Catholic culture and Western technology brought by Ricci. On the whole, public opinion in the late Míng was favorable to Ricci's missionary work in China.

Páng (2008) has looked at Ricci's influence on late Míng intellectuals to comprehensively analyze the root cause of the social and cultural essence of the Ricci phenomenon in the late Míng period. Páng (2008) holds that late Míng society intellectually worshipped Ricci because of Ricci's promotion of Western learning, his personal charm, the relatively harmonious cultural atmosphere of late Míng society, and the Chinese people's curiosity about Western missionaries (p. 36). I agree with this view (Páng, 2008, pp. 31, 36), but I hold that the most important condition for Ricci's popularity is that the mainstream schools of the late Míng dynasty showed considerable tolerance and acceptance of Western studies and of Ricci as the propagator of Western studies. Their tolerance provided objectively favorable conditions for Ricci to spread knowledge in China based on Western studies and is an important cultural reason why his mission in China could be carried out.

Yangmingism is an example of this open attitude.[3] Matteo Ricci's entry into China coincided with the popularity of Yangmingism, which is characterized by major differences with the Cheng–Zhu school,[4] including the stark contrast between the unique rebellious spirit of Yangmingism, its pursuit of individuality, and its uninhibitedness, on the one hand, and the conservative spirit, representing feudalism, of the Cheng–Zhu school on the other hand.

Under the influence of the mainstream school of thought of Yangmingism, some intellectuals in the late Míng insisted on following the tenet of *jīngshì zhìyòng* and criticized the empty study and superstitious concepts of the Cheng–Zhu school. Thus, the Western sciences such as geography, geometry, and astronomy introduced by Ricci were regarded as practical sciences that were beneficial to China's economy and people's livelihoods by the late Míng literati; intellectuals not only studied these sciences with an open mind, but also tried to apply them in different areas.

Intellectuals who embraced Yangmingism also found many similarities and consistencies between Catholic doctrine and Confucian doctrine, thus calling Ricci a Xī Rú 西儒 (Western Confucian), treating him as an ally, and establishing a relatively close relationship with him (Páng, 2008, p. 32). Xú Guāngqǐ was just one of Ricci's closest friends. The tolerance, recognition, and respect

for Ricci by the mainstream schools of the late Míng dynasty created a harmonious and suitable cultural atmosphere in which he could spread Catholicism.

In response to these historical circumstances, Western missionaries became friends with Chinese intellectuals and cooperated with them to publish books of Western scientific and technological knowledge. For the missionaries, this was a means for spreading Catholicism to the greatest extent possible.

1.2 Ricci's experience in China and his Chinese works

In August 1582, Matteo Ricci arrived in Macau (Simpson, 2023, p. 79). He took off his Western dress, changed into Chinese clothes, and at the same time studied Nánjīng Mandarin and one Chinese topolect[5] (Cantonese). He also read a large number of Chinese books. He was excited about Chinese characters, which were completely different from the alphabets of the Indo-European languages.

In September 1583, Ricci came to Zhàoqìng to carry out missionary work. During his stay, he wore robes as a way to adapt to the Chinese environment. Nonetheless, his preaching during that time was not successful. The main reason for this was that the local people mistook Ricci for a *fānsēng* 番僧 (Lamaist monk), because he wore a monk's robe.[6] Although the officials in Zhàoqìng were generally enthusiastic about Ricci, the local people were extremely disgusted with this *fānsēng*. Some residents even threw stones at the house where Ricci had established a church continually (Bernard, 1933, pp. 131–132).

In the summer of 1589, Ricci moved to Sháoguān. Michele Ruggieri, on the other hand, had already returned to Europe and now only Ricci was left to engage in missionary work in China. During this period, Ricci met and became friends with Qú Rǔkuí 瞿汝夔 (1548–1610). As a well-educated Confucian, Qú Rǔkuí, who came from an official family, advised that in order to spread Catholicism in China, it had to be combined with Confucianism. First, Ricci needed to stop wearing a monk's robe, which conflated Buddhism with Catholicism. What Ricci needed was a strong Confucian approach. Second, Ricci needed to adopt the strategy of using new Western knowledge to spread Catholicism, because this would increase Chinese intellectuals' interest in Catholicism. At Qú Rǔkuí's suggestion, Ricci made great efforts to integrate Catholicism and Confucian thought, that is, to "supplement Confucianism with Catholic doctrine." This immediately enabled Ricci to become acquainted with a large group of middle- and high-level Confucian intellectuals and officials and to successfully spread Catholicism among them. When he took off his monk's robe and entered the upper circle of scholars, he succeeded in influencing some of them to join the Catholic Church.

In 1595, Matteo Ricci was given the opportunity to go to Nánjīng and use his superb Western medical skills, which were very different from traditional Chinese medicine, for the purpose of treating the son of a northern official in China. However, after arriving in Nánjīng, the officials accompanying him gradually lost interest in him, and he was not allowed to stay in Nánjīng by

himself. He then went to Nánchāng, in Jiāngxī Province, where he lived for three years and wore Confucian clothing. During this time, he interacted with the local scholar-bureaucrats; he gradually transformed from a missionary into a student, studying Chinese culture and *Sìshū wǔjīng* 四書五經 ("the Four Books and Five Classics of the Confucian classics")[7] and spending a long time coming to understand Chinese culture. His studying experience in Zhàoqìng, in Guǎngdōng province, and Nánchāng, in Jiāngxī province, laid a solid academic foundation for his successful missionary work in his later years and his writing a large number of works in Chinese. While in Nánchāng, Ricci wrote his first book in Chinese, *Jiāoyǒulùn* 交友論 [On friendship], which was published in 1595. Friendship, as the hub on which society operates and the country depends, occupied a unique position in Chinese culture. Ricci wanted to prove to the Chinese that the Western, culturally Catholic view of friendship was not antithetical to the social order established by the feudal imperial power of that time. The book was written so that he could meet Zhū Duōkài 朱多炉 (1539–1601), a member of the royal clan. Ricci's first Chinese work was a gift from him to Zhū Duōkài. This gift also reflects Ricci's desire not to give valuable items to the royals at that time, but to express sincere friendship by personally writing a work for Zhū Duōkài. It is worth mentioning that *shàng-dì* 上帝 (God), one of the most important Christian terms, was coined by Ricci in this book.

In July 1598, Ricci left Nánchāng for Nánjīng; and in September 1598, he left Nánjīng for Běijīng. This was during the time of Japan's invasion of Korea (1592–1598) and the Míng dynasty was supporting Korea.[8] Ricci, as a foreigner, could not stay in Běijīng for long, and remained for little more than a month before returning to Nánjīng in February 1599. During his stay in Nánjīng, with the help of Qú Rǔkuí, Ricci made friends with many famous intellectuals, including the thinkers Lǐ Zhì 李贄 (1527–1602) and Xú Guāngqǐ. He also wrote a Chinese book entitled *Èrshíwǔyán* 二十五言 [Twenty-five sayings] (1599) during this period; this was a work of Catholic ethics written in Chinese that won the respect of many Chinese intellectuals.

In 1601, Ricci went to Běijīng and continued to make friends with Chinese officials and intellectuals. While enhancing his Chinese cultural knowledge, he began to spread Catholicism. Among the Míng government officials that Ricci made friends with, the most famous were Xú Guāngqǐ, Lǐ Zhīzǎo 李之藻 (1565–1630), and Yáng Tíngyún 楊廷筠 (1557–1627) (Neill, 1991, p. 165), all of whom held high government positions. In addition, famous officials who interacted with Ricci included Senior Secretary Shěn Yīguàn 沈一貫 (1531–1615), Minister of Personnel Lǐ Dài 李戴 (1537–1607), and Minister of Justice Xiāo Dàhēng 肖大亨 (1532–1612). Other government officials supported and assisted Ricci's preaching in Běijīng as well. For example, Minister of Rites Féng Qí 馮琦 (1559–1603) approved Matteo Ricci's and other priests' status in Běijīng, thus relieving their worries of interference. Féng Qí also ordered the distribution of the rice and other subsidies that were guaranteed to them according to regulations. Lǐ Zhīzǎo published the Catechism of

Ricci at his own expense, distributed copies to friends, and sold them to the people. On the recommendation of Míng government officials, Ricci was able to meet with the Míng Emperor. The emperors of the Míng dynasty took a keen interest in the Western scientific knowledge that he was spreading. For example, the Wànlì Emperor was very interested in the striking clock, serinette, triangular prism, and the statue of the God and the Virgin provided by Ricci, who was thus allowed to stay in Běijīng for a long time to preach. In the 33rd year of Wànlì (1605), permission was given for the first Catholic Church in Běijīng to be built inside Xuānwǔ Gate[9]; this church is commonly known as the South Church.

In 1602, the 30th year of Wànlì, Ricci presented the *Kūnyú wàn'guó quántú* 坤輿萬國全圖 [A map of the myriad countries of the world] to the Wànlì Emperor Zhū Yìjūn 朱翊鈞 (1573–1620). After Zhū Yìjūn agreed to print the map in Běijīng in that same year, the *Kūnyú wàn'guó quántú* became widespread in China. For some intellectuals at that time, Ricci's map seemed ridiculous and was regarded as filled with myth and legend. However, other intellectuals, such as Xú Guāngqǐ, began to doubt the idea of *Zhōngguó zhōngxīnlùn* 中國中心論 ("China is in the middle of the heaven and earth"), which they had previously accepted; instead, they finally accepted the concept a multipolar world.[10] Under Ricci's influence, Xú Guāngqǐ, Lǐ Zhīzǎo, and Yáng Tíngyún 楊廷筠 (1557–1627), who were originally Confucians, joined the Catholic Church. Xú Guāngqǐ also helped Ricci to translate many Western scientific works such as *Euclid's Elements* (Neill, 1991, p. 167), written by the ancient Greek mathematician Euclid of Alexandria (330 CE–275 CE). Xú Guāngqǐ also helped the missionary Sabatino de Ursis (1575–1620) translate the *Tàixī shuǐfǎ* 泰西水法 [Water methods of the Great West], which introduced Western water conservancy methods.

The decade following his second entry into Běijīng, from in 1601 until his death in 1610, was the golden period of Ricci's Chinese writings, and many of the terms that he created for the field of Chinese linguistics were coined during these years. During this period, in cooperation with Xú Guāngqǐ and Lǐ Zhīzǎo, he successively created several works written originally in Chinese, including *Shàng dàmínghuángdì gòngxiàntǔwùzòu* 上大明皇帝貢獻土物奏 [A memorial on the offering of local products as tribute to the Emperor of the Great Míng] (1601), *Kūnyú wàn'guó quántú* 坤輿萬國全圖 [A map of the myriad countries of the world] (1602),[11] *Tiānzhǔ shíyì* 天主實義 [The True Meaning of the Lord of Heaven] (1603), *Xīzì qíjī* 西字奇跡 [Miracle of Western letters] (1606), *Hún'gài tōngxiàn túshuō* 渾蓋通憲圖說 [Illustrated explanation of the sphere and the astrolabe] (1607), *Jǐhé yuánběn* 幾何原本 [Euclid's Elements, the first six volumes] (1607), *Jīrén shípiān* 畸人十篇 [Ten chapters from a strange man] (1608), and *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe] (1610). He also revised and reprinted the *Kūnyú wàn'guó quántú* many times. He systematically introduced to the Chinese, for the first time, Western scientific knowledge and the logic and philosophical ideas behind it, enabling them to acquire a preliminary understanding of European culture.

Thus, Matteo Ricci was the first scholar in history to combine the *Sìshū wǔjīng*[12] with Western science, as well as being the first substantial contributor to the meeting of Chinese and Western cultures. As one of the founders of Catholic missionary work in China, he promoted the modernization process and the development of science and technology in Chinese society. He was a historical giant who has had a profound impact on China and the world.

1.3 A review of the research on Matteo Ricci: a Chinese-European contact perspective

As a pioneer in bringing Catholicism to China, Ricci made great scientific contributions to China. As Ricci preached in China for 28 years, he also thoroughly learned Chinese language and culture, and was able to bridge the gap between Chinese and Western cultures. Even today, 400 years later, he is still one of the most famous Westerners in China, commemorated for his outstanding contributions to the transmission of Western learning to China and Chinese learning to the West because he "gained access into the inner realm of Chinese civilization" (Hsia, 2010, p. xiv), and recognized in both the academic and the popular imagination for his influence.

It is precisely because of his great achievements in the cultural exchange between China and the West that, in Western and Chinese academic circles, research on Matteo Ricci is relatively rich.

Giulio Aleni (1582–1649) was the first to write a Chinese biography of Ricci, which was titled *Dàxī xītài lìxiānshēng xíngjì* 大西西泰利先生行跡 [The journey of the Western scholar Matteo Ricci]. During his return to Europe from China, Nicolas Trigault (1577–1628) collected and translated Ricci's diaries, which summarized what Ricci saw and heard in China (Ricci & Trigault, 1625/2000, p. 425). Finally, Pietro Tacchi Venturi (1861–1956) and Pasquale M. D'Elia (1890–1963) have made great contributions to the collection of Ricci's Western manuscripts.[13]

In the 20th century, the first important scholar to promote the study of Chinese Catholic history was Mǎ Xiàngbó 馬相伯 (1840–1939).[14] In 1912, Mǎ Xiàngbó, together with Yīng Liǎnzhī 英斂之 (1867–1926),[15] wrote to the Roman Catholic Church in the hope of establishing a church university in China (Fāng, 1988, pp. 72–82). Mǎ held that the Protestant churches in Britain, Germany, and the United States had all established church universities in China, but the Roman Catholic Church had not, which he believed to be a heart-wrenching omission (Fāng, 1988, p. 73). Ricci's position in Chinese Catholic history was highly praised by Mǎ and Yīng. They believed that, in order to spread Catholicism in China, Ricci had diligently studied Chinese for more than 30 years and introduced Western thought and culture through translation, achieving unprecedented achievements in the process. They felt that Ricci's spirit and his methods of blending Chinese with Western culture should be adopted by the scholars of the time; in this, Mǎ and Yīng were like Matteo Ricci, who was known to have promoted the development of church

universities in China (Gù, 2003, p. 431). It is because of their initiative that the study of missionary literature in China flourished and this objectively laid the foundation for the boom in the study of Ricci in the 20th century.

This 20th-century research has mainly focused on the examination of Ricci's life and mission (Bernard, 1933; Cronin, 1955; Harris, 1966; Hsia, 2010; Luó, 1986; Meynard & Vermander, 2022; Spence, 1985); identifying Ricci's "Ligiucin" (Dudink, 2019), sporadically mention Ricci's Chinese translation of "God" (Chow, 2022, pp. 213–228; Kim, 2004, pp. 34–54), Persian translation of Ricci's "*De Christiana expeditione apus Sinas*" (Calzolaio & Stefano, 2021), translation of Ricci's Italian works (Vito, 2014), translation of Ricci's Chinese works into other languages (Alberts, 2012; Green, 2023), and studying Ricci's cartographies (Brook, 2020; Huáng & Gōng, 2004; Morar, 2019).

Bernard (1933), Spence (1985), and Hsia (2010) are all excellent works of biography. Using a large number of historical materials, Bernard (1933) tells the story of Ricci's arrival in China during the Wànlì period. In the preface by the translator Guǎn Zhènhú, we can see that Henri spoke highly of Ricci, saying that he not only knew many languages, but also made considerable achievements in writing Chinese books. Bernard (1933)'s biography of Ricci is well grounded and highly credible, with copious quotes from many sources.

Spence (1985) uses a writing method based on a conception of memory called a "memory palace" to describe the beginning of the Age of Discovery when Ricci attempted to use mnemonics to open the door to China and to change that unfamiliar culture. Spence uses the four memory images in Matteo Ricci's mnemonics – "Warriors," "Huihui," "Profit," and "Harvest" – to introduce the life of Ricci, as well as to discuss the political, religious, economic, and international situations of the East and the West in the late Míng dynasty. In this way, a picture of the encounter between the two great civilizations of the West and the East is skillfully constructed, leading readers to step into Ricci's memory palace and truly experience the scene of the West meeting the East. This method of writing was used for the first time in research on Ricci. Through these accidental relics, Spence skillfully builds a complete picture of the intersection of two great civilizations, so we can enter the memory palace created by Ricci and see him sometimes determined and sometimes at a loss in the unknown world. This narrative approach has been a great success.

Another successful work is Hsia's (2010) biography of Ricci. Hsia traces Ricci's childhood in the central Italian city of Macerata, his school days in Rome, his sojourn in Portuguese India, and his long experience of self-discovery and cultural encounters within the Míng Empire. It is the first biography to comprehensively use relevant documents in both Chinese and Western languages to recount Ricci's extraordinary life and his achievements in connecting European Catholicism and China's Míng dynasty during the Counter-Reformation period. This is a great methodological advancement. Previous biographical depictions of Ricci had referred only to Western literature, and Chinese literature has been neglected. Since Ricci lived in China for 28 years, historical facts about his time there cannot be accurately verified if the Chinese literature is ignored.

Research on Matteo Ricci has mainly concentrated on the examination of specific historical facts, the investigation of Ricci's activities in China, and the collection and collation of the relevant documents relating to Ricci. Progress has been made in the study of missionaries in the Míng dynasty from the perspective of the history of social and cultural exchange, and nuanced studies of all aspects of missionary activities in China have been carried out. In terms of research methods, scholars have used sources ranging from Western to Chinese literature, thus providing an increasing number of accurate historical facts about Ricci in China.

However, still lacking are studies of the influence of the Míng-era missionaries on Chinese linguistics, especially when it comes to Ricci's influence. This is mainly because Chinese linguistics has been so deeply influenced by structural linguistics and structuralism, which advocate for theories in which language is conceived as a self-contained, self-regulating semiotic system whose elements are defined by their relationship to other elements within the system (i.e., internal factors). The focus of Chinese linguistics research has been entirely on these internal factors, as if the Chinese language were a self-sufficient subsystem that could work naturally, like photosynthesis does in plants. However, if we review the scholarly history of modern Western linguistics, we will find that missionaries were once a crucial and influential driving force in linguistics. If there had been no missionaries going out of Europe, going global, extensively searching for materials on foreign languages, and accumulating knowledge of world languages, the vision of Western scholars would be limited to Indo-European inflectional languages, and it would be impossible for these scholars to develop a perspective on linguistic typology. Without a rich variety of language patterns and a large number of real corpora as a basis, it would be impossible to construct a sufficiently general theory and therefore impossible to establish general linguistics. In turn, without general linguistics, it would be impossible to talk about modern linguistics. In the case of Chinese linguistics, the influence of Western missionaries is particularly noteworthy. This is because Western missionaries have a Western linguistic perspective and tend to see the essence of the Chinese language more thoroughly since they have exposure to both Western languages and Chinese, while native Chinese linguists do not. Moreover, Chinese linguistics at that time was not yet developed and was only an appendage of the study of scripture. Therefore, full attention must be paid to the influence of missionaries on linguistics, especially Chinese linguistics.

As a founding figure in the history of cultural exchanges between China and the West, Matteo Ricci's significant contributions in many areas have been fully studied by the academic community, but there has been no research to date on the relationship between missionary works and Chinese terms. Hence, our understanding of the influence of Míng- and Qīng-era missionaries on the Chinese lexicon is far from complete. Although the missionary linguists' contribution to the study of language is acknowledged today, the nature of the influence of their works of translation on the formation of the modern Chinese

lexicon remains unconfirmed – in fact, its existence is still hypothetical – so much more work needs to be done (Zwartjes, 2012, p. 242). In particular, there are still many gaps in the research on Ricci. There are currently no monographs that discuss this influence, and in particular, no dedicated studies of the terminology that Ricci invented or his influence on Chinese linguistics exist.

The following sections outline studies of Míng dynasty missionary work that take a missionary linguistics perspective.

1.4 The study of Chinese linguistics based on literature written by Míng-dynasty missionaries

In order to support the mission and promote the spread of Catholicism in China, Ricci intensified his study of Chinese, Chinese character writing methods, and folk customs when he first arrived in China. By 1589, after six years of living in China, his Chinese language ability had much improved; he had mastered about 5,000 Chinese characters, read classical scriptures proficiently, and even debated many of the problems in Confucian classics with Chinese literati and officialdom during that time (Lín & Dài, 2010, p. 35). At the same time, he acquired a deep understanding of Chinese culture. His skill with the Chinese language and his knowledge of the culture meant that he could work comfortably and accurately when both reading and writing a large number of Chinese characters.

Although the purpose of Ricci's missionary Chinese writings was to spread Catholicism, many of them bear traces of Chinese-Western cooperative translation. His Chinese writings also had a profound influence on the Chinese language. These achievements can be analyzed in terms of four aspects drawn from studying the language used in the works that the Míng dynasty missionaries produced in cooperation with their Chinese counterparts. These four aspects are phonetics, lexicon, grammar, and translation.

1.4.1 Míng-dynasty missionary literature and the study of Chinese phonetics

At the end of the Míng dynasty, the first large-scale substantive contact between China and the West began. In order to fulfill their missionary duties, Western missionaries learned Chinese characters and began to systematically use the Latin alphabet to make phonetic notations of these characters. This effectively promoted the development of Chinese phonology and, ultimately, the creation, in 1958, of the *Scheme for the Chinese Phonetic Alphabet*,[16] which is still in use. Using the Latin alphabet to give phonetic notations to Chinese characters is the crystallization of the meeting of Chinese and Western cultures and is an excellent example of the inclusiveness and openness of Chinese culture.

Although the subjective goal of Western missionaries was to influence Chinese religious beliefs, they served as a communication channel between

Chinese and Western cultures. For missionaries in the Chinese missions, only by mastering the Chinese language when they first arrived in China could they understand China in depth and then expand their missionary affairs there. But the difficulty of verbal communication was the first major obstacle for such a mission. In the 1580s, the early Jesuits who came to China suffered greatly in learning Chinese. In 1581, Michele Ruggieri wrote in a letter to Everard Mercurian (1514–1580) on 12 November 1581 (evidently unaware of Mercurian's death the year before):

> The Chinese language is very difficult to learn, surpassing the writing of any other country, because it has no alphabet, and the number of characters is uncountable. It can be said that, as many characters as there are in the world, there are as many Chinese characters, and thus it takes a long time to learn how to read.
>
> [my translation][17]

From this letter, it can be seen that the missionaries were daunted by the prospect of learning Chinese. In 1582, Ricci came to Macau and was directly instructed in Chinese by Michele Ruggieri. As he gained basic knowledge of the Chinese language, he noticed the differences in the phonetics of Chinese and Western languages.

Between 1583 and 1586, Michele Ruggieri and Matteo Ricci first went to Zhàoqìng in Guǎngdōng province to preach the gospel. Since Portuguese was a common language in the Portuguese colonies in Europe and Asia at that time during the Age of Exploration, they were both familiar with it. Before coming to Guǎngdōng, they made preparations in advance, and in 1579 Ruggieri created a dictionary, called the *Púhàn cídiǎn* 葡漢辭典 [Portuguese-Chinese dictionary] (Ruggieri & Ricci, 1579), to help missionaries in China learn Chinese. After Ricci arrived in Macau in August 1582, he began to improve the *Púhàn cídiǎn*.

The dictionary is divided into three columns: the first column consists of Portuguese words, phrases, and short sentences, roughly in ABC alphabetical order; the second column uses the Latin alphabet for phonetic notations; the third column lists Chinese monosyllabic words, disyllabic words, phrases, and short sentences.

This method of using the Latin alphabet for phonetic notations in the *Púhàn cídiǎn* was still a work-in-progress; the spelling method for initials and finals was not yet settled and even contained some ambiguity. Nonetheless, it is the earliest Latin alphabet pinyin scheme in Chinese and the origin point of all Chinese pinyin (*Hànyǔ pīnyīn* 漢語拼音) in later generations. It can also be regarded as the predecessor of the later Pinyin scheme in Ricci's *Xīzì qíjì* 西字奇跡 [Miracle of Western letters] (1605) and the pinyin system of Nicolas Trigault's (1577–1628) *Xīrú ěrmù zī* 西儒耳目資 [An Audio-visual Aid to Western scholars] (1626).

The study of Míng dynasty missionaries from the perspective of Chinese linguistics was initiated by Luó Chángpéi and Xú Jǐngxián (Luó, 1930,

pp. 267–338; Xú, 1928/2016, pp. 274–277), who both mention Ricci's contribution to Chinese pinyin (*Hànyǔ pīnyīn*).[18] Indeed, missionaries such as Ricci made outstanding contributions to the development of Chinese phonology in the following areas:

1 They used Roman letters to analyze the phonemes of Chinese.
2 They used the Roman alphabet to indicate pronunciation so that Míng phonetics can be inferred.
3 Ricci demonstrated a new method for the study of Chinese phonology, which greatly influenced phonological scholars such as Fāng Yǐzhì 方以智 (1611–1671) and Liú Xiàntíng 劉獻廷 (1648–1671).

In 1626, the French missionary Nicolas Trigault adapted Matteo Ricci's pinyin system by using Ricci's 25 letters and combining them with each other to add five tones to spell all the pronunciations of Chinese characters. He revised and supplemented Ricci's schemes using the Latin alphabet to create phonetic notations and wrote a complete monograph on the Latin alphabet for phonetic notations, *Xīrú ěrmù zī* (1626), to help missionaries from the West learn Chinese pronunciation and characters (Xiè, 2014, p. 13). The collection of Chinese characters in this textbook for missionaries uses the Latin alphabet to give phonetic spellings of the characters; it is also one of the earliest textbooks to use phoneme letters for Chinese characters. The scheme used only 25 letters (including five initials and 20 finals) and five tones to spell out the entire number of syllables in the "Mandarin" of that time.

The advent of *Xīrú ěrmù zī* (1626) carried China's phonological innovation a step forward. The missionaries' approach shook the native Chinese phonologists, directly inspiring them to seek a more complete description of the Chinese character notation system with the help of Western pinyin scripts and to push for their own programs for using Latin-alphabet spellings. Most Chinese phonologists such as Fāng Yǐzhì and Liú Xiàntíng were deeply influenced by this book. It is not difficult to see that *Xīrú ěrmù zī* (1626) was completed on the basis of Ricci's phonetic scheme; so Ricci's contribution to Chinese pinyin is indispensable. Therefore, Matteo Ricci's and Nicolas Trigault's analysis of Chinese phonemes, using the Roman alphabet for the phonetics, significantly impacted the future study of phonology by handling complexity in a simple fashion. This was the late Míng dynasty missionaries' most important contribution to Chinese phonology.

The language that the early Jesuit missionaries learned and used in their work was in fact based on the phonology of the Nánjīng topolect (Lǔ, 1985, p. 16). Early missionary sources are important for analyzing the sound system of late Míng Mandarin (Coblin, 1997, p. 270). Yáng (1995) used the Roman phonetic notation written by Ricci in the late Míng and summarized the 25 initial consonants in Ricci's phonetic notation as corresponding to the 21 initial consonants in Míng Mandarin. Huáng (1996) has pointed out that "/v/" still exists while "/ŋ/" was gradually changing in Míng Mandarin. Thus,

we have a general understanding of the phonetic system in Míng Mandarin through Ricci's works in translation.

In the history of Chinese, before the arrival of the missionaries, there were two attempts at Chinese phoneticization. The first attempt at was *Ménggǔ zìyùn* 蒙古字韻 [Rhymes in Mongol script] (1269–1292), a 14th-century rhyme dictionary of Chinese written in the *'Phags-pa* script that was used during the Yuan dynasty (1271–1368). The second attempt at Chinese phoneticization was the *Hóngwǔ zhèngyùn yìxùn* 洪武正韻譯訓 [Translation and interpretation of "*Hóngwǔ zhèngyùn*"] (1455), a document of Chinese written in *Xùnmín zhèngyīn* 訓民正音 [The correct/proper sounds for the instruction of the people]. Jīn (2001) has stated that missionaries such as Ricci used alphabetical phonetics to form a new Chinese phonetic system, which constituted the third attempt at Chinese phoneticization. The exploration carried out by Ricci was thus important for the eventual formulation of the Chinese pinyin romanization system.

Thus, we can see the efforts and contributions of Ricci and other missionaries in the works they produced once they had learned Chinese phonetics. The *Púhàn cídiǎn* written by Michele Ruggieri and Matteo Ricci, the *Luómǎzì zhùyīn* 羅馬字注音 [Phonetic symbols of Romanization][19] written by Ricci, and the *Xīrú ěrmù zī* written by Nicolas Trigault all share the same origins, with the *Xīrú ěrmù zī* epitomizing the achievements of the Míng dynasty missionaries in studying the Chinese language. These works provided a basis and reference for the contribution of later scholars to the study of Chinese phonetics.

1.4.2 Míng-dynasty missionary literature and the study of Chinese lexicon

The lexical system is the key factor that determines the basic face of each language. Therefore, the study of the Chinese lexicon in various periods is particularly important, and when we study different Chinese words in different historical periods, the choice of language sources is key.

Missionary literature is unique in Chinese lexical studies because it was completed through Chinese-Western cooperation on translation. However, the current research in these fields is scarce: Masini (1993) has discussed the loanwords from missionaries between 1840 and 1898 that had an impact on the modern Chinese lexicon. Kim (2004) and Chow (2022, pp. 213–228) have discussed the Chinese responses of Ricci's coinage of "*Shangti*" in Late Ming China. De Troia (2007) studied toponyms in Jesuit works and their circulation in China. However, current study in this field is still not systematic.

1.4.3 Míng-dynasty missionary literature and the study of Chinese grammar

From the beginning of the 20th century to the present, there has been little research on the Chinese grammar based on Míng-dynasty missionary writings

and translations. However, the research outputs are relatively rich in the study of Chinese grammar by using Qīng-dynasty missionary literature. For example, Chappell and Lamarre (2005) re-edited and translated a publication of Hakka literature written in German by a Qīng missionary in the late 19th century and published in the early 20th century.

The literary style and the content of Ricci's translations were different at different time periods in the Míng dynasty, which may reflect the different stages of development that the Chinese language was going through. Therefore, the grammatical study of Ricci's translations is not only of great significance to the study of the history of modern Chinese, but also serves to clarify the relationship between the different branches of grammar and has unique value in deepening the study of grammar. It is both urgent and necessary to study the rules of Chinese grammar in Ricci's translation works.

1.4.4 Other research

In addition, many excellent papers and books also sporadically mention the contributions of the relevant missionaries to the humanities, such as religious studies on the missionaries (Brockey, 2008; Dehergne, 1973; Gernet, 1981; Golvers, 1999; Pfister, 1932; Ronan & Oh, 1988; Zürcher, 2020, etc.). As these scholars did not discuss Ricci or Míng missionaries directly, due to the length of this manuscript, this book does not discuss the contributions of these scholars.

1.5 The inadequacy of our current research and the problems this book addresses

Based on current research on the works of Chinese and Western translation carried out by Míng dynasty missionaries as well as current research in Chinese linguistics, we can draw the following conclusions:

1 The work of collecting missionary literature has gradually been completed, providing a convenient basis for future study;
2 Compared with research on the history of missionary translations and their role in cultural communication, the study of the role of missionary translations in Chinese linguistics has been very weak;
3 There have been some achievements in the study of the relationship of missionary translations to Chinese phonetics, but the study of their relationship to the Chinese lexicon has been relatively weak; and
4 There are no specialized monographs that treat missionary translations from a Chinese linguistic point of view.

In other words, the attention paid by researchers to the linguistics of the Míng missionary translations has been insufficient, and many research gaps remain.

This study is thus motivated by the desire to explore the following three questions:

1 How many terms did Ricci coin and what are their characteristics? The answer to this question will be sought through the compilation and analysis of the corpus of late-Míng missionary literature written in Chinese.
2 What are the categories of new Chinese terms in missionary literature written by Ricci, and what is the nature of the cultural exchanges lying behind these concepts?
3 What role did Chinese terms coined by Ricci play in the formation and development of modern Chinese lexicon? How can the role of external religious forces (Míng missionaries) in the formation of modern Chinese vocabulary be explained?

These are important issues to address because they are still blank spots in current Chinese linguistics research. Questions 1, 2, and 3 comprise a three-tiered study. Answering question 1 requires a qualitative linguistic description of the terminology coined by the Míng missionaries, that is, an analysis of their etymology. Answering question 2 requires a study of the categories of new Chinese terms. Finally, only by answering questions 1 and 2 can we arrive at the answer to question 3 and give an overall picture of the kind of influence that the missionary terminology of the late Míng period in China had on Míng and Qīng Chinese, and even on modern Chinese, and thus advance our understanding of the production of modern Chinese vocabulary.

I argue that Ricci's contribution to Chinese linguistics is substantial, especially with respect to the development and evolution of the Chinese lexicon. To support my claim, I have collected Chinese works written by Ricci, extracting the relevant Chinese terms, explaining their meanings, providing example quotations, and analyzing how Ricci used the inherent materials of the Chinese language to develop neologisms for religious and scientific terms and concepts. Until now, there have been no lexical studies of this collection of works, and the value of these translations has not yet been fully explored.

Why is this important? Although Ricci's purpose in coming to China was to spread his religion, because of his educational background and a number of Chinese scientific and technological works he wrote and translated, he was able to disseminate Western scientific and technological knowledge, thus enriching the cultural vision of the Chinese at that time and promoting the beginning of modern Chinese science. The new terms he coined documented scientific ideas and encouraged new forms of thought. The Chinese texts written by Ricci are also the direct product of large-scale linguistic contact with another culture and are valuable materials for studying the influence of foreign languages in Chinese history. Ricci used or created a large number of polysyllabic words that played a unique role in promoting the transformation and modernization of the Chinese language. The Chinese lexicon in Ricci's Chinese writings exhibits a unique linguistic personality and provides us with precious

material for studying the contact between Chinese and Western languages and the impact of this language contact on the development of the Chinese lexicon. In addition, Ricci's Chinese writings, as the product of the earliest and largest language contact in the Míng and Qīng dynasties, pioneered the use of many new terms and phrases that are of groundbreaking significance in the history of cultural exchanges between China and the West and in the history of Chinese and Chinese topolects.

Modern Chinese refers to the Chinese language of the 20th century (since the May Fourth Movement[20]). In the broad sense, it includes the Chinese topolects, and in the narrow sense, it refers specifically to modern Mandarin. From the perspective of Chinese history, modern Chinese developed from the Chinese of the 13th to 19th centuries and is characterized by an absorption of some aspects of Western grammar and the addition of a large number of disyllabic and polysyllabic words.

The large number of disyllabic and polysyllabic words is also influenced by Western language to a certain extent. Wáng Lì (2013) believes that "the emergence of new words after the First Opium War in late Qīng is much greater than in any other period [my translation]."[21] In fact, from the late Míng period, new words had already begun to emerge. Most of the Western science introduced by the missionaries at the end of the Míng dynasty was completely new, and the Latin terms for the new knowledge and new concepts had to be translated into Chinese. But how could this be done? On the one hand, Ricci and his cotranslators created new Chinese words; on the other hand, they used paraphrasing methods[22] to translate these new words using existing Chinese terms, which sometimes required infusing old words with new meanings. Because the purpose was to facilitate the entry of new knowledge into the field of vision of the Chinese, these new words needed to conform to the laws of the Chinese language itself so that they would be easily accepted. Even though Chinese and Latin belong to different language types, the first priority in translating the new knowledge was to find a good semantic correspondence and to reflect on the lexical relationships of these words by using a structure suitable for Chinese words. Only when a nation has mastered a science in its own language can we say that that science belongs to the nation. For this reason, the contributions of the missionaries who went to China during the Míng and Qīng dynasties are of great significance not only in terms of cultural exchange, but also in the history of the development of the Chinese lexicon.

Scholars have given us an in-depth analysis of the Indian influence on Chinese culture, for instance, on Chinese popular literature (Mair, 1987); on painting, and performance (Mair, 1988). Scholars have also explored the meaning of Buddhist Chinese words produced because of the influence of Buddhism (Liáng, 1994; Mair, 1994; Zhū, 1992). However, the influence of Catholic culture on Chinese lexicon has yet to be addressed.

This monograph fills some of the research gaps identified above by investigating the influence of Matteo Ricci on a specific section of the Míng Chinese lexicon: academic terms. At the end of the Míng dynasty, when modern

Western scholarship was introduced into China, the Chinese language had an inherent lexical system that was inadequate for expressing new ideas, and so new terms had to be developed. Among the most important contributors to Chinese terminology in the Míng period were the missionaries who came to China.

1.6 Ricci's Chinese works and the main research methodology of this book

Hsia (2007) has pointed out that between 1583 and 1700, European missionaries composed and published approximately 450 works in Chinese. Of this total, some 120 texts deal with European science, technology, and geography; another 330 are religious texts (p. 43).

Ricci's contribution to this corpus has not always been fully appreciated. The Jesuit historian Pasquale M. D'Elia (1942) edited Ricci's full collection of works written in China, but excluded Ricci's writings and translations in Chinese, resulting in incomplete coverage of his work.

Lǐ Zhīzǎo 李之藻 (1628), Liú Níng 劉凝 (1680s or 1690s), and Sì kù quánshū cún mù cóngshū biānzuǎn wěiyuánhuì 四庫全書存目叢書編纂委員會 (1995–1997) selected most of Ricci's Chinese writings. Based on the above scholars' selected Chinese documents written by Ricci, Zhū Wéizhēng 朱維錚 (2001) has rearranged edited translations of Ricci's Chinese writings and compiled all of his work from 1583 until his death in 1610. Although, because of their length and mathematical content, *Jǐhé yuánběn* 幾何原本 [Euclid's Elements] is not useful to general readers, only the title of this book along with short summaries was included in Zhū (2001)'s compilation.

The selected Ricci's Chinese writings collected by Zhū (2001) mainly include *Jiāoyǒulùn* 交友論 [On friendship] (1595), *Shàng dàmínghuángdì gòngxiàntǔwùzòu* 上大明皇帝貢獻土物奏 [A memorial on the offering of local products as tribute to the Emperor of the Great Míng] (1601), *Kūnyú wàn'guó quántú* 坤輿萬國全圖 [A map of the myriad countries of the world] (1602), *Tiānzhǔ shíyì* 天主實義 [The True Meaning of the Lord of Heaven] (1603), *Xīzì qíjī* 西字奇跡 [Miracle of Western letters] (1606), *Hún'gài tōngxiàn túshuō* 渾蓋通憲圖說 [Illustrated explanation of the sphere and the astrolabe] (1607), *Xīqín qǔyì* 西琴曲意 [The meaning of Western instruments] (1607), *Jīrén shípiān* 畸人十篇 [Ten chapters from a strange man] (1608), and *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe] (1610).[23]

Zhū Wéizhēng did not include *Jǐhé yuánběn* in his 2001 work. Ten years later, Zhū Wéizhēng collaborated with Lǐ Tiāngāng 李天綱 and included the first six volumes of *Jǐhé yuánběn* in their work *Xú Guāngqǐ quánjí* 徐光啟全集 [A collection of Xú Guāngqǐ's works]. Engelfriet (1998) also edited a Chinese source of *Jǐhé yuánběn* that can be found. I use the edition of *Xú Guāngqǐ quánjí* (2011).

I use the above-mentioned Chinese works as my main research corpus, mainly because they are the first works of Ricci's that the academic community

has systematically compiled and are thus very valuable research material. However, the academic community has not yet made good use of them to analyze the Chinese terms created by Ricci. Using the above sources, this book exhaustively examines the new terms that he coined.

Other Chinese works written by Ricci contain few or no new terms. These works include *Èrshíwǔyán* 二十五言 [Twenty-five sayings] (1599), *Xīqín qǔyì* 西琴曲意 [The Meaning of Western Instruments] (1607), *and Fù Yú Chúnxī* 複虞淳熙 [Replies to Yu Chunxi] (1609). These documents can only be used as a supplementary corpus. I excluded *Lǐfǎqì cuòyào* 理法器撮要 [Summary of logic, laws, and instruments] (1610) and *Biànxué yídú* 辨學遺牘 [Testament in defense of the faith] (1610) because whether the author of *Lǐfǎqìcuòyào and Biànxué yídú* is Ricci is being doubted.

For the purpose of analysis, the terminology created by Ricci is divided into four categories: religious terms, geographical terms, geometric terms, and astronomical terms. This book first analyzes religious terms because Ricci's most important purpose in coming to China was to spread Catholicism. But as he did so, he also promoted the development of modern Chinese science and created geographical terms, geometric terms, and astronomical terms to use in his Chinese writings on science and technology.

The religious terms come mainly from the book *Tiānzhǔ shíyì* (1603) because of the great influence of this book in the spread of Catholicism in China and because it included many new religious terms. In addition, *Jiāoyǒulùn* (1595) and *Jīrén shípiān* (1608) are also very informative and I refer to them as well. The geographical terms are mainly from the *Kūnyú wàn'guó quántú* (1602), which is a map of the world published by Ricci during his missionary work in China that spread new geographical knowledge to the Chinese at the time and had far-reaching influence. In addition, *Hún'gài tōngxiàn túshuō* (1607) also contains a few geographical terms. The geometric terminology comes mainly from *Jǐhé yuánběn* (the first six volumes), which is a translation of a work written by the ancient Greek mathematician Euclid (325 BCE–265 BCE). Astronomical terms are mainly from *Kūnyú wàn'guó quántú* (1603), *Hún'gài tōngxiàn túshuō* (1607), and *Qiánkūn tǐyì* (1610). These documents are among the important astronomical works written in Chinese by Ricci and cover a large number of astronomical terms.

In chronological order, Ricci's Chinese writings containing religious, geographical, geometric, and astronomical terms are: religious terms – *Jiāoyǒulùn* (1595), *Tiānzhǔ shíyì* (1603), and *Jīrén shípiān* (1608); geographical terms – *Kūnyú wàn'guó quántú* (1602) and *Hún'gài tōngxiàn túshuō* (1607); geometric terms – *Jǐhé yuánběn* (1607); and astronomical terms – *Kūnyú wàn'guó quántú* (1602) and *Hún'gài tōngxiàn túshuō* (1607). The reason why the book analyzes geometric terms ahead of astronomical terms is because geometric terms provide one of the foundations of the study of astronomy, while astronomical terms are not necessarily the basis for the study of geometry.

In addition, Ricci cowrote the *Púhàn cídiǎn* with Michele Ruggieri. This dictionary is important in the study of Chinese topolects, but the terms it

covers can only be used as a supplement to the above materials; thus, only a small number of terms from it will be analyzed in this book.

I also clarified the methodology for identifying whether a Chinese term was coined by Ricci. First, the term must be from Ricci's Chinese writings, as proven from exhaustive reading of all such texts. Second, since apparently not all words that appear in Ricci's Chinese writings are his own creations, identification and classification of his coinages is required.

Ricci's coinages can be identified based on whether he filled conceptual gaps in Míng Chinese. A "concept" refers to the generalization of an objective thing through words; I define "conceptual gaps" to refer specifically to the conceptual part of the meaning of a word that does not exist in another language because of its unique cultural background and which causes people speaking another language to experience incomprehension (Zhao, 2023, pp. 48–70). In other words, a conceptual gap refers to the cultural peculiarities unique to a language; the words that represent these unique things or concepts often constitute cultural blind spots and semantic gaps in other language users' understanding of the target language's vocabulary. Ricci's spherical concept of the planet Earth did not exist in the late Ming Chinese lexicon before he introduced the word *dìqiú* 地球 (earth),[24] so its meaning represents a conceptual gap filled by Ricci. *Dìqiú* is a coinage by Ricci.

1.7 Research significance of Ricci's role in the evolution of the Chinese lexicon

As outlined above, the lexical study of missionary literature has been insufficient and explanations of the source of the modern Chinese lexicon have been very weak. There is thus an urgent need to study the Míng Chinese lexicon by using Míng dynasty missionary documents as source material. Doing so will advance our understanding of Míng and modern Chinese by refuting misconceptions about the language (including the source of disyllabic words), correcting etymological errors, and closing research gaps.

1.7.1 Refutation of the claim that lexicalization is the only language mechanism that leads to Chinese disyllabic words

In Chinese, one Chinese character is equal to one syllable and the Chinese vocabulary can be divided into monosyllabic, disyllabic, and polysyllabic (trisyllabic or longer) types. In the early Chinese period, the Chinese vocabulary in Old Chinese, which is the oldest stage of Chinese, was mostly monosyllabic; but since 1919, Chinese vocabulary has been mostly disyllabic. The development of the language from monosyllabic to disyllabic is called disyllablization. What is the cause of Chinese disyllablization? Dǒng has advanced his own theory as to the source of Chinese disyllabic words (Dǒng, 2011, p. 2). Dǒng believes that Chinese disyllabic words are formed through lexicalization as a language mechanism. Lexicalization refers to the process by which

grammatical units at the syntactic level become words in the course of their development. In Chinese, this mainly refers to the problem of disyllablization. Dǒng believes that, in the history of Chinese, disyllable words are mainly the result of lexicalization (Dǒng, 2011, p. 24) and that the main sources of Chinese disyllabic words are phrases (Dǒng, 2011, pp. 24, 48–206), followed by syntactic structure (Dǒng, 2011, pp. 34, 208–256) and cross-layer structure (Dǒng, 2011, pp. 35, 252).[25]

Lexicalization answers the question of the origin of modern Chinese vocabulary by saying that the source of modern Chinese vocabulary, especially the source of disyllable words, is mainly a grammatical unit. This means that the process by which an original nonword language form becomes a word in the course of diachronic development is a process similar to the self-sufficiency of plant photosynthesis. The role of external factors is completely ignored on this view – especially the contribution of missionaries in China to the development of Chinese vocabulary since the late Míng dynasty and the role played by intellectuals who travelled overseas in the late Qīng dynasty. For example, for Dǒng (2011), the approach through which Chinese disyllabic words coined by Míng missionaries was produced –including words such as *bǐ-lì* 比例 (proportion), *chì-dào* 赤道 (equator), *chuí-xiàn* 垂線 (perpendicular), *dì-qiú* 地球 (Earth), *qū-xiàn* 曲線 (curve), and *rè-dài* 熱帶 (the tropics) – is not directly related to lexicalization.

Another example is *jīng-jì* 經濟, a modern Chinese word meaning "economy." However, *jīng-jì* in ancient Chinese was a phrase meaning *jīng-shì-jì-mín* 經世濟民 ("govern and benefit the people"). Dǒng holds that the modern word *jīng-jì* derives from that ancient Chinese phrase. (A phrase is a group of words that acts together as a grammatical unit.) However, Japanese also has *keizai* けいざい 経済 (economy), so the modern word *jīng-jì* may also derive from Japanese; because after the Meiji Restoration, many Chinese intellectuals such as Kāng Yǒuwéi 康有為 (1858–1927) and Liáng Qǐchāo 梁啟超 (1858–1927) studied in Japan.

Thus, external factors arising from Chinese vocabulary (such as the terminology coined by Matteo Ricci) can effectively refute Dǒng's views.[26]

1.7.2 Refutation of the claim that the Chinese lexicon had its initial contact with the West after 1840[27]

The above analysis argues that there are external influencing factors in the development of Chinese lexicon. Regarding foreign influence, Wáng Lì (2013) has stated:

> The loanwords and loan translations from abroad into Chinese can be roughly divided into three categories: the first is loanwords and loan translations from the Western Regions (Chinese: 西域), the second category is loanwords and loan translations from Buddhism, and the third is loanwords and loan translations from the West [my translation].[28]

Interestingly, both the second and third influences reciprocally developed from the use of Chinese as an aspect of second language learning. Because of the introduction of Buddhism, Indian monks had to learn Chinese for the purpose of translating the Buddhist scriptures into Chinese, directly leading to the generation of *fǎnqiè* 反切, which is a traditional method for indicating the pronunciation of a Chinese character using two other Chinese characters. The first character has the same consonant as the given character, and the second has the same vowel and tone. For example, the pronunciation of *tóng* 同 is indicated with *tú hóng qiè* 徒紅切, meaning a combination of the consonant "t" from *tú* 徒 and the vowel plus tone "óng" from *hóng* 紅. Although it looks difficult, *fǎnqiè* is actually a relatively simple method. The emergence of *fǎnqiè* was a great event in the history of Chinese. It demonstrates the influence of Indian culture on Chinese culture, and this came about due to the willingness of the Chinese people to absorb foreign cultures.

Likewise, the influence of Western culture on Chinese was indeed very positive. In order to learn Chinese, missionaries in China compiled Chinese grammar textbooks. In order to read Chinese classics, they invented the spelling of Chinese characters in the Roman alphabet. Further, in order to help the Chinese people better understand religious books such as *Tiānzhǔ shíyì*, they coined a series of new terms, including a large number of words that we still use today. This shows that when a language is learned as a foreign language, it does not remain static; it will constantly change based on the needs of learners. Further, although the learners will learn Chinese as a second language, they are not completely passive; they too will have an impact on their own target language. This is how the integration and change of language occurs.

However, Wáng Lì actually believes that, in the history of the development of the Chinese language, the Chinese language was first influenced by Western culture only after 1840 (Wáng, 2013, pp. 492–504).[29] This view has had a profound impact – it has directly affected all branches of the Chinese language: phonetics, lexicon, grammar, etc., leading some other scholars to also believe that Chinese vocabulary was influenced by Western culture only after 1840. For example, Masini (1993) has focused on the process of absorbing foreign words in the late Qīng dynasty and he believes that the large number of foreign words absorbed into Chinese after the First Opium War of 1840 has formed an important part of the modern Chinese lexicon. Masini holds that Chinese had initial contact with the West (in this context, present-day Europe) and its languages after this period (Masini, 1993, p. 109).[30] Masini also mentions the role of missionaries in the formation of the modern Chinese vocabulary system in the Qīng dynasty (Masini, 1993, pp. 35–41).

After the Opium War of 1840, Chinese vocabulary did absorb a large number of foreign words from the West, thus filling a large number of gaps in the concept of Chinese word meaning. This is enough to fully show that Chinese vocabulary is not self-sufficient, so Masini's understanding (Masini, 1993, pp. 35–41) is more objective than the understanding of Dǒng (Dǒng, 2011, pp. 24, 35, 48–206, 208–256). But did the first Western influence

occur after the Opium War, as Masini and Wáng Lì argue? While Masini and Wáng Lì's focus on the Qīng dynasty is valid, missionaries began operating in China before the Qīng dynasty; by the end of the Míng dynasty, Ricci and other missionaries had already come to China. But current academic analyses of the impact of these late Míng dynasty missionaries on the Chinese language remain insufficient. What role did the Míng missionaries play in the formation of the Míng Chinese lexicon system? Gù Zhīchuān has argued that the Chinese lexicon of the Míng dynasty laid the foundation for the modern Chinese lexicon (Gù, 2000, p. 13). Whether this statement is true or not, it is an obvious fact that the vocabulary contributed by Míng dynasty missionaries is an important part of the Míng dynasty Chinese lexicon.

The lack of serious attention to the contributions made by the Míng-era missionaries to the Chinese lexicon has resulted in two misconceptions. First, there has been insufficient focus on Míng dynasty missionary literature as important language research material. For example, in the work of Masini (1993), as well as in the *Hong Kong Chinese Society's etymological dictionary*, the etymologies of new modern Chinese words refer to only a few Chinese translations from the late Míng and early Qīng dynasties; these include materials written by Jesuits and some diaries written by intellectuals between 1840 and 1898 (Hong Kong Chinese Society, 2001, p. 42; Masini, 1993, pp. 1–152). Therefore, some of the words originally coined by Míng missionaries, especially some astronomical, geographical, and theological terms, have been ignored by present scholars of Chinese linguistics.

Second, the extensive use of works in translation by 19th-century Protestant missionaries (see Masini, 1993, pp. 35–41) has meant that people have mistakenly identified the late Qīng as the formation period of some new words. This misconception has displaced Míng missionaries from their position in the history of the Chinese lexicon. While Masini (1993) has noticed that in the formation of the modern Chinese lexicon, some forces were external and were from missionaries (pp. 35–41), the nature of the missionary influence remains unexamined. What kind of role did the Míng missionaries play? As mentioned above, further discussion based on empirical research is needed.

1.7.3 Refutation of the Japanese origin of modern Chinese lexicon[31]

One of the results of cultural exchanges between China and foreign countries has been the large increase in new Chinese words, although Masini and Wáng have queried this (Masini, 1993, pp. 35–41; Wáng, 2013, pp. 492–504). However, Wáng (2013)'s discussion (pp. 492–504) has been rather more macro in scale, and his research has not been specific to the branch of linguistics, while Masini (1993) has limited the scope of his research to new words from 1840 to 1898.

Shěn (2010) focuses on Chinese-Japanese language contact and word exchange. Shěn (2010) actually limited the influence of foreign language on Chinese after the Opium War in 1840 and focused on the influence of

the Japanese language on Chinese vocabulary. For example, Shěn states that "among the 10,317 most important words in modern Chinese, there are 3,882 homographs both in Chinese and Japanese [my translation]",[32] which account for 37.6 percent of modern Chinese vocabulary (Shěn, 2010, p. 22). Wáng (1998) believes that the formation of the modern Chinese lexicon is mainly influenced by Japanese and claims that 70 percent of the terms in the social and human sciences we use today were imported from Japan.[33] Indeed, there are many loanwords of Japanese origin in modern Chinese. However, the above scholars' assertions have two shortcomings.

First, they mistakenly counted the forms that already existed in ancient Chinese and those that had the same meaning in modern Chinese as Japanese words that influenced Chinese. If we take a western word such as "literature," we can see that there are at least two translations in the Japanese language: *bunshō-gaku* 文章學 (ぶんがく) and *bungaku* 文學 (ぶんがく). In the later use of the language, *bunshō-gaku* was eliminated, whereas *bungaku* was widely recognized. Shěn Guówēi believes that the Chinese word *wénxué* 文學 (literature) is from Japanese (Shěn, 2010, pp. 203, 220, 264, 265, 303).

However, it is worth noting that the Chinese word for "literature," *wénxué* 文學, has a related word form in ancient Chinese, which can be found in *Shǐjì* 史記 [Records of the Grand Historian]: "一歲皆輒試，能通一藝以上，補文學掌故缺 (Confucian classics could fill **wénxué**'s vacancy (Sīmǎ, 90 BCE/2006, p. 2089)." Here, *wén-xué* 文學 is an official title. Thus, we can only say *wén-xué*'s meaning is from Japanese; however, its word form is from ancient Chinese.

The second shortcoming is closely related to the topic of this book. Some scholars attributed some of the terms originally coined by Ricci to Japanese scholars or others; for example, Shěn attributes the Chinese word *jiè-shuō* 界說 (definition) to Japanese scholars (2010, pp. 158, 160, 295,299, 300, 317, 318, 331) and attributes the Chinese word *rè-dài* 熱帶 (the tropics) to Giulio Aleni (1623)'s coinage (2010, p. 463); the lexicographer of *Hànyǔ dà cídiǎn* 漢語大詞典 [The Great Dictionary of Chinese] attributes the word *dì-qiú* 地球 (Earth) to the coinage of Wáng Tāo 王韜 (1828–1897) in the mid-to-late 19th century (Luó, 2008, p. 2772).

In fact, a careful review of Ricci's Chinese writings proves that these words were Ricci's creations. Therefore, an important goal of this book is to correct the etymology of many of these words that have been misattributed and to prove that they are Ricci's creations, thus proving that the formation of modern Chinese lexicon arises not only from Japanese, but also from the missionaries of the late Míng dynasty.

1.8 Conclusion

There are many explanations about the origins of modern Chinese lexicon based on the internal mechanisms[34] of the Chinese lexicon, including: (1) lexicalization as the only language mechanism which leads to Chinese disyllabic words, (2) initial contact with the West only after 1840, and (3) the Japanese

origin of modern Chinese lexicon. What these three theories have in common is their rejection of Ricci's missionary role in the evolution of Chinese lexicon. As a giant in the history of cultural exchanges between China and the West, Ricci not only made outstanding contributions to cultural exchanges, but also made a unique contribution to the development and evolution of the Chinese lexicon. An exhaustive analysis of the new terms he created helps to refute the explanations offered by the above theories about the origin of modern Chinese lexicon.

The theoretical significance of this book lies not only in its criticism of the irrationality of such theories about the origin of modern Chinese lexicon, but also in its revelation of the important influence of Ricci on Chinese vocabulary, lexical syllables, Chinese word-making methods, word meanings, and morphemes (the basic unit of word construction). This book will provide in-depth discussions on the religious terms, geographical terms, geometric terms, and astronomical terms created by Ricci and systematically analyze his contribution to the development and evolution of Chinese lexicon.

Notes

1 *Jīng-shì* 經世 means governance of the country and society, and *zhì-yòng* 致用 refers to meeting practical needs. In the early seventeenth century, thinkers such as Xú Guāngqǐ 徐光啟 (1562–1633), Gù Yánwǔ 顧炎武 (1613–1682), Wáng Fūzhī 王夫之 (1619–1692), Huáng Zōngxī 黃宗羲 (1610–1695), and Lǐ Yóng 李顒 (1627–1705) argued that scholarly studies should be geared to meet current needs. *Jīngshì* means governance of the country and society, and *zhìyòng* refers to meeting practical needs.
2 This notion of salvation is not related in any way to the Catholic notion of salvation. It means to save the nation from crisis.
3 Yangmingism is one of the main philosophical schools of the late Míng dynasty. The founder was Neo-Confucian philosopher Wáng Shǒurén 王守仁 (1472–1529). Yangmingism was later transmitted to Japan and had a great influence not only in Japan, but throughout East Asia.
4 Lǐxué 理學 was a Confucian school of idealist philosophy during the Song and Míng dynasties. The most important branch was the Cheng–Zhu school (Chinese: Chéng Zhū lǐxué 程朱理學), based on the ideas of the Neo-Confucian philosophers Chéng Yí 程頤 (1033–1107), Chéng Hào 程顥 (1032–1085), and Zhū Xī 朱熹 (1130–1200).
5 Topolect is to distinguish Chinese 方言 fāngyán from English dialect, see Mair (1991). I did not use the term "dialect" in this book because the term dialect is sometimes "misleading, and tends to have more social-political than linguistics significance (see Bourgerie et al., 2010, p. 2)."
6 Lǎmajiào 喇嘛教 (Lamaism) is a pejorative folk name for Tibetan Buddhism in China.
7 The Four Books and Five Classics are the authoritative books of Confucianism, written in China before 300 BCE.
8 The Japanese invasions of Korea took place from 1592 to 1598. The initial invasion was in 1592, and a second invasion occurred in 1597. In order to resist Japan's invasion of Korea, the Míng dynasty twice sent troops into the Korean Peninsula to fight against the Japanese army. The War ended in the victory of the Sino-Korean coalition forces.
9 Xuānwǔ Gate is a gate in Běijīng's former city wall.

10 In ancient times, Chinese culture originated at the Yellow River and Chinese believed that they lived in the middle of heaven and earth, so they called their country *zhōngguó* 中國 (lit: the country in the middle of the heaven and earth; *zhōng* 中 means middle) and were proud of this. One example of this is the claim by the scholar ShíJiè 石介 in the North Song dynasty (960–1127) that: *Jū tiāndì zhī zhōng zhě yuē zhōngguó, jū tiāndì zhī piānzhě yuē sìyí* 居天地之中者曰中國，居天地之偏者曰四夷 ("The country situated in the middle of heaven and earth is called China, and the country that lives in the remoteness of heaven and earth is called a foreign barbaric country"). See Shí (1035/1986, p. 232).
11 *Kūnyú wàn'guó quántú* contains Chinese explanatory statements.
12 See footnote 7 in this chapter.
13 See Venturi (1911); D'Elia (1942).
14 Mǎ Xiàngbó was a late Qīng and early Republican-era Chinese Jesuit priest, scholar and educator. He was involved in the establishment of Aurora University, Fu Jen Catholic University, and Fudan University.
15 Yīng Liǎnzhī was a prominent Catholic layman who campaigned for church reform. He also founded the prominent newspaper *Ta Kung Pao* and was one of the founders of The Catholic University of Peking.
16 See Zhōngguó wénzì gǎigé wěiyuánhuì (1958).
17 The original Chinese text in Luō Yú's work is: "中國語文非常難學，超出其他任何國家的文字，因為它無字母，字又多得不可計數，可說世界上有多少字，它也有多少字，因此為能達到會念的程度需要很長的時間 (Luō, 1986, p. 431)."
18 Chinese pinyin is the official romanization system for Standard Mandarin Chinese in Mainland China, and to some extent, in Singapore, Malaysia, Philippines and Chinatown in the United States.
19 Also called *Xīzì qíjī* 西字奇跡.
20 The May Fourth Movement was an anti-imperialist movement that occurred in Běijīng on 4 May 1919.
21 The original Chinese text of Wáng is: "(鴉片戰爭以後) 現代漢語新詞的產生，比任何時期都要多 (Wáng, 2013, p. 501)."
22 "Paraphrasing methods" refers to sense-for-sense for translating new concepts, such as *àn-mó* 按摩 (massage).
23 Zhū Wéizhēng does not arrange Ricci's works in chronological order. But to ensure temporal logic, this section introduces Ricci's Chinese works in the order in which he finished each one.
24 See Chapter 5 for the evidence of how *dì-qiú* 地球 was coined.
25 A cross-layer structure is a combination that is not at a syntactic level but is connected to a surface structure. For example, *xué-ér* 學而 (to learn) in *xué-ér-shí-xí-zhī* 學而時習之 (to learn and practice often) is a cross-layer structure.
26 I will discuss why the lexicalization hypothesis is not reasonable in Section 7.1.1.
27 See Section 7.1.2 for further discussion about why the Chinese lexicon's initial contact with west was not after 1840.
28 The original Chinese text of Wáng is: "漢語中來自國外的借詞和譯詞又可以大致分為三類:第一類是西域的借詞和譯詞，第二類是佛教的借詞和譯詞，第三類是西洋的借詞和譯詞 (Wáng, 2013, p, 493)."
29 Wáng (2013) did not discuss the Míng-era missionaries' contribution to the Chinese lexicon.
30 See 7.1.2 for the original text in Masini's work.
31 See more about why Modern Chinese lexicon has a Japanese origin is not reasonable in Section 7.1.3.
32 The original Chinese text in Shen's work is: "現代漢語最重要的10317條詞中，有中日同形詞3882條 (Shěn, 2010, p. 22)."
33 See Section 7.1.3 for more details for Wáng (1998)'s view.

34 The specific regularity of the development of linguistic units and categories is called the internal mechanism of linguistic development. Internal mechanisms are mainly caused by changes in the phonetic and grammatical structure of the language. The external mechanisms of language development are determined by social factors, such as sociocultural, religious, political, historical influences and contexts.

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2 Religious terms coined by Matteo Ricci

The late Míng dynasty was a period of close contact between Chinese society and Western culture. During this period, a large number of Western academic ideas were introduced into China, which had a great impact on China's academic, ideological, political, and economic spheres in what is known as the "Learning from the West" movement in academia. Matteo Ricci was the missionary who was most representative of this Western influence and had the greatest achievements. He was respected by the authorities in China and revered as "The Taisi Confucian" (Fāng, 1943, p. 187). Ricci not only spread Catholicism, but also promoted cultural exchanges between China and the West and made original contributions in many fields.

Because missionary work was his primary purpose, Ricci's most direct contribution was to the spread of Catholicism; and in the process of introducing religion, the establishment of Chinese Catholic terminology was one of his most important tasks.

The long process of creating contemporary Chinese Catholic terminology thus begins with Ricci. The first generation of Catholic missionaries in the Míng dynasty attached great importance to establishing terminology in order to spread Catholic concepts, and they used newly created terms as a bridge to promote the fusion of Chinese and Western ideas throughout the Míng and Qīng dynasties. In his Chinese writings, Ricci coined many Chinese religious terms, laying an important foundation for the Chinese language to absorb Catholic terminology. Therefore, it is of great academic value to systematically catalog the Chinese religious terms coined by Ricci and the methods he used to create them, as well as the rationale behind his methods.

Among the Chinese-language works that include religious terms coined by Ricci, the most important one is *Tiānzhǔ shíyì* 天主實義 [The True Meaning of the Lord of Heaven]. *Tiānzhǔ shíyì* was written by Ricci in collaboration with Chinese translators and was first issued in Nánchāng in 1595 and then published in Běijīng in 1603. Prior to writing *Tiānzhǔ shíyì*, Ricci's predecessor Michele Ruggieri (1543–1607) had already written and published a similar catechism called *Tiānzhǔ shílù* 天主實錄 [The record of the Lord of Heaven] in 1584.

DOI: 10.4324/9781003490159-3

But in late 1593, Alessandro Valignano (1538–1606), an inspector for Asian missions, determined that Ruggieri's book was less than ideal (Luó, 1986, p. 134). The main disadvantages of *Tiānzhǔ shílù* were threefold: the first disadvantage was that it mixed philosophical arguments based on natural reason with Catholic doctrines, so that its contents could not be easily understood; the second was the inclusion of Buddhist terms; and the third was that the rhetoric was not elegant enough. Valignano instructed Ricci to write a new catechism (Luó, 1986, p. 135). Thus, from 1594, when he was living in Sháoguān, Ricci began this task. Ricci's *Tiānzhǔ shíyì* followed an attempt to revise Ruggieri's *Tiānzhǔ shílù*; and although that attempt was ultimately abandoned, Ricci's own book included some elements of Ruggieri's earlier work (Lancashire & Peter Hukuo-chen, 1985, pp. 19–21).

In his dealings and debates with Chinese Confucian intellectuals and Buddhists, Ricci gradually added material and polished the text of his new catechism, and through his own experience of studying the *Sìshū* 四書 (*Four Books*),[1] he improved his understanding of Chinese language and culture and made a large number of revisions, including adding elements of traditional Chinese Confucianism in parts of the book, thus merging Catholic doctrine and Confucianism. *Tiānzhǔ shíyì* was finalized in 1603.

Ricci's *Tiānzhǔ shíyì* has a special significance in the history of cultural exchanges between China and the West. It was one of the first Catholic works to be translated into Chinese by Western missionaries. The most common version of *Tiānzhǔ shíyì* is the block-printed *Yàn-yí-táng* 燕貽堂 edition from 1607. *Tiānzhǔ shíyì* played an important role in the spread of Catholicism in China. In particular, its content was well adapted to the concept of Confucian ethics and it was relatively easily accepted by the literati and officialdom in feudal China. Under the pretext of supporting Chinese Confucianism, Catholic doctrine was covertly disseminated in *Tiānzhǔ shíyì*, and many of the religious terms in *Tiānzhǔ shíyì* facilitated the spread of Catholic messages under the cloak of Confucian words. Thanks to Ricci's grasp of the essential characteristics of the Chinese lexicon, his clever translation of Western religious terms, and his deep Chinese cultural knowledge, *Tiānzhǔ shíyì* propagated a large number of new religious terms into modern Chinese.

Although Ricci was a Catholic missionary, he developed a fervent love for Chinese language and culture. In accordance with his strong motivation for learning Chinese language and culture, he carried out an in-depth study of Chinese Confucianism, especially Confucian ethics. It is precisely because Ricci could understand Chinese culture so well that he could make full use of the Chinese language (the most important carrier of Chinese culture) in order to subtly spread foreign religious terms.

The goal of the Jesuit missionaries' coming to China was very clear: to spread the gospel (Catholicism) in China. In order to achieve this goal, the process of creating religious terms was of the utmost importance, and missionaries needed to have a very deep understanding of the linguistic and cultural characteristics of the target language. Ricci, as the one of first missionaries in

China during the Míng dynasty, adopted a policy of accommodation, which later proved to be a great success and had a profound impact on the cultural exchange between China and the West. This policy of accommodation has an important manifestation in the creation of terminology.

The creation of religious terms was ostensibly to express religious thoughts, values, concepts, and so on, but in fact, this terminology involved a great many elements of the cultural exchange between China and the West that occurred during the Míng and Qīng dynasties. With Jesuits as the main conduit, these religious terms embodied the collision and integration of Confucianism, Sinicized Buddhism, Taoism, and Catholic thought.

In order to successfully realize this dialogue and exchange of heterogeneous Chinese and Western cultural ideas, what fundamental adjustments did the Jesuits (mainly Ricci) make in their strategies for creating terms? How could Catholic terminology adapt the Chinese language system and the Chinese cultural system, thus enabling the successful Sinification of Catholicism? Such profound questions lie implicitly behind the creation of religious terms. To approach answering them, the following foundational questions must be answered: first, what Chinese religious terms did Ricci created in his religious writings (such as in *Tiānzhǔ shíyì*)? Second, what was Ricci's main method for coining religious terms in Chinese? Was transliteration or paraphrasing dominant? From the perspective of Chinese linguistics, what are the benefits of each method? Finally, what kind of missionary ideas and strategies are reflected in Ricci's creation of terms?[2]

In this section, I will first highlight *shàng-dì* 上帝 (God) and *sheng-jīng* 聖經 (the Bible), then discuss other terms. I select these first two terms not only because they are two of the most important concepts in Catholicism (God is the supreme and only God of Catholicism, and the Bible is the supreme scripture of Catholicism), but also because they represent especially good examples of one of Ricci's most important strategies, namely, paraphrasing, which is giving new meanings to existing words. This chapter also aims to compile an exhaustive collection of religious terms coined by Ricci. The chapter's "Sections 2.1–2.3" are intended to facilitate the work of the final sections, and "Sections 2.4–2.5" constitute an analysis of the word-making methods, sources, and masterful missionary strategies behind the terms.

The religious terms in *Tiānzhǔ shíyì* and related texts were coined entirely for the purpose of Ricci's mission of spreading Catholicism. Ricci used his paraphrasing method to convey the essence of Catholic terminology with the help of the cloak of Confucian terminology inherent in the Chinese language. He gave Catholic meaning to words and phrases that already existed in ancient Chinese. This type of word-making accounted for most of the terms coined and proved to be so effective for the missionaries that some items are still used in the religious lexicon in modern Chinese. Another method was to translate words directly by transliteration; this accounted for a very small number of the total, and these words are rarely used in the modern Chinese lexicon. The reason for this is closely related to the typical characteristics of the Chinese

language: the syllables in the Chinese lexicon that survive for a long time are those that are meaningful, while nonrepresentational syllables are short-lived.

In addition, the missionaries' superb proselytizing skills and their profound understanding of Chinese culture played an important role. Ricci was well aware that if the Chinese people (who were deeply influenced by Confucianism) were ever to understand the meaning of Catholicism, missionaries had to adopt an approach of "mixing the fictitious with the genuine," disseminating the essence of Catholic doctrine by cloaking it in Confucian words.

2.1 *Shàng-dì* and related terms

In Catholic doctrine, God is the only God, the creator and defender of this world. God created human beings and saved the sinful and fallen. He sent His only begotten Son, Jesus Christ, to atone for the sins of mankind and save all who trusted in Him. "The world exists because God wants it to exist (Wierzbicka, 2019, p. 3)." Therefore, God has a special and important cultural meaning in Catholicism. In order to successfully introduce Catholicism to China, Ricci had first to solve the problem of the translation of the word for "God." However, in Chinese cultural beliefs, there was already a supreme god worshipped by Chinese monarchs: *shàng-dì*. In ancient China, faith in *shàng-dì* stemmed from the worship of heaven. Under the influence of Taoism, *shàng-dì* acquired a new connotation, which was short for *Yù-huáng-shàng-dì* 玉皇上帝 (the Jade Emperor). Ricci's translation of "God" as "*shàng-dì*" naturally involves the delicate issue of how to deal with a symbol, *shàng-dì*, representing both traditional Chinese culture and Catholic ideas. Although it has been proved that it is possible to speak about God in a new conceptual language (Wierzbicka, 2018, p. 19), the Chinese translation of the word "God" is a sensitive matter in the cultural exchange between China and the West.

In the meantime, the translation of "God" as "*shàng-dì*" is one of the important foundational terms for Ricci's accommodationist missionary strategy. From the perspective of Chinese linguistics, the word-making method for *shàng-dì* in religious Chinese writings (such as in *Tiānzhǔ shíyì*) was to give Catholic meaning to words and phrases that already existed in ancient Chinese. This type of word-making was Ricci's main method of coining religious terms, and is why I have chosen *shàng-dì* as the first term for analysis in this chapter.

Shàng-dì 上帝

Shàng-dì originally meant "Supreme Deity" in the Confucian classics. It was first seen in the *Zīxià yìzhuàn* 子夏易傳 [Ten wings of Zi Xia]:

(1)
先王以作樂崇德，殷薦之上帝，以配祖考 (Bǔ Zǐxià, 770 BCE–476BCE/2018, p. 105)

> The kings of the first generation thus made music, used to praise merit, with a grand ceremony dedicated to the **Supreme Deity** who dominated everything, and let the ancestors enjoy the music.

Shàng-dì, also written simply as *dì* 帝, is the Chinese term for the Supreme Deity in the theology of the Chinese classical texts, especially deriving from Shāng 商 theology and finding an equivalent in the later *tiān* 天 (heaven) of Zhōu 周 theology.[3] *Shàng-dì* is a combination of two Chinese characters: *shàng* 上 and *dì* 帝. *Shàng* means "highest," and *dì* is typically considered as shorthand for *huáng-dì* 皇帝, the title of the emperors of China first employed by *Qín-shǐ-huáng* 秦始皇,[4] and is usually translated as "emperor." The word *shàng-dì* itself is derived from the *sān-huáng* 三皇 (the Three Sovereigns)[5] and *wǔ-dì* 五帝 (the Five Emperors),[6] including *huáng-dì* 黃帝,[7] the mythological originator of the Chinese civilization. However, *dì* refers to the "High God" of the Shang dynasty; thus, it means "deity" (god made manifest). Thus, *shàng-dì* actually means "highest deity" or "primordial deity" in Classical Chinese.

The emperors of China named themselves *tiān-zǐ* 天子 (sons of heaven). In traditional classical texts, the highest conception of the heavens was frequently identified with *shàng-dì*, who was described somewhat anthropomorphically. The conceptions of the supreme ruler, *shàng-dì*, and of the Sublime Heavens, *huáng-tiān* 皇天, subsequently absorbed each other. The concept of *yù-huáng-shàng-dì* 玉皇上帝 or *yù-huáng-dà-dì* 玉皇大帝 (the Jade Emperor) in Taoism appeared in the East Han dynasty; this concept was transformed by Confucian scholars, who thought that the supreme god was relentlessly attentive to major events in the world, ready to respond appropriately to reward or condemn. *Yù-huáng-shàng-dì* was one of the representations of the first god in traditional Chinese religion and myth. In Taoist theology, he was the assistant of *yuán-shǐ-tiān-zūn* 元始天尊, one of the three primordial emanations of the Tao.

Zhuāngzǐ[8] believed that everything is born in the Tao, and heaven is born from the Tao. *Yù-huáng-shàng-dì* thus became the highest god in the Tao. Two Song dynasty emperors, Sòngzhēnzōng 宋真宗 (968–1022) and Sònghuīzōng 宋徽宗 (1100–1126), highly respected Taoism, which thus greatly improved the prestige and popularity of the *yù-huáng-shàng-dì* among ordinary people.

The names *yù-huáng-shàng-dì* and *yù-huáng-dà-dì* came to refer to the same concept. The "Supreme Deity" is generally referred to as *yù-huáng-shàng-dì* within both Confucianism and Taoism, while it is referred to as *yù-huáng-dà-dì* by ordinary people.

Although the usage of "Heaven" to refer to the absolute God of the universe is predominant in modern China, *shàng-dì* continues to be used in a variety of traditions, including Chinese Protestant Christianity. It was during the Míng and Qīng dynasties, after Ricci's introduction of Roman Catholicism,

that the meaning of *shàng-dì* started to be applied to the Catholic concept of God.

Missionaries such as Ricci referred to the God who was worshipped in Catholicism as the creator and master of all things in the universe as *shàng-dì*. The word is equivalent to the Latin word *Deus* and first appeared in *Jiāoyǒulùn* 交友論.

(2)
各人不能全盡各事，故上帝命之交友，以彼此胥助 (Ricci, 1595, p. 32)
No one can do everything, so **God** asks everyone to make friends so that they can help each other.

When Ricci was allowed to enter China in 1582, his first stop was Zhàoqìng. In order to gain a firm foothold and successfully complete his missionary work, he had to cater to local officials and people. Ricci initially came up with the idea of gradually establishing contact with the Chinese under the guise of Buddhism and then convincing them to accept his teachings. Therefore, when Ricci was in Zhàoqìng, he wore a monk's robe and called himself a "Western monk" in order to win the trust of the officials and population.

After a period of time, he discovered that the Chinese literati were more accepting of Confucianism than Buddhism. His Chinese friend Qú Rǔkuí 瞿汝夔 also told him that if he appeared in the Chinese world as a "Western monk" for a long time, it would cause more and more of the literati to misunderstand and even resent Catholic ideas because Ricci would appear to be supporting Buddhism (and not the Confucianism preferred by the literati). Thus, with the consent of the Society of Jesus, Ricci and his colleagues grew their hair long, took off their robes, put on Confucian clothes, and began greeting their guests with *yīlǐ* 揖禮.[9] At this time, Ricci kept a close watch on traditional Chinese scholars, including Chinese officials.

In order to meet Zhū Duōkài 朱多炵, a member of the royal clan, Ricci officially wrote his first Chinese book, *Jiāoyǒulùn*, in 1595. He felt that instead of giving Zhū Duōkài gold and silver treasures, it would be better to offer his ideas about making friends. At this time, Ricci had been living in China for nearly ten years and had a deep understanding of how the Chinese literati made friends. Therefore, to cater to Zhū Duōkài's preferences, he kept silent about religion, but eloquently talked about how to make friends; this was highly appreciated by the officials and scholars at that time. He advocated the idea of equal and harmonious friendship that brought benefits to both sides, which embodied the Western ideas of fraternity and equality. This was very different from traditional Chinese Confucian notions of friendship. When dealing with interpersonal relationships in accordance with Chinese Confucianism, there must be a distinction between close and distant, with special emphasis placed on the relationships between ruler and minister, father and son, husband and wife, and older brother and younger brother. The ideas of fraternity and equality were very new to the Chinese at that time. It is in

Jiāoyǒulùn that Ricci first proposed the use of *shàng-dì*as the translation for the supreme deity of Catholicism.

When Ricci read and studied Chinese texts from a Catholic standpoint, he discovered the concepts of "*tiān*" 天 and "*shàng-dì*" and came to believe that these two words could be used to translate the word "Deus" (God). Later, Ricci learned that Zhū Xī 朱熹 (1130–1200) had interpreted "*tiān*" as a kind of Confucian doctrine (meaning the ethical and moral code of conduct accorded to certain Confucian thoughts). This was different from the meaning of "Deus" in the Bible, and thus Ricci eventually adopted *shàng-dì*. Although Ricci also adopted other translations afterward, including *tiān-dì* 天帝, *tiān-dì-huáng* 天帝皇, *zhǔ* 主, and *dǒu-sī* 陡斯, his original translation *shàng-dì* was the most successful, to the point where modern Chinese has fully adopted it.

Shàng-dì 上帝 appears many times in *Tiānzhǔ shíyì*:

(3)
上帝降生萬品 (Ricci, 1603, p. 8)
God bestows all things upon the universe.

Míng missionary Giulio Aleni also used Ricci's translation of *shàng-dì* in *Xīxuéfán* [Scholar from the West]

(4)
苦其身心，鏟滅名跡，以談道講學于萬國，以報上帝之恩 (Aleni, 1623, p. 20)
He suffered physically and mentally, and destroyed his reputation, so that he could speak and teach in all nations in return for **God**'s kindness.

Tiān-dì 天帝

Shàng-dì is sometimes written as *tiān-dì*. *Tiān-dì* refers to "The Emperor of Heaven" in the ancient Chinese language and has the same meaning as *shàng-dì*. Ricci regarded *tiān-dì* as the supreme God of Catholicism:

(5)
不知瞻仰天帝，以祈慈父之佑 (Ricci, 1603, p. 8)
……don't know how to admire **God** and beg for the blessing of my loving Father.

Tiān-dì-huáng 天帝皇

Tiān-dì is sometimes written as *tiān-dì-huáng* by Ricci, which has the same meaning as *tiān-dì* and *shàng-dì*.

(6)
人惡得為天帝皇耶 (Ricci, 1603, p. 86)?
How can an ordinary man be **supreme master** in heaven?

However, *tiān-dì* was in fact the "highest master" in ancient Chinese mythology. It is also an acronym for the *hào-tiān-shàng-dì* 昊天上帝 (God

of Heaven), who was the most powerful deity and the emperor who ruled all the heavens. As dynasties changed, the highest god during each was also different, but following the flourishing of Confucianism in China, all the highest gods in China's major myths were replaced by *hào-tiān-shàng-dì*. The official orthodox sacrifice was made toward *hào-tiān-shàng-dì*, the highest god of all dynasties, and this continued to be the case until the end of the Chinese imperial system.

Tiān-zhǔ 天主

Matteo Ricci also wrote in the *Tiānzhǔ shíyì* that:

(7)
吾國天主，即華言上帝 (Ricci, 1603, p. 8)
What we Westerners call ***Tianzhu*** is what the Chinese call ***Shangdi***.

The term *tiān-zhǔ* here refers to God, the eternal being who created all things.

Tiān-zhǔ is the Catholic term for the creator of the world. When the missionaries came to China to spread Catholicism at the end of the Míng dynasty, in order to distinguish the Catholic God from the gods that traditional Confucian and Taoist cultures believed in, missionaries called their religion *tiān-zhǔ-jiào* 天主教. Belief in the only true God of *tiān-zhǔ* who created the universe is regarded by Catholic believers as the supreme faith.

In traditional Chinese Taoist culture, *tiān-zhǔ* is the name of a Taoist god, also known as the *tiān-shén* 天神, who dominates the laws of nature as the God of heaven.[10] The Taoist *tiān-zhǔ* is one of the eight nature gods, together with *yīn-zhǔ* 陰主 (god of Yin), *yáng-zhǔ* 陽主 (god of Yang), *rì-zhǔ* 日主 (god of the sun), *yuè-zhǔ* 月主 (god of the moon), *dì-zhǔ* 地主 (god of earth), *xīng-chén-zhǔ* 星辰主 (god of stars), and *sì-shí-zhǔ* 四時主 (god of the four seasons); an evidence is from *Shǐjì* 史記 [Records of the Grand Historian]:

(8)
天神，一曰天主 (Sīmǎ, 90 BCE/2006, p. 2089)
The God of heaven is also known as **the supreme master**.

Another evidence is from *Shǐjì suǒyǐn* 史記索隱 [Delving into secret facts of Records of the Grand Historian]:

(9)
韋昭雲: "八神謂天、地、陰、陽、日、月、星辰主、四時主之屬。" (Sīmǎ, 679–732/2006, p. 122)
Wei Zhao said: "The eight nature gods, are **God of heaven**, God of Yin, God of Yang, G od of the sun, God of the moon, God of earth, God of stars and God of the four seasons."

Ricci directly used the form of the word *tiān-zhǔ* and conferred Catholic meanings onto it. Thanks to Ricci, *tiān-zhǔ*'s definition became "the master

of all things in the universe" in Catholic doctrine. In *Tiānzhǔ shíyì*, Ricci explained the meaning of *tiān-zhǔ* in more detail: Ricci believed that *tiān-zhǔ* and *shàng-dì* were one person and that the *shàng-dì*, which means "Lord of lords" in Confucianism, is *tiān-zhǔ* in Catholicism.

Zhǔ 主

Tiān-zhǔ is also abbreviated as *zhǔ* by Ricci:

(10)
主曰: "狂人!" (Ricci, 1608, p. 468)
God says: "Crazy man!"

The original meaning of *zhǔ* referred to an honorific name of the Three Lords and Nine Ministers in the Qin and Han dynasties.[11] The Chinese word form *zhǔ* was borrowed by missionaries such as Ricci, lending it the Catholic meaning of "God."

Shàng-zhǔ 上主

Zhǔ is sometimes written *shàng-zhǔ*.

(11)
日惟是潛心修德，以昭事乎上主，以為是獨行人也 (Ricci, 1608, p. 502)
He was regarded as a solitary individual since he strove after virtue and to practice good deeds in order to meet **God**'s demands every day.

Dǒu-sī 陡斯

Tiān-zhǔ is a paraphrasing word that was coined from the form of an ancient Chinese phrase.[12] Its corresponding transliteration[13] *dǒu-sī* (Deus, a transliteration from Latin) also exists in *Tiānzhǔ shíyì*.

(12)
天主，吾西國所稱"陡斯"是也 (Ricci, 1603, p. 81)
God is what we in the West call "**Deus**".

There are a few examples of the use of the transliteration of the word *dǒu-sī* in Qīng literature *Běiyóu lù* 北遊錄 [A record of travelling north].

(13)
救世者，一曰陡斯 (Tán, 1653/1960, p. 28)
The god who saves the world is also called **Deus**.

While initially he utilized the term *tiān-zhǔ*, Ricci gradually changed the translation to *shàng-dì* instead. His usage of *shàng-dì* was contested by Confucians in China, as they believed the concept of *shàng-dì* to be different from that of the Catholic God.

Indeed, during the Míng and Qīng dynasties, there were two major debates about the translation of the theological term *Deus* (God) in modern Chinese. The Catholic Church had the first debate in the 17th century. When Catholicism was introduced into China, the Jesuits had difficulty in deciding what the translation of "God" should be, so they first transliterated[14] the Latin *Deus* into *dǒu-sī*. Later, in 1584, Michele Ruggieri borrowed from the Chinese language to translate *Deus* freely as "*tiān-zhǔ*," which means "Lord of Heaven," in his book *Tiānzhǔ shílù* 天主實錄 [The true record of the Lord of Heaven]. Matteo Ricci also used *tiān-zhǔ* in the early days and then used both *tiān-zhǔ* and s*hàng-dì* in *Tiānzhǔ shíyì* in 1603. He even preferred using *shàng-dì* to *tiān-zhǔ*, since he believed that *shàng-dì* in the Confucian classics truly expressed the concept of God as the highest being recognized by Catholicism. However, after Ricci's death, the use of *shàng-dì* was opposed by Nicolò Longobardo due to his concern about the probable ambiguity of this existing concept in Confucianism (Minamiki, 1985, p. 93). Acting in defense of the purity of the Church's faith, Longobardo further criticized Ricci's missionary strategy as "pandering to Confucianism" and argued that "the Confucian classics of 'God' and 'Heaven'" had "their own religious connotations" in Zhū Xī's 朱熹 (1130–1200) Neo-Confucianism (Gray & Fiering, 2000, p. 117).

Longobardo was strongly opposed by Alfonso Vagnone (1566–1640), who supported Ricci's translation strategy (Brown & Tackett, 2006, p. 463). Vagnone thought Ricci's use of the term *shàng-dì* was a wise choice, putting forward four reasons: (1) the ancient Chinese already knew the term *shàng-dì*; (2) the understanding of *shàng-dì* could be found in classical Chinese literature; (3) the neo-Confucian comments on the Classics should return to the original meaning of the pre-Qin Confucian classics; and (4) a new definite meaning should be given to *shàng-dì* in classical Chinese literature from the perspective of Catholic religion (Brown & Tackett, 2006, pp. 467–469).

This sparked a fierce controversy over the use of *dǒu-sī* 陡斯, *tiān-zhǔ*, and *shàng-dì*. The debate, which exposed serious ideological differences within the Jesuits (Minamiki, 1985, p. 107), was unprecedented and could be called the root of the continuing debate over Chinese etiquette and the translation of Western terms (Gray & Fiering, 2000, p. 124). It finally led to the decision by Pope Clement XI, in 1704, that *tiān-zhǔ* was the official translation of *Deus* within the Catholic Church.

After 200 years, in the 19th century, the Protestant Church had a second debate. The Protestants' collaborative 100-year (1823–1923) translation effort, which culminated in the Union Version of the Bible, commonly known as the *shàng-dì* edition, has been described in detail (Zetsche, 1999, pp. 82–90). Although the Protestants first followed the Catholic Church in using *tiān-zhǔ* to translate *Deus*, they subsequently largely used *shén* 神 instead, which was considered the most common and understandable word. This is because the use of *tiān-zhǔ* had been proved a failure, since many Chinese mistook it for another deity: *pú-sà* 菩薩 (Bodhisattva) (Zetsche, 1999, p. 87). The English Protestant William Milne first subscribed to this view, but turned to advocate for the use

of *shàng-dì* in his later years because he believed that it could best express the highest reverence for the supreme and only "God" in Catholicism (Mungello, 1989, pp. 46–48). This triggered a heated controversy over the use of *shén* or s*hàng-dì*, as represented by American Protestants and English Protestants, respectively. English Protestant James Legge further developed William Milne's belief that the ancient Chinese people thousands of years ago did not worship multiple gods but only worshiped one supreme "God," *shàng-dì*, citing a large number of factual examples in the pre-Qin Chinese classics, which persuaded most people in the Protestant Church. Even though the American Bible Society initially insisted on using *shén*, it eventually changed to use *shàng-dì* when the use of the term became more and more popular after the publication of the Taiping Heavenly Kingdom's printed version of the Bible in 1839.[15]

2.2 *Shèng* 聖 and related terms

The Bible is the holy text of Catholicism, the medium through which missionaries spread Catholicism, and is thus of immense significance in the religion. Like the term *shàng-dì*, *shèng-jīng* 聖經 is a new word that draws on the phrase *shèngrén de jīngdiǎn* 聖人的經典 ("the scriptures of the saints") in ancient Chinese. Unlike *shàng-dì*, the word-forming morpheme *shèng* in *shèng-jīng* has evolved from an original Confucian symbol to become a dependably Catholic symbol. After it acquired its Catholic symbolism, *shèng* could be used as a compound-word morpheme to construct words. This phenomenon of morphemes representing Confucian symbols evolving into Catholic symbols is rare in the long history of the evolution of the Chinese lexicon because morphemes are fundamental units of language that cannot be further divided (essentially like the genes of the Chinese lexicon). Ricci subtly changed the genes of the Chinese lexicon, in a phenomenon that deserves in-depth study both from the perspective of sociocultural history and linguistics. To this end, this section begins with an analysis of the word formation of *shèng-jīng* and the abbreviated morpheme *shèng* from *shèng-jīng*. ***Shèng-jīng*** 聖經

Shèng-jīng means the Catholic Bible, consisting of the *Old Testament* and the *New Testament*.

(14)
且夫天堂地獄之報，中華佛老二氏信之，儒之智者亦從之，太東、太西諸大邦無疑之，天主《聖經》載之 (Ricci, 1603, p. 71)
China's Buddhism, Taoism, Confucian wisdom, and the Great Powers of the East and the West all believe that there are Heaven and Hell. They are recorded by the **Catholic Bible**.

Shèng-jīng in ancient Chinese originally referred to a book written by ancient Confucian sages. It was also referred to in the Classics of Confucianism and in the speech of the Confucians of the Sui, Tang, Song, and Míng dynasties.

Ricci used the phrase *shèng-jīng* to refer to a collection of religious texts, writings, or scriptures sacred to Catholics. As a result, *shèng-jīng* has gone from denoting a Confucian book to denoting the highest Catholic classic. *Shèng-jīng* began as the phrase "the book of the sage"; but after Ricci's translation, it became a word. This process is quite different from the process of lexicalization. Lexicalization, like grammaticalization, is part of the downgrading movement of language units, mainly phrase-to-word and word-to-bound-morphemes.[16] Dǒng especially emphasizes the mechanisms of metaphor and metonymy as an important factor in Chinese lexicalization, holding that lexicalization is mainly caused by the internal mechanisms of the Chinese language (Dǒng, 2011, p. 36). In other words, Dǒng sees lexicalization in terms of the laws of natural development *within* the Chinese language. The situation for *shèng-jīng* is somewhat different. As outlined above, thanks to Ricci's translation, *shèng-jīng* mainly evolved from the ancient Chinese phrase *shèng-jīng*, "the scriptures of the sages," into a new Catholic term *shèng-jīng*, "the Catholic Bible." This approach counts as paraphrasing and is mainly affected by external effects on the language. This approach is largely due to Ricci's role as an outstanding missionary who was knowledgeable of East and West.

Paraphrasing and lexicalization are not synonyms; they are different mechanisms for word generation. The paraphrasing inherent in *shèng-jīng* has incorporated an external force deriving from the work of the missionaries. Ricci cleverly borrowed the ancient Chinese phrase "Confucian book" (*shèng-jīng*) and wrapped it up as a Catholic classic. He did this by subtly carrying over the new religious meaning with the inherent linguistic meaning of *shèng*.

The traditional Chinese character for *shèng* is 聖 (now written as 圣), which is a phono-semantic compound. On the left side of its upper half is an ear and on the right is a mouth. The first meaning of *shèng* recorded in the Han-dynasty dictionary was: "to be sensitive to everything (Xǔ, 121CE/1998, p. 265)."[17] In modern Chinese, *shèng* can refer to the prestige religious believers give to the things they worship, as is the case with "*shèng*" in *shèng-jīng* (Bible). Its religious significance is clearly closely related to the work of Catholic missionaries.

In addition to its original meaning, *shèng* in ancient Chinese was generally associated only with Confucian ideology and morality and the feudal society that upheld it. This meaning can be divided into two levels: one is related to the emperor, the other to Confucian ideology and morality. The Confucian canon of "saints" or representatives includes Emperor Yáo 堯,[18] Emperor Shùn 舜,[19] Yǔ the Great 大禹,[20] Chéng Tāng 成湯,[21] Zhōu wénwáng 周文王,[22] and Zhōu wǔwáng 周武王.[23]

Words related to the morpheme *shèng* in ancient Chinese relating to the emperor were:

Shèng-cái 聖裁 (the emperor's rulings)
Shèng-jià 聖駕 (the emperor's horse)
Shèng-jiàn 聖鑒 (the emperor's testimonial)

Shèng-juàn 聖眷 (the emperor's patronage)
Shèng-lǜ 聖慮 (the emperor's thoughts)
Shèng-shòu 聖壽 (the emperor's birthday)
Shèng-zhì 聖治 (the emperor's governance)

Another word group consisting of the morpheme *shèng* mainly refers to things related to the most outstanding Confucian representatives, such as Kǒngzǐ 孔子 (Confucius)[24] himself. Indeed, "Confucius" is the most famous *shèng* symbol of the Chinese cultural system. The poet Dù Fǔ 杜甫[25] of the Tang dynasty demonstrated his care for the suffering of the common people in his poems and was therefore honored as *shī-shèng* 詩聖 (master poet).

However, *shèng* in the modern Chinese lexical system is no longer only a symbol of Confucian culture, but a representative symbol of Christianity. *Shèng* has morphed to create a large number of words that reflect Catholic culture, such as *shèng-jīng* 聖經 (The Bible), *shèng-mǔ* 聖母 (The Virgin Mary), and more:

Shèng-dàn 聖誕 (Jesus's birthday, or Christmas Day)
Shèng-dàn-jié 耶誕節 (Christmas Day)
Shèng-dàn-lǎo-rén 聖誕老人 (Santa Claus, also known as Father Christmas)
Shèng-dàn-shù 聖誕樹 (Christmas tree)

How has *shèng* come to be used as a cultural symbol indicating Christianity in modern Chinese? This must be attributed to missionary activities, especially Ricci's influence; he not only attributed Confucian words to Catholic teachings, but also changed the original meaning of *shèng* through the creation of a series of "*shèng*~ (聖~)" words. He coined a series of words including *shèng-mǔ* 聖母 (the mother of the Catholic savior), *shèng-jiào* 聖教 (Catholicism), *shèng-tú* 聖徒 (the disciples of Jesus), *shèng-shén* 聖神 (the Holy Spirit), and *shèng-zhǐ* 聖旨 (Catholic doctrine) to consolidate the Catholic meaning of the morpheme *shèng*. This series reflects Ricci's well-thought-out strategy: to subtly change the meaning of Confucian symbols and slowly Catholicize them.

Although Ricci wanted to promote the integration of Confucianism and Catholic thought, his most fundamental purpose was still to place Catholic thought above Confucianism in China, so as to promote Catholicism. Ricci knew that this process could not be achieved overnight; it had to begin with subtle and quiet changes to the meaning of the Chinese Confucian lexicon. These changes would eventually spread to morphemes, so that the genes of the Chinese lexicon would gradually come to carry Catholic meaning; hence, in the next few hundred years, Catholic culture would take root in the Chinese lexicon, and even become dominant one day.

Thus, familiarity with Confucianism was Ricci's strength, and Confucianism was also Ricci's tool. By taking the initiative to learn Confucianism and Chinese in order to facilitate the spread of Catholicism in China, he not only

Sinicized his way of life, but also tried to use Catholic doctrine and the history of the Chinese classics to prove that Catholic doctrine existed in ancient China and was not a "foreign product." Ultimately, because the purpose was to make Catholicism stronger, Ricci's achievements in delving into the Confucian scriptures enabled him to find points of convergence between Catholic culture and Confucian texts with high proficiency. The series of "*shèng~*" words is evidence of Ricci's success in creating religious terms. While this success was not immediate, very few Chinese people see *shàng-dì* as the Chinese supreme god or regard *shèng-jīng* as a Confucian classic in today's usage. As a case in point, *Xiàndài hànyǔ cídiǎn* 現代漢語詞典 [Dictionary of Modern Chinese] (7th Edition) does not define *shàng-dì* as the Chinese supreme god or *shèng-jīng* as a Confucian classic (Zhōngguó shèhuì kēxuéyuàn, 2016, p. 786). This shows that Ricci's missionary strategy, set out hundreds of years ago, played an important linguistic role in paving the way for the growth of Christian power in China today.

For the Chinese Confucian intellectuals of the late Míng dynasty, the Confucian morality of the sages and the virtuous was soaked into their bone marrow. Because Confucianism was so deeply ingrained in Chinese society, and adherents of Confucianism were so accustomed to using Confucianism as the norm of behavior, out of strategic consideration, Ricci could not deliver the core of Catholic thought without using wrapping it in the cloak of Confucianism. To this end, Ricci mainly altered two aspects of his work: the first is that after taking off his robe and changing into a Confucian costume, he began to learn about and integrate himself into the mainstream Confucian culture of Chinese society. Second, behind the change in clothing, Ricci changed his missionary ideology. He realized that his ability to accurately understand Confucian culture and to make clever use of it was the key to his ability to truly spread Catholicism in China.

Shèng-mǔ 聖母

Shèng-mǔ in ancient Chinese mainly referred to Taoist goddesses. Indeed, this was also the case in Míng and Qīng novels. For example, *Jīn-líng-shèng-mǔ* 金靈聖母 and *Guī-líng-shèng-mǔ* 龜靈聖母 are both goddesses in Xǔ Zhònglín's (許仲琳) Míng dynasty novel *Fēngshén yǎnyì* 封神演義[26] [Investiture of the Gods], in which both goddesses have great magical powers.

Shèng-mǔ was also a nontransgressive salutation that referred to the empress dowager in ancient Chinese. Before the Qīng dynasty, *shèng-mǔ* was widely used as a title to highlight the supremacy of the empress dowager. In the Qīng dynasty, there were several famous empress dowagers: after the Shùnzhì Emperor inherited the throne in 1644, his birth mother, the Empress Dowager *Xiào-zhuāng-wén* 孝莊文,[27] and her aunt, Empress Dowager *Xiào-duān-wén* 孝端文,[28] were both honored. Empress Dowager *Xiào-zhuāng-wén* was respected as "*shèng-mǔ*," and Empress Dowager *Xiào-duān-wén* was respected as "*mǔ-hòu*" 母后. In the late Qīng dynasty, Empress Dowager Cíxǐ[29] was also respected as *shèng-mǔ*.

Shèng-mǔ in ancient Chinese also refers to the birth mother of Confucius. Yán Zhēng 顏征 (568 BCE–535 BCE) was skilled at teaching and able to

provide guidance for her son. In recognition of her achievements, the Chinese people called her *shèng-mǔ*. An evidence is

(15)
孔子十有五歲,聖母顏氏卒 (Wèi, 1878/2009, p. 172)
When **Confucius** was fifteen, his **mother** Yan Shi died.

However, in the context of the close exchange between Chinese and Western cultures today, it is more common for the Chinese people to think of *shèng-mǔ* as the mother of Jesus, the Virgin Mary.

(16)
母親閉著眼微微的笑說: "我像觀世音了。"我也笑說:"也像聖母呢!" (Bīng, 1922/1954, p. 6)
Mother closed her eyes, smiled and said, "'I'm like Guanyin." I also smiled and said, "You are also like the **Virgin**!"

In example 16, the Chinese writer Bīng Xīn, who used the Catholic word *shèng-mǔ* 聖母, was a devout Catholic. The Chinese users of these terms are mostly converts to Catholicism, but non-Catholics in China are also aware of the Catholic meaning of these terms. The words *shèng-mǔ* (the mother of the Catholic savior), *shèng-jiào* 聖教 (Catholicism), *shèng-tú* 聖徒 (the disciples of Jesus), *shèng-shén* 聖神 (the Holy Spirit), and *shèng-zhǐ* 聖旨 (Catholic doctrine) are all included in the *Xiàndài hànyǔ cídiǎn* (7th Edition), thus objectively demonstrating Ricci's ability to create words in the late Míng dynasty that are still in use today by contemporary Chinese.

Ricci played an important role in the introduction of the concept of the Virgin Mary into the Chinese language and the creation of the Chinese word for it. Ricci and Xú Guāngqǐ translated "*Mater Dei*" from Latin (the language used by the Catholic Church at the time) as "*shèng-mǔ*." Sometimes, Regina ("queen") and other names for Mary are also replaced by *shèng-mǔ*. Note the following passage from the appendix of Ricci's *Tiānzhǔ shíyì*

(17)
天主聖母馬利亞，為我等罪人，今祈天主，及我等死候 (Ricci, 1603, p. 7).
Holy Mary, Mother of God, pray for us sinners now and in the hour of our death.

Shèng-mǔ in this passage refers to the Virgin Mary. Most of what we know about the Virgin Mary is from the New Testament, whose account of her humility and obedience to the message of God has made her an exemplar for Catholics through the ages. From the details supplied in the New Testament by the Gospels about the maid of Galilee, Catholic piety and theology have constructed a picture of Mary that fulfills the prediction ascribed to her in

the Magnificat: "For behold, henceforth all generations will call me blessed (Thomas Nelson, 1982, p. 2654)."

As with *shèng-mǔ* 聖母, in the following word-making activities, *shèng*'s 聖 Catholic meaning is built step-by-step into the creation of the *shèng* 聖~ word families.

***Shèng-jiào* 聖教**

Shèng-jiào in documents written by Míng missionaries mainly refers to "Catholicism." *Shèng-jiào* originally referred to Confucianism, Buddhism, and Taoism, which were the three main kinds of religions linked to Chinese culture. The highest faith in *shèng-jiào* was Confucianism, and Confucius was respected as the main teacher in *shèng-jiào*. Later, the Taoists distinguished *shèng-jiào* from Taoism. *Shèng-jiào* was replaced with the word *rú-jiào* 儒教 (Confucianism) from the Northern and Southern Dynasties. Confucius was then respected as the leader of *rú-jiào*.

Shèng-jiào in ancient Chinese can also be used as a specific phrase to refer to the teachings of saints in Confucianism:

(18)
去聖教，為異術，不若速死 (Sòng & Ōuyáng, 1060/1975, p. 36)
To abandon **the teachings of saints** and learn strange theology, it is better to die early.

Shèng-jiào in Ricci's *Tiānzhǔ shíyì* cleverly borrows from the concept of Confucianism, effectively using the strategy of "new wine in old bottles" to refer to Catholicism.

(19)
天主聖教亦將尋豪傑之人 (Ricci, 1603, p. 90)
Catholicism will look for bright people.

In Ricci's *Tiānzhǔ shíyì*, all mentions of *shèng-jiào* refer to Catholicism and have nothing to do with Confucianism or the teachings of saints in Confucianism.

***Shèng-tú* 聖徒**

"*Shèng-tú*" initially referred to "the disciples of the saint," and mostly to the people who believed in Confucius and spread Confucian culture. *Shèng-tú* is short for *shèng-rén-zhī-tú* 聖人之徒 (the saint's disciples).

(20)
程夫子，真聖徒 (Lǐ, 1472/1985, p. 78)
The Confucian scholar Cheng is a real disciple **to the saint**.

After Ricci came to China to spread Catholicism, *shèng-tú* in missionary documents no longer referred to "the saint's disciples" but instead to the disciples of Jesus.

(21)
天主已降生，托人形以行教於世。先誨十二聖徒，其元徒名曰伯多落 (Ricci, 1603, p. 31)

Jesus Christ was already born into the world and spread Catholicism in the world as a human being. He collected twelve **disciples**, the first of which was Peter.

Shèng-shén 聖神

"*Shèng-shén*" was a form of praise for the emperor in China's feudal era. *Shèng-shén* was also known as a saint in ancient China. Missionaries such as Ricci directly borrowed the form of *shèng-shén* to refer to the Holy Spirit in Catholicism.

(22)

吾察《天主經》，稱天堂者，居彼之處一切聖神，其無六禍 (Ricci, 1608, p. 489)[30]

I have examined the *Scripture of God*, which says that the **Holy Spirit** who lives in heaven is free from the six woes.

Some of the documents from the Taiping Heavenly Kingdom in the Qīng dynasty also (mis)interpreted Ricci's translation of *shèng-shén* 聖神:

(23)

聖神、真神、天父、神父，是上帝也 (Zhōngguó jìndài shǐ zīliào cóngkān, 2001, p. 171)

Holy Spirit, the real God, father of heaven and father of God, are all God.

Shèng-zhǐ 聖旨

Traditionally, *shèng-zhǐ* meant the will and command of the Chinese emperor. *Shèng-zhǐ* in the Yuan dynasty specifically referred to the emperor's order and admonishment to courtiers. *Shèng-zhǐ* also referred to the will of the Confucian saints. Sometimes, it was specially used for Confucius himself.

Matteo Ricci uses the word *shèng-zhǐ* to refer to Catholic doctrine.

(24)

得承大父聖旨，而遵守之也 (Ricci, 1603, p. 91)

Once we receive the **Catholic doctrine** from Jesus, we should obey it.

As can be seen in the process of making the "*shèng*~" ("聖~") word family, the morpheme *shèng* is no longer the original or inherent derivation, but has been given an external meaning, referring to things that are related to Catholicism. The morpheme *shèng* has become equipped with the ability to make more words. Missionaries such as Ricci quietly changed the features of the Chinese lexicon, borrowing the original meaning of the ancient Chinese term *shèng* and absorbing it to enable his deliberate dissemination of Catholicism.

The words listed above comprise the full set of words that Ricci himself created related to *shèng*. However, later, the Chinese people fully accepted Ricci's

method of word creation using "*shèng*~ (聖~)" and created additional words such as *shèng-dàn* 聖誕 (Christmas).

Shèng-dàn in ancient Chinese referred to the emperor's birthday.

(25)
所以白帝真人，當高秋八月五日，降西方之金精，采天長為名，將傳之無窮，紀聖誕之節也 (Wáng, 758/1977, p. 1356)

Therefore, the Taoist immortals named the White Emperor, after the fifth day of August in the autumn, descended an elixir called Golden Essence from the sky, and passed it on to the endless people in the world to congratulate **the birth of the emperor**.

Shèng-dàn 聖誕 in Chinese originated in the Tang dynasty. On his *shèng-dàn* 聖誕 (birthday), Emperor Táng Tàizōng 唐太宗 (598–649) would grant amnesty to the world, reward hundreds of officials, enjoy music with the people, and generally hold grand banquets, as well as cultural and artistic activities such as song and dance performances.

Ricci himself did not directly use the word *shèng-dàn* to refer to the birth of Jesus, but the Chinese people during the Republic of China did so, imitating Ricci's coinage of "*shèng*~ (聖~)" words. Before the creation of this modern word for Christmas, the phrase *yē-sū-dàn-chén* 耶穌誕辰 (The birth of Jesus) was used in the late Qīng dynasty.

(26)
明日為西曆十二月二十五日，即耶穌誕辰，即華人所謂外國冬至 (Major, 1884/2011, p. 1113)
Tomorrow is December 25 of the Western calendar, **the birthday of Jesus**, the festival which Chinese refers to as winter solstice.

In the Republic of China period, *shèng-dàn* was used in Chinese to represent the birthday of Jesus; it was more concise and economical than *yē-sū-dàn-chén* 耶穌誕辰.

(27)
迄今教民僅數百家，每七日禮拜一次，以西曆十二月二十五日為聖誕節 (Chén, 1945, p. 571)
So far, there are only a few hundred people who believe in religion, and they pray every seven days, making December 25 of the Gregorian calendar **Christmas**.

This example shows that the word-creation method adopted by Ricci continued to play an important role in the Republic of China period. With the Catholic meaning of the morpheme *shèng* provided by Ricci, religious holidays such as Christmas began to enter China.

Through the evolution of the word *shèng-dàn* in Chinese society, we can see the decline of the sage faith related to the core of traditional Confucian culture. Today, the emperor of ancient society, *shèng-dàn*, has long since died, and the word *shèng-dàn* has almost exclusively become a term for Christian holidays in China. Of course, there are inevitable factors of historical evolution, and there are also factors such as commercial hype that bolster the Christian meanings of *shèng-dàn*. However, the most important reason why Christmas has entered China and is better integrated into the lives of contemporary Chinese people is Ricci's contribution to religious terminology.

The initial spread of any religion is not an easy task. Ricci encountered many difficulties, which he surmounted by incorporating and refashioning Confucian terms and concepts in his presentation of Catholicism. Ricci's communication strategies for the dissemination of Catholic culture are expressed more clearly in his translation of *Jīrén shípiān*

(28)
信真聖人者，自西自東，自南自北，其一致耳 (Ricci, 1608, p. 489)
People who believe in the **true God**, from east to west, from south to the north, are one.

The above passage demonstrates that Ricci wanted to blend Confucianism with Catholic meanings, for the purpose of spreading religious concepts under the cloak of feudal imperial power and Confucianism. At that time, traditional feudal forces, such as the extremism of Confucians and Buddhist monks, were wary of adding meaning to inherent word forms already extant in the Chinese language. They were also wary of allowing Ricci to give words completely new meanings and regarded such behavior by missionaries as suspicious. For example, the change in the meaning of *shèng-mǔ* 聖母, which referred only to the empress dowager in Chinese feudal society, was regarded as a major reversal by the defenders of feudalism. Not long after Ricci's death, Confucian representatives of feudalism and Buddhist monks denounced the missionaries, but even this failed to prevent the use of *shèng-mǔ* and the *shèng*~ (聖~) word family by Chinese Catholics. With the increasing influence of Catholicism in Chinese, the morpheme *shèng*, which means "related to Christianity," became more and more present in word making.

2.3 Other religious terms

In addition to *shàng-dì* and its related terms, as well as the words consisting of the morpheme *shèng* and its related terms, Ricci also coined other religious terms that are important examples of modern Catholic terminology.

Yà-dǎng 亞黨 / *È-wà* 厄襪

Yà-dǎng (Adam) is the Biblical ancestor of mankind, dating back to when Jehovah created a man and a woman in his own image. The man was called

yà-dǎng; the woman was called *xià-wá* 夏娃 (Eve). In Míng Chinese, *xià-wá* was written as *è-wà*. The word forms *yà-dǎng* and *è-wà* first appeared in the *Tiānzhǔ shíyì*.

(29)
吾以此觀之, 可證當時果有亞黨、厄襪二人, 然而不可證其後之無伏羲、神農二帝也 (Ricci, 1603, p. 70)
Judged from this perspective, it can be proved that there was **Adam** and **Eve**, but it could not be proved that there were no two emperors called Fu Hsi and Shennong.

The literature of the Qīng dynasty for the most part continued with the translation of Adam as *yà-dǎng*.

(30)
黃帝之子孫，散居於中土; 亞黨之種族，漫衍于歐東 (Chén, 1826/2010, p. 378)
The descendants of Huangdi mainly live in Asia; the descendants of **Adam** mainly live in Eastern Europe.

The literature of the Qīng dynasty also for the most part continued with the translation of Eve as *è-wà*.

(31)
天始造人，男女各一; 男名亞當，女名厄襪，以為人類之初祖 (Hé, 1881/1964, p. 532)
God created one man and one woman when he began to create mankind. The man's name was Adam. The woman's name was **Eve**. They are the ancestors of mankind.

Xià-wá 夏娃 began to appear in the literature of the Qīng dynasty as well.

(32)
後造一男一女。男曰亞當，女曰夏娃 (Sūn, 1908/1983, p. 69)
Later God created a man and a woman. The man's name is Adam. The woman's name is **Eve**.

Jiàng-shēng 降生
Jiàng-shēng refers specifically to the birth of Jesus.

(33)
後三日，擇貞女為母，無所交感，托胎降生，名號為耶穌——耶穌即謂救世也 (Ricci, 1603, p. 74)
Three days later, he chose a virgin to be his mother, and without any intercourse, **He was born** under the name of Jesus – Jesus means salvation.

In ancient Chinese, *jiàng-shēng* generally referred to the births of emperors, kings, generals, and ministers.

(31)
蜀人受其賜且久, 今降生於世, 將為蜀帥, 必福坤維之人 (Cáo, 1614/2020, p. 698)
The people of Sichuan have been blessed by him for a long time. Now he **was born in the world** today, he must be the commander-in-chief of Sichuan, seeking the well-being of the local people.

Jiàng-shēng in modern Chinese now refers to the birth of Jesus.

(34)
巴勒斯坦有三處最著名的地方。第一處是基督降生的地方(Hillyer & Wáng, 2013, p. 33)
Palestine has three of the most famous places. The first is where **Christ was born**.

In the Roman Catholic Church, the birth of Jesus, as recorded in the Gospel of Matthew and Gospel of Luke in the *New Testament*, is celebrated during the Midnight Mass (liturgy) on December 24 or the Christmas morning liturgy on December 25. Ricci used the Chinese word for the birth of the emperor *jiàng-shēng* to refer to the birth of Jesus, thus skillfully achieving his purpose of spreading Catholic doctrine with the help of Confucianism.

Jiāo-shì 教士

Jiāo-shì traditionally referred to a trained soldier. See example (35).

(35)
君有此教士三萬人，以横行於天下 (Liú, 26 BCE/2015, p. 131)
Now you have 30,000 **trained soldiers**, you may overrun the whole world and go anywhere you please.

Ricci used *jiāo-shì* to refer to Catholic religious leaders.

(36)
所以天主教士以德報仇，宜也 (Ricci, 1608, p. 492)
So it's good for Catholic **missionaries** to repay injury with kindness.

Shí-zì-jià 十字架

Because Jesus was crucified on the cross, the cross thus became one of the symbols of the Catholic faith. In 1601, the word form *shí-zì-jià*, which means "cross," was found in Ricci's *Shàng dàmíng huángdì gòngxiàn tǔwùzòu*.

(37)
謹以原攜本國土物，所有天帝圖像一幅，天帝母圖像二幅，天帝經一本，珍珠鑲嵌十字架一座，報時自鳴鐘二架，《萬國輿圖》一冊，西琴一張等物，陳獻御前 (Ricci, 1601, p. 229)

Let me dedicate my country's special products to the emperor. They include a portrait of God, two portraits of the Virgin, a Bible, a **cross** set with pearls, two self-timing clocks, "A Map of Myriad Countries," and a Western piano.

Xiū-shì 修士

Xiū-shì traditionally referred to a person of noble morals. See example (38).

(38)
人臣之欲得官者，其修士且以精絜固身，其智士且以治辯進業 (Hán, 280 BCE–233 BCE/2003, p. 439)
The condition of those who want to be officials is that **those of noble morals** need to improve their moral cultivation, and their wisdom can handle all kinds of affairs properly.

Ricci used *xiū-shì* to refer to Catholic men who have left their homes to strive for virtue.

(37)
修士不謹言不成德 (Ricci, 1608, p. 474)
Catholic practitioners need to speak carefully in order to have great virtue.

Yē-sū-huì 耶穌會

Yē-sū-huì means the Society of Jesus.

(39)
萬曆三十三年歲次乙巳臘月朔，遇寶像三座，耶穌會利瑪竇謹題 (Ricci, 1607, p. 247)
"In December of the year of Yisi [1635 CE], I have seen three statues of God, inscribed by Ricci, who belongs to the **Society of Jesus**."

Zào-wù-zhě 造物者

Zào-wù-zhě in Catholicism is used to refer to "the God who creates all things."

Zào-wù 造物 was initially a phrase meaning "creating all things."

(40)
雷雨動而滿盈，造物之始也 (Bǔ Zǐxià, 770 BCE–476BCE/2018, p. 19)
Thunderstorms begin to appear, it is the beginning and **the creation of all things**.

Zào-wù also means "luck."

(41)
這是各人的造物，你管他怎麼 (Gōng, 1260–1330/1988, p. 143)
It's everyone's **luck**, it's nothing to do with you!

Zào-wù-zhě in ancient Chinese was also a phrase that referred to "the one who creates everything." This phrase was common in Taoist literature.

(42)
夫造物者之報人也，不報其人，而報其人之天 (Zhuāng, 770 BCE–476 BCE/2012, p. 316)
What **the creator** gives to people is not talent and ability, but their nature.

Zào-wù-zhě was used to refer to the Catholic creator God by Ricci. *Zào-wù-zhě* appears four times in *Tiānzhǔ shíyì*. For example:

(43)
造物者因其善否不易其性 (Ricci, 1603, p. 23)
The Creator does not change his temperament because of good and evil.

Zào-wù-zhǔ 造物主
After appropriating *zào-wù-zhě*, Ricci coined the word *zào-wù-zhǔ* through the small change from *zhě* 者 to *zhǔ* 主.

(44)
造物主每造一物, 即各賦予愛己之心 (Ricci, 1603, p. 26)
Every time **God creates** something, He gives himself the heart to love it.

It can be seen that the missionaries' superb proselytizing skills and their profound understanding of Chinese culture played an important role in coining religious terms. Ricci was well aware that if the Chinese people (who were deeply influenced by Confucianism) were ever to understand the meaning of Catholicism, missionaries had to adopt an approach of "mixing the fictitious with the genuine," disseminating the essence of Catholic doctrine by cloaking it in Confucian words.

2.4 Challenges to the religious terminology coined by Ricci

Although, from the perspective of Chinese linguistics, Ricci's translation of *shàng-dì* was very successful, it was impossible for everyone at the time to recognize this. In the centuries following Ricci's death, his innovation was

challenged three times by his colleagues and others. The first challenger was his successor Nicolò Longobardo (1565–1655). The second challenge came from the 100-year discussion (1823–1923) of the translation of "God" by Protestant missionaries, and the efforts by Johann Adam Schall von Bell (1592–1666) and other missionaries in the Qīng dynasty who to tried to change the term for God. The third challenge was from Chinese intellectuals and thinkers.

2.4.1 Challenge from Nicolo Longobardo

Longobardo, in defending the purity of the Church's faith, criticized Ricci's method of translating religious terms, demanding instead that transliteration should be the main method used. That is, he wanted to use *dǒu-sī* 陡斯 to translate "Deus/God," which led to serious ideological divisions within the Jesuits.

The missionaries who supported Ricci, represented by Alfonso Vagnone (1568–1640), had a fierce debate with Longobardo's faction about the creation of the term for God. This long-running "translation dispute," which lasted for more than 20 years, was a grand spectacle involving a large number of participants, a wide range of issues, and a discussion of the topics in unprecedented depth and scale. It is regarded as the trigger for the Chinese Rites Controversy.[31]

Longobardo criticized Ricci's coinage of *shàng-dì* because Ricci had favored Confucianism in adopting his translation of God and had argued that *shàng-dì* and *tiān* 天 in the Confucian classics had religious implications in the writings of Zhū Xī 朱熹 (1130–1200). For this reason, Longobardo objected to Ricci's appropriations of *shàng-dì* and *tiān* and advocated that Deus should be translated as *dǒu-sī* according to the principle of transliteration.

Longobardo's proposal to use *dǒu-sī* was made entirely from the point of view of religious purity, but he did not have the same in-depth understanding of the essential characteristics of the Chinese lexicon as Ricci. The combination of *dǒu* 陡 and *sī* 斯 could not have been successful; although *dǒu-sī* as a whole may refer to God, *dǒu* and *sī* are unrelated Chinese characters, thus raising the burden of memorizing new words. Such transliterations are unlikely to find a foothold in Chinese for long.

Thus, Longobardo's argument was made entirely from a religious point of view, not from the perspective of Chinese linguistics. In contrast, Ricci was well versed in the essential characteristics of the Chinese lexicon and familiar with Chinese culture and thus had great success in creating apposite religious terms.

2.4.2 Challenges from other missionaries during the Qīng dynasty

As mentioned earlier, Ricci's strategy of coining new religious terms was discreet and subtle. Recognizing the power of Confucianism in China at the

time, Ricci mainly used the cloak of Confucian words (paraphrasing words) to package Catholic words. However, the Qīng rulers soon adopted the strategy of expelling missionaries in order to maintain the orthodox status of Confucianism and strengthen imperial power. There were complex reasons for this, as well as factors of chance.

In 1644, the Qīng dynasty began its rule of China. Since the Qīng rulers were an ethnic minority in China, and China's dominant ethnic group, the Han nationality, looked down on ethnic minorities, the Qīng rulers tried to preserve the (Han-derived) Míng dynasty rules and regulations as much as possible to consolidate their rule at the beginning of the establishment of the Qīng dynasty.

During the reign of the Shùn Zhì Emperor (1644–1661), the first emperor of the Qīng dynasty who entered Běijīng, missionaries in China were relatively free and their ability to proselytize in China was also relatively stable. For example, in 1664, there were 38 hospitals built by Jesuits in China, 82 Jesuits came to China, and there were 156 churches in China with more than 245,000 Catholics (Laven, 2012, p. 112).

However, external conditions appeared in the Roman curia at that time that may not have been conducive to missionaries in China. In Ricci's era, Western missionaries to China were all members of the Jesuit order and had relatively unanimous opinions. Their rights as missionaries in the East (Asia) were protected by Portugal. The Roman Curia did not interfere too much with the methods used by missionaries to spread Catholicism, since the Diocese of the East (Asia) had also been established.

But by the middle of the 17th century, this situation had gradually changed. Portugal's power was declining, and it was no longer able to dominate the Eastern (Asian) missionaries. At that time, in addition to the Jesuits, there were other factions in Asia such as the Dominican Order and the Paris Foreign Missions Society. Over time, the opinions of these various factions had gradually diverged.

At the same time, in the middle of the 17th century, France began to rise in Europe, competing with other countries for religious authority in Europe. The Roman Curia also wanted to make good use of French power to weaken Portugal's position in spreading Catholicism in Asia. In 1658, Pope Alexander VII (1599–1667) appointed the French Jesuit priest Alexandre de Rhodes (1593–1660) to oversee the affairs of the Vietnamese church and to conduct missionary affairs south of the Yangtze River in China. However, the Portuguese resolutely opposed the intervention of the Roman Curia's envoys into China's religious affairs, and contradictions between the two sides developed (Luó, 1983, p 135).

Just as the Roman Curia began to work on weakening Portugal's protectorate of missions in Asia, the missionaries in China began debating the customs of worshiping heaven, Confucius, and ancestors in China. One faction believed that Chinese believers worshipped ancestors and idols, violating one of the Ten Commandments, which are a set of biblical principles relating to

ethics and worship that play a fundamental role in Catholicism. One school of thought was that any inherent Chinese custom that did not fundamentally conflict with the liturgy of the church should not be prohibited, and that missionaries should follow the principle of spreading Catholicism in the guise of Confucianism when preaching in China; that is, they should use the *Lìmǎdòu guījǔ* 利瑪竇規矩 (Ricci's rules).

At the beginning, the scope of the controversy remained small, limited to the various sects in China. Later, the controversy expanded, changing from a major debate between two factions to a factional debate that even affected international relations. Not only did the missionaries in the East participate in this dispute, but so did the churches throughout Europe.

In 1700, at a time of heated debate between the two factions, two Jesuits from France, Jean-François Gerbillon (1654–1707) and Claude de Visdelou (1656–1737), along with the German missionary Johann Adam Schall von Bell, raised the question of whether Catholics should worship ancestors, heaven, and Confucius in a discussion with the Kāngxī 康熙 Emperor (1654–1722) (Luó, 1983, p. 149).

Kāngxī still welcomed Catholic priests at that time. Indeed, the Kāngxī Emperor issued an order in 1692 marking the peak of the missionaries' power:

> Chadians and Westerners sailed thousands of miles to China because of their admiration for Chinese civilization. Today, our country is at a time of military conflict, and it needs to build weapons and artillery to send to Russia. These people serve with sincerity, succeed in their work, and have achieved a lot. The Westerners living in the provinces neither perpetrate outrages nor mislead our people with heresy. Temples of Lamaism and Buddhism still allow people to visit and burn joss sticks; Westerners do not violate the law, and it seems inappropriate to prohibit their religion. Therefore, all the Catholic Churches will be preserved as usual. For those who offer incense and worship are still allowed to visit the churches and there is no need to prohibit them. As soon as this order is given, it can be implemented in all provinces.
>
> (Huáng, 1883, pp. 116–117)

However, the controversy between other Catholic factions in Europe over the traditional Chinese practice of worshipping ancestors and Confucius objectively weakened the success of Ricci's and his colleagues' missionary work. In 1700, the Kāngxī Emperor issued an imperial edict pointing out that ancestor worship in China was nothing more than a reverential ritual, a commemoration of the past good deeds of the ancestors, and had no religious nature (Ibid., p. 119). But the Kāngxī Emperor's explanation fell far short of eliminating the division between the various factions in the Catholic Church. On the contrary, the clergy who opposed the Jesuits used the edict as a pretext to advance their own position, saying that it was unreasonable to ask the Pope for a solution in matters concerning not the Church, but the Emperor of China.

The views expressed by Gerbillon, Visdelou, and Schall von Bell to the Kāngxī Emperor were reported to Pope Clement XI (1649–1721) in 1700 by Charles-Thomas Maillard de Tournon (1668–1710), who also added inflammatory details with the purpose of supporting the Dominican Order and suppressing the Jesuit Society of Jesus. Tournon complained to the Pope that Ricci and others had violated Catholic doctrine by allowing the Chinese to worship their ancestors. The Pope made a decision in November 1704 that forbade the Chinese to worship their ancestors or Confucius, among other rites, and sent Tournon to China to resolve the dispute over etiquette (Luó, 1983, p. 200).

Tournon arrived in Macau in April 1705 and in Běijīng on 4 December. Unaware of Tournon's purpose, the Kāngxī Emperor received him in Běijīng on 31 December and then invited him to a royal banquet. On 29 June 1706, Tournon was received for the second time and asked to visit the royal garden in Changchun. The Kāngxī Emperor patiently explained Chinese Confucianism and Chinese etiquette to Tournon, explaining that the worship of ancestors, the sacrifice to Confucius, and respecting heaven was by no means superstition (Ibid., p. 214).

He clearly stated that the

> Chinese bow to the memorial tablets of the ancient ancestors, not to pray to the ancestors for blessings and high-ranking officials, but only to express respect for the ancestors. This is the most important thing in China, and it affects many aspects.
>
> (Editorial Board of the National Palace Museum, 1982, p. 1605)

He also emphasized that "the discourses of your Catholics in worshiping God and the discourses of Chinese worship of heaven have different expressions, but they have basically the same meaning (Ibid., 1982, p. 1606)."

However, Tournon believed that the Kāngxī Emperor was wrong. He brought another French missionary, Charles Maigrot (1652–1730) from the Paris Foreign Missions Society, into Běijīng and attempted to persuade the Kangxi Emperor to accept Pope Clement XI's decision about the resolution of the Chinese Rites Controversy (Luó, 1983, p. 220).

Maigrot spoke only the Hokkien topolect and did not speak the Běijīng topolect, so his conversations with the Kāngxī Emperor could only be conducted through translation. The Kāngxī Emperor asked him questions about *tiān* 天 (Heaven), *tiān-zhǔ* 天主 (God), and *shàng-dì* 上帝 (God) and found Maigrot's answers very unsatisfactory. The Kāngxī Emperor thought that people like Maigrot who dared to talk about the Chinese Confucian classics and the worship of ancestors were like people standing outside the door of a house, never entering, but discussing the things in the house. There was no basis for Maigrot's arguments. This caused the emperor great displeasure, and he asked Tournon to leave Běijīng immediately in August 1706 (Chow, 2022, p. 224).

After leaving Běijīng, Tournon arrived in Nánjīng on 20 August 1707. In order to encourage all Jesuit missionaries in China to be enthusiastic about science and compel them to abide by the laws of the Qīng dynasty, the Kāngxī Emperor exhorted the clergy of various sects to reconcile and quell their sectarian strife. In addition, he issued an order stating that all clergy who obeyed Ricci's rules would receive a red ticket issued by the Běijīng imperial court and be allowed to live and preach in China. Missionaries who did not follow Ricci's rules were not allowed to reside in China (Luó, 1983, p. 225).

As outlined above, Ricci's rules, which created Catholic terminology by packaging Catholic doctrine using Confucian word/phrase forms, allowed Chinese Catholics to continue the old customs of worshiping heaven, the ancestors, and Confucius. However, Pope Clement XI had abolished Ricci's rules in November 1704. Tournon had not only been successful in petitioning the Roman Catholic Church to abolish the rules, but in 1707, after arriving in Nánjīng, he also promulgated a ban on "illegal rites," despite the opposition of the Kāngxī Emperor. Tournon condemned those "illegal rites" that violated Catholic doctrine, including ancestor sacrifice, the worship of Confucius, and the worship of the heavens. He specifically forbade churches from hanging the plaque given by the Kāngxī Emperor that displayed the words "*jìng-tiān* 敬天" ("Respecting the Heavens") and threatened those who violated the above prohibitions with expulsion from the church (Ibid., 1983, p. 234).

This infuriated the Kāngxī Emperor, who began to order the expulsion of missionaries who did not follow Ricci's rules. On May 24, Tournon arrived in Guǎngzhōu and Kāngxī ordered him to be escorted to Macau, where he was heavily guarded by Portuguese soldiers (Ibid., 1983, p. 236). The enraged emperor also ordered Tournon to be imprisoned in Portuguese Macau, where he died of illness.

The reasons for the Kāngxī Emperor's anger were twofold. First, Western priests forbidding the hanging of the plaque inscribed with "Respecting the Heavens," written by the emperor's own hand, in the China he ruled, was an insult to his sacred dignity. Second and more important, the inherent Confucian foundation of the Chinese nation had been seriously challenged by Catholic doctrine. If such concessions were tolerated, the ideological foundation on which the Qīng emperor ruled would be completely shaken. Therefore, the Kāngxī Emperor adopted partial prohibition measures in order to expel the arrogant priests.

In the last years of the Kāngxī reign, China expelled the papal envoys and ordered a nationwide ban on foreign religion. This was an unexpected blow to the Roman Catholic Church and Pope Clement XI. Therefore, the Pope immediately changed his original attitude about Chinese rites and sent envoys to save the Catholic Church from the crisis in China. In 1723, he sent the Portuguese priest Alexandre Metelo de Sousa e Menezes (1687–1766) as an envoy. In 1727, Menezes arrived in Běijīng via Macau, pilgrimaged to the Yōngzhèng 雍正 Emperor (1678–1735), performed a thrice-kneeling and nine-times bowing ceremony, presented a large number of gifts, and implored

the Qīng government to protect the Portuguese in Macau and the Chinese mainland (Luó, 1983, p. 251). Yōngzhèng granted this request, agreed to allowing the Portuguese to continue to stay in Macau, and gave them special preferential treatment when Menezes returned to Macao.

But just as the conditions for freely proselytizing were at hand, the unexpected happened. It was discovered that Yǔn Sì 允禩, the younger brother of Yōngzhèng and the eighth son of Kāngxī, planned to seize the throne in the last years of the Kāngxī dynasty. The plot involved the Jesuits, Yǔn Sì's uncles and brothers in the royal family, and a Catholic figure named Sūnǔ 蘇努 and Sūnǔ's family.[32] When Emperor Yōngzhèng discovered the deep involvement of the missionaries, he was furious. He ordered the persecution of the Sūnǔ family, imposed a severe ban on foreign religion, and vented his anger on Menezes. On 21 July 1727, Yōngzhèng summoned the other Jesuits who were in Běijīng at that time to the Old Summer Palace (The First Historical Archive of China, 1991, p. 121). He launched into a verbal attack on Catholicism, compared it with religious cults, and issued an edict against religion. A nationwide wave of antireligious sentiment followed. The ban on religion caused the 300,000 Chinese people who had converted to Catholicism in the last years of the Kāngxī dynasty to lose their spiritual shelter,[33] and all foreign missionaries were expelled from Macau. This situation continued until the Opium War (Luó, 1983, p. 249).

Thus, both the Kāngxī Emperor and Yōngzhèng Emperor were involved in the turn against Catholicism. From the beginning of the Qīng dynasty until about 200 years before the Opium War, in order to ensure the stability of the Qīng regime, the rulers strengthened their ideological rule, practiced cultural autocracy, and pursued a literary inquisition, resulting in a "*wànmǎqíyīn*" 萬馬齊喑 (lit. "10,000 horses standing mute"; dreary and repressive) ideological and cultural situation. Regarding the treatment of foreign missionaries, the Qīng government issued a ban on religion from the 56th year of the Kāngxī Emperor (1717). This ban was maintained by the Yōngzhèng, Qiánlóng 乾隆 (1711–1799), Jiāqìng 嘉慶 (1760–1820), and Dàoguāng 道光 (1821–1850) emperors, until it was lifted in the 24th year of Dàoguāng (1844). These 127 years have been called *bǎinián jìnjiào* 百年禁教 ("hundred year ban on religion"). In the meantime, large-scale expulsions of missionaries occurred in various places, and churches were confiscated and converted into Buddhist temples or government offices, warehouses, and schools.

Because the missionaries had become involved in court struggles and government affairs, the rulers loathed them. During the reign of the Yōngzhèng emperor (1678–1735), many missionaries were imprisoned. Therefore, even though China experienced the *kāng qián shèngshì* 康乾盛世 (high Qīng era) before the Opium War, which was relatively stable, due to the rigid system and *bìguān suǒguó* 閉關鎖國 ("cutting off the country from outsiders"), the situation for foreign cultural exchange was far worse in the late Qīng than in the Míng dynasty. This situation continued until the outbreak of the Opium War in 1840.

Against such a complex backdrop, some missionaries remained skeptical about Ricci's creation of terminology. This questioning by fellow missionaries of Ricci's innovation of *shàng-dì* was closely related to the relatively greater difficulties of doing missionary work in the Qīng dynasty. Although Walter Henry Medhurst (1796–1857), Karl Friedrich August Gützlaff (1803–1851), and Elijah Coleman Bridgman (1801–1861) had decided on using *shàng-dì* instead of *shén* 神,[34] Bridgman now once again proposed that *shén* be employed for "God," resulting in a debate lasting several days. The predominant choice of the Protestants was ultimately *shàng-dì*, instead of *shén* and *tiān-zhǔ* 天主.

In addition, missionaries to China in the Qīng dynasty also tried many times to change the translation of "God" to other terms, but based on what is used in Chinese today, none succeeded. For example, in the year 1629, Johann Adam Schall von Bell translated God as *zhǔ-zǎi* 主宰 (lit, sovereign ruler).

(45)
夫人信有主宰，修身繕性，自不容己，豈非真德之本乎 (Schall von Bell, 1629/2000, p. 33)
If someone believes in **God**, cultivates his moral character and does not act for his own interests, isn't this the basis of true morality?

Robert Morrison once translated **God** as *dà-zǎi-zhǔ* 大宰主 (lit. great sovereign ruler) in the year 1822. Morrison wrote in his dictionary:

> God by the Jesuits at one time was called 上帝 Shang-te;they seem also to have used 天 teen, heaven, in this sense; but subsequently the Latin church has ordered 天主 Teen Choo, 'The Lord of Heaven', to be used of the True God. By a phrase they also say 天地萬物之主 teen te wan wuh che Choo, the Lord of heaven, earth, and all things; or instead of the last word Choo, they say 大宰主 ta tsae choo, Great Sovereign ruler. (Morrison, 1815/2002, p. 366)

Walter Henry Medhurst translated Jehovah into *yé-huá* 爺華 in *Xiá'ěr guànzhēn* 遐邇貫珍 [Chinese serial] in 1853.

(46)
我爺華，爾之神 (Medhurst & Hillier, 1854, p. 38)
Our **God** is your Supreme Lord.

Wylie (1815–1887) use a transliteration "*yē-hé-huá* 耶和華" of "Jehovah" in *Liùhé cóngtán* 六合叢談 [Discussions about the universe] in 1857.

(47)
我耶和華鑒察人心，視人所行，而加報施是也 (Wylie, 1858/2006, p. 15)

> Our **God** sees the human heart and determines a person's reward and charity according to his deeds.

The activities of missionaries in China during the Míng and Qīng dynasties were some of the first exchanges and collisions between Western civilization and Chinese civilization. Ricci's cleverness lay in the fact that by quietly changing the Chinese lexicon, and thus changing the genetic "morphemes" inherent in it, his strategy became extremely successful without the knowledge of the Míng rulers. Even when the rulers of the late Qīng dynasty expelled missionaries, they could not stop the successful changes in the Chinese vocabulary system that had been made by Catholic forces. When the Jesuits came to China to preach, they faced great Eastern powers with long histories, cultures, and profoundly entrenched ideological traditions; this was quite a different situation from Africa and the Americas. In order to successfully proselytize in China, it was necessary to understand the situation in China in order to mitigate against the rejection of missionaries and Catholicism. Ricci was a daring experimenter and reformer and the first to utilize an approach adapted to Chinese customs.

Ricci learned Chinese modestly and prudently, respectfully wore Confucian clothes, worked hard to accept and adapt to Confucianism, made Chinese friends, and Sinicized himself as the initial step in his missionary work. His purpose in doing so was to change the vocabulary of the Chinese language. His words and deeds in China would become an example for later Jesuits to follow.

Matteo Ricci's communication strategies were most clearly expressed in his translation of *Jīrén shípiān*, in which he wrote, "*Xìn zhēn shèngrén zhě, zì xī zì dōng, zì nán zì běi, qí yīzhì ěr* 信真聖人者，自西自東，自南自北，其一致耳" (Those who believe in the true sage are the same whether they come from the west, the east, the south, or the north) (Ricci, 1608, p. 34). It seems that Ricci wanted to combine Catholicism with Confucianism, and the purpose of doing so was to spread religious concepts under the cloak of feudal imperial power and Confucianism.

As discussed in the next section, Ricci's innovations in the creation of religious terms still possessed advantages in the context of the Qīng dynasty, which was relatively unfavorable for missionaries hoping to spread Catholicism.

2.4.3 Challenges from Chinese intellectuals and thinkers in the late Qīng dynasty

The traditional forces such as the emperor and some intellectuals at the time were wary of Matteo Ricci's way of reforming the inherent word formation of Chinese words and could not tolerate the arrogant behavior of Matteo Ricci and other missionaries in the use of vocabulary. Thus, Chinese intellectuals and thinkers of the late Qīng dynasty tried to innovate on the Chinese translation of the word "God." In 1890, Huáng Zūnxiàn 黄遵憲 (1848–1905),

a Chinese exchange student who went to Japan, advocated the use of *dá-wéi-sī* 達維斯 for God.

(48)
甯死往天堂，口唱達維斯不止，達維斯謂上帝也 (Huáng, 1895/2005, p. 153)
In order to go to heaven after dying, they have never stopped saying *dá-wéi-sī*. *Dá-wéi-sī* means **God**.

Modern Chinese ideologist, philosopher, and thinker Zhāng Bǐnglín 章炳麟 (1869–1936) translated God as *yē-hé-wǎ* 耶和瓦 in 1906.

(49)
其心既起滅無常, 則此耶和瓦者, 亦必起滅無常 (Zhāng, 1906/2014, p. 177)
Since his heart is intermittently visible, **God**'s heart must be the same.

None of the above terms – neither Schall von Bell's 1629 translation *zhǔ-zǎi* 主宰 nor Morrison's 1822 *dà-zǎi-zhǔ* 大宰主, Medhurst's 1853 *yé-huá* 爺華, Wylie's 1857 *yē-hé-huá* 耶和華, Huáng's 1895 *dá-wéi-sī* 達維斯, or Zhāng's 1906 *yē-hé-wǎ* 耶和瓦 – were as successful as Ricci's coinage of *shàng-dì* 上帝. Missionaries, intellectuals, and thinkers of the late Qīng dynasty tried to create a different term for God, but failed to match Ricci's achievement.

Now there are almost no Chinese people who do not regard the word *shàng-dì* as referring to the Christian God, and the word form *shàng-dì* is regarded as foreign, when in fact it was originally completely Chinese.

Despite actions such as Nicolo Longobardo's request to replace Ricci's paraphrased term with a transliterated term; the suppression of missionaries by some of the emperors of the Qīng dynasty; Protestants' collaborative 100-year questioning of Ricci's terms; and the attempts by other missionaries, intellectuals, and Chinese thinkers to seek new terms to replace the terms coined by Ricci, these terms have persisted into modern Chinese. The Catholic terminology in Chinese today is still largely a product of Ricci's innovations.

Over the course of centuries of evolution, the use of the term *shàng-dì* in actual missionary work has demonstrated its indisputable superiority. Ricci's coinages have been proven in practice; and his word-creation method was adaptable to Chinese language and society, providing the ideological resources for evangelization theory and a protective umbrella for the stable development of the church in China.

If Ricci's method for coining religious terms had been inadequate, the cradle church that the missionaries had worked so hard to develop could at any time have faced the danger of dying in China. The persistence of *shàng-dì* has proven the correctness and superiority of its use as a paraphrasing word. Compared with pure transliterations such as *dǒu-sī* 陡斯, the paraphrasing word *shàng-dì* makes better use of Chinese characters and is easier to integrate into the Chinese

lexical system. What is more, Ricci's word-making method has played an important role in the popularity of words such as *shèng-dàn-jié* 聖誕節 (Christmas), a clear indication that no ruler of China could prevent at least some Chinese people from accepting and believing in Christian teachings.

2.5 Matteo Ricci's word-making methods for Catholic terminology

The composition methods for all new words follow lexical word-making rules. Rèn (1981) first put forward the term "word-making methods" to discuss five main word-making methods in his book: phonetic word-making methods, semantic word-making methods, grammatical word-making methods (or morphological word-making methods), rhetorical word-making methods, and comprehensive word-making methods (p. 3). In the narrow sense, a word-making method refers to a method of combining morphemes into words and thus belongs to morphological word formation (grammatical word formation) (Rèn, 1981, p. 5).

It can easily be seen from the above analysis that Ricci adopted different word-making methods compared with Five Methods introduced by Rèn (1981). Since Ricci's creation of Catholic terminology is an important foundation for the successful later spread of Catholicism, it is necessary to discuss in detail the word-making methods used in making the religious terms coined by Ricci.

2.5.1 Paraphrasing words are dominant among religious terms

Among the religious terms coined by Ricci, paraphrasing words are in the majority. "Paraphrasing" words are created by drawing on Chinese's own language resources while taking meaning from another language. Because the forms of such paraphrasing words are inherent in the Chinese language itself, while the meanings of the words have also been modified, the words will not be recognized as foreign (Zhāng, 2019, p. 12). However, from a semantic point of view, the naming processes of their etyma (words from which later words are derived) do not share the same cultural background with Chinese or take place under an integral cognate system;[35] they should not be viewed as indigenous Chinese words.

Most of the religious terms coined by Ricci are new in meaning but are added to ancient Chinese phrases, such as the already mentioned *shàng-dì*, *tiān-zhǔ* 天主, *zhǔ* 主, *shèng-jīng* 聖經, *shèng-jiào* 聖教, *shèng-tú* 聖徒, *jiàng-shēng* 降生, and *zào-wù-zhě* 造物者 / *zào-wù-zhǔ* 造物主, as well as *tiān-guó* 天國 (kingdom of heaven), *fù-huó* 復活 (Jesus's resurrection), *chǒng-ài* 寵愛 (God's love for Catholics), *tiān-shén* 天神 (Catholic God), and *líng-hún* 靈魂 / *hún-líng* 魂靈 (Catholic soul).

The exceptions to this are a very small number of examples of transliterated words that coexist with paraphrasing words, such as *dǒu-sī* 陡斯 coexisting

with *tiān-zhǔ*. In some very rare cases, the transliterated words gain an advantage, such as *yà-dāng* 亞當 / /*yà-dǎng* 亞黨 (Adam) and *È-wà* 阨襪 (Eve).

Nonetheless, among the religious terms coined by Ricci, paraphrasing words have a longer life span. The stability of transliterated words is generally poor. This situation may be related to the preferential treatment of phonetics in the process of word-making. The stability of paraphrasing words is strong, and many such words continued to persist in the Qīng dynasty and even into the modern Chinese lexical system, becoming an important basis for modern Catholic terminology.

2.5.2 Why paraphrasing words have an advantage

Why did Ricci's paraphrasing words have an advantage among the religious terms he coined? From a linguistic point of view, there are three main reasons.

First, with respect to phonetics, the syllabic structure of ancient Chinese words was dominated by monosyllables and disyllables, with fewer multisyllabic items. Many foreign words, most of which are translated phonetically, tended to use more syllables when they first entered Chinese. The syllables used were not usually an accurate representation of the meaning, so they were not well adapted to the internal mechanisms of Chinese. In this sense, transliterated words are used only in a certain range of Chinese, and the users are usually a minority, so universal use is not common.

We can speculate that many religious terms took on the form of paraphrasing words from the period encompassing the Míng and Qīng dynasties, as illustrated in the competition between *dǒu-sī* 陡斯 and *tiān-zhǔ*. *Tiān-zhǔ* gradually gained an advantage as a paraphrasing word and was more easily accepted into the Chinese language system. *Shàng-dì*, being the name of a god in ancient Chinese history, is also a paraphrasing word coined using the inherent forms of ancient Chinese.

Second, from the point of view of sociocultural relations, among the elements of language, words are most closely related to social life, so they best reflect changes in that area. Because of rapid social changes, the method of transliteration was initially the most effective method of introducing new concepts in the late-Míng dynasty because of the seeming ease of matching phonemes, and a large number of new concepts entered into the Chinese lexical system through direct transliteration.

However, in the evolution of words, some words may quickly disappear or be replaced by newer terms, and it is often the case that multiple forms of words are used over time. From the perspective of continuity, the competitive relationship between transliterated words and paraphrasing words forms the basis of language development. In the historical process of overlap between old and new, the competition between transliterated words and paraphrasing words is a common phenomenon in word evolution. In the course of development, words that are not easily expressed using Chinese characters must be constantly adjusted, eliminated, or gradually reshaped.

Although the method of transliteration is simple and direct, many such words do not reflect the connotations and extensions of foreign words well, and many are long and ambiguous. With the expansion of the scope and frequency of use of transliterated words in Chinese, people's understanding of the concept behind these words also deepened, so the Chinese language gradually made adjustments to transliterated words and began to use its own language materials to create corresponding paraphrasing words.

Paraphrasing words are more in line with standard Chinese expressions than transliterated words. The fact that they carry meaning is also an important advantage. Paraphrasing words are also economically labor-saving and do not require the use of a variety of forms of words or the creation new ones. The method of developing new semantic meanings via a range of limited forms aligns with the principle of creating new words economically, and this constitutes one of the more important advantages of paraphrasing words over transliteration.

In the competition between transliterated words and paraphrasing words, paraphrasing words occupy an absolute advantage in many cases. The word for "telephone" is an example of the movement from transliteration to paraphrasing in modern Chinese. The transliterated forms of *tài-lì-fēng* 太立風, *tài-lái-fēng* 太來風, and *dé-lǜ-fēng* 德律風 were replaced by *diàn-huà* 電話.

The further evolution of transliterated words displays the characteristics of "transliterating + paraphrasing" – that is, the function of syllables is taken into account in the translation process and the word is constructed using a "transliterating + category" model. For example, the following words for "American" demonstrate the "transliterating + paraphrasing" model and represent a transitional manifestation of the coexistence of transliterated words and paraphrasing words: *Yà-mò-lì-jiā-guó* 亞墨利加國, *Yà-mò-lì-jiā-guó* 亞默利加國, *Yà-mǐ-lì-jiā-hé-jùn* 亞米利加合郡, and *Yà-mò-lǐ-jià-zǒng-jùn* 亞墨理駕總郡. In modern Chinese, the paraphrasing word *měi guó* 美國 (America) has become the ultimate example of the abovementioned "transliterating + paraphrasing" model.

Both the first and second reasons explain why the paraphrasing words coined by Ricci are superior to the transliterated ones. Ultimately, this phenomenon was based on his grasp of the essential characteristics of the Chinese language. That is, the reason why paraphrasing words occupy an absolute advantage in the competition between transliterated words and paraphrasing words is that Chinese characters are based on ideographs. Linguist Ferdinand de Saussure (1857–1913) divided writing into two systems: the ideographic system[36] and the phonetic system (De Saussure, 1916/2011, p. 50). He pointed out that in the ideographic system, a word is represented by only a symbol, and this symbol has nothing to do with the sound from which the word is formed. The symbol is related to the whole word and therefore indirectly related to the idea it expresses. A classic example of such a system is Chinese characters (Ibid., p. 51). He went on to argue that, for the Chinese people, both ideographic characters and spoken words are symbols of ideas; writing is a second language to them (Ibid., p. 52). He also explained that the nature of Chinese

characters allows them to transcend topolect restrictions; that is, "words in all Chinese dialects that express the same concept can use the same writing symbols (Ibid., p. 52)." Qiú (1988) thought Chinese characters are morpho-syllabic, representing both a syllable and a morpheme (p. 34). This is a further summary of the understanding of De Saussure (1916/2011, p. 50). However, before modern Western/Chinese linguists recognized this distinction, Ricci had already noticed the difference between Chinese characters and Western phonetic writing.

For example, Ricci once stated that Chinese characters were almost equivalent to painting. In a letter to a friend written at the beginning of Ricci's contact with Chinese characters, he mentioned that by studying and analyzing the structural form of Chinese characters, he could correctly write any Chinese character he had seen, and he had already installed a large number of Chinese characters in his mind (Spence, 1985, p. 137). In 1595, at a banquet in Nánchāng, Ricci asked a friend to write several Chinese characters on a piece of paper. He could recite them in the order they were written and then recite them in reverse order from back to front. This feat of memory stunned the literati who were present. Many people asked him to teach them this skill (Ibid., p. 138). Later, Ricci wrote the book *Xīguó jìfǎ* 西國記法 [A Treatise on Mnemonics] to introduce the Chinese people to his miraculous mnemonic techniques. Ricci's "magic memory method" can be regarded as a kind of image placeholder method, which requires people to install what they want to remember in the "secret palace of memory" in the brain. Everything represented by Chinese characters is given an image. For example, the image memory of *hǎo* 好 (good) is "the maid with the child in her arms (Ibid., p. 31)." Ricci obviously carefully studied the orthography of Chinese characters, understood that the phonetic and radical parts are the basis for understanding the phonetics and meanings of Chinese characters, and knew that Chinese characters are ideographic. He exercised his imagination, and although he had some idiosyncratic explanations of Chinese characters, his understanding of the essence of Chinese characters and his mastery of the essential characteristics of the Chinese lexicon led him to choose the most meaningful Chinese characters possible to create syllables for his religious terms. This is because it seemed to him that the combination of two meaningless Chinese characters was a burden on memory. The meaningfulness of the Chinese characters that he chose is the essential reason for the long-term vitality of the paraphrasing words he created.

Compared with Indo-European languages such as English, Chinese characters, being ideograms, are more precise. With respect to the function of the two kinds of systems for recording language, characters are carriers of language that comprise both pronunciation and meaning; these two inseparable elements are thus recorded at the same time. Both ideographic and phonetic writings perform the same function of recording the words of a language. Like ideograms, phonogramic symbols are related to the whole word, but the difference is that the link between the phonogram and the word is the sound, and the connection

between the ideogram and the word is the meaning. In order not to confuse the function of characters in recording language with the basis of their configuration, it should be said that English is phonetic writing, and Chinese characters are ideographic writing. Because Chinese characters are ideographic, their uniqueness is mainly reflected in the relationship between the words they constitute. Chinese characters are a key component of Chinese words. This is different from the Indo-European language system. Word meaning in Indo-European languages is not inferred from individual letters, whereas the word meaning of the Chinese-Tibetan language system composed of Chinese characters needs to be inferred from the character that is being used.

Many of the source languages of Chinese foreign words use phonography, but in the process of the transformation (of a word) from a phonographic system to an ideographic system, it is very difficult to accurately record the concept of the source language. Therefore, when transliterated words are translated into Chinese, they often use Chinese characters that do not contain a semantic element.

Most Chinese characters record the smallest unit of phonetic-semantic combination in the language: the morpheme (a fundamental unit of language that cannot be further divided). Each character is a combination of phonemes and semantics, so there are two basic types of relationship between character meaning and word meaning in Chinese, semantic and phonetic. Language users can roughly infer the meaning of a word from the Chinese characters that constitute it. For example, from *jī-dàn* 雞蛋 (chicken egg), it can be speculated that the word refers to a kind of egg, since *dàn* 蛋 on its own means "egg." For another example, *tiān* 天 (sky) is a Chinese character. When *tiān* is used as a morpheme to form a word, it can refer to something related to the natural environment, such as *tiān-zāi* 天災 (natural disaster), *tiān-qiàn* 天塹 (natural moat), *tiān-dí* 天敵 (natural enemy), *tiān-xiǎn* 天險 (natural barrier), *tiān-lài* 天籟 (sounds of nature), *tiān-kōng* 天空 (sky), *tiān-jì* 天際 (horizon), *tiān-gāng* 天罡 (the Big Dipper), *tiān-yuān* 天淵 (high heaven and deep sea), or *tiān-mǎ-xíng-kōng* 天馬行空 (be powerful and unrestrained like a heavenly steed soaring across the skies). It can also refer to things related to human nature, such as *tiān-fù* 天賦 (innate), *tiān-xìng* 天性 (innate quality), *tiān-fèn* 天分 (talent), *tiān-rán* 天然 (natural), *tiān-zhí* 天職 (bounden duty), *tiān-cái* 天才 (genius), or *tiān-lún-zhī-lè* 天倫之樂 (family happiness). No matter what kind of vocabulary is formed, many of the meanings of Chinese words composed of *tiān* can be deduced from the meaning of the Chinese character *tiān*. However, it should be noted that some words cannot be inferred from the meaning of their constituent characters. Instead, they have some other rationale for their composition, which is often drawn from Chinese culture. For instance, *hóng-niáng* 紅娘 (matchmaker) does not derive from the literal image of a "woman in red" but refers to the name of a character from the play *Xīxiāng jì* 西廂記 [Romance of the western chamber].[37]

The word-form records of Chinese transliterated Catholic religious terms often show a random selection of Chinese characters. For example, *dǒu-sī*

陡斯 (God) is made up of *dǒu* 陡 (sloping) and *sī* 斯 (thus). *Dǒu* 陡 is a semantic-phonetic compound character that is constructed from the semantic radical *fù* 阜 and the phonetic radical *zǒu* 走. The semantic radical *fù* 阜 is related to the topography of terrain, and thus *dǒu* means steep or precipitous. *Jíyùn*集韻 [Collected rimes] states: "The meaning of *dǒu* is steep or precipitous (Dīng & Lǐ, 1053/1985, p. 53)." From this original meaning, the meaning of *dǒu* can be extended to encompass a "sharp angle, almost vertical," such as in *dǒu-pō* 陡坡 (steep incline), *dǒu-qiào* 陡峭 (precipitous), *dǒu-lì* 陡立 (upright), *dǒu-jùn* 陡峻 (high and precipitous), *dǒu-bì* 陡壁 (precipitous cliff), *dǒu-dù* 陡度 (steepness), *dǒu-xiāo* 陡削 (sheer precipitous), and *dǒu-yá* 陡崖 (precipitous cliff). From the meaning of "sharp angle, almost vertical," the meaning of *dǒu* can be metaphorically extended to encompass "suddenly," such as in *dǒu-biàn* 陡變 (change suddenly), *dǒu-dùn* 陡頓 (change suddenly), *dǒu-nèn* 陡恁 (all of a sudden), *dǒu-rán* 陡然 (suddenly), and *dǒu-diē* 陡跌 (drop suddenly).

Sī 斯 is an ideogrammic compound which originally meant "to split." Xǔ Shèn wrote in *Shuōwén jiězì* that "the original meaning of *sī* is to split (Xǔ, 121 CE/1998, p. 98)." *Sī* can also refer to "this" or "here," such as in *sī-rén* 斯人 (this person), *sī-shí* 斯時 (this time), and *yǐ-zhì-yú-sī* 以至於斯 (end up like this). It can also refer to "thus," such as in *yǒu bèi sī kěyǐ wú huàn* 有備斯可以無患 (if one is prepared, he will be safe). It can also refer to "lop off," such as in *mù mén yǒu jí, fǔ yǐ sī zhī* 墓門有棘，斧以斯之 (If there is a jujube tree in front of the tomb gate, people should cut it down with an axe) (Liú & Lǐ, 11 BCE–6 BCE/2011, p. 169).

Regardless of which meanings of *dǒu* 陡 and *sī* 斯 are combined, the whole meaning of their combination in *dǒu-sī* 陡斯 cannot be inferred from the meaning of the constituent parts. While *dǒu-sī* as a whole is a morpheme meaning God, it isn't composed of Chinese characters that express meaning. Indeed, *shàng-dì* 上帝's whole meaning can be inferred from the Chinese characters of *shàng* 上 (in the heaven) and *dì* 帝 (god).

Another example is "durian," which was originally translated as *dǔ-ěr-yān* 賭爾焉 or *dū-ěr-wū* 都爾烏. It is very difficult to find the corresponding literal rationale in the translation of foreign words from the Chinese characters *dǔ* 賭, *ěr* 爾, and *wū* 烏. From a cultural perspective, it is also very difficult to find a reason for forming the word in this way. In general, it is difficult to fit this kind of unreasonable word form within the internal mechanisms of Chinese. Therefore, it is almost a tendency within the development of Chinese to replace transliterated words such as *dǔ-ěr-yān* 賭爾焉 or *dǔ-ěr-wū* 都爾烏 with a paraphrasing translation – in this case, *liú-lián*榴槤 (durian).

Of the religious terms coined by Ricci, the vast majority of those that have persisted are paraphrasing words. The words that are ultimately accepted often use the Chinese characters that are closest to the meaning of the word or are based on a more scientific understanding of things.

This is why the translation *dǒu-sī* was not successful. Few Chinese people now know that *dǒu-sī* is another name for God. *Xiàndài hànyǔ cídiǎn* 現代漢語詞典 [Dictionary of Modern Chinese] contains the word *shàng-dì* 上帝, but not the words *dǒu-sī*, *zhǔ-zǎi* 主宰, *dà-zǎi-zhǔ* 大宰主, *yé-huá* 爺華, *yē-hé-huá*

耶和華, *dá-wéi-sī* 達維斯, or *yē-hé-wǎ* 耶和瓦 (Zhōngguó shèhuì kēxuéyuàn, 2016, p. 112). This is mainly because the creation of these other terms by Qīng missionaries or late Qīng Chinese scholars did not conform to the essential characteristics of the Chinese language.

Moreover, this word-making method discovered by Ricci has played an important role even after Ricci's own time as a mechanism in introducing foreign words into the Chinese language. With the implementation of the reform and opening up policy of the Chinese government in 1978, the history of the development of the Chinese language ushered in the third era of large-scale acceptance of loanwords. In the era of science and technology, cross-cultural exchange has become more and more frequent, and many new things and concepts have poured into China.

2.6 Conclusion

This chapter has analyzed Ricci's achievements in creating religious terminology from three perspectives. First, this chapter discussed the general context and contextualized Ricci in his historical setting in the Míng dynasty. Second, it discussed examples of Ricci's influence: *shàng-dì* 上帝, *shèng* 聖, and a selection of other terms. Finally, it offered a detailed explanation of the linguistic rationale for Ricci's strategies and methods, especially regarding the importance of paraphrasing as one of Ricci's word-making methods in *Tiānzhǔ shíyì* to give Catholic meaning to words and phrases that already existed in ancient Chinese. This type of word-making accounted for most of the terms coined, and it proved to be so effective for the missionaries that some items are still used in the religious lexicon of modern Chinese. Another method used by Ricci was to translate words directly by transliteration, although this accounted for a very small number of the total. In addition, the missionaries' superb proselytizing skills and their profound understanding of Chinese culture played an important role in their success. Ricci was well aware that if the Chinese people, who were deeply influenced by Confucianism, were ever to understand the meaning of Catholicism, missionaries had to adopt an approach of "mixing the fictitious with the genuine" to disseminate the essence of Catholic doctrine by cloaking it in Confucian words. This essentially reflects Ricci's use of Confucianism as a medium to spread Catholicism, and it proved to be an effective missionary strategy in the Qīng and the Republican eras as well.

Notes

1 The *Four Books* are the authoritative books of Confucianism, written in China before 300 BCE. They are *Dàxué* 大學 [Great learning], *Zhōngyōng* 中庸 [Doctrine of the mean], *Lúnyǔ* 論語 [Analects] and *Mèng zǐ* 孟子 [Mencius].
2 Kim (2004) made good use of primary and secondary sources in Chinese to discuss what the translations of the Christian God should be in Chinese. However, Kim did not mention the history of Chinese translations for "God" and why some of the Chinese translations for "God" have been successful, which led this research topic being treated "in a perfunctory and superficial manner" (See Hsia 2006: 776).

3 The Shāng 商 dynasty ruled in the middle and lower Yellow River valley in the second millennium BCE. It succeeded the Xia dynasty and preceded the Zhōu dynasty (1100 BCE–771 BCE and 770 BCE–256 BCE).
4 *Qín-shǐ-huáng* 秦始皇 (259 BCE–210 BCE) was the founder of the Qin dynasty. He unified China during his reign.
5 The Three Sovereigns are the ancestors of the Han Chinese people.
6 The Five Emperors are depicted as ancestral sages possessing strong moral character. They are said to have lived to a great age and ruled during a peaceful period.
7 *Huáng-dì* 黄帝 is one of the legendary and culturally iconic Chinese sovereigns of the mytho-historical Three Sovereigns and Five Emperors.
8 Zhuāngzǐ (369 BCE–286 BCE) was a Chinese philosopher during the Warring States period. This period is considered the summit of Chinese philosophy.
9 *Yīlǐ* (fist-and-palm salute) is a traditional Chinese etiquette gesture. When giving the salute, put the index, middle, ring, and little fingers of the left and right hands together, use the palm of one hand to cover the other hand, interlock the left and right thumbs, while clasping the two hands together at chest level, make a bow. This is how the Chinese show respect in greeting one another.
10 It has also been argued that the origin of the name *tiān-zhǔ* 天主 derives from the altar of the Tiānníng sì 天寧寺 pagoda. This was a thirteen-story Taoist pagoda in front of the White Cloud Monastery dating from the Liao dynasty. See Yoshioka (1979, p. 132).
11 The Three Lords and Nine Ministers (*sāngōng jiǔ qīng* 三公九卿) system was a central administrative system adopted in ancient China that was officially instituted in the Qin dynasty (221 BCE–206 BCE); it was replaced by the Three Departments and Six Ministries (*sānshěng liùbù* 三省六部) system in the Sui dynasty (589–618 CE).
12 "Paraphrasing words" refer to sense-for-sense translations, such as *shàng-dì* (God).
13 "Transliteration" refers to translating foreign language words into Chinese characters with similar pronunciations. The Chinese characters used for transliteration no longer have their own original meaning, but only retain their phonetic and written forms.
14 Here "transliterated" refers to translating a foreign language into Chinese characters with similar pronunciation. It is a kind of phonetic loan.
15 The *Tàipíngtiānguó* 太平天國 or Taiping Heavenly Kingdom (1851–1864) was an unrecognized Chinese oppositional state and Chinese Christian theocratic absolute monarchy. It supported the overthrow of the Qīng dynasty by Hóng Xiùquán 洪秀全 (1814–1864) and his followers.
16 Bound morphemes are the morphemes that cannot be used independently but have to be combined with other morphemes.
17 *Shuōwén jiězì* is a Han dynasty Chinese dictionary. It is the earliest Chinese dictionary that systematically analyzes the glyphs and etymology of Chinese characters compiled by Xǔ Shèn 許慎, a scholar and philologist of the Eastern Han dynasty. It is also one of the earliest dictionaries in the world.
18 Emperor Yáo (2167 BCE–2048 BCE) was one of the legendary Three Sovereigns and Five Emperors.
19 Emperor Shùn (?–?) was one of the Three Sovereigns and Five Emperors.
20 Yǔ the Great (2123 BCE–2025 BCE) was a legendary king in ancient China.
21 Chéng Tāng (1675BCE–1646 BCE) was the first king of the Shāng dynasty.
22 King Wén of Zhōu (1112 BCE–1050 BCE) was Count of Zhōu during the late Shang dynasty.
23 King Wǔ of Zhōu (1046 BCE–1043 BCE) was the first king of the Zhōu dynasty.
24 Confucius (551 BCE–479 BCE), the founder of the Chinese Confucian School, a great thinker, politician and educator in ancient China, is considered one of the representative figures of Chinese culture.

25 Dù Fǔ (712 CE–770 CE) was a realist poet of the Tang dynasty, Dù Fǔ's influence on classical Chinese poetry was so profound that he was called "the greatest Chinese poet" by later Chinese generations, and his poems were called "the history of poetry."
26 *Fēngshén yǎnyì* is a famous Chinese novel about Taoist immortals during the Míng dynasty.
27 Otherwise known as Bumbutai (1613–1688), consort of Hong Taiji. She was a famous empress in Chinese history, who throughout her life trained and assisted the Shùnzhì 順治 (1644–1661) emperor and the early period of the Kāngxī 康熙 (1661–1688) emperor. She was an outstanding female politician in the early Qīng dynasty.
28 Otherwise known as Jerjer 哲哲 (1599–1649). She was another consort of Hong Taiji.
29 Empress Dowager Cíxǐ 慈禧 (1835–1908) is an important political figure in the late Qīng dynasty, and the de facto ruler of the Tóngzhì 同治 (1862–1875) and Guāngxù 光緒 (1871–1908) periods of the Qīng dynasty. She dominated the late Qīng regime for nearly half a century.
30 The "six woes" (*liùhuò* 六禍) mentioned in the book of Isaiah are: hoarding land, drunkenness, compound sinfulness, justification of evil, self-conceit, and corruption due to intoxication.
31 The Chinese Rites Controversy, also known as the "dispute between Chinese and Western rites," refers to the dispute between Western Catholic missionaries in the seventeenth and eighteenth centuries over whether traditional Chinese liturgy violates Catholic doctrine. See Griffiths (1965, pp. 77–98), Minamiki (1985, pp. 43–71).
32 Sūnǔ 蘇努 (1648–1724), a member of the royal clan of the Qīng dynasty, the great-great-grandson of Nurhaci, the only son of Dùnǔwén 杜努文, a Catholic believer.
33 Here shelter is a figurative shelter which refers to Catholicism.
34 *Shén* 神 was originally favored by Robert Morrison (1782–1834) / William Milne (1785–1822) and Joshua Marshman (1768–1837) / Johannes Lassar (1781–1835).
35 In linguistics, an integral cognate system refers to words that have a common etymological origin, also called lexical cognates.
36 Here the ideographic system should not be understood as only hieroglyph (象形字), but refers to a writing system in which the form of characters can reveal certain information, including hieroglyph, semantic-phonetic compound character (形聲字), deictograph (指事字) and syssemantograph (會意字).
37 Written by the Yuan dynasty playwright Wáng Shífǔ 王實甫 (1250–1337), *Xīxiāng jì* is one of the most famous Chinese dramas.

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3 Geographical names and terminology coined by Matteo Ricci

Ricci's systematic introduction of geographical knowledge to China resulted in the addition of a large number of geographical names to the Míng dynasty Chinese lexicon. Before Ricci's arrival, the Chinese had limited knowledge of world geography. At that time, they did not have the concept of the Earth as understood in modern geography: Chinese tradition regarded China *as* the world; what existed outside the world was *sì-yí* 四夷, often translated as the "Four Barbarians," to denote the various peoples living outside the borders of ancient China.

In 1583, Ricci arrived at Zhàoqìng in China's Guǎngdōng province. After his arrival, he hung a map of the world, which used the Roman alphabet, at his residence. Wáng Pàn 王泮, the prefect of Zhàoqìng, wanted Ricci to draw a version that used Chinese characters, saying that the Chinese literati would be interested in seeing such a thing. Ricci immediately set about creating a map that he could use when he described the different religious ceremonies of various countries (Ricci & Trigault, 1625/2000, p. 180). He completed it during his stay in Zhàoqìng and called it the *Shānhǎi yúdì quántú* 山海輿地全圖 [Complete terrestrial map]. In 1601, he arrived in Běijīng to present the map to the emperor, at which time he renamed it the *Kūnyú wàn'guó quántú* 坤輿萬國全圖 [A map of the myriad countries of the world] (1602). This map was highly esteemed by Emperor Wànlì and was copied several times.

The *Kūnyú wàn'guó quántú* was China's first complete world map to include longitude and latitude, and it had an important and far-reaching impact in the field of geography. At present, there are six original versions of the *Kūnyú wàn'guó quántú* in existence. The earliest and only existing color version is now stored in the Nánjīng Museum and is a vast source of place names in modern Chinese.

Through its introduction of Western cartographic knowledge and geographical concepts, the *Kūnyú wàn'guó quántú* was a direct product and one of the most important achievements of cultural exchange between China and the West. Chinese maps had appeared more than 4,000 years earlier, but those maps of ancient China were not representational; instead, their format was somewhere between image depiction and landscape painting. As China's first geographical map in a representational style, the *Kūnyú wàn'guó quántú* included a great deal of geographical information about China and the world

DOI: 10.4324/9781003490159-4

and introduced the concepts of the Earth and the universe, which completely subverted established Chinese knowledge of the time. The map not only added an awareness of the "Earth" to Chinese geographical knowledge, but also removed China as the center of the world. Although the map moves the prime meridian 170 degrees to the left to accommodate Chinese sensibilities and place China in the center of the map, it is clear that China is located on a sphere with many other countries.

This map was critical to the territorial expansion of China during the Qīng era, and its influence eventually grew to encompass Korea and then Japan. During the Joseon dynasty (1392–1910), Korea was a vassal state of China, and the Korean government sent envoys to Běijīng every year to pay tribute. Books were often purchased by these envoys at the behest of the king or gifted by the Chinese imperial court. According to Korean scholars, the *Kūnyú wàn'guó quántú* was introduced to Korea in 1603 by a man named Lee Kwang-ting (Ch: Lǐ Guāngtíng 李光庭) (Kim, 1972, p. 187). If this is true, the map was introduced to the Korean Peninsula the very year after it was produced; this speed, at a time when transportation was inconvenient and information was not smoothly communicated, can be described as a major miracle in the history of cultural exchange. The exact date when the map was first transported to Japan is not recorded, although it is believed to have happened in the early Edo period (1603–1868). Chinese merchant ships went to Japan every year after 1607, so some Japanese scholars speculate that the map was introduced to Japan after that point (Kimiya, 1980, p. 8).

Ricci's map influenced the understanding of world geography among scholars in the Joseon dynasty and Edo period. The widespread circulation of this map objectively established Ricci's position in the intellectual and geographical history of Korea and Japan. Before the middle of the 16th century, the Japanese generally believed that the world was centered on China, Japan, and India. After the middle of the 16th century, with the successive introductions of Ricci's world map to Korea and Japan, some people began to realize that in addition to these three countries, there was also a civilized Western world, and an understanding of the world that was closer to the actual facts began to form. The introduction of Ricci's map was a catalyst that accelerated the formation of this understanding, and most Koreans and Japanese finally broke through the shackles of a traditional perspective and established a scientific and empirical modern worldview. As a result, the traditional Japanese concept of worshipping China has fundamentally changed. The map's influence is like drops of water, persistent and far-reaching.

While maps are an important representation of geography, not all the geographic elements and information in them can be represented through images. Some information must be presented in the form of words. This chapter analyzes the geographical terms that appear in the *Kūnyú wàn'guó quántú*. It provides examples of the new geographical terms as they appear in various other texts; then analyzes their evolution in modern Chinese; and finally explores the linguistic rationale behind these coinages.

After setting the general context and placing Ricci into his historical setting in the Míng, Section 3.1 of this chapter discusses the terms for *wǔ-dà-zhōu*: *yà-xì-yà* 亞細亞 (Asia), *ōu-luó-bā* 歐羅巴 (Europe), *lì-wèi-yà-zhōu* 利未亞洲 (Africa), *yà-mò-lì-jiā-zhōu* 亞墨利加洲 (The Americas), and *mò-wǎ-là-ní-jiā-zhōu* 墨瓦臘泥加洲 (Antarctica). These coinages have been selected for analysis because they are the basis of the Seven Continents as understood in the modern geographical sense: *Yà-mò-lì-jiā-zhōu* is now divided into *běi-měi-zhōu* 北美洲 (North America) and *nán-měi-zhōu* 南美洲 (South America) in modern Chinese. *Dà-yáng-zhōu* 大洋洲 (Oceania) is a new coinage in modern Chinese and was not included by Ricci in the *Kūnyú wàn'guó quántú*.

Section 3.2 of this chapter discusses the *sì-dà-yáng* and related terms. Along with the Five Continents, the Four Oceans are fundamentally important geographical concepts; one of Ricci's coinages is still used in modern Chinese: *dà-xī-yáng* 大西洋 (the Atlantic Ocean). The current terms *yìn-dù-yáng* 印度洋 (Indian Ocean), *tài-píng-yáng* 太平洋 (Pacific Ocean), and *běi-bīng-yáng* 北冰洋 (Arctic Ocean) also evolved from Ricci's creations.

Section 3.3 of this chapter discusses the *five zones* and related terms coined by Ricci. In 1602 and 1610, Ricci defined a number of geographical terms, such as *rè-dài* 熱帶 (the tropics), *zhèng-dài* 正帶 (temperate climate), and *hán-dài* 寒帶 (the polar climate regions) in the *Kūnyú wàn'guó quántú* (1602) *and Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe] (1610).[1]

Section 3.4 of this chapter discusses the word-making methods used by Ricci to coin geographical names. First, it discusses the word-making methods for *wǔ-dà-zhōu* and *sì-dà-yáng*. Second, it discusses the word-making methods for coining place names. *Wǔ-dà-zhōu* and *sì-dà-yáng* were crucial to changing Eastern perceptions of world geography, so their word-making methods are discussed first. Third, it discusses the word-making methods for coining the five zones and related terms.

My principal argument in this chapter is that the development of language has always been based on both internal and external factors. It is impossible to determine which is more and which is less important. In fact, both are equally vital. Therefore, when identifying the sources of modern Chinese words, it is necessary to consider both the internal and external mechanisms behind the development of words and hence draw measured conclusions. The lexical method described in this chapter demonstrates this.

Moreover, the production of some disyllabic words is not entirely the result of lexicalization. Some words are produced by internal mechanisms; others are induced by external conditions. This chapter explores the diverse derivations of Chinese words and interrogates the underlying question of how modern Chinese vocabulary arises in order to offer a new perspective on how this vocabulary developed. Determining what percentage of words in modern Chinese are the result of internal mechanisms, external mechanisms, or a combination of both would require a large number of case studies. While that is beyond the scope of this book, an exploration of the lexical method behind

the Chinese vocabulary related to the Five Continents can at least provide an example of how both internal and external mechanisms play a role and can refute the absolute interpretation of modern Chinese disyllabic words as deriving from purely lexical processes – an interpretation that completely ignores external sociocultural forces such as the translation work of the missionaries.

3.1 Terms for *wǔ-dà-zhōu* 五大洲 (five continents)

The names of *wǔ-dà-zhōu* and *sì-dà-yáng* in modern Chinese are clearly creations or further evolutions of the terminology in the *Kūnyú wàn'guó quántú*. Moreover, through the analysis of Chinese terms such as *wǔ-dà-zhōu*, it can be seen that many words, including a number of geographical, scientific, and technological terms, eventually evolved from words of three syllables or more into disyllabic words. This was largely due to the work carried out by the early missionaries to China, with Chinese cooperation in translation.

When Buddhism was initially absorbed into Chinese culture, the "Four Continents" were simply transliterated as *Fúyúdǎi* 弗於逮 (Purvavideh, Sanscrit: Pūrvavideha), *Yánfútí* 閻浮提 (Jambudvipa, Sanscrit: Jambudvīpa), *Jùyéní* 俱耶尼 (Aparagodaniya, Sanscrit: Aparagodānīya), and *Yùdānyuē* 欝單曰 (Uttarakuru, Sanscrit: Uttarakuru).

The Chinese characters that make up the transliteration of the "Four Continents" are not only meaningless but are also very rare. The terms are first found in the *Dirghagama-sutra*, which is one of the Buddhist Agamas, a collection of five early Mahayana Buddhist texts. The Chinese translation of this text, as well as the first Chinese translation of the complete Agama collections, was completed by Buddhayaśas and *Zhú Fóniàn* 竺佛念 who lived and worked in Chang'an at least between the years of 378 and 413 during the Eastern Jìn 晉 dynasty (317–420).

> 須彌山北有天下，名欝單曰，其土正方，縱廣一萬由旬，人面亦方，像彼地形。須彌山東有天下，名弗於逮，其土正圓，縱廣九千由旬，人面亦圓，像彼地形。須彌山西有天下，名具耶尼，其土形如半月，縱廣八千由旬，人面亦爾，像彼地形。須彌山南有天下，名閻浮提，其土南狹北廣，縱廣七千由旬，人面亦爾，像此地形。[2]

To the north of Mount Sumeru is a land called *Yùdānyuē* 欝單曰 (Uttarakuru), a square area measuring 10,000 *yojanas* on each side. The faces of the people there also are square, reflecting the shape of their land. To the east of Mount Sumeru is a land called *Fúyúdǎi* 弗於逮 (Pūrvavideha), which is round with a radius of 9,000 *yojana*. The faces of the people there also are round, reflecting the form of their land. To the west of Mount Sumeru is a land called *Jùyéní* 俱耶尼 (Aparagodānīya), shaped like a half moon, with a radius of 8,000 *yojana*. The faces of the people there similarly reflect the form of their land. To the south of Mount Sumeru is a land called *Yánfútí* 閻浮提 (Jambudvīpa), which is narrower in the south and broad and open in the north, measuring 7,000

yojanas in length and breadth. The faces of the people of Jambudvīpa also reflect the form of their land. [3]

The "Four Continents" are closely related to Indian culture. In Indian cosmology, *dvīpa* is the term for the major divisions of the terrestrial sphere and is sometimes translated as "continent." *Dvīpa* has the extended meanings of "island" and "continent." It also refers to "planets" situated in the ocean of outer space. Thus, the concept of the "Four Continents" originated in India. According to the ancient Indian worldview, the continents are located in the outermost circular sea surrounding Mount Sumeru, with Pūrvavideha in the east, Aparagodānīya in the west, Uttarakuru in the north, and Jambudvīpa in the south.[4]

Wú Chéngēn 吳承恩 translated the "Four Continents" as *dōng-shèng-shén-zhōu* 東勝神洲 (Pūrvavideha), *nán-shàn-bù-zhōu* 南贍部洲 (Jambudvīpa), *xī-niú-hè-zhōu* 西牛賀洲 (Aparagodānīya), and *běi-jù-lú-zhōu* 北具蘆洲 (Uttarakuru) by using semantic transliteration, in which half of the translation expresses pronunciation while the other half expresses meaning (Wú, 1592/2012, p. 417).

In the semantic transliteration of the "Four Continents" mentioned above, *dōng*東, *xī*西, *nán*南, and *běi*北 mean east, west, south, and north; zhōu洲 means land, while *shèng*勝, *shén*神, *niú*牛, *hè*賀, *shàn*贍, *bù*部, *jù* 具, and *lú*蘆 have no meanings in *dōng-shèng-shén-zhōu*, *nán-shàn-bù-zhōu* , *xī-niú-hè-zhōu*, and *běi-jù-lú-zhōu*. The "Four Continents" were further described in *Xīyóu jì* 西遊記 [A Journey to the West], a famous novel about one Tang monk and his three disciples who went to India to obtain Buddhist scriptures.[5] In this novel, *Huāguǒ Shān* 花果山, where the main character *Sūn Wùkōng* 孫悟空 was born, was located in *dōng-shèng-shén-zhōu*; the Tang empire was located in *nán-shàn-bù-zhōu*; and India was located in *xī-niú-hè-zhōu* (Ibid., p. 418). A landscape of the Summer Palace is also known as the "Four Continents."[6]

According to the *Dirghagama-sutra*, there are four worlds or four major continents in the universe, respectively representing the four social classes of human beings living in the Aral Sea in the four directions of Mount Meru. Therefore, the above *zhōu* 洲 (continent) is not a modern geographical concept. Ricci's concept of the "Five Continents" introduces, for the first time, the concept of continental geography in Chinese.

After Ricci's introduction of the "Five Continents," more and more Chinese people came to accept the term "continent" in the modern geographical sense, while the Buddhist concept of the "Four Continents" became less and less influential and was gradually replaced by the notion of continents in the modern geographical sense. In general, Ricci's theory of *wǔ-dà-zhōu* describes the geographical distribution of the five continents and the main countries and regions across the map. Through its representation on the map, Ricci's theory allowed the Chinese people to come into contact with a vast world that had never been seen before; and this established a general framework and a good foundation for future translations by later missionaries. At the same time, although Ricci did not introduce much specific content about each

continent – such as politics, religion, terroir, or property – descriptions of the geographical extent of the Five Continents also began to enter the Chinese intellectual community. From 1584 to 1610, Ricci's *Kūnyú wàn'guó quántú* was constantly revised, reformed, and engraved, while the Chinese commentary associated with it was more fully revised by later missionaries. In the process of dissemination, this commentary was gradually separated from the map itself and became a separate written text. These revisions include Giulios Aleni's (1582–1649) *Zhífāng wàijì* 職方外紀 [Record of foreign lands] (1623) and *Xīfāng dáwèn* 西方答問 [Questions and answers about European matters] (1637), Ferdinand Verbiest's (1623–1688) *Kūnyú túshuō* 坤輿圖說 [Map of the world] (1674), and Michel Benoist's (1715–1774) *Dìqiú túshuō* 地球圖說 [Map of the earth] (1744). These works continued to promote the theory of the Five Continents, and the global geographical pattern that had originated in Europe began to circulate in the Chinese-speaking world. As Qīng dynasty scholar Chén Gēnghuàn 陳庚煥 (1757–1820) noted: "The fact that the earth has a map begins with Matteo Ricci (Yú, 2006, p. 17)."

Yà-xì-yà 亞細亞

The following are the five continents coined by Ricci.

The *Kūnyú wàn'guó quántú* departed from the traditional European practice of drawing maps of the world with Europe at the center and Asia on the edge. In the *Kūnyú wànguó quántú*, China is placed on the west coast of the Pacific Ocean, to the north of the equator, and is roughly in the middle of the map; the entire map is oval in shape, and the longitude and latitude lines are clearly marked. Contemporary world maps in China continue to use this drawing method. The centering of China stemmed from Ricci's concession to China's traditional worldview, whereby the Chinese generally believed that China was the center of the world. The *Kūnyú wàn'guó quántú* also has a series of explanations in Chinese to introduce the basic theory of the map, as well as the general orientation of various regions and divisions of the world (such as the Five Continents). These constitute the earliest Chinese language description of the Five Continents discovered to date. As such, we can say that before Ricci drew a map of the world and introduced it to China, the Chinese didn't know that a concept of Asia existed.

The concept of *yà-xì-yà* (Asia) was first introduced by Ricci. *Yà-xì-yà* was transliterated from "Asia," while "Asia" evolved from the Phoenician "*Asu*." The Phoenicians appeared on the eastern coast of the Mediterranean in 2000 BCE and initially moved along the coasts of Lebanon and Syria. In order to make it easier to determine their position when sailing, they called the eastern coastal lands of the Mediterranean "*Asu*," which means "where the sun rises" (Krahmalkov, 2001, p. 53). Later, the Phoenician "*Asu*" entered Greek; a word that represented a negative component was added to "*Asu*," and then "*Asu*" became "*AσíA*." "*AσíA*" then entered Latin and became "*Asia*" (Ibid., 54). Latin was the official language of the Roman Catholic Church, so Ricci translated the word "*Asia*" into *Yà-xì-yà* in order to introduce the concept of the Latin "*Asia*" in his missionary writings.

When Ricci first went to the Zhàoqìng area of Guǎngdōng to begin his mission of spreading Catholicism, he used *yà-xì-yà* because the pronunciation of the first *yà* 亞 in China's southern topolects (especially Cantonese) was similar to *ā* 阿. *Yà-xì-yà* is first seen in Ricci's *Kūnyú wàn'guó quántú*. Other pieces of Míng dynasty literature also included the word.

(50)
四洲之中，獨亞細亞、歐邏巴兩地相連最廣 (Ricci, 1610, p. 667)
Of the four continents, only **Asia** and Europe are the most widely connected.

In other words, *yà-xì-yà*, which was coined by Ricci, precedes *yà-zhōu* 亞洲 (Asia) in modern Chinese. In its later use, it was gradually abbreviated from the multisyllabic *yà-xì-yà* to monosyllabic *yà* 亞; then *yà* 亞 was combined with the monosyllabic *zhōu* 洲 into a disyllable. I use "→" to indicate this change.

Yà-xì-yà 亞細亞+*dà-zhōu* 大洲→*yà* 亞+*zhōu* 洲=*yà-zhōu* 亞洲

The process began in the Qīng period, when *yà-xì-yà* gradually merged with the morpheme *zhōu* 洲 into the phrase *yà-xì-yà-zhōu* 亞細亞洲 (Asia), meaning "the continent of the rising sun." This phrase was common in diaries of the late Qīng intellectuals who went abroad.

(51)
亞細亞洲軍務，以日本為第一 (Chén, 1826/2010, p. 446)
Japan has the greatest military force in **Asia**.

After that, *yà-xì-yà* in *yà-xì-yà-zhōu* was further reduced to *yà* 亞, and the simple disyllabic word *yà-zhōu* began to appear in the late Qīng dynasty.

(52)
歐洲遂不敢出兵以至亞洲 (Cài & Richard, 1895/2002, p. 354)
Europe then dared not send troops to **Asia**.[7]

Some transliterated monosyllabic foreign morphemes started out as just a component of a foreign conceptual word that existed as a phonetic component. A gradual process of evolution is required to transform an unsuitable phonetic component into a monosyllabic morpheme. *Yà* in *yà-xì-yà* originally did not express meaning, but thanks to the Míng dynasty missionaries' word-making activities, it evolved to carry new meaning so that, in the transition from *yà-xì-yà* to *yà-zhōu*, the morpheme *yà* now carried the semantic meaning of *yà-xì-yà*.

The following examples (53–56) demonstrate that the word *yà-xì-yà* (Asia) has gradually become the morpheme *yà* (Asia); this syllable was originally meaningless, but evolved to carry semantic meaning. In terms of syllable

count, *dōng-yà-xì-yà* 東亞細亞 and other polysyllabic words have gradually moved closer to two syllables.

Dōng-yà-xì-yà refers to East Asia. This word form existed in Qīng Chinese.

(53)

三為保守兩國所有東亞細亞、印度等處土地之權，並在各該處所有之特別利益 (Zhāng, 1867/1981, p. 699)

Third, this procedure is mainly to protect the land rights of two countries in India in **East Asia**, etc. and all the special interests there.

The modern Chinese lexical system uses the word form *dōng-yà* 東亞 (East Asia).

Nán-yà-xì-yà 南亞細亞 refers to the Southern region of Asia. This word form existed in Qīng Chinese.

(54)

又歐邏巴之東、南亞細亞之西南一大州曰利未亞，亦謂之小西洋 (Jiāng, 1762/2007, p. 196)

There is a continent called Liweiya to the East of Europe and to the Southwest of **South Asia**, which is also known as the Indian Ocean.

The modern Chinese lexical system uses the word form *nán-yà* 南亞.

Xī-yà-xì-yà 西亞細亞 refers to the southwestern region of Asia. This word form existed in Qīng Chinese.

(55)

西亞細亞東有女國曰亞瑪作搦, 最驍勇善戰 (Zhōu, 1637–1646/1999, p. 874)

There is a country of females named Amazon in **West Asia** which is the bravest and most valiant.

Zhōng-yà-xì-yà 中亞細亞 refers to central Asia. This word form existed in Qīng Chinese.

(56)

苟俄人恃強敗盟，則中亞細亞非又添一勁敵乎 (Lǐ, 1878/1980, p. 55)

If the Russians rely on their own strength and do not abide by the Covenant, then won't Russia become a strong enemy of **Central Asia** and is that not adding another enemy?

The modern Chinese lexical system uses the word form *zhōng-yà* 中亞.

With the expansion of colonialism to the East, the term *yà-xì-yà* gradually lost its power in the discourse. By the 19th century, under military and diplomatic pressure, China's intellectual elite had to turn their attention to the

unknown exotic world. In this atmosphere, the word *yà-zhōu* emerged. The knowledge of geography in the West was no longer regarded as a strange system, but as a new knowledge system to be accepted seriously. Nonetheless, a reminder of the influence of Ricci persisted in the presence of the transformed morpheme *yà*.

Ōu-luó-bā 歐羅巴

Ōu-luó-bā is short for *ōu-luó-bā-zhōu* 歐羅巴洲 and has the same meaning as today's *ōu-zhōu* 歐洲 (Europe). *Ōu-luó-bā* is originally seen in Ricci's *Kūnyú wàn'guó quántú*.

Ōu-luó-bā originally came from the Phoenician word "*Ered*," which means "the place of the Western sunset" or "the land of the West" (Krahmalkov, 2001, p. 59). *Ered* later evolved into the Latin word "*Europa*." Ricci translated the Latin concept of *Europa* into *ōu-luó-bā* through transliteration.

Ōu-luó-bā first appeared in Ricci's Chinese writings. In Míng Chinese, *ōu-luó-bā* sometimes represents *ōu-luó-bā-zhōu*, in examples such as:

(57)
頃年，歐羅巴國人利瑪竇居南都 (Gù, 1613, p. 915)
The next year, Ricci, a **European**, lived in the capital city of Southern China.

Ōu-luó-bā as a whole morpheme is further combined with the morpheme *zhōu* 洲.

(58)
歐羅巴洲《史記》中不見有法皇、魯意、拿坡侖之事矣 (Cài & Richard, 1895/2002, p. 267)
There is no such thing as the Pope of France, Belgium and Italy, Napoleon, etc. in *the History books of* ***Europe***.

Ōu-luó-bā is also sometimes written using the *luó* 邏 character, as *ōu-luó-bā* 歐邏巴.

(59)
極西諸國總名歐邏巴者，隔于中華九萬里 (Aleni, 1623/2013, p. 17)
To the West is a nation called **Europe**, 90,000 miles from China.

The acronym *ōu-zhōu* 歐洲 appeared in the Qīng dynasty; the morpheme *ōu* 歐 is short for *ōu-luó-bā* 歐羅巴/歐邏巴.

(60)
普國則中立于英、法之間…此歐洲當日各國離合形勢之大略也 (Cài & Richard, 1895/2002, p. 27)
The Kingdom of Prussia maintained an attitude of neutrality towards England and France … which was the general situation of various countries in **Europe**.

Modern Chinese uses *ōu-zhōu* 歐洲 instead of *ōu-luó-bā* 歐羅巴.

Lì-wèi-yà-zhōu 利未亞洲

Fēi-zhōu 非洲 (Africa) was written as *lì-wèi-yà-zhōu* (Africa) in Míng Chinese. Ricci used transliteration to translate the Latin concept of Africa into *lì-wèi-yà-zhōu*. *Lì-wèi-yà-zhōu* was first seen in Ricci's *Kūnyú wàn'guó quántú*.

(61)

如從利未亞洲白山(最西邊)往西北行，其所應止之緯為距赤道北三十度三十分 (Xú, 1628/2009, p. 729)

If it stretches from the Western part of the White Mountain in **Africa** to the Northwest, it should stop at a latitude of thirty degrees and thirty degrees beyond the Equator.

The Qīng Chinese also adopted the form.

(62)

至今中國仍不知西洋，猶如我等至今未知利未亞洲內地之事 (Yáo, 1850/1986, p. 358)

Now China does not know the Western Ocean, just as we and others still do not know about the interior of **Africa**.

Lì-wèi-yà-zhōu was also written as *ā-fēi-lì-jiā-zhōu* 阿非利加洲; this was the English transliteration of "Africa."

(63)

北距蘇爾士四千九百七十裡，時有阿非利加洲小兒，皮色青黑，鼓棹而來 (Lǐ, 1877/1980, p. 191)

To the North, 4970 miles from the Suez Canal, there are often **African** children, dark-skinned, rowing.

Later, the Qīng Chinese directly extracted the two morphemes *fēi* 非 and *zhōu* 洲 to create the new word form *fēi-zhōu* 非洲.

(64)

德於非洲戰事先敗後勝，又擬以資購葡國之所屬莫三鼻給島 (Cuī, 1893/1981, p. 543)

Germany's war in **Africa** began with failure and then triumphed. Germany then decided to buy Mozambique, which belonged to Portugal.

Fēi-zhōu 非洲 was also written as *fěi-zhōu* 斐洲 in some Qīng writings.

(65)

現查工人張起泰等一百十九名病歿斐洲 (Duān, 1911/2011, p. 454)

It is now established that 119 workers, including Zhang Qitai, died in **Africa**.

Modern Chinese uses *fēi-zhōu* 非洲.

Yà-mò-lì-jiā-zhōu 亞墨利加洲

Yà-mò-lì-jiā-zhōu (The Americas) is the Míng-dynasty written form of the modern Chinese *měi-zhōu* 美洲 (The Americas), and its evolutionary path is as follows:

Yà-mò-lì-jiā-zhōu 亞墨利加洲/*yà-měi-lì-jiā-zhōu* 亞美利加洲→*měi-zhōu* 美洲 (The Americas)

Yà-mò-lì-jiā-zhōu 亞墨利加洲 was first seen in Ricci's *Kūnyú wàn'guó quántú*. Qīng Chinese also used the form.

(66)

第四曰亞墨利加洲, 地更大, 以土相連, 分為南北二洲 (Chén, 1813/2005, p. 457)

The fourth continent in the World is **the Americas**; a larger area, the land can be divided into the two continents of South America and North America.

The Qīng Chinese word for America was also written using the *měi* 美 morpheme, as *yà-měi-lì-jiā-zhōu* 亞美利加洲.

(67)

既而兵頭度路利(即"都路厘"之轉音) 揚言佛蘭西侵據西洋國, 主遷於亞美利加洲 (Shǐ, 1876/2003, p. 254)

Later, the head of the army, Doluli, feeling threatened that France had invaded Western countries, led the migration from the majority of Western countries to **the Americas**.

Later, the Qīng Chinese directly extracted the two morphemes *měi* 美 and *zhōu* 洲 from *yà-měi-lì-jiā-zhōu* 亞美利加洲 to create the new word form *měi-zhōu* 美洲.

(68)

美洲之華盛頓改立民主，迨華盛頓薨，華盛頓即命其將帥，凡師行所至，必稱頌華盛頓改立民主之善 (Cài & Richard, 1895/2002, p. 88)

Washington established democracy in **the Americas**. By the time Washington died, he had ordered his staff to praise him for the benefits of introducing democratic institutions wherever the military went.

On this basis, the Qīng Chinese produced the concepts of *běi-měi-zhōu* 北美洲 (North America) and *nán-měi-zhōu* 南美洲 (South America).

(69)

雷賽樸斯晚年又欲鑿通南北美洲連界之地，名巴拿馬 (Zài, 1903/1981, p. 49)

Reus wanted to cut through the boundary of **North and South America**, which was called Panama.

As can be seen, *yà-zhōu* 亞洲, *ōu-zhōu* 歐洲, *fēi-zhōu* 非洲, *běi-měi-zhōu* 北美洲, and *nán-měi-zhōu* 南美洲 are terms coined by using abbreviations. Using the original meaning of "*zhōu*" 洲 (a big land in the water) in ancient Chinese, Ricci first used *zhōu* 洲 to signify an external concept and further coined *yà-xì-yà* 亞細亞, *ōu-luó-bā* 歐羅巴/歐邏巴, *lì-wèi-yà-zhōu* 利未亞洲, and *yà-mò-lì-jiā-zhōu* 亞墨利加洲 / *yà-měi-lì-jiā-zhōu* 亞美利加洲 (The Americas).

When these words were first coined, the Chinese language was forced to adopt longer syllables in order to faithfully record the pronunciation of foreign-language words. However, because the number of syllables in foreign-language words and Chinese words are usually unequal, when transliterated words from a foreign language enter the Chinese language, the number of syllables in such words usually moves closer to two after a period of evolution. Then the two main morphemes merge together, such as *yà* 亞, *ōu* 歐, *fēi* 非, and *měi* 美merging with *zhōu* 洲.

Mò-wǎ-là-ní-jiā-zhōu 墨瓦臘泥加洲

Mò-wǎ-là-ní-jiā-zhōu (Antarctica) first appeared in Ricci's Kūnyú wàn'guó quántú.

(70)

天下有五大洲。第一曰亞細亞洲，中凡百余國，而中國居其一。第二曰歐羅巴洲，中凡七十余國，而意大裡亞居其一。第三曰利未亞洲，亦百余國。第四曰亞墨利加洲，地更大，以境土相連，分為南北二洲。最後得墨瓦臘泥加洲為第五 (Ricci, 1602, p. 178)

The earth has five continents. The first is Asia, which includes hundreds of countries, of which China is number one. The second is Europe, which contains more than seventy countries, of which Italy is the first. The third is Africa, which also contains more than a hundred countries. The fourth is the Americas, with a wider geographical area. It can be divided into two continents, South America and North America, according to the classification criterion of domestic land connection. The final, fifth continent is **Antarctica**.

From the process of the transformation from *mò-wǎ-là-ní-jiā-zhōu* to the modern Chinese word *nán-jí-zhōu* 南極洲 (Antarctica), it can be seen that the latter paraphrasing word gradually gains an advantage in the competition with the transliterated former word. How exactly is the word *nán-jí-zhōu* a paraphrasing word? This is closely related to ancient Chinese astronomy. The Huntian theory in ancient Chinese astronomy held that the sky was a ball and the Earth was within that ball, just like a yolk (the Earth) inside an egg (the sky). The earth was divided into two parts: north and south. Thirty-six degrees south was referred to as *nán-jí* 南極.[8] Ricci took advantage of the ancient

Chinese understanding of *nán-jí* so that its new foreign meaning would be accepted. Today, *nán-jí* refers to "the Southern end of the Earth's axis, the apex of the Southern hemisphere." Thus, the Chinese language completed the transformation from *mò-wǎ-là-ní-jiā-zhōu* to *nán-jí-zhōu*.

Ricci introduced words of three or more syllables, and many of these longer syllables also later became shorter ones. This can be seen in the evolutionary process of *mò-wǎ-là-ní-jiā-zhōu→nán-jí-zhōu*, in which the syllables of the Chinese lexicon gradually developed toward syllable simplification. This is because the Chinese lexicon has a mechanism that turns long syllable structures into shorter ones. In the ancient Chinese lexical system, monosyllabic words were predominant, but many polysyllabic words were introduced in the Míng and Qīng dynasties by Ricci and other missionaries. Thus, in the course of the system's development since then, polysyllabication has been a common trend. This continues to occur in the modern (1919–) Chinese lexical system, where disyllabic words dominate.[9] Therefore, syllable abbreviation is a general regulatory mechanism. This means that in the process of evolution, multisyllable words will gradually shorten to two syllables.

3.2 *Sì-dà-yáng* 四大洋 (Four Oceans) and related terms coined by Ricci

The oceans cover most of the earth, and, indeed, the word "ocean" is an important term in geography. But before Ricci made a map of the world, the Chinese knew nothing about the world's oceans. The early coinages of the *sì-dà-yáng* (Four Oceans) are all found in the *Kūnyú wàn'guó quántú*. In modern Chinese, they are *dà-dōng-yáng* 大東洋 (Pacific Ocean), *dà-xī-yáng* 大西洋 (Atlantic Ocean), *xiǎo-xī-yáng* 小西洋 (Indian Ocean), and *bīng-hǎi* 冰海 (Arctic Ocean). Their etymologies and further evolution in the Qīng dynasty are analyzed below.

Dà-dōng-yáng 大東洋

Dà-dōng-yáng in the Míng dynasty was the Pacific Ocean and was first seen in Ricci's *Kūnyú wàn'guó quántú*. Qīng Chinese literature basically retained the same translation.

(71)
檀香山為大東洋之島國，地廣人稀 (Cuī, 1893/1981, p. 19)
Honolulu is an island nation in **the Pacific Ocean**. It is scarcely populated.

Tài-píng-yáng 太平洋 (Pacific Ocean) was first seen in the Chinese literature of the Qīng dynasty.

(72)
試以南太平洋中之哈唯島(即華人稱為檀香山者)言之，距赤道度數不甚遠……然即哈威一島，歐洲人亦初未知之也 (Cài & Richard, 1895/2002, p. 435)

As an example, Hawaii Island, an island in the South **Pacific Ocean**, was called Honolulu by the local Chinese, and it was not far from the Equator …… But even Europeans did not know of its existence at first.

Dà-xī-yáng 大西洋

The Atlantic Ocean is called *dà-xī-yáng* in Chinese, and it was first coined by Ricci in the *Kūnyú wàn'guó quántú*. When Ricci came to China, he said in Chinese terms that he was from the "Atlantic," west of the "Little Western Ocean" (which was how China referred to the Indian Ocean) (Dunn, 1965, p. 192).

(73)
外夷利瑪竇，號西泰大西洋人 (Táo, 1376/2019, p. 123)
Ricci, a foreigner, whose nickname is Xitai, is from the Western **Atlantic Ocean**.

The concept and form of *dà-xī-yáng* were widely accepted in Míng and Qīng Chinese and are still used in modern Chinese.

Bīng-hǎi 冰海

Bīng-hǎi, which is the Arctic Ocean, is shown in the *Kūnyú wàn'guó quántú*. Qīng writings retained the translation.

(74)
蔥嶺分支，北抵冰海 (Hé, 1881/1964, p. 687)
A branch of the Pamir Mountains reaches north to **the Arctic Ocean**.

The translation of *běi-bīng-yáng* 北冰洋 (Arctic Ocean) appeared in Qīng Chinese.

(75)
所幸其國形勢, 背繞北冰洋, 不至受敵; 而其地苦寒, 又非鄰國所欲, 故得無虞 (Cuī, 1893/1981, p. 397)
Fortunately, this country had its back to **the Arctic Ocean** so it was not violated by the enemy. This country was so cold that its neighboring countries did not want it. As a result, it has not been violated.

Xiǎo-xī-yáng 小西洋

When Ricci came to China to see the Wànlì emperor, he described himself as "from the 'Atlantic Ocean,'" that is, one of the peoples who live in the western part of Europe. He called the waters of the Indian Ocean *xiǎo-xī-yáng*. This term appears not only in *Kūnyú wàn'guó quántú*, but also in other Chinese works by Ricci.

(76)
印度近小西洋，西國往來者甚眾; 經籍教法，從古流傳至彼 (Ricci, 1610, p. 501)

India is close to **the Indian Ocean** and has many people coming and going from the West. All kinds of books have been circulating there since ancient times.

The examples above demonstrate that the phrases "Five Continents" and "Four Oceans" in modern Chinese are all from the *Kūnyú wàn'guó quántú*.

Ricci also changed the inherent meaning of the Chinese morpheme *xī* "西," making it refer not merely to the cardinal point "west" but also to Europe.

Tài-xī 太西

Tài-xī generally refers to Western countries, especially Europe.

(77)

且夫天堂地獄之報，中華佛老二氏信之，儒之智者亦從之，太東、太西諸大邦無疑之，天主《聖經》載之 (Ricci, 1603, p. 71)

China's Buddhism, Taoism, Confucian wisdom, and the Great Powers of the East and the **West** all believe that there are Heaven and Hell. They are recorded by the Catholic Bible.

Xī 西 is a pictograph. The original form of *xī* is *qī* 棲, and it originally meant "perch (of birds)." Based on this meaning, *xī* refers to the direction of sunset.

(78)

日在西方而鳥棲，故因以為東西之西 (Xǔ, 121 CE/1998, p. 112)

Birds rest when the sun sets in the west, so "xi" is used to represent the **west** of east and west.

Xī-fāng 西方 in ancient Chinese was a concise name referring to the side where the sun goes down. *Xī-fāng* is the opposite direction of east – that is, west.

(79)

西方有木焉，名曰射干 (Xún, 313 BCE–238 BCE/2015, p. 84)

There is a tree called iris domestica in the **west**.

After Buddhism was introduced into China, the term *Xī-fāng*, meaning the world in which the Buddha lived, was popularized. Because the environment of this world is composed of treasures, without any pollution or evil, this place is also called *xī-fāng-jìng-tǔ* 西方淨土 (western pure land or western paradise).

(80)

至期身心歡喜，吉祥而逝，還生西方淨土 (Tāng, 1611/2015, p. 64)

In the last moments of his life, he died peacefully, in the **Western** Pure Land.

In ancient Chinese, an important word composed of the morpheme *xī* 西 is *xī-tiān* 西天. *Xī-tiān*, literally meaning "western sky," originally meant "India," as India is southwest of China. The so-called *xī-tiān-qǔ-jīng* 西天取經 refers to going to India to obtain Buddhist scriptures.

(81)
如不到西天, 不得真經, 即死也不敢回國 (Wú, 1592/2012, p. 263)
If I cannot get to **India** and cannot get the Buddhist scriptures, I won't go back to China until I die.

The second meaning of *xī-tiān* is the western paradise in Buddhist culture. Based on this meaning, *xī-tiān* can refer to death in Chinese.

(82)
你再這麼囂張，小心我叫人送你上西天 (Ibid., p. 116)
You behave with unbearable insolence again; be careful lest I ask someone to send you to the Western Paradise (death).

Ricci further expanded the region of *xī* 西, using it to refer to the modern sense of the "'Western countries" – that is, Europe – but also included contents or forms belonging to Western countries, and derived from this a series of "*xī* 西+ X" words, as follows.

Xī-fāng 西方

(83)
佛氏竊聞吾西方天堂地獄之說，又摻入吾前世閉他臥剌所妄造輪回變化之論 (Ricci, 1608, p. 490)
Buddhist rhetoric steals the narrative of hell in the paradise of **western** Catholicism, and mixes it with reincarnation, the past, and other statements.

Xī-yáng 西洋

The Southern Sòng dynasty (1127–1279) referred to the area west of the present-day South China Sea and coastal areas as *xī-yáng*. Míng-dynasty explorer Zhèng Hé 鄭和[10] led a flotilla to sail the South China Sea, an act commonly known as *xià-xī-yáng* 下西洋 (the Míng treasure voyages).[11]

Ricci used the term *xī-yáng* to refer to both sides of the Atlantic – that is, Europe and the United States.

(84)
萬曆二十八年，歲次庚子，賣具贄物赴京師，獻上，間有西洋樂器雅琴一具，視中州異形，撫之有異音 (Ricci, 1601, p. 232)
In A.D.1600 (the year of Gengzi), I sold a lot of old items to go to the capital. I presented the ancient **Western** piano: its shape is different from the pianos in central China. The sound is also a bit different.

Xī-yù 西域

Xī-yù is the general name of the Yumen Pass and Yang Pass area west of the Han dynasty.

Ricci also used the term *xī-yù* to refer to the West.

(85)

古者吾西域有士，名曰閉他臥剌 (Ricci, 1603, p. 98)

There was a man in the ancient **West** called Bitawola.

Xī-guó 西國

Xī-guó originally referred to the princes enthroned in the West.

(86)

古者周公東征則西國怨，西征則東國怨 (Gōngyáng, 481 BCE/2016, p. 105)

The ancient King of Zhou conquered the princes of the East, the **Western princes** have a grudge against him; The ancient King of Zhou Conquer the princes of the west, the Eastern princes have a grudge against him.

Ricci also used the term *xī-guó* to refer to Western countries.

(87)

西國中古有一國醫，論其時俗虛言熒惑大為民害，國王大臣竟未信之 (Ricci, 1608, p. 447)

Doctors from one of the ancient **countries in the West**, discussing astronomy, said that the presence of Mars was a symbol of disaster, and that the kings and ministers of the time did not believe his argument.

Xī-yì 西邑

Xī-yì refers to the Western capitals.

(88)

東垣君諫諍，西邑我驅馳 (Bái, 810/2017, p. 76)

You are loyal to the monarch in the East, and I work hard in the capital of the **West**.

Ricci and others also use the term *xī-yì* to refer to the West.

(89)

西邑古有一人，富而甚吝 (Ricci, 1608, p. 509)

There was once a man in the **West**. Rich as he was, he was particularly stingy.

Xī-tǔ 西土

Xī-tǔ refers to the home of the Zhou tribe, roughly located in present-day Shaanxi (shǎnxī 陕西) province.

(90)
王乃徇師而誓。曰: "嗚呼!西土有眾，鹹聽朕言。" (Wáng, 10th century BCE/2011, p. 36)
The king led the army in swearing, "All the people of **the Zhou dynasty**, listen to me!"

Ricci uses *xī-tǔ* to refer to the West.

(91)
吾西土昔有一人，忘其名，富而愛財，甚乎身命 (Ricci, 1608, p. 493)
We have a man in the **West** who has forgotten his name, but he is rich and cherishes his own money even more than his own life.

Other place names that can be verified from the *Kūnyú wàn'guó quántú* are:

Ā-lā-sī-jiā 阿拉斯加 (Alaska)
Ān-dū-lǐ-pān 安都裡潘 (Andros Island)
Ān-yì-hé 安義河 (the Ganges River)
Ān-è-lì-yà 諳厄利亞 (England)
Bǎi-ér-mó-dá 百而謨達 (Bermuda)
Běi-měi 北美 (North America)
Bèi-lù 孛露 (Peru)
Bó-xī-ér 伯西兒 (Brazil)
Dà-làng-shān 大浪山/ *Dà-làng-fēng* 大浪峰 (Cape of Good Hope)
Dà-nǎi-hé 大乃河 (the Don River)
Dì-zhōng-hǎi 地中海 (the Pacific Ocean)
Dōng-xī-zhú 東西竺 (Aur Island, Malaysia)
È-ōu-bái-yà 厄歐白亞 (Euboea Island, Greece)
Fú-láng-chá 拂郎察 (France)
Gān-dì-yà-dǎo 甘的亞島 (Crete)
Gē-ér-fǔ 哥而府 (Corfu)
Gē-ér-xī-jiā 哥而西加 (Corsica)
Gé-luò-lán-dé 格落蘭得 (Greenland)
Gǔ-bā 古巴 (Cuba)
Jiā-ná-dà 加拿大 (Canada)
Méi-gàn 煤幹 (coral atolls in the Maldives)
Mò-hé-dì-hú 墨何的湖 (the Sea of Azov)
Mò-shì-kě 墨是可 (Mexico)
Pào-ní-dǎo 泡泥島 (Kalimantan Island)
Pō-bā-yá-nà 坡巴牙那 (Popayan, Colombia)

Qī-jì-lǐ-yà 棲濟裡亞 (Sicily)
Shēn-dú-hé 身毒河 (the Indus River)
Sǐ-hǎi 死海 (Dead Sea)
Wò-lán-dì-yà 臥蘭的亞 (Greenland)
Xī-fēi-lǐ-yǎ 昔非裡雅 (Westphalia)
Xīn-rù-nì 新入匿 (New Guinea)
Yà-dà-là-shān 亞大蠟山 (the Atlas Mountains, northwest Africa)
Zhì-lǐ 智裡 (Chile)

3.3 *Five zones* and related terms coined by Ricci

In 1602, Ricci defined a number of geographical terms, such as *rè-dài* 熱帶 (the tropics), *zhèng-dài* 正帶 (temperate climate), *hán-dài* 寒帶 (the polar climate regions), *wěi-dù* 緯度 (circle of latitude), *wěi-xiàn* 緯線 (latitude), *jīng-wěi* 經緯 ("meridian" and "circle of latitude"), *nán-jí* 南極 (South Pole), *běi-jí* 北極 (North Pole), *běi-jí-quān* 北極圈 (Arctic Circle), and *nán-jí-quān* 南極圈 (Antarctic Circle) in the *Kūnyú wàn'guó quántú*.
Rè-dài 熱帶 ***/ Zhèng-dài*** 正帶 ***/ Hán-dài*** 寒帶

Rè-dài refers to the tropics. *Zhèng-dài* refers to temperate climates. In geography, Earth's temperate climates occur in the middle latitudes, which lie between the tropics and the polar regions. The word is *wēn-dài* 溫帶 in modern Chinese. *Hán-dài* refers to the polar climate regions, which are characterized by a lack of warm summers. The word is *lěng-dài* 冷帶 in modern Chinese.

Rè-dài, *zhèng-dài / wēn-dài*, and *lěng-dài / hán-dài* are all new geographical terms. In ancient Chinese, there were no inherent forms of such words. In 1610, Ricci used the terms *rè-dài*, *zhèng-dài*, and *hán-dài* to represent the climate zones in *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe].

(92)
以天勢分山海，自北而南為五帶: "一在晝長、晝短二圈之間，其地甚熱，則謂熱帶，近日輪故也; 二在北極圈之內，三在南極圈之內，此二處地居甚冷，則謂寒帶，遠日輪故也; 四在北極、晝長二圈之間，五在南極、晝短二圈之間，此二地皆謂之正帶，不甚冷熱，日輪不遠不近故也

(Ricci, 1610, p. 520)

The mountains and seas of the map are divided according to the extent of the sky, and the areas from the north to the south can be divided into five zones: the first zone is between the Tropic of Cancer and the Tropic of Capricorn. This place is very hot and can be called **the tropics** because this zone is closest to the sun. The second zone is within the Arctic Circle and the third zone is within the Antarctic Circle; these two places are very cold and can be called **polar zones**, because this place is the furthest away from the sun. The fourth zone is between the Arctic

Circle and the Tropic of Cancer, and the fifth zone is between the Antarctic Circle and Tropic of Capricorn, both of which are called **temperate zones**. These two areas are neither very cold nor very hot. This is because the sun is neither far nor near these places.

Ricci first coined the concept of *dài* 帶 (a geographic zone of a certain nature) and then further created concepts such as *rè-dài* (tropics), *zhèng-dài* (temperate climate), and *hán-dài* (polar climate) on the basis of the central morpheme *dài*. The vocabulary created by this method is very logical. The terms for the *five zones* in Chinese are actually Ricci's creations.

Wěi-dù 緯度

Wěi-dù (latitude) was first seen in the *Kūnyú wàn'guó quántú*. *Wěi-dù* has no related form in ancient Chinese.

(93)

南北半球之圖與大圖異式而同一理。小圖之圈線即大圖之直線，所以分赤道南北、晝夜長短之各緯度者也 (Ricci, 1602, p. 178)

Maps of the southern and northern hemispheres are not the same as larger maps, but they depict the same pattern. A curve on a small map is a straight line on the big map. Therefore, the equator is the **latitude** dividing the length of the north and south, day and night.

The Chinese character *wěi* 緯 plays an important role in the choice of *wěi-dù* to represent the concept of latitude. *Wěi* is a semantic-phonetic compound character, where "糸" is a semantic radical and "韋" is a phonetic radical. *Wěi* means "east-west road or land," in contrast to *jīng* 經, which means "north-south road or land." The word *wěi-dù* combines the horizontal and east-west meanings of the word *wěi* and is easily accepted by Chinese people, so it is used to this day.

Wěi-xiàn 緯線

Wěi-xiàn means "circle of latitude."

(94)

東西緯線，數天下之長 (Ricci, 1602, p. 171)

A circle of latitude on Earth connects all locations around Earth.

Jīng-wěi 經緯

Jīng-wěi means "meridian" and "circle of latitude."

Jīng-wěi was an inherent word in ancient Chinese referring to the vertical and horizontal lines of fabrics. It also metaphorically meant "orderly." *Jīng-wěi* as a geographical term, meaning "coordinates," first appeared in *Hún'gài tōngxiàn túshuō* 渾蓋通憲圖說 [Illustrated explanation of the sphere and the astrolabe].

(95)

黃道經緯合度立算 (Ricci & Lǐ, 1607, p. 326)

The ecliptic longitudes are available right away.

Běi-jí 北極

The word *běi-jí* existed in ancient Chinese and had several meanings: *běi-jí* meant "Far North," "North Star," and "emperor" (Luó, 2008, p. 1116). There was no "earth" or "earth axis" in ancient China, but the meanings of "North Star," "North Pole," and "north end of the earth axis" are similar.

The modern scientific term *běi-jí*, which refers to the North Pole, was first seen in 1602 in Ricci's *Kūnyú wàn'guó quántú*. It can be said that after Ricci came to China, the concept of *běi-jí* as a scientific term was introduced.

It was not uncommon to add new meanings in the creation of Chinese foreign words during the Míng dynasty. From the point of view of lexical science, such words are not easily perceived as foreign words because they are written in Chinese characters. Zhāng (2016) has stated: "One language is influenced by another language and therefore 'borrowing' often occurs for historical reasons, for instance, when one country conquers another (p. 93)." However, Ricci and others borrowed Chinese forms for missionary purposes.

Zhòu-cháng-guī 晝長規 **/** ***Zhòu-duǎn-guī*** 晝短規

Zhòu-cháng-guī means the Tropic of Cancer; *zhòu-duǎn-guī* means the Tropic of Capricorn.

(98)

內規為日行最北之道，今名晝長規； 外規為日行南至之道，今名晝短規 (Ricci & Lǐ, 1607, p. 335)

The northernmost band of the sun is **the Tropic of Cancer**, and the southernmost band of the sun is **the Tropic of Capricorn**.

Two other geographical terms created by Ricci are *zhòu-yè-píng-guī* 晝夜平規 (Equator) and *zǐ-wǔ-xiàn* 子午線 (Prime Meridian) in the ***Hún'gài tōngxiàn túshuō***.

(99)

儀之陽有數層， 上為天盤， 其下皆為地盤， 各具三規， 中規為赤道，今名晝夜平規 (Ricci & Lǐ, 1607, p. 335)

The astrolabe has several layers. The top one is the celestial disk, and the bottom is the terrestrial disk. These disks each have three circles. The circle in the middle is the **equator**.

(100)

以地平曲線之遇子午線處為一點 (Ricci & Lǐ, 1607, p. 333)

The dot is at the intersection of the horizon curve and the **Prime Meridian**.

3.4 The word-making methods used by Ricci to coin geographical names

From the above analysis, the word-making methods used for Ricci's geographical names can be identified. The word-making methods for *wǔ-dà-zhōu* and

sì-dà-yáng are different from those of the place names and five zones and related terms coined by Ricci on the map.

3.4.1 The word-making methods for **wǔ-dà-zhōu** *(Five Continents) and* **sì-dà-yáng** *(Four Oceans)*

The word-making methods used for *wǔ-dà-zhōu* and *sì-dà-yáng* reflect the cooperative role of internal and external mechanisms in producing new Chinese terminology. The analysis of the Five Continents provides an example of how the combination of internal and external mechanisms operates.[12] A detailed description of each step in the process follows

Step 1: First, the missionaries turned the phrase *dà-zhōu* 大洲 (small land in the sea) into a word. This lexicalization of *dà-zhōu* drew on the role of external forces (missionaries). Only then could *dà-zhōu* be used as a term with the lexical meaning of "continent" and be combined with *yà-xì-yà* 亞細亞 and *ōu-luó-bā* 歐羅巴.

Step 2: After the missionaries absorbed the new semantic concept, they used the process of turning a syllable into morphemes for use in compound word formation to create many new words. "Compound word formation" mainly refers to combining existing syllables with new phonetics to form words. Due to the tendency toward Chinese internal abbreviation, these combinations are then often shortened. For example, the syllables of *yà-xì-yà* are abbreviated into *yà* 亞, *ōu-luó-bā* is reduced to *ōu* 歐, *yà-mò-lì-jiā* 亞墨利加 / *yà-měi-lì-jiā* 亞美利加 (United States) is abbreviated into *měi* 美, and *lì-wèi-yà-zhōu* 利未亞洲 / *ā-fēi-lì-jiā-zhōu* 阿非利加洲 (Africa) is abbreviated into *fēi* 非. *Yà* 亞, *ōu* 歐, *měi* 美, and *fēi* 非 were all then respectively combined with *zhōu* 洲 into disyllabic words.

More examples include *dé-yì-zhì* 德意志 (Germany), which is abbreviated into dé 德 (Germany); *fó-láng-chá* 佛郎察 / *fú-láng-chá* 拂郎察 / *fǒ-lán-xī* 佛蘭西 / *fǎ-lán-xī* 法蘭西 (France) becomes *fǎ* 法; and *ān-è-lì-yà* 諳厄利亞 / *yīng-jí-lì* 英吉利 / *yīng-gě-lán* 英葛蘭 / *yīng-gé-lán* 英格蘭 / *yīng-lún* 英倫 (England) becomes *yīng* 英. The process of combining the above with the morpheme *guó* 國 is the result of an internal regulation mechanism within Chinese. This process shows how longer multisyllabic transliterations lead to monosyllabic morphemes that are then reused to create disyllabic compounds that have persisted into modern Chinese.

Step 3: For those monosyllabic morphemes that cannot be reused to create disyllabic compounds, missionary groups coined new concepts to form new compounds. For example, missionary groups coined *nán-jí* 南極 (Antarctica), *dà-yáng* 大洋 (ocean), and other new concepts. Some of these have relevant phrase forms in ancient Chinese, such as *nán-jí* 南極, the South pole in ancient Chinese theology, while *dà-yáng* did not actually

exist in ancient Chinese – it was entirely a missionary invention and essentially the creation of a new concept. As a geographical noun, *dà-yáng* refers to what might be called the "high seas," generally far from the mainland. *Dà-yáng* can only be used as a word and then combined with *zhōu* 洲 if it has such a meaning. Moreover, in subsequent word-making, *yang* 洋 (ocean), the acronym of *dà-yáng*, was used to create the abovementioned words *tài-píng-yáng* 太平洋, *dà-xī-yáng* 大西洋, and *běi-bīng-yáng* 北冰洋, as well as *yìn-dù-yáng* 印度洋 (Indian Ocean).

Through the analysis of these three main word-making steps, we find that the creation of a Chinese term like the Five Continents is not derived from a single internal mechanism within the language or even a single external mechanism but is instead the result of internal and external mechanisms acting together.

We cannot claim that the formation of the Chinese Five Continents terms is purely the work of missionary groups, because there are two Chinese internal word-making mechanisms that are involved: an abbreviation mechanism for first turning syllables into morphemes and compound word formation. Nor can these words be said to be purely the result of an internal mechanism of Chinese, because their formation process could not have been completed without the missionaries' invention of terms such as *zhōu* 洲, *yáng* 洋, *dà-yáng*大洋, and *nán-jí* 南極.

3.4.2 Word-making methods for coining place names

Transliteration (or phonetic loan) refers to the translation of foreign words using Chinese characters with similar pronunciations; these characters no longer have their own original meaning, but only retain their phonetic and written forms. Ricci used paraphrasing in his creation of religious terms, while for geographical terms, he mainly used transliteration. This is because religious terms have a high degree of religious sensitivity and thus carry significance in the cultural exchange between China and the West (the benefits of creating religious terms through paraphrasing methods are analyzed in Chapter 2). While place names are also important, they were also too numerous for Ricci to carefully consider how to use paraphrasing for each one. Through the enumeration and analysis of Ricci's creation of geographical names, we can see the alternative methods he used for creating these names.

First, characters for transliteration were selected with full consideration of commonly used Chinese surnames and first names. For example, *bó-xī-ér* 伯西兒 (Brazil) is made up of the three characters *bó* 伯 (uncle), *xī* 西 (west), and *ér* 兒 (son); none of these characters express meaning in the word *bó-xī-ér* 伯西兒 (Brazil). *Wò-lán-dì-yà* 臥蘭的亞 (Greenland) is made up of four common characters, *wò* 臥 (sleep), *lán* 蘭 (orchid), *dì* 的 (of), and *yà* 亞 (Asia; second);[13] none of these characters express meaning in the word *Wò-lán-dì-yà* 臥蘭的亞. In other words, there is no meaningful information in the Chinese characters that make up these place names.

This transliteration strategy was widely used by Ricci in his translation of place names and had a positive impact on his mission in China. Almost no later generations of missionaries objected to his approach; indeed, many of them adopted it. The transliteration of place names mainly took the form of syllables that were adapted to the characteristics of Chinese: one Chinese character per syllable. For example, in the word "Chile," the syllable "Chi" is translated as *zhì* 智 (wisdom), and the syllable "le" is translated as *lǐ* 裡 (inside); the place name Jamaica, which contains three syllables in Latin, becomes "*yá-mǎi-jiā*" 牙買加, which translates to *yá* 牙 (tooth), *mǎi* 買 (buy), and *jiā* 加 (plus) in Chinese.

3.4.3 The word-making methods for the five zones *and related terms coined by Ricci*

Some of the new geographical terms created by Ricci also have related forms in ancient Chinese, such as *běi-jí* 北極 (North Pole), for example, after Ricci's translation, the meaning of the inherent word form *běi-jí*, which was changed from "Far North," "North Star," and "emperor" to "North Pole." Some of the new astronomical terms coined by Ricci were coined by combining form-borrowing terminology with Chinese inherent morpheme; the words *wěi-dù* 緯度 (latitude) and *wěi-xiàn* 緯線 (circle of latitude) were also coined using this method. Ricci first changed the meaning of *wěi* 緯, an inherent morpheme in Chinese, from "north-south road or land" to "astronomically refers to the south-north direction"; he then further combined *wěi* 緯 with *dù* 度 (degree) to make *wěi-dù* 緯度 (latitude). At the same time, Ricci first changed the meaning of *jīng* 經, also an inherent morpheme in Chinese, from "east-west road or land" to "astronomically refers to the east-west direction." Ricci himself did not coin the term *jīng-dù* 經度 (longitude), but later Chinese scholars referred to Ricci's method of creating *wěi-dù* 緯度 (latitude) as a model for combining *jīng* 經 with *dù* 度 (degree) to make *jīng-dù* 經度 (longitude). Ricci further followed this approach by coining the words *wěi-xiàn* 緯線 (circle of latitude).[14]

Wěi-xiàn is a merger of *wěi* 緯 with *xiàn* 線 (circle). *Jīng-xiàn* is a merger of *jīng* 經 with *xiàn* 線. *Jīng* 經 in *jīng-wěi* 經緯 (meridian and circle of latitude) represents "meridian," and *wěi* 緯 represents "circle of latitude."

The word creation method for these words can be represented by Figure 3.1.

As another example, the series of terms *rè-dài* 熱帶 (tropics), *zhèng-dài* 正帶 (temperate zone), and *hán-dài* 寒帶 (frigid zone) imitate the structure of Latin and demonstrate a word-making mode, so that this batch of terms forms a semantic field in which words have a certain correlation with each other.

At the same time, this method has also become a commonly used word-making pattern in the world of Chinese geography, such as when *zhèng-dài* 正帶 (temperate zone) evolved into *wēn-dài* 溫帶 (temperate zone) in accordance with the word-building mode "adjective + *dài* 帶 (zone)." Another example is the subsequently coined term *xīng-qiú* 星球 (planet), which followed

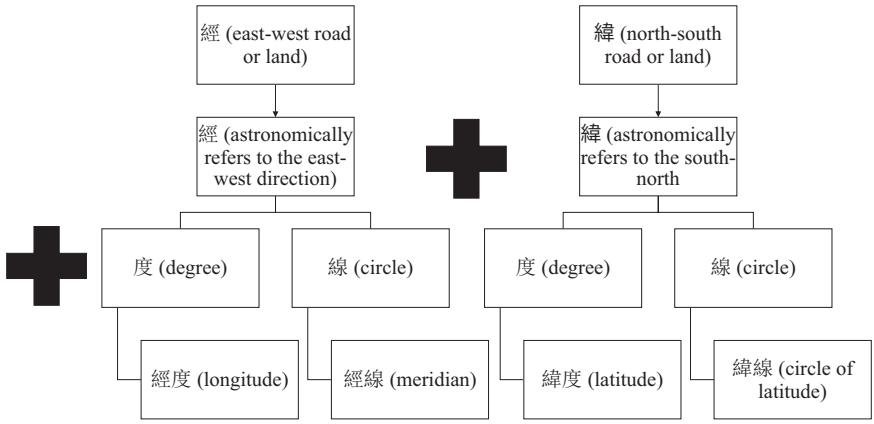

Figure 3.1 The word-making process of *jīng-dù* 經度 (longitude), *jīng-xiàn* 經線 (meridian), *wěi-dù* 緯度 (latitude) and *wěi-xiàn* 緯線 (circle of latitude)

the word-making pattern of "noun + qiú 球 (planet)." The evolution of contemporary Chinese astronomical geography terms seems to have almost always followed one of these patterns: "noun + *qiú* 球 (planet)" or "number word / adjective + *dài* 帶 (zone)."

3.5 Conclusion

This chapter has analyzed Ricci's achievements in creating geographic terminology from three perspectives. First, this chapter introduced Ricci's geographical works written in Chinese and the historical background of his work. Second, it discussed the terms *wǔ-dà-zhōu* and *sì-dà-yáng* and other related terms coined by Ricci in his geographical works. Third, it discussed the word-making methods that Ricci used. Finally, it gave a detailed explanation of the linguistic rationale for his strategies and methods, especially with respect to the syllabic structure of the geographical terms he coined.

The creation of the terms related to *wǔ-dà-zhōu* and *sì-dà-yáng* is the result of the combination of internal and external mechanisms and relies on complex word-making methods; other place names created by Ricci use relatively simple transliteration. The difference in complexity between the word-making methods for *wǔ-dà-zhōu* and *sì-dà-yáng* and for other place names may be due, in part, to the fact that *wǔ-dà-zhōu* and *sì-dà-yáng* are very important geographical concepts, and therefore directly affect the quality of the world geographical knowledge transmitted by *Kūnyú wàn'guó quántú* to the Chinese people in the late Míng. For other place names, Ricci chose to use the transliteration method, mainly because the number of these place names was too large to take advantage of the complex word-making methods used for *wǔ-dà-zhōu* and *sì-dà-yáng*. However, because these place names typically correspond to the syllables of Latin, they objectively promoted the development of polysyllabic

words in Chinese. The *Five zones* and related terms were coined by skillfully using related forms in ancient Chinese or using combining form-borrowing terminology with Chinese inherent morphemes. This approach is more prominent in Ricci's practice coining astronomical terms and will therefore be further explored in Chapters 4 and 5.

Ricci's geographic terms were highly successful, and although the form of some of these words has evolved in modern Chinese, a certain portion has become fixed morphemes of Chinese that continue to function in the process of modern Chinese word creation. An example is the monosyllable *yà* 亞 (Asia), which has become a morpheme that can form new words such as *yà-yì* 亞裔 (Asian born).

Notes

1 Since *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe] was published in 1610 and the geographical terms of "five zones" contained in it was coined later than the *wǔ-dà-zhōu* 五大洲 (Five Continents), *sì-dà-yáng* 四大洋 (Four Oceans) and other geographical names, the internal logic of introducing geographical terms in this chapter, not only considers the importance of geographical names, but also follows the chronology in which Ricci coined geographical terms.
2 The Research Institute of Buddhist Culture of China, ed., *Cháng Āhán jīng* 長阿含經 [Dirgha Agama] (Běijīng: China Religious Culture Publisher, 1999, originally written by Zhú Fóniàn 竺佛念 between 378 CE and 413 CE), 156.
3 Translated by Ichimura (2018, p. 156).
4 Ibid., 156.
5 In sinology, the "classic Chinese novels" refers to the four or six most famous traditional Chinese novels. The four classic novels are *Sānguó zhì tōngsú yǎnyì* (三國志通俗演義, "*The Romance of the Three Kingdoms*"), *Xīyóu jì* (西遊記, "*Journey to the West*"), *Shuǐhǔ zhuàn* (水滸傳, "*The Water Margin*"), and *Hónglóu mèng* (紅樓夢, "*The Dream of the Red Chamber*"). In addition to these four, the six classic novels also include *Rú lín wài shǐ* (儒林外史, "*Unofficial History of the Scholars*") and *Jīn píng méi* (金瓶梅, "*The Plum in the Golden Vase*").
6 The Summer Palace was an imperial garden in the Qīng dynasty. Now it is a vast ensemble of lakes, gardens and palaces in Běijīng.
7 Timothy Richard (Chinese: Lǐ Tímótài 李提摩太, 1845–1919) was a Welsh Baptist missionary to China. He played a role in the modernization of China and the rise of the Chinese Republic.
8 *Běi-jí* 北極 ("thirty-six degrees north") was also coined by Ricci. However, there is no such concept of *běi-jí-zhōu* 北極洲.
9 As an important feature of modern Chinese lexical construction, the dominance of disyllabic words has been widely recognized by the field of Chinese linguistics. However, we cannot predict whether Chinese will still be dominated by disyllabic words in the future, because the introduction of a large number of Indo-European words from the Míng dynasty by Ricci and his colleagues has gradually broken this dominance, and with the gradual Europeanization of Chinese, disyllabic dominance may no longer exist.
10 Zhèng Hé 鄭和 (1371–1433/1435) was a Chinese Míng dynasty mariner, explorer, diplomat, fleet admiral, and court eunuch.
11 The Míng treasure voyages were the seven maritime expeditions undertaken by Míng China's treasure fleet between 1405 and 1433.
12 "Internal mechanisms of a lexicon" refers to the fact that the generation of language vocabulary may be subject to certain universal mechanisms of a language

(such as the power of grammar) or type characteristics (such as the lack of morphological changes in Chinese, and the ideographic characteristics of Chinese vocabulary). "External mechanisms of a lexicon" refers to the acceptance of a large number of new terms thanks to socio-cultural forces such as religious and cultural exchange.

13 *yà* 亞 begins to refer to Asia in the late Qīng dynasty.

14 *Jīng-xiàn* 經線 (meridian) was later coined using Ricci's word-making method, however, it was not coined by Ricci himself.

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4 Geometrical terms coined by Matteo Ricci and Xú Guāngqǐ 徐光啟

Geometrical terms are another part of Ricci's contribution to the Chinese lexicon. He contributed many geometrical terms to Chinese, mainly in the mathematical work *Jǐhé yuánběn* [Euclid's Elements], which he translated in cooperation with the Chinese scientist Xú Guāngqǐ.

The most important of these, *Jǐhé yuánběn*, is the translation of a work written by the ancient Greek mathematician Euclid (325 BCE–265 BCE). Ricci and Xú's Chinese translation is based on a handout version from the Roman College, which was compiled by Ricci's teacher Christopher Clavius (Spence, 1985, p. 32). When Ricci first entered China, he brought 15 volumes of *Euclid's Elements* with him. However, he collaborated with Xú Guāngqǐ in translating only the first six volumes. There are several possible reasons for this: First, he may have felt that the first six volumes were the most important and that there was more valuable work to be done than completing the subsequent volumes. Second, Ricci studied under Christopher Clavius at the Roman College from 1574 to 1577 and may have, in fact, only studied the first six volumes.

In 1600, the Míng dynasty mathematician Xú Guāngqǐ met Ricci. The 38-year-old Xú met Ricci for the first time in Nánjīng and was impressed by Ricci's *Kūnyú wànguó quántú*, a map that greatly expanded Xú's global horizons. They became good friends and often discussed the differences between Chinese and Western academia. In addition to being a mathematician, Xú was a Chinese agronomist and astronomer. His highest official roles were Lǐbù shàngshū 禮部尚書 (Minister of Rites) and Wényuāngé dàxuéshì 文淵閣大學士 (Grand Secretary of Pavilion of the Imperial Library) under the Chóngzhēn 崇禎 Emperor (1628–1644). In 1603, Xú was influenced by Ricci to become Catholic, and studied Western science and technology (including astronomy, the calendar, mathematics, measurements, and hydraulic conservancy) under Ricci. Xú devoted his life to the study of science and technology and also wrote diligently; he and Ricci established a deep friendship, treated each other with courtesy, and had close exchanges. Xú also became an outstanding Catholic scholar. They carried out an active cultural dialogue, cooperating together and maintaining close relations, while Xú lived his own life according to devout Catholic standards and acknowledged Ricci as his master.

DOI: 10.4324/9781003490159-5

By 1606, they were working collaboratively (Spence, 1985, p. 35). In 1607, together they translated the first six volumes of *Euclid's Elements* into Chinese and renamed it *Jǐhé yuánběn*. It was officially completed in 1607 (Spence, 1985, p. 37). Since then, it has been repeatedly republished, becoming the Chinese people's first source of knowledge of Western mathematics. Some of its mathematical terms are still in use.[1] Ricci and Xú's translation of the first six volumes of the book has been a great contribution to Chinese mathematics ever since its completion.

Ricci and Xú finished their translation of *Euclid's Elements* in the spring of 1607, and the first edition was published immediately. In 1610, Ricci passed away, and Xú returned to Běijīng, where he found among his belongings a copy of the first edition that had been subsequently revised by Ricci. Xú Guāngqǐ, Diego de Pantoja (1571–1618), and Sabbatino de Ursis (1575–1620) prepared a revised edition in 1611. In 1629, this edition was included in Lǐ Zhīzǎo's 李之藻 (1565–1630) book series *Tiānxué chūhán* 天學初函 [A preliminary discussion of astronomy], which was also called *Chūhán běn* 初函本.

This chapter explores the 1607 edition by Ricci and Xú.[2] Xú's *Míngshǐ* 明史 [Biography of Míng history] documents the close communication between himself and Ricci. Although they only cooperated on the first six chapters of the *Jǐhé yuánběn*, these chapters summarize the geometric knowledge and research results of the ancient Greeks. The chapters establish the earliest example of the deductive mathematical system using the axiomatic method, which marks the transformation of geometric knowledge from a scattered and fragmented empirical form to a complete logical system. This profoundly affected the development of mathematics in later generations in China, and the deductive structure adopted also grew in influence after being transplanted to other disciplines.

Due to the limitations of the times, Ricci and Xú's version has obvious deficiencies, such as partial proofs, omissions, and errors, and is ultimately not rigorous enough. Nonetheless, the Chinese translation of this book marked the beginning of the introduction of Western mathematics to China.

Some of the mathematical terms in this book did not originally exist in Chinese, and Ricci and Xú frequently had to create new translations. For key issues, they went to great lengths to consult with people and to refer to other books. Most of the geometric terminology that Ricci created with Xú was adopted into modern Chinese and formed the basis of modern Chinese geometry. As such, Ricci was a pioneer in the development of Chinese vocabulary for geometry, and his term-creation techniques deserve to be remembered and analyzed. This reinforces the special research value of the geometric terminology collected in this book.

This chapter's organizing principle is inductive: first, it will exhaustively extract terms from *Jǐhé yuánběn* and analyze their etymology; then it will analyze the linguistic rationale for the formation of the terms.

The word-making methods evident in *Jǐhé yuánběn* are as follows: First, paraphrasing words dominate in the making of geometric terms. Second,

many translations give new meanings to the glyphs of existing Chinese words. Third, M-H (Modifier-Head) terms are frequent. Fourth, categorization and analogy are often used.

4.1 Terms created by Ricci and Xú Guāngqǐ

Jǐhé yuánběn was the first Chinese translation of a Western mathematical masterpiece. It is generally believed that ancient Chinese and Latin have great differences in grammatical structure, stylistic form, and semantics. So how does a scientific masterpiece written in western language cross the language barrier to Chinese? And how can it be spread across heterogeneous cultures? To answer these questions, the first thing that needs to be explored is how Ricci and Xú translated the Latin version of Christopher Clavius's *Euclidis Elementorum Libri XV* into the *Jǐhé yuánběn*.

Part 4.1 of this chapter takes the term *jiè-shuō* 界說 (definition) from the first volume of the Chinese translation as an example and comprehensively examines it from the perspectives of terminology description, Latin-Chinese comparison, and definition analysis. Ricci and Xú used ancient Chinese to reconstruct the logical reasoning and axiomatic system of classical Western mathematics, creating a milestone in the history of cultural exchange between China and the West.

Jiè-shuō 界說

The Chinese terms *jiè-shuō* and *jǐ-hé* 幾何 come from the *Jǐhé yuánběn*.

Jiè-shuō means "definition," and its meaning in modern Chinese comes from the first volume of the *Jǐhé yuánběn*.

(101)
凡造論，先當分別解說論中所用名目，故曰界說 (Ricci & Xú, 1607, p. 3)
Whenever a theory is created, the names used in the theory should first be explained individually, and each of these is said to be a **definition**.

Jiè-shuō is translated from the Latin word "*definitio*." The literal meaning of *definitio* is "boundary." This concept was used in Qīng Chinese, where the complete meaning of a word or concept was called *jiè-shuō*. Volume 1 of *Jǐhé yuánběn* breaks down 36 different *jiè-shuō*.

(102)
凡立言，先正所用之名，以定命義之所在者，曰界說 (Mǎ, 1898/1983, p. 2)[3]
Anyone who creates a theory, first of all, has to make a decision and study what it means, which is called **giving a definition**.

Jiè-shuō in modern Chinese mainly means "giving an accurate and brief explanation of the essential feature of a thing or the connotation of one

concept" (Zhōngguó shèhuì kēxuéyuàn, 2016, p. 771). The word was first used in the field of mathematics and then gradually grew to mean "to define a concept."

The Greek word "Στοιχεα" in *Euclid's Elements* means "principle"; the English translation "elements" is from the Latin "*Elementa*." One of the meanings of "*Elementa*" is "element." Before Ricci's entry into China in the Míng dynasty, the Chinese did not have the concepts of "elements" and "principles." Ricci and Xú translated the Latin "*Elementa*" as *yuánběn* 原本, meaning original. There is no corresponding word for "geometry" in the Greek title of *Euclid's Elements*; the Chinese word *jǐ-hé* 幾何 (geometry) was carefully coined in 1607 by Ricci and Xú.

Jǐ-hé 幾何

Jǐ-hé in ancient Chinese originally meant "how much" and was more often used as part of a rhetorical question.

(103)

太后曰:"敬諾。年幾何矣?" (Liú, 77 BCE–6 BCE/2012, p. 250)

The empress dowager said, "I agree with you. **How old** is the boy?"

Ricci and Xú mainly use the word form *jǐ-hé* to convey the Latin "*geometria*" (geometry), which takes into account the characteristics of both tone and meaning. The word *jǐ-hé* was created primarily by giving the old Chinese phrase form a new meaning.

(104)

凡曆法、地理、樂律、算章、技藝、工巧諸事，有度有數者，皆依賴十府中幾何府屬 (Ricci & Xú, 1607/2011, p. 3)

All history, geography, music, arithmetic, skills, craftsmanship, and other skills which have degrees all need to rely on how to learn this science of **geometry**.

Bǐ-lì 比例

Bǐ-lì in ancient Chinese originally meant to "compare, to give examples, compare with previous examples."

(105)

如此比例，觸類慎之，不可陷於輕脫 (Yán, 581–600/2019, p. 298)

As **an example is given**, the relevant categories should be handled with caution and not be taken lightly.

In the sixth volume of *Jǐhé yuánběn*, *bǐ-lì* (proportionality) is used to refer to the multiple relationships between two quantities of the same kind. *Bǐ-lì*, which was translated from the Latin word "ratio," became a geometric term that is mainly used to refer to comparative relationships in quantitative analysis. Thus, *bǐ-lì* refers to the number or amount of a group or a part when compared to the whole. In mathematics, two varying quantities are said to

be in a relation of *bǐ-lì* when either their ratio or their product yields a constant.

(106)
甲與壬之比例，若乙與丙 (Ricci & Xú, 1607/2011, p. 500)
The **ratio** of A to C is just like B and C.

Bǐ-lì in modern Chinese also means the same thing.

(107)
教師和學生的比例，已經達到規定的標準 (Xú & Yuán, 1998, p. 11)
The **ratio** of teachers to students has reached the required standards.

Diǎn 點

Diǎn originally meant "a small black dot" or "a small black mark" in ancient Chinese.

(108)
點，小黑也 (Xǔ, 121 CE/1998, p. 93)
Diǎn is **the tiny black mark**.

Diǎn in *mò-diǎn-ér* 墨點兒, *bān-diǎn* 斑點兒, and *wū-diǎn* 污點 all refer to tiny black marks.

Diǎn also refers to "drops."

(109)
七八個星天外，兩三點雨山前 (Xīn, 1181/2019, p. 121)
Only in the distant sky are there seven or eight stars flashing, in front of the mountain there are only a few **drops** of rain.

In modern Chinese, *diǎn* as in *zhū-diǎn* 珠點 (bead) and *yǔ-diǎn* 雨點 (raindrop) also means "drops."

Diǎn can also refer to a glyph stroke. A dot made with a pen on a piece of paper is called a "point," and occurs in words such as *sān-diǎn-shuǐ* 三點水 (the water radical).

Diǎn can refer to punctuation in modern Chinese sentences, such as *dòu-diǎn* 逗點 (comma) or *biāo-diǎn* 標點 (punctuation) (there are no such divisions between sentences in ancient Chinese books).

Diǎn can refer to small desserts and foods, such as *xī-diǎn* 西點 (pastry), *gāo-diǎn* 糕點 (cakes), *chá-diǎn* 茶點 (cakes when drinking tea), and *zǎo-diǎn* 早點 (breakfast cakes).

Diǎn can also refer to a unit of time. One *diǎn* 點 is one hour, such as *shàng-wǔ-shí-diǎn* 上午十點 (ten o'clock in the morning).

Diǎn can also refer to a specific time, such as *zhǔn-diǎn* 准點 (on time), *wù-diǎn* 誤點 (delayed), and *zhōng-diǎn* 鐘點 (hour).

Diǎn can refer to a certain place or standard, such as *zhōng-diǎn* 終點 (end), *qǐ-diǎn* 起點 (starting point), *bīng-diǎn* 冰點 (freezing point), and *fèi-diǎn* 沸點 (boiling point).

Diǎn can refer to a part or aspect of a thing, such as *yōu-diǎn* 優點 (advantage), *quē-diǎn* 缺點 (disadvantage), *zhòng-diǎn* 重點 (focal point), and *ruò-diǎn* 弱點 (weak point).

Ricci used *diǎn* in geometry to mean "a shape with no length, width, or thickness but with only position," which is a translation of the Latin word "punctum."

(110)
點者無分,無長短、廣狹、厚薄 (Ricci & Xú, 1607/2011, p. 59)
A **point** is that which has no segments, nor length, width, or thickness.

Hú 弧

Hú is a semantic-phonetic compound (SPC) character.[4] The semantic radical of *Hú* is *gōng* 弓. The phonetic radical is *guā* 瓜. The original meaning of *hú* is "wooden bow."

(111)
弧，木弓也 (Xǔ, 121 CE/1998, p. 344)
The original nature of the **arc** is a wooden bow.

A wooden bow's typical characteristic is its ability to bend. Thus, on the basis of the original meaning of *hú*, which can refer to "bending," *hú* comes to mean "wooden bow" through the employment of metonymy. Metonymy, in which the name of a thing is used to refer to something closely related to it (for example, using the "White House" to refer to "the US president"), is a common method through which new meaning is generated in cognitive linguistics.

(112)
凡揉輔，欲其孫而無弧深 (Jiǎ, 650–700/2010, p. 112)
The **arc** should be taken into consideration when making all kinds of wheels.

Ricci and Xú use *hú* as a geometric term referring to the segment between any two points on the circumference, which is a translation of the Latin word "arcus."

(113)
又割圜之直線為弦。所割圜界之一分為弧 (Ricci & Xú, 1607/2011, p. 71)
An **arc** is a plane curve that is a segment between two points on a circle that contains two endpoints. The segment between the two endpoints of the connecting arc is termed a String.

Xián 弦

The original meaning of *xián* is a bowstring tied at both ends of the bow. It can be found in *Shuōwén jiězì*:

(114)
弦，弓弦也 (Xǔ, 121 CE/1998, p. 365)
Xian is a **bowstring** in archery.

Xián 弦 also refers to strings on a musical instrument.

(115)
朝歌夜弦，為秦宮人 (Dù, 825/2020, p. 132)
One who sings in the morning and plays the **stringed** instruments in the evening is one from the Qin dynasty.

Xián also refers to a stringed instrument (i.e., the instrument, not the strings).

(116)
孔子烈然返瑟而弦 (Lǔ, 241 BCE/2011, p. 147)
Confucius solemnly abandoned the *Se* (instrument) and switched to **playing the strings**.

Xián also refers to the sound that a stringed instrument makes.

(117)
管清疑警鶴，弦巧似嬌鶯 (Liú, 824/1990, p. 111)
The wind instrument is like the warning call of the crane, **the stringed instrument** is like a dainty warbler.

Ricci and Xú use *xián* as a geometric term referring to a chord, the line that connects any two points in a circumference. More generally, a chord is a line segment joining two points on any curve, for instance, an ellipse. The word "chord" is from the Latin "*chorda*" meaning "bowstring."

(118)
又割圜之直線為弦 (Ricci & Xú, 1607/2011, p. 87)
A **chord** of a circle is a straight segment whose endpoints both lie on the circle.

Qiú 求

Qiú was originally written as *qiú* 裘 (Xǔ, 121 CE/1998, p. 41). The original meaning of *qiú* was "fur clothing."

Qiú as a verb means "to request or beg for help."

(119)
邯鄲之難，趙求救于齊 (Liú, 77 BCE–6 BCE/2012, p. 876)

In the face of difficulties, Zhao (a state in the Zhou dynasty) **turned to** Qi (a state in the Zhou dynasty) **for help**.

Qiú also means "to pursue."

(120)
求則得之，舍則失之 (Mencius, 372 BCE–289 BCE/2017, p. 675)
If you **pursue** something, you will obtain it.[5]

Qiú as an analytical geometric term is translated based on the inherent Chinese word *qiú*, which means "to pursue" or "to seek." Ricci uses *qiú* (deduce) as an analytical geometric term referring specifically to the derivation of conclusions through known conditions, which is a translation of the Latin word "obsecro."

(121)
一有界線求兩平分之 (Ricci & Xú, 1607/2011, p. 71)
From the presence of a boundary line, one may **deduce** two equal parts.

Yuán 圜

Yuán is an SPC character.[6] The semantic radical of *yuán* is *wéi* 口. The phonetic radical of *yuán* is *huán*睘. The original meaning of *yuán* was "round." Ricci uses *huán* to refer to "the trajectory of a moving point around a fixed point at a fixed distance on a plane," which is a translation of the Latin word "cirulus."

(122)
圜者，一形于平地居一界之間;自界至中心作直線，俱等(Ricci&Xú, 1607, p. 43)
A **circle** is a plane figure contained by one line such that all straight lines falling upon it from one point among those lying within the figure equal one another.

Yuán-xīn 圜心

Ricci and Xú first coined the concept of *yuán* and followed this by coining the term *yuánxīn*, which means "the center of the circle"; this is a translation of the Latin phrase "punctum centrum circuli."

(123)
圜之中處為圜心 (Ricci & Xú, 1607, p. 43)
The point is called **the center of the circle**.

Yuán-jìng 圜徑

Ricci and Xú further coined the term *yuánjìng*, which is a translation of the Latin phrase "diameter circuli."

(124)

自圜之一界作一直線，過中心至他界，為圜徑 (Ricci & Xú, 1607, p. 44)

The **diameter** of a circle is any straight line drawn through the center and terminated in both directions by the circumference of the circle, and such a straight line also bisects the circle.

Bàn-yuán 半圜

Ricci and Xú also coined the term *bàn-yuán*, which is a translation of the Latin phrase "semi circulus."

(125)

徑線與半圜之界所做形為半圜 (Ricci & Xú, 1607, p. 37)

A **semicircle** is the figure contained by the diameter and the circumference cut off by it.

Xíng 形

Ricci and Xú first coined the concept *xíng* (figure), which is a translation of the Latin word "figura."

(126)

或在一界或多界之間為形 (Ricci & Xú, 1607, p. 127)

A **figure** is that which is contained by any boundary or boundaries.

Zhí-xiàn-xíng 直線形 **(rectilinear figure) / *sān-biān-xíng*** 三邊形 **(triangle) / *sì -biān-xíng*** 四邊形 **(quadrilateral) / *duō-biān-xíng*** 多邊形 **(polygon)**

Ricci and Xú then coined the terms *zhí-xiàn-xíng* and *sān-biān-xíng*; he also coined the terms *sì-biān-xíng* and *duō-biān-xíng*. These terms, based on *xíng*形, are translations of the Latin phrases and words "figura rectinea," "trilaterarum figurarum," "quadrilaterae," and "multilaterae," respectively.

(127)

在直線界中之形為直線形。在三直線界中之形為三邊形。在四直線界中之形為四邊形。在多直線界中之形為多邊形 (Ricci & Xú, 1607, p. 77)

Rectilinear figures are those that are contained by straight lines, **triangular figures** being those contained by three, **quadrilateral** those contained by four, and **polygons** those contained by more than four straight lines.

Píng-biān-sān-jiǎo-xíng 平邊三角形 **(equilateral triangle) / *liǎng-biān-děng-sān -jiǎo-xíng*** 兩邊等三角形 **(Isosceles triangle) / *sān-bù-děng-sān-jiǎo-xíng*** 三不等三角形 **(scalene triangle)**

Ricci and Xú coined the term *píng-biān-sān-jiǎo-xíng*; he also coined the terms *liǎng-biān-děng-sān-jiǎo-xíng* and *sān-bù-děng-sān-jiǎo-xíng*. These

terms, based on *xíng*形, are translations of the Latin phrase and words "triangulum equilaterum," "isosceles," and "scalenum," respectively.

(128)
三邊形三邊線等為平邊三角形。三邊形有兩邊線等為兩邊等三角形。三邊形三邊線俱
不等為三不等三角形 (Ricci & Xú, 1607, p. 132)
Of trilateral figures, an **equilateral triangle** is that which has its three sides equal, an **isosceles triangle** that which has two of its sides alone equal, and a **scalene triangle** that which has its three sides unequal.

Sān-biān-zhí-jiǎo-xíng 三邊直角形 **(Right triangle) / *sān-biān-dùn-jiǎo-xíng*** 三邊鈍角形 **(Obtuse triangle) / *sān-biān-gè-ruì-jiǎo-xíng*** 三邊各銳角形 **(acute triangle)**

Ricci and Xú also coined the term *sān-biān-zhí-jiǎo-xíng*, *sān-biān-dùn-jiǎo-xíng*, and *sān-biān-gè-ruì-jiǎo-xíng*; these were translated from the Latin phrases "rectangulum trianglum," "amblygoniis triangulis," and "Oxygonium vero," respectively.

(129)
三邊形有一直角為三邊直角形。三邊形有一鈍角為三邊鈍角形。三邊形有三銳角為三邊各銳角形 (Ricci & Xú, 1607, p. 136)

Further, of trilateral figures, a **right-angled triangle** is that which has a right angle, an **obtuse-angled triangle** that which has an obtuse angle, and an **acute-angled triangle** that which has its three angles acute.

Zhí-jiǎo-fāng-xíng 直角方形 **(square) / *zhí-jiǎo-xíng*** 直角形 **(rectangle) / *xié- fāng-xíng*** 斜方形 **(rhombus) / *cháng-xié-fāng-xíng*** 長斜方形 **(rhomboid) / *wú-fǎ-sì-biān-xíng*** 無法四邊形 **(trapeziod)**

Ricci and Xú coined the terms *zhí-jiǎo-fāng-xíng*, *zhí-jiǎo-xíng*, *xié-fāng-xíng / cháng-xié-fāng-xíng / wú-fǎ-sì-biān-xíng*; these were translated from the Latin words "quadratum," "rectangulum," "rhomubus," "rhombovdes," and "trapezia," respectively.

(130)
四邊形四邊線等而角直為直角方形。直角形其角均是直角其邊兩兩相等。斜方形四邊等但非直角。長斜方形其邊兩兩相等但非直角。以上方形四種謂之有法四邊形，四種之外他方形皆謂之無法四邊形 (Ricci & Xú, 1607, p. 338)
Of quadrilateral figures, a **square** is that which is both equilateral and right-angled; a **rectangle** that which is right-angled but not equilateral; a **rhombus** that which is equilateral but not right-angled; and a **rhomboid** that which has its opposite sides and angles equal to one another but is

neither equilateral nor right-angled. And let quadrilaterals other than these be called **trapezia**.

It is worth noting that the words created by Ricci and Xú in the translation of *Jǐhé yuánběn* basically laid a foundation for modern geometric terminology. (The following example uses "→" to represent how Ricci created geometric terms.)

Xiàn 線 (line) → *zhí-xiàn* 直線 (straight line), *píng-xíng-xiàn* 平行線 (parallel straight lines)

Ricci first coined the concept of *xiàn* 線 (line), which was a translation from the Latin word "linea," then coined terms of *zhí-xiàn* 直線 (straight line) and *píng-xíng-xiàn* 平行線 (parallel straight lines), which were translations of Latin phrases or words of "recta linea" and "parallelae rectam linea." ***Xiàn*** 線

Xiàn is an SPC character. The semantic radical of *xiàn* is *mì* 糸. The phonetic radical of *xiàn* is *jiān* 戔.

The original meaning of *xiàn* was "a fine wisp made from materials such as cotton and linen or wool."

(131)
線，縷也 (Xǔ, 121 CE/1998, p. 145)
Xian means "a **fine wisp.**"

On the basis of *xiàn*'s original meaning, it can refer to any slender thing that can be twisted and turned, made of silk, cotton, hemp, metal, or other things (including through metonymy), such as *sī-xiàn* 絲線 (silk thread), *mián-xiàn* 棉線 (cotton thread), and *xiàn-shéng* 線繩 (cord).

Ricci and Xú used *xiàn* to carry a new meaning: a "line" – that is, a geometric noun that refers to a graphic constituted by a point of arbitrary movement.

(132)
凡線之界是點。面之界是線 (Ricci & Xú, 1607, p. 141)
The ends of a **line** are points. The edges of a surface are **lines**.

Zhí-xiàn 直線

Ricci and Xú coined the term *zhí-xiàn* to mean "straight line."

(133)
兩點之間至徑者，直線也 (Ricci & Xú, 1607, p. 144)
A **straight line** is a line that lies evenly between the points.

Likewise, they used *xiàn* with the terms that follow.

Píng-xíng-xiàn 平行線

Ricci and Xú coined the term *píng-xíng-xiàn*.

(134)

兩直線於同面行至無窮，不相離亦不相遠而不得相遇為平行線 (Ricci & Xú, 1607, p. 149)

Parallel straight lines are straight lines that, being in the same plane and being produced indefinitely in both directions, do not meet one another in either direction.

After creating the basic concept of *xiàn* 線, *zhí-xiàn* 直線, and *píng-xíng-xiàn* 平行線, Ricci and Xú continued to create words by adding modifiers to *xiàn*:

Duì-jiǎo-xiàn 對角線 (diagonal, translated from the Latin phrase "diametrum").
Gāo-xiàn 高線 (altitude, translated from the Latin word "altitudo").
Quān-xiàn 圈線 (circle line, translated from the Latin phrase "linea circulus").
Qū-xiàn 曲線 (curve, translated from the Latin phrase "curva linea").
Shí-xiàn 實線 (solid line, translated from the Latin phrase "solidum linea").
Xié-xiàn 斜線 (slash, translated from the Latin word "VULNUS").
Xū-xiàn 虛線 (dotted line, translated from the Latin phrase "linea punctatum").
Yuán-jiè-xiàn 圓界線 (boundary line, translated from the Latin phrase "terminus linea").
Yǒu-jiè-xiàn 有界線 (bounded line, translated from the Latin phrase "linea tenetur").
Yuán-xiàn 元線 (element line, translated from the Latin phrase "elementum linea").
Yuǎn-xīn-xiàn 遠心線 (telecentric line, translated from the Latin phrase "linea telecentric").
Zhōng-chuí-xiàn 中垂線 (mid-perpendicular, translated from the Latin phrase "medium perpendicularis").
Zhōu-xiàn 周線 (contour, translated from the Latin word "forma").
Zhóu-xiàn 軸線 (axes, translated from the Latin word "securibus").
Zòng-xiàn 縱線 (vertical line, translated from the Latin phrase "linea verticalis").

Miàn 面

Ricci and Xú coined the term *miàn* (surface), which is a translation of the Latin word "superficies."

(135)

面者，止有長有廣 (Ricci & Xú, 1607, p. 153)

A **surface** is that which has length and breadth only.

Píng-miàn 平面

Ricci and Xú coined *píng-miàn* (plane), which is a translation of the Latin phrase "planus superficies."

(136)

平面，一面平，在界之內 (Ricci & Xú, 1607, p. 156)

A **plane** is a flat surface that lies within boundaries.

"Planus" means "plane [adjective];" superficies means "surface" in English. This is a paraphrasing word-making method. The two words in Latin correspond directly to the constituent morphemes of the Chinese compound word. This method of word formation is commonly used in geometric terms coined by Ricci and provides a model for borrowing from English into Chinese. An example of this is "hot dog" in English, which in Chinese is coined as "*règǒu* 熱狗" ("*rè*熱" means "hot," "*gǒu* 狗" means dog); another example is "White House," which becomes "*báigōng*白宫" ("*bái*白" means "white," "*gōng*宫" means "house").

Píng-jiǎo 平角

It should be stressed that Ricci and Xú first coined *píng-jiǎo*, which is a translation of the Latin phrase "planus angulus," in *dìbājiè*第八界 (the 8th definition) of *jièshuō sānshíliù zé*界說三十六則 (Thirty-six Definitions). They then put forward the concept of *jiǎo*角 (angle), which is a translation of the Latin word "angulus" in *dìshíyījiè*第十一界 (the 11th definition): *Fán jiǎo dàyú zhíjiǎo wéi dùnjiǎo.* 凡角大於直角為鈍角 (An obtuse angle is an angle greater than a right angle; the Latin source is: "XII. ACVTVS vero, qui minor est recto") (Ricci & Xú, 1607, p. 175).

(137)

平角者，兩直線於平面縱橫相遇交接處 (Ricci & Xú, 1607, p. 169)

A **plane angle** is the inclination to one another of two lines in a plane which meet one another and do not lie in a straight line.

Zhí-xiàn-jiǎo 直線角

Ricci and Xú further coined *zhí-xiàn-jiǎo* (rectilinear), which is a translation of the Latin word "rectificari."

(138)

直線相遇作角，為直線角 (Ricci & Xú, 1607, p. 171)

And when the lines containing the angle are straight, the angle is called **rectilinear**.

Zhí-jiǎo 直角 ***/ Chuí-xiàn*** 垂線

Ricci and Xú also coined *zhí-jiǎo* (right angle) and *chuí-xiàn* (perpendicular), which are translations of the Latin phrase "rectum angulum" and the Latin word "perpendicularis," respectively.

(139)

直線垂於橫直線之上，若兩角等，必兩成直角，而直線下垂者，謂之橫線之垂線 (Ricci & Xú, 1607, p. 173)

When a straight line standing on a straight line makes the adjacent angles equal to one another, each of the equal **angles** is **right**, and the straight line standing on the other is called a **perpendicular** to that on which it stands.

Dùn-jiǎo 鈍角

Ricci and Xú also coined *dùn-jiǎo* (obtuse angle), which is a translation of the Latin phrase "obtusus angulum."

(140)
凡角大於直角為鈍角 (Ricci & Xú, 1607, p. 175)
An **obtuse angle** is an angle greater than a right angle.

Ruì-jiǎo 銳角

Ricci and Xú then coined *ruì-jiǎo* (acute angle), which is a translation of the Latin phrase "actus angulum."

(141)
凡角小於直角為銳角 (Ricci & Xú, 1607, p. 175)
An **acute angle** is an angle less than a right angle.

Jiè 界

Ricci and Xú coined *jiè* (boundary), which is a translation from the Latin term "terminus."

(142)
界者，一物之始終 (Ricci & Xú, 1607, p. 27)
A **boundary** is that which is an extremity of anything.

Similar terms used in geometry are:

Biān 邊 (edge; a particular type of line segment joining two vertices in a polygon, polyhedron, or higher-dimensional polytope, translated from the Latin word "latus")
Děng-fēn-xiàn 等分線 (bisection, translated from the Latin word "bisection")
Dìng-lǐ 定理 (theorem, translated from the Latin word "theorema")
Dǐ 底 (base; a base angle is one of the two equal angles that include the bottom of an isosceles triangle, translated from the Latin word "basi")
Duì-jiǎo-xiàn 對角線 (diagonal, translated from the Latin word "diametrum").
Gōng-lǐ 公理 (axiom, translated from the Latin word "axiomata")
Qiē 切 (tangent; a straight line that touches but does not cut into a curve, translated from the Latin word "tangens")
Qū-miàn 曲面 (surface; a flat shape or area, translated from the Latin word "superficiem")
Tǐ-jī 體積 (volume; an amount of space having length, height, and width, translated from the Latin word "volumine")

Tuī-lùn 推論 (the process of reaching a decision or answer by thinking about the known facts, or the decision that is reached, translated from the Latin word "corollarium")
Wú-qióng 無窮 (infinity, translated from the Latin word "infinitas")
Xiāng-sì 相似 (similar; when two shapes are the same, but not necessarily equal in size, translated from the Latin word "similia")
Yāo 腰 (the other two edges of the triangle above the bottom, translated from the Latin word "cruribus")
Yuán-zhù 圓柱 (cylinder, translated from the Latin word "cylindri")
Yuán-zhuī 圓錐 (cone, translated from the Latin word "cone")
Xiàng-sì-sān-jiǎo-xíng 相似三角形 (similar triangles, translated from the Latin phrase "similis triangula")
Xiàng-sì-xíng 相似形 (similar figures, translated from the Latin phrase "similis figuras")

It can be seen that *diǎn* 點 (point), *xiàn* 線 (line), *miàn* 面 (plane), *píng-xíng-xiàn* 平行線 (parallel straight lines), *sān-jiǎo-xíng* 三角形 (triangle), *zhí-xiàn* 直線 (straight line), *qū-xiàn* 曲線 (curve), *duì-jiǎo-xiàn* 對角線 (diagonal), *shí-xiàn* 實線 (solid line), *xū-xiàn* 虛線 (dotted line), *dùn-jiǎo* 鈍角 (obtuse angle), *ruì-jiǎo* 銳角 (acute angle), and *zhí-jiǎo* 直角 (right angle) are now familiar, modern geometric terms. They were coined by Ricci and Xú more than 410 years ago and are still used in China today. Although Ricci and Xú only translated the first six volumes of the original text, they objectively laid the foundation of modern Chinese geometry. It was not until 1856 that mathematician Lǐ Shànlán 李善蘭 (1811–1882), with the help of the British missionary Alexander Wylie (1815–1887), finally completed the translation of *Euclid's Elements* in its entirety. Therefore, Ricci and Xú Guāngqǐ played an enormous role in promoting the development of modern Chinese mathematics.

4.2 Matteo Ricci's and Xú Guāngqǐ's word-making methods for geometric terminology

As part of the wider study of Ricci's missionary activities in China, *Jǐhé yuánběn* has also been explored in mathematics and translation circles. The research on the translation of *Jǐhé yuánběn* mainly focuses on two aspects: one is the translation process that turned *Euclid's Elements* into *Jǐhé yuánběn* (Engelfriet, 1998, p. 4); the other is the reason for the suspension of the translation (Engelfriet, 1998, p. 5). The latter has been explored, for example, by maths scholar Yáng Zézhōng, who holds the view that the reasons Ricci suspended his work on *Jǐhé yuánběn* were entirely accidental (Yáng, 2004, p. 71). Jì Zhìgāng has presented the opposing view, arguing that because Ricci had more important work to do, he consciously abandoned the translation of the second half of *Euclid's Elements* (Jì, 2013, p. 151). Other possible reasons for the translation of only the first six volumes are that Ricci felt that the first six volumes were the most important, or he may have studied only those volumes.

Due to length, the 2001 edition of Ricci's Chinese works, edited by Zhū (2001), excluded *Jǐhé yuánběn*. Nonetheless, Yáng (2004, p. 72) has suggested that the motive for Ricci's translation of this book was, as with every other element of his trip to China, to convert the Chinese to Catholicism, and this translation was just a further example of his academic missionary approach. I agree with Yáng's view (Yáng, 2004, pp. 71–72) that the creation of geometric terminology was consistent with Ricci's missionary strategy.

Beginning with Alessandro Valignano (1539–1606), missionaries in China began to implement a policy based on their "cultural mission," the most important tenet of which was the study of and adaptation to Chinese language and culture.

In addition to this "cultural mission," there was another way to spread Catholicism. The essence of this other approach was to prompt people of all socioeconomic classes in China to recognize the superiority of Western ideas in different fields and to persuade them by logical reasoning, in the same way that the missionaries had established the truth of certain scientific results, to believe in the true meaning of Catholicism. To this end, those missionaries who were selected to enter the Chinese mission had to be outstanding talents.

Ricci is one of the most representative of these missionaries; he not only adopted the cultural mission approach, but also utilized advanced Western technology and mathematics to preach. From the very beginning of his stay in China, he began to introduce and display imported objects such as oil paintings, bound books, picture books, mathematical instruments, and chiming clocks to attract the attention of the Chinese. In particular, the terms he created for *Jǐhé yuánběn* and his cartographic *Kūnyú wàn'guó quántú* made him famous for science in Míng-dynasty China. At that time, many Chinese were curious about the novelty of Western technology but did not understand its reasoning. Impressed by the scientific knowledge demonstrated by the missionaries, they began to concentrate on studying the meanings of the new terms, as well as the significance of scientific knowledge and scientific reasoning. Thus, the creation of geometry terms in *Jǐhé yuánběn*, understood at a deeper level, was actually an integral part of Ricci's missionary strategy.

It is important to emphasize that translation strategies differ from word-making methods. The former explores the conversion of one language to another, while the latter emphasizes the etymological and nativization processes that occur after elements of one language enter another language. Translation means to explore the act of transforming information in one language into information in another language on the basis of accuracy, smoothness, and elegance. It is the process of transforming a relatively unfamiliar expression into a relatively familiar expression. Its content includes language, text, graphics, and symbols.

Given languages A and B, translation refers to the conversion between these two languages – that is, first translating a language element of A into a language element of B and then translating a language element of B to A. After the element enters the B language, translation involves the process of choosing

what kind of language material to use to reorganize that element. Therefore, translation requires two or more language conversions. Translators must have a deep understanding not only of the language and culture of A, but also of the language and culture of B.

This book focuses on word-making methods; it explores etymological history, focusing on the development and nativization of words after they have entered the Chinese language. It looks at the process of creating a word from scratch. A word-making method is the process of refining and nativizing a word after it has been translated (Rèn, 1981, p. 7).

Matteo Ricci and Xú Guāngqǐ created many important word-making methods for geometric terminology, which are discussed in greater detail below.

4.2.1 Form-borrowing words are dominant among geometric terms

Paraphrasing words dominate among geometric terms and are clearly central to the strategy that Ricci and Xú used for creating new terms. There are no transliterations in Ricci's geometric terminology. When it came to coining geometric terms, Ricci always used existing word forms and Chinese characters; this is what I call "form-borrowing" terminology.

The rhetorical effects of "form-borrowing" terminology appear in two ways: (1) vividness and (2) economy, which are often well combined in such terminology. Form-borrowing terminology is a subcategory of paraphrasing. In general, in the formation of new words, paraphrasing uses the morphological materials and rules of the native language (in this case, Latin) and transplants the meaning of a word into a foreign language (in this case, Chinese); while in form-borrowing, the new term is drawn completely from existing word forms/phrase forms in ancient Chinese. If the ancient Chinese does not have a word form/phrase form, the new word is composed using materials and rules from the native language and the word belongs to the paraphrasing category but not its "form-borrowing" subcategory.

In Chapter 2, I discussed the advantages of paraphrasing. Many of the religious terms Ricci coined are paraphrasing – but not form-borrowing – words. For instance, the coinage of *zào-wù-zhǔ* 造物主 (God) is a combination of *zào-wù* 造物 (creating all things) and *zhǔ* 主 (an honorific name of the Three Lords and Nine Ministers in the Qin and Han dynasties). *Zào-wù-zhǔ* 造物主 has no word form/phrase form in ancient Chinese, but was created on the basis of *zào-wù* and *zhǔ*, so it is paraphrasing terminology, not form-borrowing. On the other hand, individually, *zào-wù* and *zhǔ* are form-borrowing words. Similarly, most of the geometric terms coined by Ricci are form-borrowing.

The fact that most of Ricci and Xú's geometric terms are form-borrowing terminology comes from his deep knowledge of the history of the development of the Chinese language. Chinese itself has a considerable vocabulary. In the Wei, Jin, and Northern and Southern dynasties (220 CE–589 CE), a large number of Chinese polysyllabic words emerged that not only enriched Chinese vocabulary, but also contributed to the development of the Chinese

polysynthetic system. That is, as the language developed, many new meanings were added to existing word forms. Ricci was clearly keenly aware of the characteristics of Chinese as he generated so many new mathematical terms by adapting existing Chinese word forms and characters. For example, the word *miàn* 面 had the meaning of "plane" in ancient Chinese; Ricci created the new term *píng-miàn* 平面 (plane). The word *xíng* 形 had the meaning of "shape" in ancient Chinese, from which Ricci made new terms including *cháng-fāng-xíng* 長方形 (square), *sān-jiǎo-xíng* 三角形 (triangle), *sì-biān-xíng* 四邊形 (quadrilateral), *duō-biān-xíng* 多邊形 (polygon), *zhí-jiǎo-fāng-xíng* 直角方形 (rectangle), *píng-xíng-fāng-xíng* 平行方形 (parallelogram), and *xiāng-sì-xíng* 相似形 (similar figures).

The word *hú* 弧 in ancient Chinese means "bending," so Ricci created the new terms *hú-dù* 弧度 (radian) and *yuán-hú* 圓弧 (arc). Other terms with similar usages are *xiàn* 線 (line), *bèi* 倍 (time), and *dù* 度 (degree). The glyphs and meanings already extant in the language best reflect the translator's naturalization policy and make the translation easily acceptable to the reader.

Making good use of existing word forms and Chinese characters is also an important embodiment of the "economy principle" in language, which says that language tends toward requiring as few language symbols as possible to express meaning. Ricci employs this principle by cleverly making good use of existing word forms and Chinese characters. Thus, a mode was created for the emergence of new words in modern Chinese. Many of the new foreign words introduced in modern Chinese have imitated this method pioneered by Ricci.

For example, *bó-lǐ-xī-tiān-dé* 伯理璽天德 is the transliterated form of "president" and possesses a total of five syllables, while *zǒng-tǒng* 總統 is the paraphrasing word form of the same. Although *zǒng-tǒng* does not accurately record the foreign pronunciation of "president," and is connected with lexical expressions of other meanings in ancient Chinese, modern Chinese users still consider *zǒng-tǒng* as the corresponding form of "president" since it makes good use of existing word forms and Chinese characters.

Similar examples include *diū-dé* 丟德, which is a transliteration from English "tutor," where the modern Chinese lexical system has adopted the form *dǎo-shī* 導師 (mentor). *Dǎo-shī* was originally a Buddhist word, a common name for those who led all beings to the Buddha. *Pū-fēi-sè* 撲非色 is a transliterated word for teachers in colleges and universities; it is the product of the modern education system and is translated from the English term "professor." However, modern Chinese uses the form of *jiāo-shòu* 教授 (professor), because *jiāo-shòu* was the title for an official in the Song dynasty.

4.2.2 Giving new meanings to the glyphs of existing Chinese words

When the concept in the original language did not have a corresponding expression in Chinese, Ricci and Xú mostly made use of the glyphs already in Chinese and gave them new meanings. This method had two parts: one was to change the word's original meaning, and the other was to give it a new associated meaning. One example is the word *qiē* 切, commonly used in

ancient Chinese as a verb meaning "to close." In the *Jǐhé yuánběn*, in addition to being used as a verb, *qiē* is also commonly used as an adjective; *qiē* combines with *xiàn* 線 (line) and *yuán* 圓 (circle), forming the new terms *qiē-xiàn* 切線 (tangent line) and *nèi-qiē-yuán* 內切圓(incircle of a triangle).[7]

Another such word is *fēn* 分, which in ancient Chinese was commonly used as a verb meaning "to differ" or "to separate"; in the *Jǐhé yuánběn*, *fēn* is also used as a noun meaning "one."[8] The word *jǐ-hé* 幾何 in the title of the book is a word that represented quantity in ancient Chinese, often meaning "several"; Ricci used it in mathematics to express spatial relationships, a use which researchers have long deemed appropriate.

4.2.3 Creating M-H (Modifier-Head) terms by categorization and analogy

An M-H (Modifier-Head) structure consists of a Head (nouns, verbs, adjectives, or adjective-like morphemes) and a Modifier (words or morphemes that play a modifier role in front of the Head). The words or morphemes that modify a noun Head are grammatical modifiers, and the words or morphemes that modify a verb, adjective, or idiom Head are adverbials. The two morphemes of an M-H word are unequal in status; the Modifier is less important than the Head. The Head plays a more important role in determining the word's meaning. For example, *mín* 民 (people) in *lí-mín* 黎民 (the common people) and *chén* 辰 (time) in *liáng-chén* 良辰 (a wonderful time) are the Heads, while *lí* 黎 (common) and *liáng* 良 (wonderful) are the Modifiers.

M-H words are the earliest, most numerous, and most productive compound words in the history of Chinese lexical development. Many of the mathematical terms coined by Ricci have adopted the M-H structure, with the concurrent, complementary aims of spreading Catholicism and expanding the influence of Western academic terminology in China. The surface structure of M-H words – "modifying morpheme" + "head morpheme" – is based on the semantic structure of the "feature and sense class" as the underlying support. An M-H word essentially conforms to the basic framework of people's perception of things.

It should be clear that certain things can be recognized because they fit within particular categories, and recognition of them is easier because they each have particular categorical features. Thus, when creating new words, the category of a thing must first be determined before its characteristics can be recognized. This helps people to have a holistic understanding of the thing's characteristics.

To this end, the creation of M-H words was an important means for Ricci to rapidly expand the "quantity" and "quality" of the terms he created in the course of his mission.

The groups of M-H words created by Ricci are as follows:

***~jiǎo* / ~角 (~angle)**[9]

Píng-jiǎo 平角 (plan angle); *ruì-jiǎo* 銳角 (acute angle); *zhí-jiǎo* 直角 (right angle); *dùn-jiǎo* 鈍角 (obtuse angle).

This method of word-making is an imitation of the word-making method of Latin. That is, it borrows the phrase structure of Latin and then transplants it to form compound words in Chinese.

The Latin words for *píng-jiǎo* 平角 (plane angle), *ruì-jiǎo* 銳角 (acute angle), *zhí-jiǎo* 直角 (right angle), and *dùn-jiǎo* 鈍角 (obtuse angle) are "planus angulus," "actus angulus," "rectum angulus," and "obtusus angulus," respectively.

In Latin, the concept of a "plane angle" is expressed in the form of a phrase: "an adjective (planus) + noun (angulus)." In Chinese, an adjective morpheme ("*píng*" means "plane") and a noun morpheme ("*jiǎo* 角"means "angle") are combined to form a compound word. The Chinese adjective morpheme ("*píng* 平") corresponds to the Latin adjective ("planus" means "plane"), while the Chinese noun morpheme ("*jiǎo*" means "angle") corresponds to the Latin noun ("angulus" means "angle"). The Latin "adjective + noun" phrase form was transformed into an "adjective morpheme + noun morpheme" compound word by Ricci in Chinese. Thus, M-H words coined by Ricci are essentially creations modeled after the structure of Latin phrases. Similar examples are:

***~miàn* / ~面 (~face)**[10]

Píng-miàn 平面 (plane); *qǔ-miàn* 曲面 (surface).

***~biān* / ~邊 (~edge)**

Dǐ-biān 底邊 (base side of a plane figure); *duì-biān* 對邊 (opposite side); *xié-biān* 斜邊 (hypotenuse); *lín-biān* 鄰邊 (adjacent edges)

***~xíng* / ~形 (~figure)**

Zhí-xiàn-xíng 直線形 (rectilinear figure); sān-biān-xíng 三邊形 (triangle); *sì-biān-xíng* 四邊形 (quadrilateral); *duō-biān-xíng* 多邊形 (polygon); *sān-biān-zhí-jiǎo-xíng* 三邊直角形 (right-angled triangle); *sān-biān-dùn-jiǎo-xíng* 三邊鈍角形 (obtuse triangle); *sān-biān-gè-ruì-jiǎo-xíng* 三邊各銳角形 (acute triangle); *zhí-jiǎo-fāng-xíng* 直角方形 (square); *zhí-jiǎo-xíng* 直角形 (rectangle); *xié-fāng-xíng* 斜方形 (rhombus); *cháng-xié-fāng-xíng* 長斜方形 (rhomboid); *wú-fǎ-sì-biān-xíng* 無法四邊形 (trapeziod)

***~sān-jiǎo-xíng* / ~三角形 (triangle)**

Píng-biān-sān-jiǎo-xíng 平邊三角形 (equilateral triangle); *liǎng-biān-děng-sān-jiǎo-xíng* 兩邊等三角形 (isosceles triangle); *sān-bù-děng-sān-jiǎo-xíng* 三不等三角形 (scalene triangle)

M-H words coined by Ricci are based on two objectives: one is the division of geometrical/mathematical terms into different categories, and the other is the strengthening of the special features of geometrical terms. The reason why Ricci used so many M-H words is largely because geometry is a very rigorous natural science, and its terminology requires clear logic and certainty. The difference between geometrical terms and common terms is that the former seeks to categorize the intrinsic characteristics of the objects in each field of knowledge.

As mentioned before, analogy word mechanism mainly takes existing M-H compound words as structural models, thus further forming a categorization and analogy word-making method. Categorization is a cognition process, while analogy is how this cognition process occurs, so they often happen together. Categorization is the mental process by which human beings classify things; it is also the most basic element of humanity's high-level awareness and knowledge. The main categories into which objects, events, and phenomena are classified are based on the human experience of objects, and this creates order out of disorder (Ungerer & Schmid, 1996, p. 5).

When people face complicated objects in the world, their first task is to put these things into a category that fits a specific model. The purpose of forming such categories is to better understand new things and thus draw analogies.

Analogy, which is the cognitive process of transferring information about one topic to another topic, is also used to describe the linguistic expressions that correspond to such a process. The analogy mechanism exists as a process of discipline and coordination through which one imitates a linguistic element and creates new linguistic elements according to the structural rules in the various subsystems of a language. The new linguistic elements have a certain similarity to the old linguistic element in terms of structural rules, thus forming a template for coining new words. This template can make a large number of words, and the relationship between the semantic category of the newly created word and the meaning of the source word is relatively fixed, which means they can be called homogeneous semantical words. Early in the 18th and 19th centuries, historical-comparative linguists such as Jacob Ludwig Carl Grimm (1785–1863) and Franz Bopp (1791–1867) began to use analogy to explain the rules of development for languages, words, and grammars (Bynon, 1977, p. 5). While the analogy system is an important mechanism in vocabulary development and the emergence of new words, the field of linguistics has failed to pay adequate attention to it. Analogy is an important mechanism for producing new Chinese words because it describes the rationale behind the use of one or more words as a reference for the construction of a new word that is similar in structure and related in meaning to the original word. Ricci used this analogy mechanism for a large number of new terms. The geometrical terms he created make precise use of the analogy mechanism of language to rationalize the interpretation and systematize the construction of terms. He first created a basic concept, which was followed by regular analogies based on this concept to expand the vocabulary of new words. For instance, he first coined the concept of *jiǎo* 角 (angle), then *dùn-jiǎo* 鈍角 (obtuse angle), *ruì-jiǎo* 銳角 (acute angle), and *zhí-jiǎo* 直角 (right angle), thus forming the word-making method of M-H (Modifier-Head) terms: *~jiǎo / ~*角 (~angle), *dùn-jiǎo* 鈍角 (obtuse angle), *ruì-jiǎo* 銳角 (acute angle), and *zhí-jiǎo* 直角 (right angle) refer to the *~jiǎo / ~*角 (~angle) template; the words created by this template structurally belong to the M-H (Modifier-Head) grammatical relationship, which are related to each other in meaning and belong to the same semantic field.

Similar examples include *biān* / ~邊 (~edge), *~xíng* / ~形 (~figure).

Analogy is considered part of the rules and regulations of a language system and is recognized by some scholars as a form of self-regulation by a language (Ungerer & Schmid 1996, p. 8). Self-regulation by a language means that language seems to create categorization and analogies in isolation from anything but its own internal rules. I do not accept this point of view. Words are products of human knowledge in the context of a particular culture; their form and development are decided by the laws of cognition and cultural background. They do not exist in an isolated system. Language ability is an important part of human cognitive ability, and the composition of words reflects people's conceptual organization. Analogy is not the self-regulation of a language's vocabulary system, but a means for people to transform potential vocabulary into dominant vocabulary by using the existing word-construction patterns on the basis of discovering connections between things.

Ricci and Xú were fully aware of the close relationship between geometric terms; they subtly expressed potential geometric terms and successfully created terms that became dominant in Chinese. The analogy word mechanism mainly takes existing M-H compound words as structural models, and the benefit of creating a large number of Chinese vocabulary words using this structural model meant that Ricci could use the analogy mechanism to further expand the influence of western geometry in China, laying the basic framework for modern Chinese geometric terminology.

4.3 Conclusion

This chapter has analyzed Ricci and Xú's achievements in creating geometric terminology from three perspectives. First, it discussed the era in which *Jǐhé yuánběn* was written. Second, it exhaustively analyzed the geometric terminology in *Jǐhé yuánběn*. Third, it discussed the word-making methods used by Ricci and Xú Guāngqǐ for geometric terminology. Ricci took a variety of approaches to the creation of the geometric terminology in *Jǐhé yuánběn*, but paraphrasing words are dominant among the terms he coined – there are no transliterated geometric terms.

This chapter also specifically pointed out that most of the paraphrasing geometric terms are form-borrowing terminology, wherein new meaning was given to the glyphs of existing Chinese words. In addition, M-H (Modifier-Head) terms, categorization, and analogies were also common methods for Ricci's creation of geometric terms.

Ricci and Xú's commitment to and success in geometric terminology creation led to the fact that most of the terms they created are used in today's China. Their creation of geometric terminology was essentially consistent with their missionary strategy of preaching through scientific and technological knowledge, and objectively promoted the development of Chinese geometry.

Notes

1 See Chapter 7, Table 7.1: A brief table of geometrical terms coined by Ricci used in today's math textbooks.
2 See Ricci and Xú (1607).
3 *Mǎshì wéntōng* (1898) was the first grammar of the Chinese language written by the Chinese.
4 Over 80 percent of Chinese characters are SPC characters. SPCs consist of a semantic radical that provides the semantic category of the character (e.g., "*rì* 日" means "sun" in "*qíng* 晴, sunny") and a phonetic radical that provides a cue for the character's pronunciation.
5 Mencius, born Mèng Kē 孟軻 or Mèngzǐ 孟子 (372–289 BCE or 385–303 or 302 BCE) was a Chinese Confucian philosopher. He has been described as the "second Sage," second only to Confucius himself.
6 Semantic-phonetic compound.
7 In geometry, the incircle (also called the inscribed circle) of a triangle is the largest circle that can be contained within the triangle. It touches all three sides. The center of the incircle is the triangle's incenter.
8 See Ricci and Xú (1607, Zhū and Lǐ [ed], p. 66).
9 The "~" sign stands for a morpheme that can be replaced, such as *dùn* 鈍 and *ruì* 銳 in ~*jiǎo* / ~角.
10 The "~" sign stands for a morpheme that can be replaced, such as *píng* 平 and *qǔ* 曲 in ~*miàn* / ~面.

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5 Astronomical terms coined by Matteo Ricci and Lǐ Zhīzǎo 李之藻

5.1 Background

Matteo Ricci achieved outstanding success in spreading the achievements of Western astronomy to China. He accurately predicted solar and lunar eclipses many times; produced several astronomical instruments, such as sundials and celestial globes; proposed to amend the Chinese calendar; and wrote books on European astronomy, including *Kūnyú wàn'guó quántú* (1603), *Hún'gài tōngxiàn túshuō* (1607), and *Qiánkūn tǐyì* (1610).

While studying philosophy at the Roman Academy, Ricci was exposed to the most advanced science of the time. His first year of study included astronomy, and his third year was fully devoted to the subject, including works by Purbach, Ptolemy, and Johannes Regiomontanus, the Alfonsine Tables, and the principles and use of the astrolabe (Xu, 2016, p. 132–133). The Academy taught pure astronomy without any astrology. During this time, Ricci also learned about and mastered the skills of making astronomical instruments and clocks (Xu, 2016, p. 147).

All of this greatly benefited the spread of Catholicism after Ricci came to China. His astronomical knowledge was the means, and his missionary work remained the ultimate end (Máo, 2018, p. 85). Ricci had already realized that Western science and technology could be used to achieve the goal of promoting Catholicism among the Chinese. He believed, based on his adaptive academic missionary strategy, that if the Chinese received and enjoyed the scientific knowledge of the West, then they could be persuaded to accept Catholicism. Hence, the dissemination of "scientific knowledge" was not an end in itself but a means for the spread of Catholic culture. Ricci believed that if the Chinese could learn the Western "logical deduction method," they would understand the inevitability of the existence of "God" and convert to Catholicism.

Ricci began conducting astronomical surveys and research in Zhàoqìng, Guǎngdōng province, on the Chinese mainland. He observed two eclipses there, on 27 November 1583 and 24 May 1584 (Fāng, 1943/1969, p. 47). After engraving his map of the world, he produced a number of astronomical instruments, including globes and sundials, as gifts for local officials and

DOI: 10.4324/9781003490159-6

celebrities (Ibid., p. 57). He later accepted Qú Rǔkuí[1] as a student and taught him Western astronomy and how to make astronomical instruments such as the astrolabe and the quadrant.[2] Ricci displayed various instruments in his residence for visitors to look at and explained to Chinese intellectuals how to make calendrical calculations (Ibid., p. 72).

Ricci introduced advanced astronomy and other science and technology to arouse Chinese intellectuals' interest and, ultimately, in order to spread Catholicism. While he had already brought knowledge of geography and geometry to the Chinese, astronomical knowledge was more complex and abstract. During the Renaissance, not only had the greatest achievements of natural science and technological knowledge come from astronomy, but astronomy had also produced the greatest blow to the church. However, Ricci skillfully presented this same astronomical knowledge – once considered dangerous – to China, with the intention of stimulating a sense of inferiority and admiration for the Western world.

He was fully aware that the traditional Chinese elite had a very proud sense of their own civilization and saw other countries as barbaric. Nonetheless, at that time, the great contrast between Chinese and Western astronomy easily overcame the pride of the Chinese. Ricci introduced many advanced scientific and technological achievements in astronomy from the West, imparted astronomical knowledge, and personally gave astronomical instruments as gifts to scholars and officials around China, thereby expanding his influence. His astronomical instruments made him famous, and, indeed, his knowledge of Western astronomy was so well publicized that one could almost forget his status as a Jesuit priest and think he was purely an astronomy expert.

This also motivated a high official named Wáng Hónghuì 王弘誨 (1542–1617) to take Ricci to Běijīng to participate in the revision of the calendar (Ibid, p. 186). There were problems with the Míng dynasty calendar at the time due to the fact that China had only one kind of equatorial sundial that showed 36 degrees longitude and latitude and could not accurately reflect the exact local time outside of 36 degrees north (Brown & Tackett, 2006, p. 47).

On 22 September 1592, a partial lunar eclipse occurred, and it was found that the eclipse notice issued by the imperial astronomer was not consistent with actual observations (Ibid, p. 49). Ricci took the opportunity to educate people as to why partial eclipses of different sizes occur in different regions, a fact that Chinese scholars had never explained. Later, in Nánjīng, Ricci accepted three students and taught them astronomy and related subjects, and together they produced a variety of astronomical instruments. He also formally asked the Jesuit headquarters in Rome to send priests familiar with the astronomical calendar to serve in China. After his arrival in Běijīng, he observed eclipses three times (on 15 June, 9 December, and 4 July 1602) and calculated the time of the solar eclipse on 11 May 1603 more accurately than the imperial astronomer did, which in turn enhanced his reputation (Fāng, 1943/1969, p. 34).

Ricci's great influence on Chinese astronomy can be attributed to the participation of Chinese intellectuals who studied Western astronomy under him, such as Xú Guāngqǐ and Lǐ Zhīzǎo 李之藻 (1571–1630), including their production of the *Chóngzhēn lìshū* 崇禎曆書 [Chongzhen calendar].[3] Using the advanced astronomical knowledge systems and geometric calculation methods of the time, the *Chóngzhēn lìshū* clearly introduced the concepts of the Earth and of geographical longitude and latitude, as well as important modern astronomical concepts and related calculation methods, such as astronomical calculations, variance, and atmospheric refraction. The *Chóngzhēn lìshū* introduced various improvements over the former calendar: the Earth's circumference was divided into 360 degrees, day and night were divided into 24 hours, and the 60-minute system was used for degrees and minutes, making this the earliest Chinese version of astronomy to conform to international norms for calendars. It can even be said that the lunar calendar, which is still widely used today, is a continuation of the *Chóngzhēn lìshū*. As a result of these contributions, the Qīng dynasty also referred to the revised calendar of that period as "the Great Learning of Ricci" (Ōuyáng, 2011, p. 30). The translation of the above-mentioned astronomical texts, *Hún'gài tōngxiàn túshuō*, became the starting point for modern Chinese scientific history. Astronomy and mathematics, the two major disciplines in traditional Chinese science, changed their old methods and pedagogies. Dr. Joseph Needham, a famous historian of science, put it this way: "After the Jesuits entered China, Chinese science became one with the science of the world (Needham, 1956, p. 21)."

Ricci's own identity was always that of a Jesuit priest, and he did not receive any official seal from the Chinese court.[4] He was not actually an astronomer, nor were his astronomical achievements and scientific literacy as significant as those of later missionaries, such as Johann Adam Schall von Bell (1591–1666), Ferdinand Verbiest (1623–1688), Sun Kiun-yung (1689–1759), and Ignaz Kögler (1680–1746). However, Ricci was the originator; and with the subsequent arrival of other priests, an "East-West exchange" gradually emerged, including in astronomy, so that the late Míng and early Qīng social atmosphere changed greatly as the worldly use of "Western scientific principles" began to appear among some intellectuals in China.

Commenting on the status of Western studies in Chinese academic history in 1926, Liáng Qǐchāo said:

> As long as we are willing to look through the translation of the books and textbooks at that time, we can think about the dissemination of their new knowledge and how to work with it, as long as we are willing to acknowledge the works of that time – such as *Jǐhé yuánběn*. Read one or two and you can see how faithful they were in conducting research.
>
> (Liáng, 1926/1989, p. 215) [my translation]

Ricci, a nonprofessional, had such a huge influence on Chinese astronomy that these effects still can be found in the astronomical terminology that he

created. His astronomy terms mainly appear in *Húngài tōngxiàn túshuō* and *Kūnyú wànguó quántú*.

Hún'gài tōngxiàn túshuō was jointly translated by Ricci and Lǐ Zhīzǎo. Published in 1607, it introduced the structure of the astrolabe, as well as the principles and methods of its use, via a series of diagrams. The work contained many new terms used in astronomical science and technology.

This chapter explores how Ricci used astronomical terms to further his scientific missionary work. He objectively developed Chinese astronomy in the late Míng dynasty through the creation of Chinese astronomical terminology that provided names and definitions for certain phenomena, objects, and behaviors, in order to facilitate the study of astronomical disciplines. The creation of these terms was one of the prerequisites for the spread of astronomical disciplines.

In Section 5.1, I have explained the historical background to Ricci's creation of astronomical terms. The next section, 5.2, exhaustively catalogues his astronomical terms, analyzes the etymology of the terms and their sources, and analyzes their meaning. Section 5.3 discusses their creation as an integral part of the missionary-cultural strategy behind Ricci's scientific mission. It analyzes the new knowledge introduced by Ricci's coinages, focusing on two very important points: the challenge to the theory of "a square earth and spherical heavens" and the 11 levels of cosmology. To a certain extent, this astronomical knowledge subverted the inherent astronomical paradigms of the Chinese at that time and succeeded in subtly achieving the scientific dissemination of Catholicism. Finally, Section 5.4 analyzes the word-making methods and the characteristics of these astronomical terms, which overlaps with the rationale for the religious and geographical terms outlined in previous chapters. In addition, the astronomical terminology created by Ricci also highlights three new linguistic features that have not been analyzed before. First, the terms are created through both the form-borrowing method and through combination with inherent morphemes in Chinese. Second, the terms created are closely linked and systematic. Third, this chapter further analyzes M-H (Modifier-Head) astronomical terms from a cognitive perspective.

5.2 New astronomical terms

Through his dealings with scholars such as Xú Guāngqǐ, Ricci was soon convinced that China's scientific knowledge, especially regarding astronomy and mathematics, lagged behind that of Europe. Astronomy in the Míng dynasty was in a period of relative decline; there were relatively few astronomical works available for reading, and most of the mathematical masterpieces of the Sòng (960–1279) and Yuán (1271–1368) dynasties had been lost. Thus, the major astronomical achievements of the Sòng and Yuán dynasties had also long been forgotten. Ricci was aware of this situation and believed that his first task, in addition to giving Chinese dignitaries his homemade astronomical instruments, was to create astronomical terms so that ordinary Chinese could understand the knowledge he hoped to disseminate.

Ricci defined a number of astronomical terms. From a linguistic point of view, the word-making method for these words still belongs to what I call "form-borrowing" terminology; that is, the use of ancient Chinese word forms to carry new meanings in ancient Chinese lexical forms as defined in Chapter 4. Some of these terms are recombined into paraphrasing terms. In addition, as mentioned above, I discuss other new strategies for coining astronomical terms. The first is form-borrowing in combination with Chinese inherent morphemes, and the second is the coining of new terms that are closely and systematically linked. In addition, I extend our understanding of M-H (Modifier-Head) astronomical terms from a cognitive perspective.

Tǔ-xīng 土星 **/** ***Mù-xīng*** 木星 **/** ***Huǒ-xīng*** 火星 **/** ***Jīn-xīng*** 金星 **/** ***Shuǐ-xīng*** 水星

Tǔ-xīng refers to Saturn. *Mù-xīng* refers to Jupiter. *Huǒ-xīng* refers to Mars. *Jīn-xīng* refers to Venus. *Shuǐ-xīng* refers to Mercury.

The five planets in ancient Chinese were originally called *zhèn-xīng* 鎮星 (Saturn), *suì-xīng* 歲星 (Jupiter), *yíng-huò* 熒惑 (Mars), *tài-bái* 太白 (Venus), and *chén-xīng* 辰星 (Mercury). The names *tǔ-xīng*, *mù-xīng*, *huǒ-xīng*, *jīn-xīng*, and *shuǐ-xīng* are based on the *wǔ-xíng* 五行 (Five Elements). Otherwise known as the Five Agents or Five Movements, *wǔ-xíng* is the short form of *wǔ-zhǒng-liú-xíng-zhī-qì* 五種流行之氣 (the five types of *Qi* dominating at different times). It is a fivefold conceptual scheme that many traditional Chinese fields used to explain a wide array of phenomena, from cosmic cycles to the interaction between internal organs, and from the succession of political regimes to the properties of medicinal drugs. The Five Elements are *huǒ* 火 (fire), *shuǐ* 水 (water), *mù* 木 (wood), *jīn* 金 (metal or gold), and *tǔ* 土 (earth/soil).

The naming of the planets after the Five Elements began with Ricci. *Wǔ-xīng* 五星 (five planets), *tǔ-xīng*, *mù-xīng*, *huǒ-xīng*, *jīn-xīng*, and *shuǐ-xīng* were first seen in the *Kūnyú wàn'guó quántú*.

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土星大於地球九十倍又八分之一;木星大於地球九十四倍半;火星大於地球半倍…地球大於金星三十六倍又二十七分之一，大於水星二萬一千九百五十一倍… (Ricci, 1602, p. 178)

Saturn is ninety-eight times the size of Earth; **Jupiter** is ninety-four-and-a-half times larger than Earth; and **Mars** is half the size of Earth … Earth is thirty-six and one twenty-seventh times larger than **Venus**, and 21,951 times larger than **Mercury**.

The concept of *wǔ-xīng* caters to the order, as well as to the nature and function, of the Five Elements in traditional Chinese culture. Using this concept, Ricci translated and (re)introduced the five planets of the solar system. Missionaries knew that to preach in China, they had to be familiar with Chinese culture and ideas. As early as his time in Macao, Ricci paid great attention to learning about Chinese culture when he was learning the

language. The creation of these new concepts is really due to Ricci's deep and skilled understanding of Chinese culture.

The Signs of the Zodiac (The twelve constellations): *bái-yáng*白羊 (Aries) / *shī-zi*獅子 (Leo) / *rén-mǎ*人馬 (Sagittarius) / *jīn-niú*金牛 (Taurus) / *mó-jié*磨羯 (Capricornus) / *shì-nǚ*室女 (Virgo) / *shuāng-xiōng*雙兄 (Gemini) / *tiān-chèng*天秤 (Libra) / *bǎo-píng*寶瓶 (Aquarius) / *jù-xiè*巨蟹 (Cancer) / *tiān-xiē*天蠍 (Scorpio) / *shuāng-yú*雙魚 (Pisces)

(144)

若十二房者，白羊、獅子、人馬稟火性，金牛、磨羯、室女稟土性，雙兄、天秤、寶瓶稟氣性，巨蟹、天蠍、雙魚稟水性(Ricci,1610, p. 513)

Taurus, **Capricorn** and **Virgo** have the property of earth; **Gemini**, **Libra** and **Aquarius** have the property of vital energy; **Cancer**, **Scorpio** and **Pisces** have the property of water.

The Signs of the Zodiac refer to 12 equally distributed sections on the ecliptic.

The concept of the zodiac signs originated in ancient Babylon. People at that time imagined that the easily recognizable geometric patterns of certain stars looked like animals and believed that the sun passed evenly through these 12 constellations each year, starting from the vernal equinox and dividing into the 12 signs of zodiac along the ecliptic on the celestial sphere. The signs are Aries, Leo, Sagittarius, Taurus, Capricornus, Virgo, Gemini, Libra, Aquarius, Cancer, Scorpio, and Pisces.

This account was later inherited by the ancient Greeks and formed the 12 constellations in Western astrology. Ricci was the first to introduce this astronomical terminology to China, including the Signs of the Zodiac (The twelve constellations), in *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe]. This knowledge enabled the Chinese to understand ancient Greek astronomy for the first time. In contemporary China, the Signs of the Zodiac are already widely accepted by contemporary Chinese, especially young people. They have accepted that the position of the stars on the ecliptic when a person is born can reflect a person's innate character and talents. This has been a culture shock for those who are accustomed to the traditional Chinese use of birthdates as the measure in fortune telling.

In the modern Chinese language, the word forms "*bái-yáng/shī-zi/rén-mǎ/jīn-niú/tiān-chèng/jù-xiè/tiān-xiē/shuāng-yú*" have been adopted by combing with the morpheme *zuò* 座 (constellation) to form "*bái-yáng-zuò* 白羊座 / *shī-zi-zuò* 獅子座/ *rén-mǎ-zuò* 人馬座/ *jīn-niú-zuò* 金牛座/ *tiān-chèng-zuò* 天秤座/ *jù-xiè-zuò* 巨蟹座 / *tiān-xiē-zuò* 天蠍座 /*shuāng-yú-zuò* 雙魚座," while *mó-jié*, *shì-nǚ*, *shuāng-xiōng*, and *bǎo-píng* were written as *mó-jié-zuò* 摩羯座, *chǔ-nǚ-zuò* 處女座, *shuāng-zǐ-zuò* 雙子座, and *shuǐpíngzuò* 水瓶座, respectively, by combining with the morpheme *zuò* 座 (constellation).

***Shí* 時 (hour) / *Fēn* 分 (minute) / *Kè* 刻 (quarter) / *Miǎo* 秒 (second)**

(145)

其外輪時刻，每三十度得一時，每三度四十五分得一刻。右圖且以四刻為一時，以便推算。每時共六十分，每刻得一十五分，而以一分為六十秒 (Ricci & Lǐ, 1607, p. 416)

The outer wheel of the moment, every thirty degrees equals **an hour**, every three degrees equals **a quarter**. In the figure on the right, four quarters equal an hour; this is easy to calculate. Every hour is 60 minutes, 15 **minutes** equal one quarter, and one minute equals 60 **seconds**.

Shí means hour, *fēn* means minute, *kè* means quarter hour, and *miǎo* means second. These four important terms for telling time are completely new coinages invented by Ricci.

Shí-chā 時差 **(time difference)**

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假如時差八刻，則晷影應差三十度，是地方相距亦三十度也 (Ricci & Lǐ, 1607, p. 391)

If **time differs** by 8 quarters, then the shadows of the sun will differ by 30 degrees, and the two places should also differ by 30 degrees.

In *Hún'gài tōngxiàn túshuō*, *shí-chà* 時差 means the phrase *shíjiān xiāngchà* 時間相差 (time differs). However, Ricci first used a combination of *shí* 時 (time) and *chà* 差(differ) to show the time different between districts. In modern Chinese, *shí chà* has already become the word used for time difference.

The introduction of the concept of "time difference" into Chinese is of great significance. Before Ricci's coming to China, Chinese of that time did not know about the Earth's rotation and therefore could not understand the difference between the local times of two different regions. Ricci's introduction of the concept helped enable the Chinese to further understand the scientific knowledge of the universe, which was also helpful in spreading Catholic teachings.

Chì-dào 赤道

Chì-dào now means "equator," the circumferential line that surrounds the earth's surface equally between the North and South Poles. Ancient Chinese scholars held that the Earth was a circular sphere, with the stars on a "skyball" and the five major stars including the Sun and Moon attached to the "skyball" along the line that is referred to in modern astronomy as the Earth's equator (Hashimoto, 2012, p. 34).

Ricci corrects the irrationality of the definition of the celestial sphere but borrows the word *chì-dào* to refer to the "Earth's equator." Since Ricci's time, this more scientific definition of "equator" has been used:

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天中有赤道，自赤道而南二十三度半為南道 (Ricci, 1602, p. 173)

There is an **Equator** on the earth, twenty-three and a half degrees south of the Equator is the southern road.

As well as borrowing word forms, Ricci also directly created new words to express many foreign concepts that were in use in Western culture at that time. Some of these words are still used in modern Chinese. Many are entirely new creations that have no related word forms in ancient Chinese, but are coinages based on the recombination of inherent Chinese characters. This kind of paraphrasing, which represents at least half of Ricci's new terms, is an important feature of Ricci's creation of astronomical terms.

Dì-píng-xiàn 地平線

Dì-píng-xiàn refers to the horizon, which is the circumference of the boundary that forms a part of the earth's surface as seen from a point on the ground. In other words, it is the line that separates earth from sky, the line that divides all visible directions into two categories: those that intersect the Earth's surface and those that do not. *Dì-píng-xiàn* was first seen in the *Kūnyú wàn'guó quántú*.

(148)

假如右圖在京師地方，北極出地平線上四十度，則赤道離天頂南亦四十度矣 (Ricci, 1602, p. 176)

If the picture on the right is in the capital, about 40 degrees above the **horizon**, then the Equator is also 40 degrees south of the zenith.

Qiú 球

The initial meaning of *qiú* in ancient Chinese was "fine jade."

(149)

球，玉磬也 (Xǔ, 121 CE/1998, p. 62)

Qiú means 'fine jade.'

Its modern sense, "ball," can refer more generally to a circular object. Ricci uses *qiú* to refer to "a sphere," which was translated from the Latin word "sphaera."

(150)

地與海本是圓形而合為一球，居天球之中，誠如雞子，黃在青內 (Ricci, 1602, p. 177)

The Earth and the Sea are a round **sphere**, and they are together in the **celestial sphere**. Like an egg, egg yolks are in the egg whites.

Tiān-qiú 天球 is an inherent word in the ancient Chinese language. The earliest coinage of *qiú* 球 is *tiān-qiú* in ancient Chinese, which refers to a kind of spherical jade.

(151)

大玉、夷玉、天球、河圖，在東序 (Wáng, 10th century BCE/2011, p. 213)

The beautiful jade inherited by King Kang of Zhou's accession, the beautiful jade offered by Tribes of the East, the **spherical jade** offered by Yongzhou [the name of various regions and provinces in ancient China], and the river map [a mysterious patterns handed down from ancient China], were displayed in front of the seats on the east wall to the west.

Ricci uses *tiān-qiú* to refer to "celestial sphere" (see example 150), which was translated from the Latin phrase "sphaera caelestis."

It is worth noting that many of the new astronomical terms created by Ricci use analogy. Word-making by analogy is a method that creates new words according to an existing word-form, such as with "*tiān-qiú* 天球 (celestial sphere) → *bàn-qiú* 半球 (hemisphere) / *dì-qiú* 地球 (earth) / *rì-qiú* 日球 (sun) / *yuè-qiú* 月球 (moon)."

Bàn-qiú 半球

Bàn-qiú means "hemisphere," which was translated from the Latin word "hemisphaerium" by Ricci. Ricci recombined the form-borrowing terminology *qiú* 球 with *bàn* 半 (half) as the paraphrasing word *bàn-qiú*. Prior to Ricci, Míng dynasty science had not systematically accepted the concept of the *nán-běi-bàn-qiú* 南北半球 (Northern and Southern Hemispheres). The scientifically significant *nán-bàn-qiú* 南半球 (Southern Hemisphere) refers to the parts south of the Earth's equator. *Běi-bàn-qiú* 北半球 (Northern Hemisphere) refers to the parts north of the equator.

Nán-běi-bàn-qiú was first seen in 1602 in Ricci's *Kūnyú wàn'guó quántú*.

(152)

南北半球之圖與大圖異式,而同一理 (Ricci, 1602, p. 178)

The drawings of the Northern and Southern **Hemispheres** are different from large drawings, but the principle is the same.

After that, the concept of "hemisphere" was gradually accepted by the Chinese people.

Ricci further recombined the form-borrowing terminology *qiú* 球 with *dì* 地 (ground) as the paraphrasing word *dì-qiú* 地球.

Dì-qiú 地球

Dì-qiú refers to the only planet inhabited by humans: Earth, which was translated from the Latin phrase "sphaera mundi."

Dì-qiú is not an inherent word in Chinese. It is a new word made by analogy with *tiān-qiú* 天球 (celestial sphere). A note written by Ricci in the upper left corner of *Kūnyú wàn'guó quántú* reads:

(153)

論地球比九重天之星遠且大幾何 (Ricci, 1602, p. 177)

How far is **the Earth** from the stars of the nine levels of Cosmology and how much larger?

This is the earliest example of the use of *dì-qiú* 地球 known to date; it appears many more times in the *Kūnyú wàn'guó quántú*.

Rì-qiú 日球 **(sun) /*yuè-qiú*** 月球 **(moon)**

Rì-qiú and *yuè-qiú* were coined by Ricci, which were translated from the Latin phrases "sphaeram solis" and "sphaera Lunae."

(154)

日球大於地球，地球大於月球 (Ricci, 1610, p. 509)

The sun is bigger than the earth, the earth is bigger than **the moon**.

Dì-xīn 地心

Dì-xīn as a geographical term meaning "the center of the Earth" first appeared in *Kūnyú wàn'guó quántú*.

(155)

自地心至第一重謂月天，四十八萬二千五百二十二裡餘(Ricci,1602, p. 178)

From **the center of the earth** to the first heavenly body, called the moon, is about 48,2522 miles.

Yáng-lì 陽曆

Yáng-lì means "solar calendar." It is a calendar whose dates indicate the season or the apparent position of the Sun relative to the stars.

Yáng-lì in ancient Chinese mainly referred to the Dà yǎn lì 大衍曆[5] calendar from the Tang dynasty. Míng-dynasty Chinese adopted the foreign meaning of *yáng-lì* to refer to a calendar based on the Earth's cycle around the Sun, namely, the solar calendar. This meaning was cleverly created by missionaries such as Ricci by drawing on ancient Chinese. The term *yáng-lì* is used in a slightly different way now, but Ricci's influence on its lineage is clear.[6]

Yīn-lì 陰曆

The Míng dynasty definition of *yīn-lì* 陰曆 was largely based on the Moon's cycle around the Earth. Known as the lunar calendar, it is actually a kind of *yīn* 陰 and *yáng* 陽 calendar, which takes into account the movement of the moon around the earth and the movement of the earth around the sun and in relation to the moon. This meaning was also cleverly created using ancient Chinese forms. *Yáng-lì* and *yīn-lì* can be found in Ricci's *Qiánkūn tǐyì*.

(156)

月在天之東, 日在地下之西, 故月食從東起。其有東南、東北之不同, 則交內、交外之分，所謂陰曆、陽曆也 (Ricci, 1610, p. 599)

The moon is to the east of the sky and the sun is to the west of the earth. The eclipse starts in the east. The difference between the southeast and northwest is actually the difference between the inside and outside; that is, what are referred to as the **lunar and solar calendars**.

Terms for *Shí-yī-chóng-tiān* 十一重天 (eleven levels of sky)

Western ancient astronomy believed that in addition to the layers of the celestial spheres inhabited by various celestial bodies, there was also a layer of celestial spheres without celestial bodies called the Primum Mobile. When Western Míng missionaries, such as Ricci, came to China, they not only displayed and produced astronomical instruments, they also told the Chinese people about Aristotle's cosmic system. This was the first time that the Western celestial spheres theory (that is, the theory that the Earth is at the center of the Universe) had been systematically introduced into China. On this theory, earth, water, air, fire, and the other four elements of matter surround the Earth. The sky has a total of 11 levels,[7] which are the Moon, Mercury, Venus, Sun, Mars, Jupiter, Saturn, Stars, Crystal, the Primum Mobile, and the Heaven.[8] These were clearly recorded in *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe] as: *yuè-lún-tiān* 月輪天 (the first layer of sky, Latin: lunar); *shuǐ-xīng-tiān* 水星天 (the second first layer of sky, Latin: mercurious); *jīn-xīng-tiān* 金星天 (the third layer of sky, Latin: venus); *rì-lún-tiān* 日輪天 (the fourth layer of sky, Latin:sol); *huǒ-xīng-tiān* 火星天 (the fifth layer of sky, Latin: Mars); *mù-xīng-tiān* 木星天 (the sixth layer of sky, Latin: Iuppiter); *tǔ-xīng-tiān* 土星天 (the seventh layer of sky, Latin: Saturnus); *liè-xiù-tiān* 列宿天 (the eighth layer of sky, Latin: Firmamentum); *shuǐ-jīng-tiān* 水晶天 (the ninth layer of sky, Latin: Nonum caelum); *zōng-dòng-tiān* 宗動天 (the tenth layer of sky, Latin: Primum mobile); and *yǒng-jìng-bù-dòng* 永靜不動 (the 11th layer of sky, Latin: caelum Empyreum).[9] These 11 levels together are called *shí-yī-chóng-tiān* 十一重天.

Missionaries such as Ricci aroused strong interest from Chinese intellectuals during the Míng dynasty, since the missionaries' understanding of the cosmos was quite different from traditional Chinese ideas of cosmology. How many levels are there in the sky? The most common sayings in traditional Chinese culture state that there are nine levels of sky, such as in the very commonly used idiom *jiǔ-xiāo-yún-wài* 九霄雲外 (literal meaning: beyond the ninth level of sky) in Chinese, in which the "nine" mentioned here literally means that there are nine levels of sky. However, in Chinese culture, sometimes numbers do not represent actual quantities, but serve as a general reference. Nine is the largest natural number, so the nine heavens also mean countless sky; thus, it is neither fully certain nor fully understood how many levels the sky has. Ricci first introduced the Western theory of the 11th levels to the Chinese at that time.

Ricci created two types of astronomical terms. One type is derived from ancient Chinese forms that are given new meanings – that is, form-borrowing terminology. The other type consists of completely new words based on the inherent material of the Chinese language. Both types count as paraphrasing words; there are no transliterations among Ricci's astronomical terms.

5.3 New knowledge introduced by Ricci

Ricci's map was the first window from which the Chinese of the late Míng and early Qīng Dynasties could see the world. It presented new mapping methods

and new geographical vocabulary. The terms contained in the map introduced many new areas of knowledge and new ideas. While promoting astronomical geography knowledge, Ricci simultaneously introduced the following important new ideas to the Chinese.

5.3.1 A round Earth

For a long time, ancient China held to the concept that "the sky is round and the earth is square," also called the "Gai Tian model" (hemispherical dome) (Liu, 2006, p. 13). This theory first appeared in the Western Zhou dynasty (1045 BCE–771 BCE). At that time, it was thought that the Heavens were "noble" and the Earth "humble", that the Earth was square, and that the round sky covered the square Earth. Later, this theory advanced several different reasons for the fact that the dome-shaped sky did not match the square edges of the Earth. It was suggested that the sky was not connected to the Earth but was like a large umbrella hanging high above it. The Earth was surrounded by eight pillars to support it, and the shape of Heaven and Earth was like a dome-shaped pavilion. The ancient Chinese myth of "Nüwa who created the day" is based on this. In Chinese mythology, Nüwa was the mother goddess and the sister and wife of the emperor Fuxi. It is said that she created humanity and repaired the Pillar of Heaven.

During the Warring States period (475 BCE–221 BCE), people began to have doubts about this theory, so it was modified to state that "the sky is like a cover, the earth is like a plate" – that is to say, the sky is round like an upside-down plate covering a bucket. The North Pole was thought to be located in the center of the sky, with the Sun, Moon, and stars in rotation around it.

In the *Kūnyú wàn'guó quántú*, Ricci describes the idea that the earth is round:

(157)
地與海本是圓形而合為一球，居天球之中，誠如雞子，黃在青內 (Ricci, 1602, p. 176)
The Earth and the Sea is a round **sphere**, and they are together in the skyball. Like an egg, egg yolks are in the egg whites.

Ricci worried that elliptical projection was not enough to give the Chinese at that time a clearer understanding of the concept of a round Earth, and so special mammoth maps of the Northern and Southern hemispheres were added to the world map. These two "hemisphere maps" can also be said to be the earliest maps to show the two hemispheres in China.

In the preface, Ricci explains:

(158)
但地形本圓球，今圖為平面，其理難於一覽而悟，則又仿敝邑之法，再作半球圖者二焉 (Ricci, 1602, p. 179)

> But the shape of the earth is round, and now the map is flat. Its logic is difficult to discern at a glance. In imitation of my home country's example, I produced two more hemisphere maps.

Therefore, we can learn from the *Kūnyú wàn'guó quántú* that he used two methods of drawing: elliptical projection and conical projection. Conical projection surprised the Chinese at that time. Ricci also centered his map on the Equator, dividing the Earth equally between the Northern and Southern Hemispheres, and drew the Tropic of Capricorn and Tropic of Cancer.

Accordingly, the climate zones are divided into one tropical zone, two temperate zones, and two polar zones. This is the first five-band division used in China. Some terms like "Earth," "meridian," "equator," and "horizon" were specifically and clearly applied to the Earth. Later generations of Chinese geography textbooks adopted Ricci's climate divisions.

Once the *Kūnyú wàn'guó quántú* came out, it is no exaggeration to say that it shocked the Chinese people. The Chinese cognition of the world had been based on the notion of a "*Tiānyuán dìfāng*" 天圓地方 (spherical sky and square earth), and this map introduced the theory of a "spherical earth," reshaping the world view of the Chinese people.

Of course, even after looking at this map, there were many Chinese people who scoffed at the idea of a round earth, and the deep-rooted concept of the "spherical sky and square earth" was not easily overturned in China, especially since the scientific method proving the shape of the earth was difficult to understand: if the earth was round and in constant motion, how did people stand? Why did the earth suck people steadily toward the ground? In that era, it was normal for people to have these doubts, which indeed presented a difficult scientific problem to explain and understand at that time, but also made the Chinese curious about Ricci's astronomical knowledge. Another impactful theory that the *Kūnyú wàn'guó quántú* put forward was the idea of positioning geographical location by latitude and longitude; this also affected the cognition of the Chinese, thus attracting Chinese intellectuals to join the Catholic Church.

5.3.2 The eleven levels of cosmology

The astronomical knowledge introduced via Ricci's map of the world also includes the theory of the "eleven levels" of cosmology.

In traditional Chinese culture, the term *jiǔ-tiān* 九天 (the ninth level of sky) means the highest part of sky. It is also written as *jiǔ-chóng-tiān* 九重天 and *jiǔ-xiāo* 九霄. But it is worth noting that the *jiǔ* 九 here does not really mean nine. In traditional Chinese culture, *jiǔ* is a noble number. *Jiǔ* is the largest number in the singular, so the use of the metaphorical meaning of *jiǔ-tiān* as "countless" is extremely high. This also means that ancient Chinese did not really understand how many levels of sky there were.

Ancient Greek scholars believed that the entire universe could be divided into several levels, with the Earth at the center of the universe (Aaboe, 2001,

p. 18). According to this theory, the Sun, the Moon, Mercury, Venus, Mars, Jupiter, and Saturn all revolve around the Earth. This fundamentally conflicts with traditional Chinese ideas. Each theory is closely related to the founding of these different cultures' respective world views, including notions of human souls, materialization, and other issues; so conflict between the two was inevitable. Thus, the Chinese people may have accepted a round earth but not the new cosmology. For instance, Ricci criticized the inclusion of "gold" and "wood" among the basic elements in China's *Qiánkūn tǐyì*. Ricci's inheritance of ancient Greek celestial theory was incorporated into the Catholic cosmic picture, resulting in a cosmology that was based on both sacred and secular knowledge. Compared to the theory that the earth is round, the 11 levels of cosmology were too mysterious to convince the Chinese of the time. However, through the introduction of the differences between Chinese and Western astronomy, Ricci utilized contrast, competition, and falsification to compare Chinese and Western astronomical approaches to different issues; he addressed these issues by adopting strategies such as compromise, reconciliation, and correction and used these knowledge strategies to initially sinicize Western astronomy.

As these novel doctrines were impacting the inherent thinking of the Chinese, Ricci realized that it would be possible to use the scientific knowledge of astronomy for the purpose of promoting Catholicism. He believed, in accordance with his scientific missionary strategy, that if the Chinese received, rejoiced in, and were curious about the scientific knowledge of the West and could learn the Western logical deductive method, and if he could use scientific knowledge to gain their respect, then they could be persuaded to accept the Catholic culture of the West and could understand the inevitability of the existence of "God."

5.4 The word-making methods used by Ricci to coin astronomical names and their characteristics

Western learning had a great influence on many subjects in China, including astronomy, mathematics, geography, geology, mapping, meteorology, water conservation, mechanics, physics, optics, architecture, chemistry, military engineering, human sciences, western medicine, dynamics, art history, the history of human literature (including ethics, philosophy, and linguistics.), and, of course, religious history. All of the above were greatly influenced by Western learning, with certain fields originating with Western teachers. If there had been no exchange between Chinese and Western culture in the late Míng and early Qīng dynasties, there would have been no High Qīng era. In other words, the unprecedented exchange between Chinese and Western culture was a key feature of the High Qīng era and one of its causes.

If we trace the historical development of today's Chinese academic circles, almost no discipline is free from the impact of Western learning. It is true that the main purpose of Ricci's coming to China was to spread Catholicism, but

for this purpose, he both incidentally and intentionally disseminated Western scientific culture.

History often plays a joke on people, such that one's original intention may have been to enter one room, but one walks into another. If missionaries such as Ricci are merely seen as pure evangelists, they can at best account for less than one percent of the Chinese language. However, because of their contribution to the spread of Western science and culture, they injected new ideas into Chinese culture, and this in turn has affected almost every Chinese person today, regardless of whether they believe in God.

Even today's Chinese primary school students owe something to Matteo Ricci and his colleagues: from the *pinyin* learned in Chinese class to the arithmetic class where they learn geometry, from the science class where they learn the cause of eclipses to the geography class where they acquire knowledge of the Five Continents and Four Oceans. The contribution made by the Jesuits to cultural exchanges between China and the West during the Míng and Qīng years deserves full respect and should be widely publicized and permanently commemorated.

In any case, if we view the astronomical terms created by Ricci from a linguistic perspective, we will find that these terms have the following linguistic characteristics. While some of these characteristics are shared by Ricci's religious terms, geographical terms, and geometric terms, his astronomical terminology showcases three new linguistic features that have not been analyzed before.

5.4.1 Form-borrowing in combination with Chinese inherent morphemes

Some of Ricci's astronomical terms were created by making full use of ancient Chinese lexical forms; that is, they are examples of form-borrowing terminology. Whether the original Chinese terms were religious, geographic, or geometric, Ricci made good use of ancient Chinese word forms by giving them new meanings. This process of semantic loans, borrowings, and paraphrasing of words is a very common format for the terms he coined; and the new meanings given to the ancient Chinese word forms have basically survived into modern Chinese. Historically, the word forms have often been borrowed across languages because of interethnic wars, conquests, trade, and cultural exchanges (Zhāng, 2016, p. 13). In this case, the missionary work made the borrowing of word forms between Chinese and foreign lexical systems a reality.

There are two obvious advantages to borrowing a lexical form for missionary purposes (as outlined in Section 4.2): the first is to make the language simple and economical, in line with the language economy principle. The second is that, because the aforementioned ancient Chinese words have relevant forms and the Chinese people are more familiar with such word forms, Ricci achieved the purpose of spreading Catholicism more effectively by borrowing those lexical forms.

Some of the new astronomical terms coined by Ricci were coined by combining form-borrowing terminology with Chinese inherent morphemes. For

example, the meaning of the inherent morpheme *qiú* 球 was changed from "fine jade" to "sphere." On the basis of the new concept *qiú*, Ricci coined the following words: the word *dì-qiú* 地球 (earth) through the combination of *qiú* (sphere) and *dì* 地 (ground); the word *bàn-qiú* 半球 (hemisphere) through the combination of *qiú* (sphere) and *bàn* 半 (half); the word *rì-qiú* 日球 (sun) through the combination of *qiú* (sphere) and *rì* 日 (sun); and the word *yuè-qiú* 月球 (moon) through the combination of *qiú* (sphere) and *yuè* 月 (moon). The *qiú* 球 in *dì-qiú* (earth), *bàn-qiú* (hemisphere), *rì-qiú* (sun), and *yuè-qiú* (moon) no longer refers to the meaning of "fine jade" in ancient Chinese but refers to "sphere" as the translation of the Latin morpheme "sphaera." Ricci borrowed the etymological meaning of the ancient Chinese "sphere" of *qiú* to express specialized terms using the ordinary meanings of *dì* (earth), *bàn* (half), *rì* (sun), and *yuè* (moon) combined with *qiú* (sphere) to form a series of astronomical terms. In lexical terms, this method of word creation, namely, combining form-borrowing terminology with Chinese inherent morphemes, is an M-H (Modifier-Head) structure, which has already been used in the geographical terms discussed in Section 3.3.3. Logically speaking, it is a species relationship; in terms of semantic structure, it belongs to endocentric construction. Because this kind of word-making method is modeled on the structure of the Latin word, a large number of disyllabic or longer polysyllabic words were coined. Some of these words later became compound words, and some were generated according to certain fixed patterns that are not necessarily included in the dictionary, but which do not affect our understanding and use.

This word-making method not only produced a large number of new astronomical terms, but also followed a familiar pattern for the mechanisms and motivations involved in the generation of new terms. In modern Chinese, this word-making pattern has generated a large number of disyllabic and longer polysyllabic words.

As Sapir says:

> Studying how a language reacts to foreign words – rejecting them one by one, translating them, or accepting them casually – helps us understand the formal trends inherent in that language. Borrowing must conform to the drift, i.e., the evolution of the language. This flow has a general direction called slope. (Sapir, 1921, p. 177)

While slope and drift here in Sapir's statements are very abstract metaphors, they mean that although external forces play a role in the evolution of a language, it will evolve roughly in line with the typical characteristics of that language. Slope is used to refer to the direction of language evolution; drift is used to refer to the path of language evolution. Although form-borrowing is an external influence, the new terms developed by Ricci under this external influence would develop in line with the Chinese inherent morpheme. These new words created by Ricci and his collaborators conformed to the trend

of the development of the Chinese language and became one of the driving forces behind the transformation of Míng-Qīng Chinese to modern Chinese.[10] This evolution was accomplished with the active participation of missionaries.

5.4.2 The terms created were closely linked and systematic

The basic requirement for creating modern terminology is that the terms created should be closely linked and systematic.

In the *Kūnyú wàn'guó quántú*, Ricci not only pointed out that the earth is spherical, but also borrowed the word form *tiān-qiú* 天球. In Chinese, this referred to a spherical jade, but Ricci used it to refer to the astronomical celestial sphere. Ricci thus created not only the term *dì-qiú* 地球 (Earth) but also the "*X-qiú* 球" structure, where *X* stands for a morpheme, which can refer to *bàn* 半 (hemi), *rì* 日 (sun), *yuè* 月 (moon), etc., and can be further combined with *qiú* 球 (sphere) to form *bàn-qiú* 半球 (hemisphere), *rì-qiú* 日球 (sun), and *yuè-qiú* 月球 (moon). Ricci further explains the key morpheme "*qiú* 球" in *Qiánkūn tǐyì* 乾坤體義 [The meaning of the universe]: *Rìyuè xīngchén, shìzhī wéilún, ér shíwéi qiú, shìgù yǐhòu tōngwèi yuē qiú* 日月星辰, 視之為輪, 而實為球，是故以後通謂曰球[11] (The sun, moon and the stars, ostensibly wheels, they are actually spheres. Thus, a unification name for astronomical objects like the sun, moon and the stars is sphere) (Ricci, 1610, p. 110).

It can be seen from this that Ricci took into account the uniformity and systematic nature of terminology, which is a basic criterion for creating modern terms. Ricci adopted this norm because it conforms to the basic principles of modern Chinese terminology creation: conciseness, effectiveness, and potential for being analogous. It was also quite firmly in place and explicitly followed by Western scholars by the time that Ricci went to China.

Because the words *tiān-qiú* 天球, *dì-qiú* 地球, and *yuè-qiú* 月球 (moon) are academically systematic, in line with the naming requirements of modern terminology, they continue to be used to this day; indeed, these words have not only become standard terms in science – some are even common words in daily life.

5.4.3 Further understanding M-H (Modifier-Head) terms from a cognitive perspective

Many of the astronomical terms created by Ricci are made using a combination of inherent characters in Chinese. In using Chinese characters to make new words, Ricci maintained the M-H (Modifier-Head)[12] compound word form, which is a very productive way of creating new words.

As mentioned in Chapter 4, the geometric terminology created by Ricci was primarily created by using M-H compound word forms. In fact, some of Ricci's astronomical terms were also created in the same way. New words created by the M-H method draw attention to description and highlight the characteristics or semantic information of a particular semantic category, thus

revealing the characteristics of a certain type of word group, resulting in cognitive concepts based on the encyclopedic nature of semantics and the creation of terms that are closely correlated to the relevant semantic categories.

Cognitive psychology holds that the meaning of a word has the category attributes of an encyclopedia, and a word is always a system of knowledge based on the general idea of that word (Ungerer & Schmid, 1996, p. 114). That is to say, a word often involves many knowledge domains and other general ideas that are located within a certain regular system, namely, the semantic characteristics of a word. Some of these concepts are indispensable and important features in the semantic information contained within a word and are therefore the word's most prominent semantic features. When people store and remember the word, they usually store and remember the associated information as attachments along with the subject itself.

Cognitive psychology is also based on this premise that the language in which the word is embedded can be communicated smoothly, because both parties must have a basic understanding of the concept(s) expressed in the term. For example, when people recognize and store the concept of *táo-shù* 桃樹 (peach tree) in Chinese, *táo* 桃 (peach) is the most prominent feature. The whole concept of *shù* 樹 (tree) and *táo* coexist cognitively, and *shù* is an implicit piece of information that is indispensable in the process of cognition and for understanding the whole word. *Shù* is a prerequisite for all linguistic communication involved in the concept of *táo-shù*. In order to express the meaning clearly, the Chinese language strengthens the category of *táo* as a special characteristic, causing the semantic element of *shù* to be the central semantic characteristic of *táo*; this is how the word *táo-shù* was created.

Ricci was fully aware of the above characteristics of Chinese M-H compound words, and because of this, his cognitive strengthening of the central morphemes and systematic use of a series of Chinese astronomical terms ensured that his new terms were successfully integrated into the Chinese language.

For example, in order to determine a series of Chinese astronomical terms such as *dì-qiú* 地球 (earth), *yuè-qiú* 月球 (moon), *běi-bàn-qiú* 北半球 (northern hemisphere), and *nán-bàn-qiú* 南半球 (southern hemisphere), Ricci first coined the concept of *qiú* 球 and then further created *dì-qiú*, *yuè-qiú*, and *bàn-qiú* 半球 (hemisphere). Then, on the basis of *bàn-qiú*, he further coined *běi-bàn-qiú* 北半球 and *nán-bàn-qiú* 南半球. *Qiú* 球 is the central morpheme in the M-H words with the "*X-qiú* 球" form.

Ricci's creation of M-H words was based on two goals: one was to divide astronomical terms into different categories, and the other was to reinforce the special characteristics of astronomical terms. The reason why Ricci used so many M-H words in his astronomical and geometric terms was largely because astronomy and geometry are rigorous natural sciences, and their terminology requires clear logic and certainty. The difference between technical terms and common terms is that the former attempts to classify the intrinsic characteristics of objects in each field of knowledge. In his classification, Ricci makes full use of the inherent materials of ancient Chinese to convey astronomical

meaning and combines Chinese intrinsic morphemes in pairs, thus making the terminology more rigorous, systematic, and interrelated.

To sum up, the astronomical terminology created by Ricci has been very successful. The success of these astronomical terms lies in the fact that they draw on the successful translation of religious terms, geographical terms, geometric terms, etc. In addition, they have their own originality, through form-borrowing in combination with Chinese inherent morphemes, as well as through systematic creation of closely linked neologisms, thus laying the foundation for the terminology of modern Chinese astronomy.

5.5 Conclusion

This chapter first introduced the background of Ricci's astronomical works and creation of astronomical terms, then systematically introduced the new astronomical terms he created. This chapter also explored the astronomical knowledge reflected in the terms Ricci created. Ricci brought two important astronomical ideas to the Chinese of the Ming dynasty: representing a round Earth and the 11 levels of cosmology. These two ideas shook the traditional Chinese worship of heaven from a scientific point of view. They were accepted by some Chinese intellectuals of the time, who were prompted to convert to Catholicism. Finally, this chapter analyzed the word-creation method behind Ricci's astronomical terms. Both form borrowing and the combination of Chinese inherent morphemes were used, and when the two were used together it was a very effective way to create astronomical terms. Furthermore, Ricci paid great attention to the closely linked and systematic creation of astronomical terminology. This chapter also further analyzed the rationality of M-H (Modifier-Head) term creation from a cognitive perspective.

Astronomical terms were very sensitive terms in Ming dynasty China, as they were closely related to the reverence for heaven found in traditional Chinese culture. Ricci's painstaking creation of these astronomical terms was aimed at undermining the traditional Chinese worship of heaven from the perspective of term acceptance, so as to convince the Chinese that Catholicism was a religion based on the spirit of science.

These efforts played a role in China at the end of the Ming dynasty, but the Chinese did not systematically accept Ricci's introduction to astronomy until after the Opium War of 1840. Thus, the influence of Ricci's creation of astronomical terms was far-reaching, but delayed.

Notes

1 Qú Rǔkuí was the son of minister Qú Jǐngchún 瞿景淳 and became one of Ricci's closest friends in China.
2 An astrolabe is an astronomical instrument that was produced in ancient Greece. See Fāng (1943/1969, p. 72).
3 *Chóngzhēn lìshū* is a Chinese work that provides a relatively comprehensive introduction to European astronomy knowledge, compiled by by Xú Guāngqǐ, Lǐ

Zhīzǎo, Lǐ Tiānjīng 李天經 (1579–1659) and Johann Adam Schall von Bell from 1624 to 1644.

4 Official seals, which are a kind of stationery used for identification or signatures on documents in ancient China, are generally stained with paint before printing.

5 Dàyǎnlì 大衍曆 was a calendar implemented from the seventeenth year of the Tang dynasty (729 CE).

6 The Western solar calendar is based on the movement of the earth around the sun. The Chinese lunar calendar, which is dominated by the lunar calendar, combines some advantages of the solar calendar and increases the leap month or leap day to adjust the year and month.

7 Ricci first followed the Chinese tradition of *jiǔ-chóng-tiān* 九重天 (nine levels of sky) by introducing the Primum Mobile theory in *Kūnyú wànguó quántú* (1602, p. 177). *Lùn dìqiú bǐ jiǔchóngtiān zhīxīng yuǎnqiě dà jǐhé* 論地球比九重天之星遠且大幾何? (How far is the Earth from the stars of the nine levels of Cosmology and how much larger?). However, he changed his view in *Qiánkūn tǐyì* (1610, p. 93) and put forward the theory of *Shí-yī-chóng-tiān*.

8 The Latin phrase of the Heaven "Empyreum" means "highest," caelum means "sky," the literal translation *yǒng-jìng-bù-dòng* by Ricci means "forever stands still." The eternal eleventh level of sky is purely in the service of theology. It is the ultimate vessel of the Universe, the dwelling of God and the Saved Soul.

9 Ricci (1610, p. 513).

10 Míng-Qīng Chinese refers to the Chinese of the Míng and Qīng dynasties.

11 The concept of "*qiú* 球" was first put forward in *Kūnyú wàn'guó quántú*. See example (157).

12 See Section 4.2.3.

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6 Terms coined by Matteo Ricci and Michele Ruggieri

In addition to the terms discussed in the preceding chapters, additional terms were developed by Matteo Ricci in cooperation with other missionaries. The most important of these was the terminology in the *Púhàn cídiǎn* 葡漢辭典 [Portuguese-Chinese dictionary], cowritten with Michele Ruggieri. This dictionary was first completed by Ruggieri and then improved by Ricci. Thus, the first author of this dictionary was not Ricci.

The *Púhàn cídiǎn* was the first bilingual Chinese language dictionary ever created and is important in several respects. It developed a consistent system for transcribing Chinese phonetics, and this has formed the basis of subsequent phonetic systems. Furthermore, it has contributed to Mandarin and topolect lexicons. Finally, the *Púhàn cídiǎn*'s contribution to terminology, which is the principal focus of this chapter, has lexicological importance as one of the first efforts by Westerners to learn and translate Chinese.

The main contributors to the dictionary were Michele Ruggieri (1543–1607) and Ricci. Together with Ricci, Ruggieri was one of the true founders of western sinology in the "Missionary Sinology Period" and one of the first sinologists in Europe.[1] He made significant contributions to the future development of Western sinology through his research on Chinese language and characters, translations of Chinese classics, his own writings in Chinese, and his introduction of Chinese cartography to the West.

Ruggieri was born in Spinazzola, Italy, in 1543. Departing from Lisbon to Goa, India, at the age of 30, he arrived in Macau in 1579 and began his career of spreading Catholicism in China. When he first arrived in Macau, he began to learn Chinese language and culture in accordance with the requirement of Alexandre Valignani (1538–1606) that "missionaries should learn Chinese" (Liú & Wáng, 1986, p. 113).

Ruggieri was a missionary with great perseverance and a very high aptitude for language. He could recognize many Chinese characters just a few months after arriving in Macau and could read simple Chinese books. After 1582, he began to write in Chinese. His purpose in learning Chinese was to preach. He believed that this was a necessary step toward making it natural for the Chinese people to believe in Catholicism (Luó, 1986, p. 427).

DOI: 10.4324/9781003490159-7

In 1583, Ruggieri entered Guǎngzhōu 廣州 three times with Francois Pasio (1551–1612) and Matteo Ricci. After negotiating with local Chinese officials such as Chén Ruì 陳瑞 (1515–1583), the viceroy of Guǎngdōng 廣東 and Guǎngxī 廣西, and Wáng Pàn 王泮 (?–?), the governor of Zhàoqìng, he finally entered Zhàoqìng on 10 September 1583. He lived in Tiānníng Temple 天寧寺 in Zhàoqìng and began to preach and set out to establish the first missionary base in mainland China. This laid a solid foundation for Catholicism to gain a firm foothold in China. When he was in Zhàoqìng, Guǎngdōng, together with Matteo Ricci, he wrote the first foreign language-Chinese dictionary, namely, the *Púhàn cídiǎn*, to help missionaries in China learn Chinese. Moreover, when he was in Macau, he also wrote the first book written by a European in Chinese, *Tiānzhǔ shèngjiào shílù* 天主聖教實錄 [The Records of Holy Catholicism], which was an important step in the localization of Catholicism.

The *Púhàn cídiǎn* was the first bilingual dictionary of a European language (Portuguese) and Chinese (official language) ever created. Its phonetic system in Roman characters may be the first attempt by Europeans to use European languages to reproduce Chinese phonetics. Unfortunately, the manuscript was misplaced in the Jesuit archives in Rome and was rediscovered only in 1934 by Italian sinologist Pasquale D'Elia who found it at the Aechivum Romanum Societartis Iesu (the archive of the Society of Jesus).[2] In 2001, John Witek photocopied part of the dictionary and published it as the *Portuguese-Chinese Dictionary*.[3]

Pages 32 through 156 of the 198-page manuscript of the *Púhàn cídiǎn* consist of a list of Portuguese-Chinese equivalents, while the rest of the text consists of notes on Catholic theology.[4]

Although the *Púhàn cídiǎn* indeed makes a great contribution to the research on Mandarin and topolect lexicons, this chapter does not analyze the dictionary from the point of view of phonology. Instead, it delves into the dictionary's historical value from a lexicological perspective and analyzes its contribution to new terminology in Míng Chinese. It attempts to answer questions such as: What is the significance of the *Púhàn cídiǎn* as a source of literature for the study of terminology? This chapter examines in depth the dictionary's lexical characteristics from the perspective of the new terminology in it. In addition, this chapter also offers an analysis of common words and topolect words in this dictionary.

6.1 An overview of the lexical characteristics of the dictionary

The *Púhàn cídiǎn* is divided into three columns: Portuguese lexical items, Roman phonetic notations, and Chinese items (pages 31–34 of the text also include a fourth column of Italian translations). It remained in manuscript form and was not published during the authors' lifetimes.

The dictionary has more than 6,000 Portuguese items, sorted in alphabetical order from "*aba da vestidura*" to "*zunir*." There are approximately 5,460 Chinese items corresponding to the Portuguese items, meaning there are approximately 540 Portuguese items that do not have corresponding Chinese items.

The dictionary's Roman phonetic notation was written by Ruggieri, not Ricci. The third column of Chinese characters may have been written by the official translators from China, who knew a little Portuguese.

At the outset of compiling this dictionary, Michele Ruggieri and Matteo Ricci did not have much knowledge of Chinese. Among the pages of the manuscript, some of the Chinese characters that were added later seem to be written in a rather childish script. The presence of such characters suggests that Michele Ruggieri enlisted other Western missionaries who were beginning to learn Chinese to help with the dictionary. It is also clear that the first column of the *Púhàn cídiǎn* records the Portuguese of 400 years ago, and many of these terms have been difficult to identify; so it is possible that the meanings of some of the words have changed.

From a translation perspective, due to the limited level of communication at the time, it is difficult to establish a precise translation connection between the Portuguese and Chinese entries, so that the meanings of the translations are often somewhat imprecise and broad, such as "*Abito defrade*" (priest's clothes), which was translated as *dào-yī* 道衣 (Taoist clothes) and as *fǎ-fú* 法服 (monk and Taoist clothes), and "*Botica*" (pharmacy, grocery store), which was translated as *yào* 藥 (medicine). More than 500 Portuguese entries simply do not have matching Chinese translations in this dictionary because suitable interlingual vocabulary could not be found. The reason for this may be that Ruggieri and Ricci had more important things to do in China, so they failed to complete this part of the dictionary.

In this chapter, when focusing on Chinese entries, I will use the version of the dictionary published in 2001 as a point of reference and temporarily disregard the question of whether the translation was accurate at the time.

The lexical items in this dictionary include monosyllabic words, disyllabic words, and polysyllabic words and phrases. There are altogether more than 5,000 Chinese words or phrases, and this alone is of great significance for the study of Chinese linguistics during this period. Oral vocabulary (colloquialisms and slang) has always been the top priority in the study of the modern Chinese lexicon. The *Púhàn cídiǎn* was completed in the Míng dynasty, and it seems appropriate to include this period within the earlier limits of modern Chinese. Moreover, the *Púhàn cídiǎn* is probably the first foreign language Chinese translation dictionary to be compiled by foreigners. Given that it was completed in Macau or Zhàoqìng, it comprises a record of the contemporary language and it represents the true southern Cantonese lingua franca. All these points demonstrate that the dictionary is a rare and valuable document for the study of modern Chinese vocabulary.

This chapter focuses on the terminology section (pages 32 to 156) of the *Púhàn cídiǎn*.

6.2 New terms coined by Ruggieri and Ricci together

It has been pointed out by Yáng Huìlíng that there are far fewer new Chinese words in this dictionary than in Ricci's other writings (Yáng, 2012, p. 55). In fact, new vocabulary is even rarer than Yáng Huìlíng concluded. Most of the terms coined by Ruggieri and Ricci together are not commonly used in modern Chinese today. In other words, most of the new words in the dictionary do not represent knowledge that still has an impact today. This is mainly due to the purpose and the nature of this dictionary, which were not to directly spread Catholicism but to train missionaries coming to China in the Chinese language. The dictionary is a general vocabulary dictionary and therefore does not contain many specialized terms. In addition, some of the terms coined by Ruggieri and Ricci together were not translated well, which is an indication that their Chinese during this period was still elementary. Furthermore, words common to that era may also be anachronistic today. Thus, in the appendix, I only list the terms in the dictionary that have had an impact and well coined.

The new terms in the dictionary can be divided into two semantic categories: (1) religious terms and (2) nautical and commercial terms. This section also briefly analyzes common words and topolect words in this dictionary.

6.2.1 Religious terminology

While religious terminology constitutes a significant category of vocabulary included in the *Púhàn cídiǎn*, it also omits a number of important religious terms, such as "God," "Jesus," "Jesus Christ," "Mary," and "angel." This may be because the purpose of this dictionary was not to spread Catholicism, and therefore Ricci did not consider the question of how to use the terms for preaching. Ricci had already included the above-mentioned concepts in *Tiānzhǔ shíyì*. Nevertheless, the dictionary contains a very small number of religious terms that do not appear in Ricci's other Chinese writings. The most important terms here are *ài-zhòng-rén* 愛眾人, which expresses the Catholic idea of fraternity, and *xǐ-lǐ* 洗禮 for the ritual of the Catholic baptism.

Ài-zhòng-rén 愛眾人

The entry for "*Acertatousa – ài-zhòng-rén* 愛眾人" (love for all) refers to a form of unconditional love that is the core idea of Catholicism; it is a love for everyone, including those who are not lovable and those who have hurt or oppressed you (Ruggieri & Ricci, 1579, p. 1). Jesus asked his followers to love all the people of the world as He did. This is also one of the Catholic forms of brotherly love.

This kind of thought was progressive for its time and was also one of the important ideological weapons of antifeudalism, which deeply influenced Western culture and contributed to the progress of Western thought and the harmony of Western society (Wáng, 2014, p. 139). The Catholic idea of fraternity requires that a sincere love for God must arouse love for ordinary people, and forgoing love for ordinary people precludes having love for God.

In short, *ài-zhòng-rén* is "universal love for humanity." It was the forerunner of the Catholic *bó-ài* 博愛 (brotherly love) in Chinese. *Ài-zhòng-rén* is quite different from *rén-ài* 仁愛 (benevolence) in Chinese Confucianism. Although *rén-ài* also emphasizes a love for all people, it recognizes class identity differences. The class limitations of Confucian benevolence include restrictions based on family, monarchy, country, and other kinds of ethical status. In contrast, Catholicism has a strong civic character and its love emphasizes compassion. Based on the equality of all human beings, it includes pity for the lower classes, views actively seeking wealth as a sin, and advocates the ethical tradition of "everyone being equal in front of God." This kind of universal love is undoubtedly the first clear and complete fraternal expression of such love in human history, and it gave rise to forms of enlightened modern social thought including the bourgeois fraternal views of later generations.

The concept *ài-zhòng-rén* was not yet familiar to the Chinese at the time of the *Púhàn cídiǎn*'s writing and was considered a new concept.

Xǐ-lǐ 洗禮

Xǐ-lǐ means baptism. Baptism is a Catholic rite of admission and adoption into Catholicism, usually involving the use of water (Ruggieri & Ricci, 1579, p. 103). It expresses the believer's faith in Christ through the liturgy and marks the acceptance of the baptized as a member of the church. Because of baptism's importance as a religious rite, *xǐ-lǐ* is one of the most important terms in Catholicism. Nonetheless, it does not appear in Ricci's *Tiānzhǔ shíyì*; but it does appear in the dictionary that Ricci created with Ruggieri. *Xǐ-lǐ* was coined by paraphrasing, using *xǐ* 洗 ("wash") and *lǐ* 禮 ("rite"), and is still used in modern Chinese.

In fact, there are other Catholic terms in the dictionary that did not draw Yang's attention because of incorrect translation (Yáng, 1995, p. 39). Since the translations of these terms are not correct, I have not listed them in the appendix.

It seems inevitable that Buddhist words were included in the translations of these terms, including *igreja* (church), which was translated as *sì* 寺 (temple), and *santo* (sacred), which was translated as *xiān* 仙 (holy) (Ruggieri & Ricci 1579, p. 76). In addition, some words were more appropriately translated, such as *alma* (soul), translated as *húnlíng* 魂靈 (soul) (Ibid., 125), and *abismo* (abyss), translated as *dìyù* 地獄 (hell) (Ibid., p. 23).

Some of the Portuguese terms in the dictionary are related to Catholic terms, such as *agua benta*, which was translated as *shèngshuǐ* 聖水 (holy water) (Ibid., p. 46); *ajuda cristal*, translated as *shén-zhù* 神祝 (godsend) (Ibid., p. 52); *abade* (abbot), translated as *xiūdàoyuàn-zhǎng* 修道院長 (abbot) (Ibid., p. 47); and *abadinho* (prior), translated as *xiǎo-shénfù* 小神父 (prior) (Ibid., p. 53). Other Catholic phrases in the *Púhàn cídiǎn* include the expressions "*yīn-wéi-liào-shī*" 因為廖師 (because of Liao Shi) (Ibid., p. 112) and "*tiān-zhǔ-shēng-wàn-wù*" 天主生萬物 (God is born of all things) (Ibid., p. 128). The Portuguese expression for *yīn-wéi-liào-shī*, "*por merce de Deus*," corresponds to the Chinese translation of "by the Grace of God," which is more appropriate than the literal translation "because of Liao Shi."

Wáng (2014, p. 140) believes that *liào-shī* 廖師 should be understood as a phonetic translation of "God" in *Mǐnnányǔ* 閩南語 (Minnan language), which was spoken in the Macau region and was created by Chinese speakers in Manila (most of whom were ethnic Minnans). But there is no evidence for this view. This translation appeared only once in the *Púhàn cídiǎn*, although the phrase later appears in the Catholic literature actually printed in China.

In particular, the religious terms coined in the *Púhàn cídiǎn* were not as successful as other religious terms from Ricci's Chinese writings. Except for *xǐ-lǐ* (baptism), which has persisted into modern Chinese and remains widely accepted, other religious terms were short-lived; and although the concepts they expressed were gradually accepted by Catholics in modern China, the forms in which they were expressed were replaced by other forms in subsequent evolutions of the Chinese language. For example, *ài-zhòng-rén* (universal love for humanity) was replaced by the later *bó-ài* (brotherly love). The reason why some of these religious terms were short-lived may be that Ricci did not take much time to perfect this dictionary. As a result, some of its translated terms were ultimately unsuccessful.

6.2.2 Nautical and commercial terminology

Nautical and commercial terms also form an important category in the *Púhàn cídiǎn*. This terminology is relatively rich because of its relevance to the mode of transportation at the time, just as dictionaries compiled in more recent eras contain a lot of vocabulary related to automobiles, railways, and aviation. Moreover, Portugal was a maritime power at that time, and so it is to be expected that a large number of nautical words would appear in the *Púhàn cídiǎn*. However, some terms and phrases did not ultimately enter the Míng dynasty Chinese lexical system. For instance, "*engolfar*" (sail out of the harbor) was translated as *shàng-dà-hǎi* 上大海 (go to sea) (Ruggieri & Ricci, 1579, p. 67); "*ancorar*" (drop anchor) was translated as *pāo-dìng* 抛椗 (drop anchor) (Ibid., p. 8); "*nauegauel*" (navigable) was translated as *hǎi-lù-píng-ān* 海路平安 (navigation is safe) (Ibid., p. 96), "*dar a vela*" (set sail) was translated as *chě-qǐ-péng* 扯起篷 (pull up the sail) (Ibid., p. 67); "*amainar a uella*" (furl sail) was translated as *xià-péng* 下篷 (lower sail) (Ibid., p. 7).

Sailing was at that time connected with commercial prosperity, and the *Púhàn cídiǎn* also contains some business-related vocabulary. For instance, "*feitar da nau e casa*" (ship and house maker) was translated as *cái-fù* 財付 (wealth) (Ibid., p. 79); "*liquidar*" (settle accounts) was translated as *suàn-míng-le* 算明瞭 (settle accounts) (Ibid., p. 133); "*apenhar*" (pawn) was translated as *zuò-dāng* 做當 (pawn) (Ibid., p. 9); "*praxa*" (market) was translated as *shì-tóu* 市頭 (market) (Ibid., p. 124); "*a mayor ualia*" (at a higher price) was translated as *gāo-jià* 高價 (high price) (Ibid., p. 8); "*de contado comprar*" (buy with cash) was translated as *xiàn-mǎi* 現買 (buy with cash) (Ibid., p. 39); "*fazer facenda*" (trade) was translated as *tiān-huò* 添貨 (add new goods) (Ibid., p. 51); and "*aluara*" (license) was translated as *zhā-fù* 劄付 (license) (Ibid., p. 8).

These translations were basically failures since they did not propagate. The words and phrases in the dictionary are the product of Ricci's early learning of Chinese and either do not reflect Ricci's later understanding of Chinese linguistics or were short-lived even in the Chinese language of the late Míng dynasty, and thus did not permanently enter the language system. This is in stark contrast to Ricci's later success in creating words. Therefore, I did not include these words in the appendix.

On the basis of the materials currently available and the results of the investigation, it may be inferred that the original editor of the *Púhàn cídiǎn* was himself Portuguese and that the terms may then have been taken for use from one or two ready-made Portuguese-language dictionaries and subsequently included or deleted according to the needs of industry and society. Later, the manuscript was copied by Portuguese missionaries and more religious terms were added.

6.3 The nature of the words in the dictionary

As mentioned earlier, this dictionary does not contain many new terms because it is a dictionary of general words. But the nature of these words is worth exploring. The general vocabulary in this dictionary can be divided into common words and topolect words.

6.3.1 Common words

The *Púhàn cídiǎn* is a (mainly) bilingual dictionary largely consisting of common words, not specialized terminology. Judging from the large number of common words that refer to nature, the human body, movement, behavior, character, and texture, the words included in the *Púhàn cídiǎn* are conceptually the same in Portuguese and Chinese.

The *Púhàn cídiǎn* also contains many numbers, some of which are arranged very casually. Except for zero, for which there is no word, single digits have corresponding words, while numbers greater than ten and less than one hundred are not very comprehensively represented.

There are also some special combinations of numbers in the *Púhàn cídiǎn*, such as:

'de dous em dous' (two and two) as *yī-shuāng-yī-shuāng-duì* 一雙一雙對
'*de sete em sete*' (seven and seven) as *qī-gè-yī -qǐ* 七箇一起
'*de cento em cento*' (a hundred and hundred) as *yī-bǎi-yī-bǎi* 一百一百
(Ibid., p. 132)

These special combinations seem to have something to do with the way items or coins are counted when buying and selling.

In addition, the *Púhàn cídiǎn* contains a large number of words that are vulgar, but important in daily life. These words are not new terms, but ordinary

words such as "*orinar*" (urinate), translated as *pái-niào* 排尿 (urinate) (Ibid., p. 127), and "*crepitar*" (fart), translated as "*fàng-pì* 放屁" (fart) (Ibid., p. 34).

Such words are basically equivalent in Chinese and Western languages and are relatively easy to translate. However, some common words were subject to mistranslation in the dictionary because missionaries were not familiar with the special culture of China; so, for example, "*molher solteira*" (single woman) was translated as *yín-fù* 婬婦 (slut) (Ibid., p. 34).

As a general language dictionary, the *Púhàn cídiǎn* contains mainly common words, so the number of specialized terms in it that were actually created by Ruggieri and Ricci are relatively few. Thus, for the most part, the dictionary shares the same vocabulary with the Míng Chinese lexical system, including such terms as "sun," "moon," "stars," "wind and rain," "lightning," "eyes," "ears," "hands and feet," "heart," "lungs," "intestines," "sitting," "sleeping," "beauty," "ugliness," "light," "thin," "thick," and so on.

6.3.2 Topolect words

The *Púhàn cídiǎn* also contains some topolect items. These items are important phonological material that represents Míng dynasty Mandarin phonetics. Yáng Fúmián has proved through an analysis of the dictionary's phonetic system that the Mandarin phonetics of the Ruggieri and Ricci period (the year of Wànlì 萬曆 in the late Míng) are not based on the northern Běijīng topolect, but on the topolects of Nánjīng and its surrounding areas (Yáng, 1995, p. 38).

Yáng (1995, p. 40) holds that Ricci's original Chinese teachers were Cantonese or Fujianese. At least one of them was Hakka, while another clearly spoke the Fujian topolect and quite possibly the Xiamen topolect as well. Regardless, Yáng (1995, pp. 44–46) claims that Ruggieri's and Ricci's early teachers clearly did not come from Běijīng and would not have used Mandarin, the northern official language. Yáng came to this conclusion by first analyzing the Western annotations of several single words in the dictionary and cross-referencing the phonetics of the words in question with the rhyme system of the time. Based on their use of the term *liào-shī* 廖師, the translator of the dictionary was likely to have had a native language background in *Mǐnnányǔ*, which is consistent with Yang's own conclusions (Yáng, 1995, pp. 65–71). I partially agree with Yáng (Yáng, 1995, pp. 38, 44–46, 65–71). First of all, there is no doubt that this dictionary shows that the official language at that time was the Nánjīng topolect, rather than the Běijīng topolect. Although no consensus exists on whether the official language of the Míng dynasty was based on the Nánjīng topolect of Jiānghuái Mandarin,[5] the main common vocabulary of this dictionary is from the Nánjīng topolect, which provides us with a possible source of the official Chinese language in the late Míng dynasty. Second, I agree with Yáng that the topolect system of this dictionary is mainly formed by Cantonese and Southern Min. However, comparing the two topolects, I think its topolect system is mainly composed of Cantonese rather than Southern Min.

This dictionary contains topolect words, with Cantonese topolect words comprising the majority of these. Ricci and Ruggieri first learned Chinese in Macau, Guǎngzhōu, and Zhàoqìng. When compiling the first Portuguese-Chinese Dictionary, most of the Chinese characters were very likely written by native Chinese who would naturally have included many Cantonese topolect words. Furthermore, since Ricci and Ruggieri had not been to Fujian (the main province of Hakka in China), it is unlikely that Hokkien topolects would occupy a majority of the entries. The dictionary may also include vocabulary words from other topolects such as Minnan. Nonetheless, the major language recorded in the dictionary may well be the Nánjīng topolect, which is the spoken language of the Nánjīng area.[6] At that time, the two most widely used official languages in China were the Nánjīng topolect and the Běijīng topolect. Ricci collaborated with Ruggieri on this dictionary before entering Běijīng, so it is not possible that they used the Běijīng topolect.

6.4 Conclusion

This chapter mainly analyzes the terms coined by Ricci in the *Púhàn cídiǎn*, focusing on their source, etymology, and use.

It can be inferred that Ruggieri's and Ricci's original intention was indeed to write an official Portuguese-Chinese dictionary, but a number of questions remain unanswered and in need of analysis: Was this really what Ruggieri and Ricci wished the *Púhàn cídiǎn* to be? Is the language recorded in its Chinese entries made up of all the official languages that were spoken throughout the country at that time? Is it true that, as Yáng Fúmián (1995, pp. 65–71) argues, the dictionary only records Southern official words based on the topolects of Nánjīng and its surrounding areas? Or does the text contain a jumble of southern Chinese topolects? Why is the translator of the Chinese entries to be believed?

Because these questions do not fit within the scope of this book, it is not possible to examine them in depth in this chapter. But they are worth exploring in the future. My aim has been to present them here as potential directions for future research. Because the dictionary contains historical materials in both Portuguese and Chinese languages, it shows us glimpses of the efforts of early Westerners to learn Chinese; their attempts to translate Western languages into Chinese; the earliest efforts to compile a European-Chinese bilingual dictionary; and the beginning of cultural, economic, and technological contact between China and the West.

Notes

1 Sinology refers to the discipline in which non-Chinese scholars outside of China conduct research on all aspects of China, including Chinese history, language, politics, society, literature, philosophy, economics, calligraphy, etc. The basic condition

for the establishment of sinology as a discipline is the existence of sinologists in Western countries who master Chinese, are familiar with Chinese literature, and understand Chinese culture. This basic condition was already fulfilled in the "Missionary Sinology Period" by the Jesuits who came to China during the Míng and Qīng dynasties.

2 The item had the following number: Jap. Sin.I,198.

3 Michele Ruggieri and Matteo Ricci (John W. Witek ed.), *Púhàn cídiǎn* 葡漢辭典 [Portuguese-Chinese dictionary] (San Francisco, CA: Ricci Institute of Chinese and Western Cultural History, University of San Francisco, 2001, original work published in 1579).

4 The rest of *Púhàn cídiǎn* (pp. 1–31, 157–198) contains individual words and numbers, conversational notes written in Romanic phonetics, introductions to Catholic doctrine, court judgments, etc. Since this part does not follow the style of the dictionary at all, the content is very disorganized, and some of it is even drafts of Michele Ruggieri's copying of the Chinese characters he was learning (P188–P189), and cannot be used in an analysis of dictionary terminology.

5 Jiānghuái guānhuà 江淮官話 (Jiang-Hwai Mandarin), also known as Xiàjiāng guānhuà 下江官話 (Lower Yangtze Mandarin) in the past, is distributed in mainly in China's eastern Yangtze Valley. Simmons (1999) made an investigation and classification of dialects along the Wu and Jiang-Hwai Mandarin border.

6 Languages in all regions of China have an official version and main topolects. For example, the official language of Fujian Province is Běijīng topolect, which is determined by political factors. But the main topolect of Fujian Province is Min. The official language of "*Púhàn cídiǎn*" is Nánjīng topolect, but the strongest topolect in the region is Cantonese.

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7 Ricci's missionary role in the evolution of the Chinese lexicon

Words are the building materials of language and have a close relationship with society. Changes in society, people's living habits, and ways of thinking, as well as cultural differences – all of these are reflected in new terms. "Words are the most active part of language, and the contact influence of language always begins with the borrowing of words (Xú, 2003, p. 74)."

In linguistics, language contact is the study of how different language systems interact with and influence one other. When speakers of different languages are in close contact, this contact affects at least one of the languages involved and brings about changes in its phonetics, syntax, and semantics, among other things. Forms of contact including trade, religious exchange, cultural exchange, immigration, war, and conquest between ethnic groups; all of these will inevitably result in contact between languages.

Language contact produces a variety of phenomena, the most common of which is the borrowing of words. As long as there is contact between languages, such borrowing will inevitably occur.

New terms are the most important part of the process in which words change through contact. This is because vocabulary is one of the three main elements of language. The other two are grammar and phonetics. Vocabulary is the sum of all the words in a language and is the building material of language. Grammar is the sum of all the rules of composition and changes to words and sentences, and it is the skeleton of language. Phonetics is the material shell of language and concerns the existence and expression of vocabulary and grammar. It is precisely because the position of vocabulary in language is so important that it is one of the first things to be considered when analyzing the linguistic phenomena caused by language contact.

Ricci's spread of Catholicism to China in the late Míng dynasty led to the creation of a large number of new terms, which, from the point of view of linguistic contact, were a projection of the Western language Latin (the language adopted by the Catholic Church at that time) into the Chinese system. Many of the new terms and concepts created by Ricci were still widely used in modern Chinese in the late Qīng dynasty and in the Republic of China, which is enough to prove the extensiveness and importance of the spread of Western studies at that time. In addition, many of the new terms also constitute the

DOI: 10.4324/9781003490159-8

foundation of modern Chinese astronomy, geography, and mathematics; and some terms have spread to Japan and Korea, thus becoming common academic resources for East Asian countries to use when creating new words and terms. But for too long, academics have been unable to clearly discern the origin of this collection of terms.

One widely accepted theory regarding the channels of dissemination for these terms is that they were directly introduced to China by Japan after the Meiji Restoration (Masini, 1993, pp. 89–109; Shěn, 2010, p. 22). In order to judge whether this theory is correct or not, it is necessary to study the true origin of a considerable number of modern terms popular in China and to delineate the complex relationship between them and the terms derived from Japan after the Meiji Restoration. It is also necessary to examine the various books that carried and disseminated Western studies from the late Míng to the mid-Qīng dynasty, especially the Chinese books written by missionaries such as Ricci. In fact, these new terms were first introduced to China by missionaries in the late Míng dynasty, then later introduced to Japan (before coming back again to China).

Thus, this important academic question involving the origin of modern Chinese terminology is inseparable from the study of Ricci's creation of new terms. The introduction of his terms into modern Chinese inevitably had a profound influence on the modern Chinese lexicon. This book has attempted to depict the formation of Chinese terminology in the context of missionary history – in particular, through the lens of Ricci's sojourn in China – by analyzing the circulation and variation of terminology from a historical and cultural perspective and, by doing so, to broaden our approach to language-contact research.

External forces (including religion) have influenced several aspects of vocabulary. First, since the degree to which a person is able to understand or use certain vocabulary words is one indicator of language proficiency, changes in vocabulary are direct proof of the impact that external forces have on the lexical system of one language. Second, another indicator of impact is the number of syllables that words have. In Chinese, one character represents a syllable, and in modern Chinese, disyllabic words possess an absolute advantage. As we have seen, Ricci's religious practices and terminology had a real effect on disyllabic word construction. A third indicator is word-making methodology, which reveals how a word is coined from scratch. A fourth indicator is word meaning; the meaning of a word is the "soul" of a word, and the terms created by Ricci obviously had enormous impact on the souls of words. Finally, a fifth important indicator is the impact that external forces have on morphemes, which are the smallest meaningful components of words' construction and can be thought of as the "genes" of words. These five elements constitute the essential aspects of vocabulary. From their analysis, it is possible to reveal, in a logical and in-depth manner, the impact of the new terms created by Ricci on the Chinese vocabulary. This chapter looks at each of these elements in turn: vocabulary, syllables, word-making methods, word meaning, and morphemes.

7.1 Effect on vocabulary: contributions to new (especially disyllabic) terminology in modern Chinese

If we view Chinese lexical history from a broad perspective, we must account for the important influence of Western cultural input in the development of modern Chinese. Conventional accounts of this Western influence often begin with the Opium War. After the outbreak of the Opium War, Western imperialism ended the Qīng dynasty's dream of a "Celestial Empire." This led to a widespread desire to save the country, including through such ideas as "*shī yí cháng jì yǐ zhì yí*" 師夷長技以制夷 (learning from the advanced technologies in the West in order to resist the invasion of the Western powers),[1] the *yángwù yùndòng* 洋務運動 (self-strengthening movement'),[2] and the *wùxū biànfǎ* 戊戌變法 (the 100 days' reform).[3] Other political movements, plus exposure to Western politics, economics, science, and technology – not to mention Western customs, systems, and culture – meant that a large number of words continued to enter the Chinese vocabulary.

However, the first contact between Chinese and Western languages took place long before 1840. In the late Míng, there was already frequent communication between Western and Eastern cultures, and the introduction of a large number of Western scientific and technological nouns filled the gaps in the conceptual system of the inherent Chinese vocabulary. Their introduction into science and technology has played an important role in the cross-communication between Chinese and Western cultures. The missionaries who promoted these cultural exchanges between the East and the West at the end of the Míng dynasty and contributed the most to the Chinese vocabulary were the missionaries led by Ricci.

The following sections address common misconceptions about the history of vocabulary formation and development.

7.1.1 Misconception 1: lexicalization is the only language mechanism that leads to Chinese disyllabic words

The development of Chinese has gone through a long process that continues to this day. In the classical Chinese period, Chinese was dominated by monosyllabic words, while in modern Chinese, words are mainly polysyllabic. In modern Chinese, among polyphonic words, disyllabic words outnumber other types of polysyllabic words. Therefore, in the history of the development of Chinese, the evolutionary process of Chinese from monosyllabic to disyllabic words is largely a phenomenon of disyllablization. What is the cause of Chinese disyllablization? Dǒng Xiùfāng has stated that lexicalization is the main method for creating Chinese disyllabic words (Dǒng, 2011, p. 6). Dǒng has argued that the historical channels for the origin and production of disyllabic words have come mainly from grammar (Dǒng, 2011, p. 16). According to Dǒng, the specific mechanisms are as follows:

> First, they are developed from phrases, which is the most important origin method of disyllabic Chinese words; second, they are developed from

> syntactic structures; and third, they are developed from cross-level structures that are not originally on the same syntactic level [my translation][4].
> (Dǒng, 2011, pp. 33–35)

The idea of "lexicalization" put forward by Dǒng is not so much a theory as a hypothesis. "Lexicalization" means that two characters are driven by the force of grammar so that they are gradually closely combined and solidified, becoming inseparable as a word. Dǒng believes that "the emergence and development of the disyllabic words that occupy the main body of the modern Chinese vocabulary system in history are a process of continuous lexicalization (Dǒng, 2011, p. 4)."

Why does Dǒng emphasize the hypothesis of lexicalization so much? The theoretical basis for her lexical hypothesis is her overly superstitious view about the internal mechanism of the Chinese language. From this perspective, the structure of Chinese compound words is consistent with the structure of sentences (Lù, 1957, p. 13; Zhū, 1982, p. 13); that is, Chinese disyllabic words have the same syntactic structure as the five coordinative constructions C-O (Coordinative), S-P (Subject-Predicate), M-H (Modifier-Head), V-O (Verb-Object), and V-R (Verb-Resultative). This theory does provide some support for Chinese disyllabic words being derived from phrases. However, from a historical point of view, Talmy Givón's aphorism that "today's morphology is yesterday's syntax (Givón, 1971, p. 413)" is not universally applicable – that is, disyllabic words are not always the product of univerbation, as the examples in this book demonstrate.[5] There are two main reasons for this: first, the development of the Chinese lexicon has a very long history spanning thousands of years, so the study of each time period needs to be based on a large number of detailed case studies, and conclusions should be reached cautiously. Second, first-hand language materials are very important in linguistics studies.[6] If scholars use different kinds of firsthand language materials, their research conclusions will be very different. For example, the source analysis of Chinese compound words is often much more complicated than synchronic (i.e., ahistorical) analysis can account for, because of the long timespan and complex language materials involved.

Givón's view of lexical and syntactic consistency is arbitrary and is mainly applicable in the context of an Indo-European language – and the theories regarding the construction of Indo-European compound words are not necessarily helpful for dealing with specifically Chinese lexical issues. In addition, the lexical nature of compound words is more significant than their grammatical aspects, as the evolution and existence of the Chinese lexicon does not rely entirely on grammar and the independent nature of Chinese compound words is credible (Lí, 1995, p. 148). Ultimately, Dǒng's view that the main source of Chinese disyllabic words is syntactical (Dǒng, 2011, pp. 33–35) is not reasonable.

Moreover, the relationship between disyllabic words and lexicalization should be understood in terms of disyllablization; this is a process that must

include lexicalization (disyllabic words and phrases), but lexicalization does not necessarily lead to the production of disyllabic words. It is obvious that disyllabic words can also be produced by other means. In this sense, the formation of the modern Chinese lexicon is quite complex; the internal factors of the language can be said to play a certain role, but they are not the only determining factors.

Thus, Dǒng's hypothesis has two flaws. The first is that her examples number fewer than 70. To attempt to use so few examples to show that language evolution and Chinese disyllablization arise from the universal mechanism of grammar is inappropriate. The second is that it completely overlooks the complex historical and cultural background of Chinese disyllablization, especially in terms of historical language contact. In other words, the essential defect in Dǒng's view about modern Chinese disyllabic words is that she completely ignores the important role of external forces (such as the missionaries led by Ricci) in the creation of new words in the Míng dynasty.

Dǒng's hypothesis states that the main source of modern Chinese disyllabic words is Chinese grammar and holds that lexicalization is an internal mechanism of the Chinese language. But lexicalization cannot explain the dramatic increase in Chinese disyllabic words in the late Míng dynasty, when a large number of disyllabic words, such as *chì-dào* 赤道 (equator) and *chuí-xiàn* 垂線 (perpendicular), appeared. These words emerged because of Ricci's innovations and cannot be explained by Dǒng's hypothesis at all. The generation of disyllabic words at this stage is directly related to missionary activities. Decades after Ricci came to China, a large number of disyllabic words suddenly appeared, at first somewhat hidden and then becoming an explicit part of the lexicon. Why did Chinese suddenly produce such a large number of disyllabic words in just a few decades? While the potential for this kind of rapid change in language itself is important, such change also requires a proper external factor – Ricci's coming to China to spread Catholicism was just such an external stimulant.

The three peak periods of vocabulary generation in Chinese due to foreign influence cannot be explained by the lexicalization hypothesis. The first period, a major event in history, was the influx of Buddhist vocabulary into China. The second period was instigated by Matteo Ricci at the end of the Míng dynasty, and the third was a product of the Opium War at the end of the Qīng dynasty. The introductions of these neologisms were basically noncontinuous and nonlinear. When neologisms entered Míng-dynasty Chinese (as the second most influential language contact phenomenon in China) as a result of the spread of Catholicism, the vocabulary system of the Chinese language underwent tremendous upheaval, which manifested itself concretely in a short period of time in the proliferation of new words. The missionary contribution, especially Ricci's, was outstanding in terms of both "quality" and "quantity." Ricci's contribution has been discussed in the various chapters of this book.

In Chapter 2, this book proposed that Ricci used paraphrasing as an important word-making method for creating religious terms such as *shàng-dì* 上帝 (God), *tiān-zhǔ* 天主 (Deus), *shèng-jiào* 聖教 (teachings of Jesus), and

shèng-jīng 聖經 (the Catholic Bible). All these words are disyllabic words. Chapter 2 further analyzed the benefits of the paraphrasing method for the emergence and development of Chinese vocabulary.

Chapter 3 analyzed Ricci's method of coining geographical terms. The process of coining geographical terms showed that longer multisyllabic transliterations led to monosyllabic morphemes that were then reused to create disyllabic compounds that have persisted into modern Chinese. *Yà-zhōu* 亞洲 (Asia), *ōu-zhōu* 歐洲 (Europe), and other two-syllable geographical words were produced in this way.

In Chapter 4, this book analyzed Ricci's brilliant creations for geometry vocabulary. Many of the geometric terms Ricci coined are also disyllabic words, even though he used a variety of methods to create them. The first method he uses is "form-borrowing," such as with *jǐ-hé* 幾何 (geometry). His second method is to give new meaning to the glyphs of existing Chinese words, as with *qiē-xiàn* 切線 (tangent line). His third method is the M-H (Modifier-Head) format – for example, *~miàn* / ~面 (~face) is used to create *píng-miàn* 平面 (plane) and *qǔ-miàn* 曲面 (surface). His fourth method is based on categorization and analogy; for example, Ricci first coined the concept of *biān* 邊 and then created *dǐ-biān* 底邊 (base side of a plane figure), *duì-biān* 對邊 (opposite side), *xié-biān* 斜邊 (hypotenuse), and *lín-biān* 鄰邊 (adjacent side). Ricci used these four methods to create a large number of terms, many of which are disyllabic words.

Chapter 5 looked at astronomical terms coined by Ricci. He used both form-borrowing and the combination of Chinese inherent morphemes, such as *běi-jí* 北極 (North Pole) and *dì-qiú* 地球 (earth).

Finally, index 1 includes 103 disyllabic words created by Ricci that are taken from the above chapters. I use the symbol "*" to mark disyllabic words.

The arguments of the chapters and the terms listed in index 1 explain and illustrate Ricci's different methods for creating disyllabic words. Dǒng's theory of lexicalization cannot account for the word-making methods of any of these disyllabic terms. The generation of Chinese disyllabic words is a very complex problem, whose explication calls upon a variety of methods and sources. And yet, Dǒng believes that there is only one kind of word-making method: lexicalization. Her hypothesis generalizes a part of the explanation for the whole and is too absolute. Dǒng's view regarding the development of Chinese vocabulary is like plant photosynthesis; she treats language as if it were a self-sufficient organism that keeps producing new words. This view completely ignores the external cultural context from which Chinese vocabulary emerges and is not conducive to a comprehensive understanding of the history of Chinese lexical development.

7.1.2 Misconception 2: the Chinese lexicon had initial contact with the West only after 1840

Despite the importance of the Míng dynasty, most scholars have narrowly paid attention to the period from the Opium War to the end of the Qīng dynasty

(Masini, 1993, pp. 35–152). This may be due to the influence of scholars such as Masini (1993) and Wáng Lì (2013). Masini (1993) sets the initiation of contact between Chinese and Western languages in 1840 and will not admit any facts that contradict this. He says that

> despite the first contacts with the West and western language after 1840, and the creation of the first neologisms, no in-depth study on the nature and the characteristics of the Chinese language was undertaken until the end of the century.
>
> (Masini, 1993, p. 109)

It's not just Masini (1993) who emphasizes this view. Wáng Lì (2013) has also stated about the influx of loanwords that "The importation of Buddhist vocabulary into China was a major event in history, but the vocabulary imported from Western languages (after the Opium War) was a thousandfold more than that (p. 501) [my translation]."[7]

The assertions of these two scholars are somewhat arbitrary and do not correspond to the facts of Chinese history; in particular, they do not take seriously the introduction of vocabulary in the Míng dynasty. Through the analysis presented in previous chapters, we can see that new concepts introduced in the late Míng have had a significant influence on the formation of the modern Chinese vocabulary system and that many new concepts compiled and introduced by missionaries such as Ricci remain in use in modern Chinese. For instance, some of the new words in Ricci's and Xú Guāngqǐ's Chinese works are still used in today's math textbooks. The following terms appear in *Jǐhé* 幾何 [Geometry], the most widely used textbook in contemporary Chinese junior high schools, and are used as standard terms in the discipline of contemporary Chinese geometry:[8]

The fact is that the borrowing of new terms from the Míng dynasty was an important stage of the subsequent mass absorption of new concepts in the late Qīng dynasty. But even though it is undeniable that the contribution of new Míng terms to the body of modern Chinese vocabulary is enormous, if words are not analyzed on the basis of their source material, Qīng-era words show no traces of "newness." Even though a significant number of new terms coined by Ricci are found in his Chinese writings, this material is clearly underutilized. But only by making scientific use of these precious Chinese writings can we truly and comprehensively outline the basic appearance of Chinese vocabulary in the late Míng and early Qīng dynasties and truly explain the real etymology of the large number of words in modern Chinese that are deeply influenced by Western culture. Unfortunately, research into his contributions to Chinese vocabulary, regardless of scope or depth, is to a large extent lacking. While some research works on Ricci (Chow, 2022, pp. 213–228; Laven, 2012, pp. 55–57) mention his unique pursuit of "academic missions," collaboration with Chinese intellectuals, and creation of new words, most of the words themselves are only mentioned in passing in discussions about Ricci's

Table 7.1 A brief table of geometrical terms coined by Ricci used in today's math textbooks

B	*biān* 邊 *(edge)*	*bǐ-lì* 比例 *(proportion)*				
D	*duì-jiǎo-xiàn* 對角線 (diagonal)	*děng-fēn-xiàn* 等分線 (bisection)	*dǐ* 底 (base)	*diǎn* 點 (point)	*dùn-jiǎo* 鈍角 (obtuse angle)	*duō-biān-xíng* 多邊形 (polygon)
G	*gāo-xiàn* 高線 (altitude)					
H	*Hú* 弧 (arc)					
M	*miàn* 面 (surface)					
N	*nèi-qiē-yuán* 內切圓 (incircle of a triangle)					
P	*píng-jiǎo* 平角 (plane angle)	*píng-miàn* 平面 (plane)	*píng-xíng-xiàn* 平行線 (parallel straight lines)			
Q	*qiē* 切 (tangent; a straight line that touches but does not cut into a curve)	*qiú* 求 (deduce)	*qiē-xiàn* 切線 (tangent line)	*quān-xiàn* 圈線 (circle line)	*qū-miàn* 曲面 (surface; a flat shape or area)	*qū-xiàn* 曲線 (curve)
R	*ruì-jiǎo* 銳角 (acute angle)					

S	*sān-biān-xíng* 三邊形 (triangle)	*sì-biān-xíng* 四邊形 (quadrilateral)	*shí-xiàn* 實線 (solid line)				
T	*tǐ-jī* 體積 (volume)						
W	*wú-qióng* 無窮 (without limits)						
X	*xián* 弦 (chord)	*xiàn* 線 (line)	*xiāng-sì* 相似 (similar)	*xiàng-sì-xíng* 相似形 (similar figures)	*xíng* 形 (figure)	*xū-xiàn* 虛線 (dotted line)	*xié-xiàn* 斜線 (slash)

contributions to religion, astronomy, mathematics, or geography. No special works exist that discuss these terms in depth and detail.

The terms created by Ricci that are still in use today have survived for the following reasons. They were created through the method of "giving new meaning to glyphs of existing Chinese words,"[9] which is an economical and practical way of constructing new words. Meaning is mostly derived, rather than just borrowed, so the old meaning and the new meaning are not completely separate; this has helped Chinese people to accept the new terminology more easily. Most of the words were translated on the basis of meaning, which is in line with Chinese expression habits. The new morphemes created also have strong word-formation ability, which complies with the trend of compounding. When constructing new words using the original morphemes, common Chinese word formation patterns were adopted, so each new word follows the Chinese word formation rules and usually has a strong systematic and logical nature, making it easy to remember and use.

So how many new terms did Ricci create? According to the exhaustive analysis of this book, Ricci's contribution to Chinese vocabulary is evident in the vocabulary of modern Chinese. As the examples in the appendix demonstrate, altogether Ricci coined 209 new terms.

Of these 209 terms, some not only contribute new concepts, but also successfully create the form of the new words – that is, the terms stand for new concepts with new forms that are used in modern Chinese. There are a total of 134 such terms. I use the symbol "【】" to indicate these 134 new word forms in index 1.

The remaining 75 of the 209 terms included in the appendix contributed new concepts that are used in modern Chinese, but the terms themselves now have a different form. Ricci initially created the concepts and forms of these terms as well, but the forms for these 75 terms have changed in modern Chinese. I use the symbol "[ ]" to mark these word forms in index 1 and analyze their evolutions in appendix 1.

The above data illustrate Ricci's significant contribution to expanding the Chinese vocabulary. For the majority of these terms, both the new concepts and the new forms have been adopted into modern Chinese. For a smaller set, the modern Chinese form derives from Ricci's original form. Because these 209 terms have not been previously recognized as part of Ricci's contribution to Chinese vocabulary, some scholars and experts have had difficulty identifying the source of various scientific and technological concepts. For example, it has been generally believed that *dì-qiú* 地球 (Earth) was created by the late Qīng thinker Wáng Tāo 王韜 (1828–1897) (Luó, 2008, p. 2772). In fact, *dì-qiú* was coined by Ricci.[10]

So many of Ricci's new terms have entered the general lexical system of modern Chinese that, from the perspective of identifying etymology, we cannot ignore his contribution to original terminology. Of course, this may undermine the confidence of some scholars in the identification of Chinese foreign words; nonetheless, we must adopt a precise attitude when ascertaining the real etymology of modern terms.

The terminology and proper names in Ricci's Chinese writings and translations have provided a good reference and set an example for later generations as they created new words and contributed to the expansion and development of Chinese vocabulary, especially in modern times. Ricci's coinages are the main source of Chinese disciplinary disyllabic terminology and illustrate the importance of the missionary community in the origin of the modern Chinese lexicon.

The list of terms presented in this book proves that the large-scale introduction of modern Chinese vocabulary influenced by Western culture did not begin after the Opium War in 1840, but when Ricci came to China to preach in 1583. Thus, the age of Western influence on Chinese words came 343 years earlier than Masini's assertion (Masini, 1993, p. 109) of a post-1840 introduction. From the perspective of the history of Chinese language development, Míng-dynasty Chinese was an important stage in the transition from the late Tang dynasty and the Five Dynasties period to modern Chinese; its lexical characteristics have, to a certain extent, laid the foundation of modern Chinese vocabulary. But for a long time, people have failed to pay attention to the general situation of Chinese in this period, including the Ricci's contributions to the development of Chinese lexicon.

7.1.3 Misconception 3: modern Chinese vocabulary has a Japanese origin

China and Japan have had documented ties since the Eastern Han dynasty. The Sino-Japanese exchange reached its peak during the Sui and Tang dynasties. Throughout ancient times, the cultural exchange between China and Japan is considered to have been one-way (i.e., from China to Japan); no vocabulary imported from Japan is found in Chinese from that time. After the Opium War in 1840, many educated people in China began to advocate for the *yángwù yùndòng* and *zhōngtǐ xīyòng* 中體西用 ("Chinese learning as substance, Western learning for application") movements and began to study and translate books from Western languages. As a consequence of the Meiji Restoration, Japan incorporated Western technology and systems and defeated China in the Sino-Japanese War of 1894–1895. After Japan defeated China, some Chinese intellectuals took the initiative to study Western law, science, and technology in Japan. During this process, Chinese intellectuals both translated Western words on their own and began to learn from Japan, borrowing from the Western languages that Japan had already translated. Because Japan was Westernized earlier than China, many Western words were first translated into Chinese by Japanese scholars and then transmitted to China. Since these translations were also based on Chinese characters, Japanese-made Chinese words gradually entered the "Chinese cultural circle" and joined the emerging vocabulary of Chinese (after evolving over a considerable period of time). These words have played an important role in the formation of modern Chinese. During the long cultural exchange between China and Japan that followed, other Japanese translations and newly created words were gradually incorporated into the "Sinosphere."

Shěn Guówēi attributes the generation and origin of a significant portion of modern Chinese vocabulary to the Japanese language, claiming Japanese origins for 37.6 percent of modern Chinese language (Shěn, 2010, p. 22).[11] According to Wáng Bīnbīn's view, 70 percent of the terms in the social and human sciences we use today were imported from Japan (Wáng, 1998, p. 72).[12] The historical basis for such a theory that modern Chinese vocabulary has a Japanese origin is that after the Opium War, Chinese society underwent drastic changes. With the budding of capitalism, society demanded that the Chinese language enrich its vocabulary with new words needed at work. In particular, before and after the *wùxū biànfǎ* 戊戌變法 (Wu Hsu Reform) of 1898, central figures and representatives of the bourgeois reformists were calling for the spread of Western democracy and Western culture, and the transit point of this dissemination was Japan.[13] Therefore, Chinese vocabulary absorbed a large number of philosophical, political, economic, scientific, and literary terms from Japan.

There are three main problems with the theory that the main source of modern Chinese vocabulary is Japanese. First, the theory focuses too heavily on a supposed binary opposition between Chinese and Japanese, and as such, researchers pay great attention to the influence they have on one another; but in doing so, they may miss other aspects or language perspectives, such as the influence of missionaries on Chinese vocabulary. Second, this theory ignores the late Míng dynasty. Ricci's contribution to the history of cultural exchange between China and the West and his contribution to Chinese vocabulary are unmentioned; both clearly predate the Sino-Japanese War. Third, the collection of evidence is limited. Chinese linguistics is a science that places special emphasis on empirical evidence; and while scholars such as Shěn and Masini may have formulated a good theory for the origin of modern Chinese vocabulary, they have failed to systematically collect vocabulary from the relevant literature to prove their ideas. They have not systematically determined which words are indeed Japanese in origin; and this oversight has resulted in errors in the etymology of new terms in modern Chinese.

While it is true that, after the Meiji Restoration in Japan, many words were borrowed from Japanese – such as *bǎo-shǒu* 保守 (conserve), which was borrowed from 保守 ほしゅ, and *chū-bǎn* 出版 (publish), which was borrowed from 出版 しゅっぱん – I argue that the actual number was limited. A large proportion of this vocabulary had first been translated by Míng-dynasty missionaries and their Chinese collaborators. This vocabulary was later transmitted to Japan, where it flourished and was returned to the Chinese language after the Sino-Japanese War, along with other translations created by the Japanese themselves.

Of course, due to the focus of this book (i.e., Ricci's influence on the Chinese lexicon), there is no space to verify from specific Japanese sources how many terms coined by missionaries such as Ricci have been transmitted to Japan. However, by examining in detail the etymology of the terms coined by Ricci, this book corrects the erroneous timeline, since Ricci's terms predate those that came from Japanese after 1840.

The study of Japanese foreign words in modern Chinese has great academic significance and shows that the height of the first influx of Japanese foreign words into Chinese was after the Opium War (Gāo & Liú, 1958, pp. 36–37). At that time, China was influenced by various aspects of Western society, and the efforts of domestic scholars in China to translate Western works on their own were quite limited. Japan's rapid rise after its victory in the Sino-Japanese War caused a large number of Chinese intellectuals to turn to Japan for new knowledge. At the same time, the end of the 19th century and the beginning of the 20th century make up an important period in the formation of modern Chinese, and in the face of a large number of new things pouring in from the outside world, the inadequacy of the inherent Chinese vocabulary was undoubtedly highlighted. With the boom in visiting Japan at the beginning of the 20th century, as well as the large number of Japanese works being translated by the many Chinese students studying in Japan, many Japanese words were introduced into the Chinese language. Most of the Japanese works translated during this period were Western scientific and technological works translated by Chinese students in Japan, so the Japanese loanwords introduced during this period were mainly connected to science and technology, as well as to ideological concepts such as *wén-míng* 文明 (civilization), *shè-huì* 社會 (society), and *gòng-chǎn-zhǔ-yì* 共產主義 (communism). Most of these words have been completely assimilated into Chinese and have become indispensable and important words in the Chinese vocabulary.

Nonetheless, through the analysis of Ricci's coinages of religious, geographical, geometric, and astronomical terms, this book argues that although the Chinese language did borrow Japanese foreign words after the Sino-Japanese War, it is inappropriate to classify the terms coined by Ricci as modern Japanese loanwords in the Chinese language. This book has examined in detail the terms coined by Ricci, which therefore cannot be terms that were borrowed from Japanese. Thus, this book questions the number of Japanese words actually imported into Chinese and argues that the specific number must be examined in detail. While the introduction of Japanese loanwords has undoubtedly played a role in the development of modern Chinese, it is not possible to ignore the influence of Ricci. Furthermore, some new terms in modern Chinese were indeed imported from Japan, but they are not true imports; rather, they are exports that have become a domestic product again. We can understand this by using the following metaphor: Chinese characters and classics were exported as raw materials or primary products to Japan; people processed these in Japan into new, updated products with added value; and then they were bought back to China. Therefore, from an academic point of view, the vocabulary directly created by Ricci can be called an "original loan," and this vocabulary that was created by Ricci and "lent" to Chinese, then lent to Japanese, and finally lent again to Chinese can be called a "return loan." These notions of "original loan" and "return loan" illustrate the very special interrelationship of the "China-Japan-Europe" trilateral language contact in the 19th century. The advantage of such traceability is that one can correctly

recognize that many Japanese loanwords were in fact created by Ricci, then transmitted from China to Japan, and then back to China decades later; these words take the "Europe-China-Japan-China" route. Although this book does not analyze how Japanese loanwords returned to China, its does elucidate the source of the complex relationships and movements of these loanwords.

Determining the influence of Japanese on Chinese vocabulary will require, in future, a detailed examination of the etymology of each word in turn; but at least it is clear that Ricci made a significant contribution before the Japanese language made its own impact on Chinese. This book has demonstrated how statements such as "37.6% of modern Chinese vocabulary comes from Japanese (Shěn, 2010, p. 32)" and "70 percent of modern Chinese terms in the social and human sciences were imported from Japan (Wáng, 1998, p. 72)" can be overturned by more informative historical data and by analyzing specific problems in detail. The nearly 300 years between the late Míng and late Qīng dynasties has been neglected by linguistics scholars, yet the Catholic Church's entry into China in the late Míng and early Qīng dynasties left behind nearly 700 Chinese works, and the Protestant churches left behind nearly 1,000 Chinese works after Robert Morrison's entry into China.[14] Most of these works are still not easy for mainland scholars to access and therefore cannot be studied in depth. But they are a rich source of data for Chinese lexicography, and this important area needs to be developed and studied without delay. This book hopes to be a contribution to this nascent field. One of the most fundamental linguistic facts about the origin of modern Chinese vocabulary is that the Western missionaries to China, mainly Matteo Ricci, enriched the modern Chinese vocabulary and made outstanding and important contributions to the new (especially the disyllabic) terminology in modern Chinese. We cannot attribute these coinages by Ricci and other missionaries, and their profound influence on Chinese vocabulary, to the Japanese language, thus exaggerating the influence of Japanese on Chinese.

7.2 Influence on Chinese syllables

Modern Chinese includes polysyllabic words, which are mainly disyllabic. However, in archaic Chinese, which is the oldest stage of Chinese, monosyllabic words make up the majority of its vocabulary. With the development of Chinese, the number of disyllabic words has gradually increased, and the trend toward disyllablization of vocabulary has emerged.

Why does this trend exist? The continuous development of society and the emergence of new things are the most important reasons for the polysyllablization of Chinese vocabulary. As society develops, its communication needs become more and more complex, and more and more things need to be represented; this requires language to change accordingly in order for language to better serve its function as a communicative tool. Of the three main elements (words, grammar, and phonetics) of language, words are the most flexible and sensitive. When new words enter the lexical system of a language, the number

of syllables in these words will inevitably adjust themselves to adapt to changes in the times.

In the early stages of Chinese history, the monosyllabic state of the Chinese lexicon could still meet the needs of communication, but it could not express the needs of more and more-complex communicative phenomena. To overcome this contradiction, it was necessary to expand the number of existing syllables in the lexical system and create new disyllabic words based on the original syllables of words to represent new things, so that the semantics of the original words could be effectively used. Increasing the number of syllables has been conducive to people's communication and the development of language. For example, *rè* 熱 (steam) and *qiú* 球 (ball) exist in the Chinese monosyllabic vocabulary, but neither *rè* nor *qiú* alone can express the concept of a "balloon." If you create the disyllabic *qì-qiú* 氣球 (balloon) based on *qiú* 球 (ball), you can express this concept simply and clearly. If *rè* 熱 (hot) is added to form *rè-qì-qiú* 熱氣球, a new concept, "hot air balloon," is expressed.

By breaking out of the shackles of its original monosyllabic form and developing in the direction of polysyllablization, Chinese vocabulary effectively resolved the contradiction between finite word forms and infinite word meanings, so that language could conform to the development of society and advance synchronously with it. This is an inevitable law of the development of the Chinese language. Although there were a small number of polysyllabic words in ancient Chinese, the large-scale emergence of polysyllabic words in Chinese came after the late Míng dynasty, when China began to enter a phase of modernization.

Why Chinese vocabulary developed in the direction of polysyllablization in the late Míng dynasty can be explained as a product of both internal factors and external forces affecting the development of language. The paragraphs above mainly analyzed the internal factors, while external forces are mainly generated by language contact. Once European languages began to have an impact on Chinese, the gradual Europeanization of Chinese came into being and Chinese polysyllablization advanced rapidly.

The reason for the emergence of Europeanized Chinese is the interaction between Chinese and European languages. The changes in East Asian languages (including Chinese) since modern times have been characterized by two distinctive features: first, the acceleration of cultural exchange and language contact between East and West and between Eastern countries, and second, the increasing amount of human intervention in the formation of languages in different countries. Language contact can be divided into "direct contact" and "indirect contact." The former refers to direct interpersonal communications (e.g., linguistic phenomena caused by war, borders, migration, trade, etc.); direct contact is dominated by spoken language and is the reason for the production of everyday language, the borrowing of the names of objects, and pidgin blends. The latter refers to linguistic communication through the movement of books and the acquisition of abstract knowledge as a carrier and medium of knowledge, primarily through written language. Indirect contact has contributed to the phenomenon of linguistic Europeanization.

Europeanized Chinese, also known as Westernized Chinese, refers to Chinese whose grammar, writing, style, and wording are influenced by Indo-European languages. Opponents of the Europeanization of Chinese argue that Europeanized Chinese deviates from traditional Chinese features and uses redundant words, thus making the context difficult to understand (Wáng, 2013, p. 324).

This book takes the position that Europeanized Chinese has both good and bad aspects. The good aspects of Europeanized Chinese include its ability to borrow foreign language forms and usages, learn from other language's strong points, and enhance the expressive ability and effect of Chinese. The bad aspect of Europeanized Chinese is its abuse of the grammar of Western languages in Chinese, which creates a language that is neither Chinese nor Western and that lacks clear and accurate expressions. Europeanized Chinese is commonly found in translated works. Any translator who translates word-for-word and ignores Chinese grammar and word usage will produce Europeanized Chinese. Over time, contemporary Chinese has also shown traces of Westernized Chinese.

Examples of Europeanized Chinese include:

1 the use of adjectives that are inseparable from the word *hěn* 很 (very), such as: "he is tall" → *tā hěn gāo* 他很高, "many people" → *hěn duō rén* 很多人, where the original use of *hěn* 很 has changed to mean an "extreme" degree;
2 the addition of the word *gèng* 更 (more) in comparisons, for example: "A is better looking than B" →*jiǎ bǐ yǐ gèng hǎo-kàn* 甲比乙更好看;
3 the judgment word *shì* 是 (is) becoming a copulative verb; and
4 the misuse (generally in common sentences) of *shì…de* 是……的, *yuè lái yuè* 越來越…, *yù jiā* 愈加…, and other structures used to express emphasis or subtle differences.

It is widely assumed that the westernization of Chinese (grammar) only began in the second half of the 19th century (Kubler, 1985, p. 158). In fact, the Europeanization of Chinese (grammar) may be actually in place before any contact between China and the West (Peyraube, 2000, p. 21). I hold that the Europeanization of the Chinese language is a phenomenon that began with Matteo Ricci, not after the Opium War of 1840. Ricci contributed many of the elements of Europeanization, such as grammatical sentence patterns and phonetic characteristics. From the perspective of lexical syllables, an important manifestation of Ricci's profound influence was the gradual development of Chinese syllable structures into longer polysyllables in the process of introducing foreign terms. Although Ricci lived in a period when longer polysyllables were not yet the dominant unit of Chinese lexical membership, his efforts were effective in "breaking the ice" of disyllable dominance in Chinese lexical syllabic patterns. ("Breaking the ice" is a communicative studies term originally used to describe the breaking up of ice on navigable waters sufficiently to allow ships to navigate.) Ricci's efforts were precisely to "break the ice" of

the dominance of disyllables in Chinese. His changes prove that the number of Chinese syllables is not set in stone and may, in different historical periods, change from less to more. When Chinese is influenced by Western culture, because Indo-European vocabulary items tend to have more syllables than Chinese vocabulary items, Chinese will be more or less affected by the syllables of Western languages and trend toward polysyllabicization when it comes into contact with Western languages.

7.2.1 Rules of polysyllabic terms coined by Ricci

The polysyllabic terms (of three syllables or more) created by Ricci can be seen in index 1. I use the symbol "*" to mark disyllabic words and the symbol "●" to mark monosyllabic words; the remaining words in the appendix that do not use "*" or "●" are polysyllabic words (trisyllabic or longer). Altogether, Ricci coined 19 monosyllabic terms, 103 disyllabic terms, and 87 polysyllabic terms. In some ways, this illustrates the characteristics of the missionaries' use of Chinese and the writing habits and style of the time. More importantly, the "law" that modern Chinese disyllables predominate is shown to have been broken by the massive development of compound words in Chinese since the Middle Ages.

Although Ricci coined many polysyllabic (trisyllabic or longer) words,[15] disyllabic words still account for 49% of Ricci's Chinese coinages. So, what exactly is the reason for his creation of disyllabic words? Judging from the polysyllabic terms coined by Ricci that are listed in the appendix, there are a few rules worth noting:

First, transliterated geographic terms will move closer to resembling ideographic geographic terms. As a result, the number of syllables will be reduced. The adjustment of the number of syllables is an important part of the evolution of phonetics. Because of the differences between the phonetics systems of Chinese and Indo-European languages, Chinese was forced to adopt a larger number of syllables in order to faithfully record the phonetics of foreign-language words when geographic terms were first coined.

However, because foreign-language words and Chinese words often have an unequal number of syllables, after a period of evolution, Chinese tends to adjust the number of syllables in foreign words; the direction of this adjustment is mainly toward disyllables. This disyllablization is purely for economical needs. This process can be described as follows: longer multisyllabic transliterations lead to monosyllabic morphemes that are then reused to create disyllabic compounds and these have persisted into modern Chinese.

For example: *yà-xì-yà* 亞細亞 (Asia) → *yà-zhōu* 亞洲.[16] In this case, *yà* 亞 (Asia) assumes the function of *yà-xì-yà* 亞細亞 and further combines with *zhōu* 洲 (continent) in Chinese, thereby changing two paraphrasing words derived from translation into the "half-transliteration, half-translation word" *yà-zhōu* 亞洲 (Asia). In addition, there is a close relationship between Chinese words and Chinese characters. Chinese characters are ideographs, and the Chinese

people are not psychologically inclined to accept only phonetic characters that are meaningless in and of themselves.

Nonetheless, the lexicalization of foreign words in order to create new terms could sometimes lead to items composed of syllables that were themselves in fact meaningless. Although this became one of the ways to promote the continuous development of Chinese vocabulary, it also reflected the state of language development and was indicative of the degree of social development, as people became more aware of the wider world and hence the need for terms to describe it.

A prime example is *měi-lì-jiān* 美利堅 (America) → *měi-guó* 美國 (America). *Měi-lì-jiān* 美利堅 originated from the transliteration of "American." This in turn was abbreviated into *měi* 美 (America). This independent lexical morpheme formed new words such as *měi-chāo* 美鈔 / *měi-jīn* 美金 (American Dollar), *běi-měi* 北美 (North America), *nán-měi* 南美 (South America), *měi-zhōu* 美洲 (the Americas), and *ōu-měi* 歐美 (Europe and America).

The evolution of *mò-wǎ-là-ní-jiā-zhōu* 墨瓦臘泥加洲 (Antarctica) → *nán-jí-zhōu* 南極洲 (Antarctica) also reflects the way in which geographical terms are transliterated. China's ancient astronomy held that the sky is a sphere, and the earth is inside it, like an egg yolk inside an egg. Chinese astronomical observations recognized that the earth stretched north and south to both the Arctic and Antarctic. Ricci corrected the Chinese ancients' incorrect understanding of Antarctica, so that the modern Chinese concept of Antarctica therefore draws its meaning from foreign scientific and technological concepts. The Chinese language term for the traditional concept was *mò-wǎ-là-ní-jiā-zhōu* 墨瓦臘泥加洲, which in turn developed into *nán-jí-zhōu* 南極洲.

Other examples of this process include:

Ōu-luó-bā 歐羅巴 / *ōu-luó-bā* 歐邏巴 (Europe) → ōu-zhōu 歐洲 (Europe); *lì-wèi-yà-zhōu* 利未亞洲 / *ā-fēi-lì-jiā-zhōu* 阿非利加洲 (Africa) → *fēi-zhōu* 非洲 (Africa); *yà-mò-lì-jiā-zhōu* 亞墨利加洲 / *yà-měi-lì-jiā-zhōu* 亞美利加洲 (Americas) → *měi-zhōu* 美洲 (Americas).

The second rule to note is that the process of abbreviation, which is determined by the economic principal in language (Martinet, 1955, p. 49), is the main source for disyllabic words in modern Chinese. Polysyllabic geographical terms may move toward the disyllabic form in a future evolution, but the current evolution is characterized by the need for simplicity and precision in language expression; this is how Chinese lexical syllables became abbreviated.

Ancient Chinese vocabulary is dominated by monosyllabic words, but in the process of language development, the formation of disyllabic words has always been the trend. In modern Chinese vocabulary, disyllabic words still dominate. Therefore, abbreviation is a common regulatory mechanism when translating terms in Chinese; that is, longer terms are gradually abbreviated and become disyllabic terms as part of the evolutionary process.

In order to meet the economic needs of language use, the Chinese language uses as few syllables as possible; this is the inevitable result of the evolution of Chinese syllables. Examples of other terms in modern Chinese that follow this pattern include:

ài-zhòng-rén 愛眾人 (love for all) → *bó-ài* 博愛
ān-è-lì-yà 諳厄利亞 (England) → *yīng-guó* 英國
ān-yì-hé 安義河 (the Ganges River) → *héng-hé* 恒河
bó-xī-ér 伯西兒 (Brazil) → *bā-xī* 巴西
dà-nǎi-hé 大乃河 (the Don River) → *dùn-hé* 頓河
dōng-xī-zhú 東西竺 (Aur Island, Malaysia) → *āo-dǎo* 澳島
fú-láng-chá 拂郎察 (France) → *fà-guó* 法國
wú-fǎ-sì-biān-xíng 無法四邊形 (trapezoid) → *tī-xíng* 梯形
xié-fāng-xíng 斜方形 (rhombus) → *líng-xíng* 菱形
zhòu-yè-píng-guī 晝夜平規 (Equator) → *chì-dào* 赤道

Many of the above words were originally translated into four or five syllables that were difficult to read or comprehend. After being reduced to two syllables, the structure of these words is much simpler and conforms to the habit of simplified Chinese word composition. This shows that the abbreviation to disyllables is still a universal mechanism by which modern Chinese absorbs foreign geographical terms and other foreign words as well.

Even when not abbreviating into disyllables, the mechanism for how modern Chinese absorbs foreign words moves in the direction of syllable simplification. For example,

Gé-luò-lán-dé 格落蘭得 (Greenland) → *Gé-líng-lán* 格陵蘭
Mò-hé-dì-hú 墨何的湖 (the Sea of Azov) → *Yà-sù-hǎi* 亞速海
Bǎi-ér-mó-dá 百而謨達 (Bermuda) → *Bǎi-mù-dà* 百慕大
Liǎng-biān-děng-sān -jiǎo-xíng 兩邊等三角形 (isosceles triangle) → *Děng-yāo-sān-jiǎo-xíng* 等腰三角形
Sān-biān-gè-ruì-jiǎo-xíng 三邊各銳角形 (acute triangle) → *Ruì-jiǎo-sān-jiǎo-xíng* 銳角三角形
Pō-bā-yá-nà 坡巴牙那 (Popayan, Colombia) → *Bō-pà-yáng* 波帕揚
Qī-jì-lǐ-yà 棲濟裡亞 (Sicily) → *Xī-xī-lǐ* 西西里
Wò-lán-dì-yà 臥蘭的亞 (Greenland) → *Gé-líng-lán* 格陵蘭 (Greenland)

There are also instances in which new Chinese terms abbreviate long multisyllabic foreign words into monosyllables. For example, *yà-xì-yà* 亞細亞is the transliteration of "Asia" coined by Ricci; in modern Chinese, *yà-xì-yà* is commonly referred to simply as *yà-zhōu* 亞洲. But, after the further evolution from *yà-xì-yà* into *yà-zhōu*, "Asia" is also sometimes referred to by its first transliteration component *yà* 亞. Examples of this include:

dōng-yà 東亞 for *dōng-yà-xì-yà* 東亞細亞 (East Asia)
nán-yà 南亞for *Nán-yà-xì-yà* 南亞細亞 (the Southern region of Asia)

xī-yà 西亞 for *xī-yà-xì-yà* 西亞細亞 (the south-western region of Asia)
běi-yà 北亞is short for *běi-yà-xì-yà* 北亞細亞 (the Northern region of Asia)
zhōng-yà 中亞for *zhōng-yà-xì-yà* 中亞細亞 (central Asia)
dōng-nán-yà 東南亞 for *yà-zhōu-dōng-nán-bù* 亞洲東南部 (Southeast Asia)
ōu-yà 歐亞is short for *ōu-luó-bā* 歐羅巴 (Europe) *and yà-xì-yà* 亞細亞 (Asia)
yà-yùn-huì 亞運會 for *yà-zhōu-yùn-dòng-huì* 亞洲運動會 (Asian Games)

Under the influence of this abbreviation mechanism, the monosyllable *yà* 亞 has become a morpheme that can constantly form new words by using the meaning of "Asia/Asian" – for example, the first component *yà* 亞, which refers specifically to "Asia/Asian," is used in words such as *yà-yì* 亞裔 (Asian born), *yà-tà* 亞太 (Asia & Pacific), and *yà-xié* 亞協 (Asia Society).

In short, the abbreviation mechanism has become an internal mechanism by which Chinese absorbs new terms, and this mechanism encompasses Ricci's disyllabic coinages. Because of its preference for expressing foreign meanings in simple form, Chinese tends not to use complex multisyllabic forms when absorbing foreign words; this is one of the important ways in which Chinese differs from Indo-European language systems. This important conclusion about the modern Chinese lexicon can be drawn from the study of the terms originally coined by Matteo Ricci.

7.2.2 The trend of polysyllabification was instigated by Ricci

The polysyllabification of words has played an increasingly prominent role in the transformation of modern Chinese, which took place at the same time that the missionaries were making great efforts to integrate into Chinese society by embracing external aspects such as wearing Confucian clothing. While the Míng Chinese language contains many monosyllabic words, the increased frequency of trisyllabic words and tetrasyllabic words in the late Míng Chinese vocabulary, though small, cannot be ignored. From a certain perspective, this increase reflects Ricci's contribution to new terminology and his mastery and proficiency in Chinese as a foreigner.

The arrival of a large number of Western missionaries to spread Catholicism was China's second large-scale, indirect foreign-language contact.[17] This language contact led to a greater awareness of the existence of "foreign languages" from the West. Through contact with these languages, Chinese was Europeanized, with the syllable expression of Europeanized Chinese characterized by the proliferation of longer polysyllables. This is mainly due to the fact that the missionaries who spread Catholic terminology abroad had to translate and introduce a large number of words from Indo-European languages. Since the Chinese language does not have a simple one-to-one correspondence with foreign languages at the word level, the proliferation of translated words and new words in this process inevitably led to many subtle changes in the syllabic structure of the Chinese language.

The creation of longer polysyllables has been a very significant trend in the development of Chinese syllable structure as Chinese has evolved from ancient Chinese to modern Chinese. It is well known that the Chinese language began the process of disyllablization in the middle ancient Chinese period. In archaic Chinese, one monophonic word had only one meaning. This situation changed in middle-ancient Chinese. The glossemes carried by monophonic words were increasing, and most of the monophonic monosemes developed into polysemes. Some monophonic words were similar in pronunciation and thus not easy to distinguish. Therefore, they may easily have become an obstacle to understanding. The production of polysyllabic words can greatly reduce the number of homophonic words, not only making a word's tone more memorable but also making the expression of meaning more precise.

In order to ensure the smooth realization of his religious-academic mission, Ricci had to use more precise words of the sort required to impart scientific and technological knowledge. Polysyllabic words were an important way to create refined word meanings. Thus, it is no surprise that most of the words created by Ricci are polysyllabic. Masini (1993, p. 21) has suggested that foreign words were a major factor in the development of the Chinese lexicon from monosyllabic to polysyllabic. The polysyllabic words created by Ricci illustrate the legitimacy of this view.

A large number of words in the *Jīhé yuánběn* have more than two syllables, including:

> *zhí-xiàn-xíng* 直線形 (rectilinear figure); *sān-biān-xíng* 三邊形 (triangle); *sì-biān-xíng* 四邊形 (quadrilateral); *duō-biān-xíng* 多邊形 (multilateral); *píng-biān-sān-jiǎo-xíng* 平邊三角形 (equilateral triangle); *liǎng-biān-děng-sān-jiǎo-xíng* 兩邊等三角形 (isosceles triangle); sān-bù-děng-sān-jiǎo-xíng 三不等三角形 (scalene triangle); *sān-biān-zhí-jiǎo-xíng*三邊直角形(right triangle); *sān-biān-dùn-jiǎo-xíng* 三邊鈍角形 (obtuse triangle); *sān-biān-gè-ruì-jiǎo-xíng* 三邊各銳角形 (acute triangle); *zhí-jiǎo-fāng-xíng* 直角方形 (square); *zhí-jiǎo-xíng* 直角形 (oblong); *xié-fāng-xíng* 斜方形 (rhombus); *cháng-xié-fāng-xíng* 長斜方形 (rhomboid); and *wú-fǎ-sì-biān-xíng* 無法四邊形 (trapezoid).

Ricci used analogy as a word-building method, and the fact that the words he produced have a strong system and logic (which helps language users to enlarge their vocabulary) also promoted the development of the Chinese lexicon from disyllables to longer polysyllables. A large number of new terms produced by composing words via analogy began to gradually break down the situation of disyllabic domination in modern Chinese; at the same time, Ricci created new words for future users and served as a good point of reference for future linguists. These foreign words have enriched the Chinese vocabulary, especially in modern Chinese, and have played a positive role in promoting the development of Chinese polysonic words.

If we review the history of contact between Chinese and foreign languages, we will find that two large-scale contacts have promoted the disyllablization and the polysyllablization of Chinese, respectively. The first indirect foreign-language contact, the translation of Buddhist scriptures after the two Han dynasties, had a great influence on Chinese culture and naturally also affected the appearance of the language. The introduction of a large number of Buddhist terms caused Chinese vocabulary to start moving toward disyllables. This is important because of the redundancy principle of language evolution and the need for precise requirements. "Surplus information" refers to that part of information which exceeds the minimum demand in the information transfer process (Shannon & Weaver, 1949, p. 13). In terms of production, Chinese disyllables were created in large numbers in order to increase the precision and refinement of ideographs under the compensatory mechanism of increasing the length of the vocabulary due to phonological simplification.

The second large-scale language contact with Chinese, through Western missionaries as represented by Ricci, made Chinese gradually move toward polysyllablization. Therefore, although the intrinsic mechanism of Chinese is at work, Buddhism and Catholicism are the two large-scale language contacts that have objectively brought profound changes, as embodied in the disyllablization and polysyllablization of Chinese vocabulary. A core idea that this book insists on is that the emergence of and changes in any language vocabulary are the effect of the internal and external synergy of a language and should not be regarded as deriving from a single force.

It is worth noting that although the number of longer polysyllabic words in modern Chinese is constantly increasing, if we objectively reflect on the potential power that Western languages have in the transformation of Chinese, modern Chinese disyllabic words still have an advantage. The large number of terms introduced by Ricci contributed to the gradual polysyllablization of the Chinese language for the first time in its history, but they have not yet been able to break the dominance of disyllabic words. Whether or not Chinese polysyllabic words will dominate in the future is a question that cannot be answered yet.

7.3 Influence on word-making methods

A word-making methodology is a method for naming things by producing new words through a process of refining and nativizing a word after it has been translated (Rèn, 1981, p. 7). There are many types of Chinese vocabulary, and each type may have been produced by different word-making methods. For example, Rèn (1981, p. 3) has discussed five main word-making methods. As a master of lexicology, Ricci's enormous contribution to the development of the Chinese lexicon in the late Míng dynasty included several of his outstanding word-making methods, shown in the table below, which were never put forward by scholars studying the Chinese language.

First, Ricci used paraphrasing as his dominant method to create a multitude of terms. Paraphrasing is a method of word formation that uses the materials

Table 7.2 Ricci's word-making methods in coining Chinese terms

WM	*RT*	*GN*	*GT*	*AT*
WM1: Paraphrasing 1 (borrowing from ancient Chinese)	✓[18]	✓[19]	✓[20]	✓[21]
WM2: Paraphrasing 2 (form-borrowing)		✓[22]	✓[23]	✓[24]
WM3: Transliteration	✓[25]	✓[26]		
WM4: Combination		✓[27]		
WM5: M-H terms			✓	✓
WM6: Word-formation by analogy			✓	✓

Note:
WM stands for "Word-making method"
WM1 stands for "Paraphrasing (borrowing related forms in ancient Chinese)"
WM2 stands for "Paraphrasing (combining form-borrowing terminology with Chinese inherent morpheme)"
WM3 stands for "Transliteration"
WM4 stands for "The combination of internal and external mechanisms to coin the Chinese terms"
WM5 stands for "Creating M-H (Modifier-Head) terms"
WM6 stands for "Word-formation by analogy"
RT stands for "Religious terms" (Chapter 2)
GN stands for "Geographical names" (Chapter 3)
GT stands for "Geometrical terms" (Chapter 4)
AT stands for "Astronomical terms" (Chapter 5)

(such as Chinese characters) and the grammar rules of the native language to transplant the meaning of a word from a foreign language. The use of paraphrasing reflects various differences between the users of different languages, including ecological culture, language culture, religious culture, material culture, and social culture. Paraphrasing is better able to reflect the linguistic characteristics of the Chinese language. Ricci's use of paraphrasing shows that he had a good understanding of the merits of word-making methods in Chinese, and he had great success in coining new words through this method. Behind the use of paraphrasing lay Ricci's strategy of using Confucianism to spread Catholicism (as analyzed in Chapter 2).

Ricci created two different kinds of paraphrasing word-making methods. The first borrows related forms in ancient Chinese and constitutes the main paraphrasing word-making method for coining Catholic terms. The advantage of this method is that Catholicism can be spread with the help of Confucianism. The second kind of paraphrasing word-making method developed by Ricci is "form-borrowing" terminology, which makes good use of combining two or more Chinese characters to form a new word. Another way to describe this method is to say that it is form-borrowing in combination with Chinese inherent morphemes. This method is heavily used for geometric and astronomical terms, as well as for many geographical terms coined by Ricci. The advantages of the words created by this method are that they are productive and logical, and most of the scientific terms created by this method (including

geometric, astronomical, and geographical terms) are still in use today in modern Chinese.

Second, Ricci used the combination of internal and external mechanisms to coin the Chinese terms for the *Five Continents* following a three-step process (see 3.4.1). Ricci also created longer multisyllabic transliterations that led to monosyllabic morphemes; these morphemes were then reused to create disyllabic compounds. This was one of his methods for coining geographical place terms (as analyzed in detail in Chapter 3).

Third, Ricci created geometric and astronomical terms in the M-H (Modifier-Head) form (as analyzed in detail in Chapters 4 and 5). The new words created by this method are very vigorous, and this word creation model is very productive: it can create a series of new word groups whose semantics have a logical connection, which makes this method for coining new terms very successful.

Finally, Ricci's greatest contribution to word-making methods was that he pioneered the method of word-making by analogy. Word-making by analogy is a common method for creating words derived from English. It mimics the original equivalent words to create a counterpart or approximation. It operates by identifying a word pattern and then, using a semantic analogy, replacing one morpheme in the original word to construct a new word, as in the following example:

> Watergate → gate → debategate, Billygate, closetgate, nudegate, donutgate

The suffix "-gate" derives from the Watergate scandal in the United States in the early 1970s, which resulted in the resignation of US President Richard Nixon. In this approach to word-making, "gate" as a root can create many semantically related words. The Swiss linguist Ferdinand de Saussure has stated: "Analogy must have a model and a regular imitation of it. An analogical form is a form which is modeled on one or several other forms and which is composed according to certain fixed rules (De Saussure, 1916, p. 226)."

Words created by analogy belong to the category of derived words. The creation of compound words versus the creation of derived words is considered the essential difference between modern Chinese word-making methods and English word-making methods. Compound words are formed when two or more words are joined together to create a new word that has an entirely new meaning. Derived words are formed when a suffix and root are joined together to create a new word that has an entirely new meaning. For a long time, the research conclusion of Chinese linguistics was that compound words possessed an absolute advantage, while derived words were not dominant (Zhū, 1982, p. 17). However, judging by the new words Ricci created, this conclusion is not appropriate, because the new words Ricci created are derived words based on conformation by analogy.

Compared with modern English, the growth of new words by analogy in modern Chinese has historically been very underdeveloped. This is mainly because Chinese word formation has long been dominated by compound word composition. The definition of typical affixes in the Chinese language has not been agreed upon. But against all these theories that focus on internal mechanisms, Lǔ (1979, p. 13) put forward his theory of the affix for modern Chinese words, arguing that word formation by analogy in Chinese was created by the influence of English after the Chinese economic reform and opening-up in 1978.[28]

Indeed, contemporary Chinese analogical construction has become extremely common. Modern Chinese analogical constructions are characterized by strong productiveness and the use of monosyllabic morphemes as necessary components of the word group "~X" (or "X~") for word formation. In addition, during the construction process, the meaning of the newly created word and the original word are related to each other and belong to the same semantic field. For example:

> *~bā* 吧 (bar): *huà-bā* 話吧 (bar for socializing), *yǎng-bā* 氧吧 (oxygen bar), *wǎng-bā* 網吧 (internet bar), *shū-bā* 書吧 (bar for reading books), *xiě-bā* 寫吧 (bar for writing).

However, word formation by analogy is not a word-making method that initially arose in modern Chinese. But the method is common in Ricci's word-making activities, and the large number of new analogical terms he created has promoted the development of Chinese analogical word formation.

For example, words formed by analogy by Ricci include *qiú* 球 (sphere) and *bàn-qiú* 半球 (hemisphere). These words provided a model for the later creation of words such as *yuè-qiú* 月球 (moon) and *dì-qiú* 地球 (Earth).

Other examples are:

~lǐ-lì 比例 (~proportion): *lián-lǐ-lì* 連比例 (continued proportion), *duàn-lǐ-lì* 斷比例 (broken proportion).

~biān 邊 (~side): *dǐ-biān* 底邊 (bottom side), *yāo-biān* 腰邊 (middle side), *duì-biān* 對邊 (opposite side).

~dài 帶 (~climate): *rè-dài* 熱帶 (tropics), *hán-dài* 寒帶 (polar climate), *zhèng-dài* 正帶 (temperate climate).

~xíng 形 (~figure): *cháng-xié-fāng-xíng* 長斜方形 (rhomboid), *duō-biān-xíng* 多邊形 (multilateral), *liǎng-biān-děng-sān-jiǎo-xíng* 兩邊等三角形 (isosceles triangle), *píng-biān-sān-jiǎo-xíng* 平邊三角形 (equilateral triangle), *sān-biān-xíng* 三邊形 (triangle), *sān-biān-gè-ruì-jiǎo-xíng* 三邊各銳角形 (acute triangle), *sān-bù-děng-sān-jiǎo-xíng* 三不等三角形 (scalene triangle), *Sān-biān-zhí-jiǎo-xíng* 三邊直角形 (right triangle), *sān-biān-dùn-jiǎo-xíng* 三邊鈍角形 (obtuse triangle), *sì-biān-xíng* 四邊形 (quadrilateral), *wú-fǎ-sì-biān-xíng* 無法四邊形 (trapezia), *xié-fāng-xíng* 斜方形 (rhombus), *zhí-jiǎo-fāng-xíng* 直角方形 (square), *zhí-jiǎo-xíng* 直角形 (oblong), and *zhí-xiàn-xíng* 直線形 (rectilinear figure).

Therefore, it could be said that Ricci was the first creator of the word-making method by analogy in Chinese. The introduction of this word-building method provided a model and laid a foundation for the further Europeanization of Chinese. This method, pioneered by Ricci, paved the way for other kinds of Europeanization of Chinese, including Europeanized Chinese word-making methods.

After the Opium War, Chinese absorbed a large number of foreign words, but also naturally absorbed some embellishments (class affixes). Affixes are one of the hallmarks of word formation by analogy. The Chinese language used "*~shǒu* 手" (-or), "*~shī* 師" (-er), "*~zhě* 者" (-ist), "*~yuán* 員" (-ian), "*~jiā* 家" (-man) and other translations from Indo-European languages such as English to represent the suffixes "-or / -er / -ist / -ian / -man", thereby constructing a large number of new words, many of which have since been absorbed into Chinese. Words constructed with "*~zhǔ-yì* 主義" to translate the English suffix "-ism" have also flowed into modern Chinese. It is Ricci who began the practice of creating derived words in the Míng dynasty, thus further enriching the compound word-formation approach and making it as productive as possible, as the above example of "*qiú* 球" and the words that followed it demonstrate.

Because inflection[29] is highly developed in the English language, English uses word-making by analogy as one of its main word-making methods. In contrast, inflection is undeveloped in the Chinese language; thus, word-making by analogy in Chinese was also undeveloped. But Ricci promoted this method, causing it to take root in the Chinese language. The main reason why Ricci used this method so frequently is because he fully took into account cognitive factors. Human analogical thinking (i.e., people's awareness of similarities and differences between things) is a deep-seated reason for analogical word formation in human language. Gentner and colleagues have stated that "humans have the ability to recognize shape similarity because analogy is inherent in the human cognitive process of thinking (Gentner et al., 2001, p. 85)." When humans want to know and understand the unknown, they generally use the known and familiar for reference and on this basis describe and know; that is, they rely on known linguistic expressions to make an association with unknown linguistic expressions: "It is a general law of human cognition to perceive and derive non-significant things in terms of significant things (Ibid., p. 87)."

Moreover, the cognitive approaches of metaphor and metonymy have deep implications in terms of word-like affix constructions – that is, "projecting" concepts from one domain to another, or from one cognitive domain (source domain) to another cognitive domain (target domain). For example, when people find that a cognitive object has a certain known nature or mood, they add the attribute class suffix "*xìng* 性"to the root of the word, creating a large number of "*~xìng* 性" (-like) words, such as "*duò-xìng* 惰性" (inert), "*è-xìng* 惡性" (wicked), "*liè-xìng* 烈性" (virulent), "*màn-xìng* 慢性" (chronic), "*mǔ-xìng* 母性" (maternal), "*nài-xìng* 耐性" (patient), "*niú-xìng* 牛性" (bovine), "*shòu-xìng* 獸性" (animal), "*tán-xìng* 彈性" (elastic), "*xiě-xìng* 血性" (bloody),

"*yě-xìng* 野性" (wild), and "*yìng-xìng*" 硬性 (hard). For another example, when people find or push a cognitive object to change in a known or specific direction, they add the transformation class suffix *huà* 化 to the corresponding root word to create a large number of "*~huà* 化" (-ize) words.

In terms of cognitive factors, Ricci's analogical constructions were a product of his desire to communicate the unknown (Western knowledge) on the basis of the known (Chinese language and culture), as the above examples of"*~bǐ-lì* 比例", "*~biān* 邊", "*~dài* 帶", and "*~xíng* 形" demonstrate. Analogical constructions in modern Chinese terms coined by Ricci arose in large numbers as early as the end of the Míng dynasty.

7.4 Effect on word meaning

Ricci's creation of new terms had a significant impact on the development of Chinese terminology by filling the conceptual gaps in various disciplines as well as enriching the semantic field of Chinese. Ricci borrowed a large number of concepts from Indo-European languages, because the corresponding concepts were lacking in late Míng Chinese. So Ricci must have played a role in filling the conceptual gaps in Chinese at that time. Some of the new concepts are also semantically close to concepts that do appear in Chinese, thus enriching the corresponding Chinese semantic field.

7.4.1 Ricci filled the conceptual gaps in various disciplines and produced new concepts

Ricci's new conceptual terminology produced the founding terms of certain disciplines (Catholic theology, geography, geometry, and astronomy) and made an outstanding contribution to the development of these disciplines in China. These new terms were for new concepts that can be divided into three categories as follows.

The first category describes concepts that were not originally available in late Míng China and were introduced along with new terminology in Ricci's Chinese writings; both the concepts and the terms have been used ever since. For example, *dì-qiú* 地球 (Earth) means the third planet in the solar system, close to the Sun, and shaped like a ball. It is slightly flattened, surrounded by an atmosphere; its surface is land and sea; and there are humans, animals, and plants living on it. The word *dì-qiú* 地球 (Earth) was a completely new concept for the late Míng Chinese; before this, the Chinese word "*dì* 地/*tǔ-dì* 土地" (land) did not express the concept of "Earth" as described above. Similarly, the concept of *yuè-liàng* 月亮 (moon) in Chinese and Ricci's term *yuè-qiú* 月球 (moon), which refers to the "satellite of the Earth," are not the same concepts.

The second category describes concepts that were not originally available in late Míng China and were introduced along with new terminology in Ricci's writings (i.e., the terminology was new in both concept and word form), but

the word form was later changed. Although the original word form coined in Ricci's Chinese writings has not been retained in modern Chinese, the concepts and terms introduced by Ricci are still the source of related words. Examples include the word *zhèng-dài* 正帶 (temperate zone), which later evolved into *wēn-dài* 溫帶 (temperate zone).

The third category describes concepts that were not originally present in Chinese, but Ricci borrowed from words that already existed in the Chinese language and gave these words new meanings to go along with the new concepts. For example, the word *shàng-dì* 上帝 existed in ancient Chinese, but Ricci used *shàng-dì* to mean Jesus Christ. *Shàng-dì* originally referred to a deity in Chinese history. Ricci was the first person to use the word *Shàng-dì* to refer to the Catholic God. He chose *Shàng-dì* to refer to *Deus* because the Chinese deity and the Catholic God appeared to share something in common. When the concept of *Shàng-dì* (God) was accepted in Chinese, the old meaning was slowly squeezed out by the new meaning, and finally, the word was entirely taken up with the new meaning.

All of this new terminology was created and introduced into the modern Chinese lexical system by Ricci and has had an impact on the development of Chinese word meaning, mainly by filling the knowledge gaps in related fields in China at that time. Based on semantic analysis, the words created by Ricci made a significant contribution to the underlying terminology of the following four disciplines: religion, geography, geometry, and astronomy.

7.4.2 Ricci enriched the semantic field of the Chinese language

Words within the same semantic field are words with several different and interrelated meanings, which are offshoots of the same basic meaning, or which are derived from each other. That is, under synchronic conditions, several synonyms with common semantic elements are aggregated in a semantic field (Jackson & Zé Amvela, 2000, p. 14). In order to reflect the increasingly complex objective phenomena in the development of social production, people will inevitably use words to express new or other related things, so that old and new meanings of words coexist or new meanings replace the old meanings.

Matteo Ricci's creation of new terms contributed to the enrichment of the Chinese semantic field in several different ways:

In the first case, the old meaning of a term withers away and a new meaning arises. The demise of the old meaning may lead to the widespread use of the new meaning. Ricci used a large number of original Chinese words when introducing Western science and technology, usually converting common nouns from the original Chinese into specific academic terms. For instance, *běi-jí* 北極 (North Pole) and *nán-jí* 南極 (South Pole) originally referred to the remote North and South. They were later used as astronomical terms referring to the Earth's axis of rotation and the Earth's surface intersection of the two poles.

Shèng-mǔ 聖母 was originally an honorific term for empress dowagers, but it has been used to refer to the mother of Jesus Christ since Ricci gave it that new meaning; and *shèng-jīng* 聖經, which previously referred to the Confucian classics, now also refers to the Bible.

Jīng-xiàn 經線 and *wěi-xiàn* 緯線 originally referred to the vertical and horizontal lines on woven goods and became geographical terms indicating geographical coordinates. Words such as *fēn* 分 (e.g., in *wǔ-fēn-zhī-yī* 五分之一, one fifth), *qiáng* 強 (e.g., in ½ *qiáng* 強, half and half), and *zuò* 座 (e.g., in *xīng-zuò* 星座, constellation) have also been converted from common nouns to technical terms in specific disciplines.

In the second case, there is a change from concrete to abstract meaning. This change from concrete to abstract is an important element of semantic field change. *Diǎn* 點, *xiàn* 線, and *qiē* 切 are important geometric terms coined by Ricci. He borrowed the forms of ancient Chinese words when creating his new terms. The semantics changed during the process of being borrowed.

Diǎn 點 originally meant "a small black dot" or "a small black mark" in ancient Chinese. Ricci used *diǎn* in geometry to mean "a shape with no length, width, or thickness but with only position"; x*iàn* 線 originally meant was "a fine wisp made from materials such as cotton and linen or wool"; Ricci used *xiàn* to express the new meaning of a "line, curve" – that is, a geometric noun referring to a figure formed by the arbitrary movement of a point; *qiē* 切 originally meant "to close," but in the *Jǐhé yuánběn*, Ricci used *qiē* to refer to "tangent, a straight line that touches but does not cut into a curve." The initial meaning of *qiú* 球 in ancient Chinese meant fine jade. Ricci uses *qiú* to refer to a sphere. *Qiú* is also used to refer to "Earth."

The semantic transformation from concrete thing to abstract concept reflects a basic principle used in the creation of scientific and technological terms, which are themselves highly abstract concepts. Ricci utilized this feature in most of the technical terms he created, hence extending and transforming the meanings of Chinese words.

Whether old word meanings die out, new meanings arise, or meanings change from concrete to abstract, the hidden strategy behind Ricci's deep engagement with the Chinese language was his effort to combine the spread of Catholicism with traditional Confucianism, which was deeply embedded in China. Ricci adapted himself as much as possible to Confucian ways so as to appear a gentle Confucian thinker in order to provide a cultural bridge, in the hope that the Chinese people would accept Catholic concepts. In order to promote the integration of Confucianism and Catholic thought, Ricci produced *Tiānzhǔ shíyì*, using Confucianism to demonstrate Catholic teachings. Ricci often used the method of adding new meanings to old Chinese words, sinicizing religious terms to make them easier for the Chinese to accept. Adding new meaning to old words is a very common method in Chinese, but it had special meaning for Ricci. He often chose words from ancient Chinese classics to use in his translations of nouns that added new meanings to the

original words. These new meanings survive in the new Chinese lexical system, and some have even replaced the original meanings from classical Chinese.

In addition, behind his efforts to combine Catholicism and Confucianism was his sense of scientific and technological mission. The scientific and technological knowledge system he used to promote the spread of religion enriched the cultural vision of the Chinese people at the time, bringing about epoch-making changes in the thoughts of intellectuals. For example, under the direct guidance of Ricci, Xú Guāngqǐ not only made outstanding contributions in the field of science and technology, but also made great contributions to the spread of Catholicism in China. This was one of the most important gains from the spread of Catholicism in the late Míng and Qīng eras. China's scientific standards made great progress, and because of their contributions, the missionary activities of Ricci and others were appreciated by intellectuals at that time.

7.5 Effect on the Chinese morpheme: bringing in a large number of foreign morphemes

One of Ricci's legacies for modern Chinese word formation is that his terms provide a large number of foreign morphemes for use in the construction of new words.

A morpheme is a single unit of meaning that cannot be further divided. It is the most basic unit of language; it arises from the smallest combination of phonetics and can be used independently of the structural unit of the word. A morpheme is a stable language component, and new words are based on the morpheme's composition.

Underlying the Chinese language, a new element emerged because of the borrowing of new concepts by Ricci: foreign morphemes, that is, elements derived from foreign languages.

Throughout history, as long as there has been language contact, Chinese has not been a self-sufficient system. The tolerance of Chinese culture allows it to accommodate all kinds of foreign cultures and a considerable number of foreign words, while at the same time maintaining a great power of dissolution: it digests and transforms foreign cultures and words, accepting them as an integral part of Chinese culture and Chinese language. Foreign morphemes are the result of foreign cultures being known and recognized and foreign words being used and adapted by people. Their emergence has already attracted the attention of the academic community.

When people initially coin words, they do not first coin a morpheme; instead, the coinage of morphemes is completed through the practice of word coinage. The native morphemes of Chinese are closely related to the inherent vocabulary of the Chinese language, while the foreign morphemes in Chinese were originally extracted from other languages. After a period of transformation, these have become adapted to morpheme use in Chinese words. After foreign words have undergone nativization and directly participate in word

creation as morphemes, they become foreign morphemes in Chinese. This is a new class of Chinese morphemes that arises from language contact.

When a foreign morpheme enters the Chinese morpheme system, it diligently participates in word formation and serves people's communication, just like other members of the morpheme family. For example, *tǎ* 塔 (pagoda), *fó* 佛 (Buddha), *mó* 魔 (devil), *sēng* 僧 (Buddhist priest), *ní* 尼 (nun), *hé-shang* 和尚 (Buddhist monk), and *pú-sa* 菩薩 (bodhisattva) were "transplanted" into the Chinese language with the importation of Buddhist culture in the Eastern Han dynasty. All are highly productive foreign morphemes in the Chinese language and are used very frequently in daily communication. As time goes by, the foreign color of foreign morphemes gradually fades; people become more and more familiar with the culture they contain, and many people will not even know that these morphemes are foreign.

Nevertheless, we cannot and must not cut off their origins. The Chinese nation, Chinese culture, and Chinese language are not the parent that produced them, and we cannot deny the foreign identity of these foreign linguistic elements when tracing them back to their roots. From the perspective of morpheme origin, foreign morphemes, also called exogenous morphemes, constitute a new class of Chinese morphemes. These are distinguished from the morphemes inherent in Chinese itself, which are called inherent or autogenous morphemes.

The process whereby foreign words in Chinese (especially paraphrasing words) increase in number and take on new meanings is relatively obscure, and it is not easy to identify which morphemes add foreign meaning. This is because after a foreign word enters the Chinese language, the foreign color of the word gradually fades with time and the degree to which it is integrated into the Chinese language. Indeed, some foreign words with a long history are difficult to identify as foreign if they are not traced back to the source. For example, when Buddhism was introduced to China in the Han dynasty, paraphrased Buddhist words were introduced, such as *jié-guǒ* 結果 (result) and *zhuāng-yán* 莊嚴 (solemnity). If the etymology of *jié-guǒ* 結果 and *zhuāng-yán* 莊嚴 are not deliberately considered from the perspective of Buddhism entering China, it is difficult for us to recognize their origin.

Paraphrasing words are the most thoroughly nativized Chinese foreign words; they are created out of the inherent morphemes of the Chinese language, and their foreign colors are consumed to the greatest extent in the process of nativization, so people often do not realize their foreignness. The difference between paraphrasing words and transliterated words hinges on whether the phonetic form imitates foreign-language words and whether it reflects Chinese word-making rules. This shows that the degree of nativization is different between the two. When paraphrased foreign words become members of the Chinese vocabulary family and participate in new word-making activities as morphemes, the paraphrases themselves become a special kind of "foreign morpheme."

Among the paraphrasing words coined by Ricci, certain items in Chinese are unprecedented, and their meanings were mainly created by Ricci. Such

items were derived from the process of translation from foreign languages, which we can classify as the "foreign semantic meaning" of the inherent language. By analyzing Ricci's creation of these words in his Chinese writings, we can tell whether a morpheme is native to Chinese or has a foreign meaning provided by Ricci. For example, *dù* 度 is a monosyllabic polyseme with the following meanings in the *Xiàndàihànyǔ cídiǎn*

1 *measurement, length.*
2 *indicates the degree or extent of the relevant properties of a substance, such as hardness, heat, concentration, humidity, etc.*
3 *referring to a unit of measurement.*
4 *extremely well-known, transparent, high, with a high sense of responsibility.*
5 *limit*
6 *Articles of Association; Code of Conduct*
7 *philosophically refers to the limits of the quantity by which certain things maintain their own quality. Within this boundary, the increase or decrease of quantity does not change the quality of things; beyond this limit, it is necessary to cause qualitative change.*
8 *tolerance for things.*
9 *people's temperament or posture.*
10 *time or space within a certain range.*

(Zhōngguó shèhuì kēxuéyuàn, 2016, p. 212)

Which of the above meaning items is the foreign item absorbed by Míng Chinese? We hold that it is 3: *Dù* 度 , which was created in the Míng dynasty as a unit of measurement.

The meaning of *dù* 度 as "degree" (as a unit of measurement) was first seen in Ricci's *Kūnyú wàn'guó quántú*: "*Tiānfèn sānbǎi liùshí* ***dù***,*dìyìtóngzhī* 天分三百六十度，地亦同之 (The sky is divided into 360 **degrees**, and so is the Earth) (Ricci, 1602, p. 176)." There is also the sentence, "*Zì chìdào érnán èrshísān****dù****bàn wéinándào* 自赤道而南二十三度半為南道 (Twenty-three and a half **degrees** south of the Equator is the southern road) (Ricci, 1602, p. 177)."

Dù 度 here means "longitude or latitude," as in *běiwěi sānshíbā dù* 北緯38度 (38th parallel north). The formation of this item is achieved through the words *jīng-dù* 經度 and *wěi-dù* 緯度, which were created by Ricci.

Jīng-dù is the degree of distance east and west on the Earth's surface. *Wěi-dù* refers to the degree of distance north and south over the Earth's surface, with the Equator set at zero degrees. Both *jīng-dù* and *wěi-dù* are foreign terms, introduced into Chinese at the end of the Míng. Of these two terms, *jīng-dù* has related forms in ancient Chinese, but their meaning is different from that of modern Chinese. The geography-related noun *jīng-dù* can be found in Giulio Aleni's 1623 *Zhífāng wàijì* 職方外紀 [Record of foreign lands] (Aleni, 1623/1986, p. 37).

Ricci introduced a large number of foreign morphemes from Western languages into the Chinese language. Their entry into Chinese was in accordance

with the objective law of Chinese language development. In the process of their continuous augmentation of Chinese and European knowledge systems and the enrichment of the Chinese lexical system, some indispensable and commonly used basic concepts will always customarily remain as morphemes.

Some of the foreign morphemes created by Matteo Ricci are characterized by disyllables reduced to one syllable (e.g., *shèng-mǔ* 聖母 (Madonna) produced *shèng* 聖 (saint)). *Shèng* 聖 (saint) is a typical foreign morpheme coined by Ricci and is used in the creation of the *shèng* 聖 series of words. As outlined in Chapter 2.2, the modern Chinese *shèng-mǔ* 聖母 (Virgin Mary) no longer refers to the empress dowager or the mother of Confucius in the feudal era. *Shèng-jīng* 聖經 (Bible) no longer refers to Confucian scriptures. *Shèng-tú* 聖徒 (disciples of Jesus) no longer refers to the disciples of Confucius. *Shèng-jiào* 聖教 (teachings of Jesus) no longer refers to the teachings of Confucian sages or emperors of feudal society in China. These examples illustrate that the meaning of "relevant to Catholicism" has been attached to *shèng* 聖 since the late Míng dynasty. In modern Chinese, the *shèng* 聖 of *shèng-dàn-jié* 耶誕節 (Christmas), *shèng-dàn-lǎo-rén* 聖誕老人 (Santa Claus), and *shèng-dàn-shù* 聖誕樹 (Christmas tree) has nothing to do with Confucianism but is completely related to Christianity. This shows that Ricci objectively reversed the religious meaning of some Chinese morphemes as cultural symbols.

The abbreviation of polysyllabic foreign words is an important stage in the creation of foreign morphemes. Some foreign words have gone through this stage and evolved into foreign morphemes. Indeed, foreign morphemes that have entered Chinese in monosyllabic form are flexible and free; they have great potential for combination, and their status in the Chinese morpheme system is increasing. Conversely, some foreign words died out due to their overlong syllable length and complicated forms, which made them difficult to use, and thus, they were less frequently seen. Abbreviation is an important mechanism for the phonetic component of the morphologization of foreign words. This phonetic constraint in the regulation of Chinese development is an internal reason for the evolution of foreign words into foreign morphemes through abbreviation.

By realizing this, we recognize the nature of language; that is, language and its subsystems are not biologically self-sufficient – they do not operate through "photosynthesis" but develop under the combined influence of internal and external forces. Recognizing this, we can appreciate the flexibility of the Chinese language; that is, Chinese is adept at adjusting flexibly according to people's actual communication needs, discarding the old and taking in the new. It is always vigorous and dynamic.

7.6 Conclusion

The first problem faced by the early Western missionaries to China was learning Chinese. This was the first encounter between the European language system, represented with Latin letters, and the Chinese language system

represented with Chinese characters. The late Míng missionaries, led by Ricci, brought to light new characteristics of the Chinese lexical system and affected the evolution of Chinese vocabulary in many ways. Therefore, it is particularly important to fully understand the contributions of Míng and Qīng missionaries, especially Matteo Ricci and Martino Martini, in the field of Chinese vocabulary and grammar.

Ricci expanded the vocabulary of Míng Chinese, mainly by adding specialized terms. He contributed to the basic elements of modern Chinese academic terminology in religion, geography, geometry, astronomy, and lexicography, among others. As noted in the introduction, this book's index of the terms that Ricci created includes much of the fundamental vocabulary of technical and academic discourse in modern China. One can hardly imagine what science and technology in China would be like, even today, had Ricci not gone to China and created all of this basic vocabulary.

No one in academic circles has yet systematically collected and analyzed all of terms that the missionaries contributed to the development of Chinese vocabulary. Therefore, this field can constitute a new excavation point for current Chinese linguistics research. That is, in the context of cultural exchanges between China and the West and the role that Western missionaries who came to China in the Míng dynasty played in the formation and development of modern Chinese vocabulary can be analyzed systematically using first-hand data. The collection of these empirical data is a good way to address the above two linguistic misconceptions and, hopefully, form a new field concerned with the analysis of the systematic effect of the work of the missionaries in China in the Míng and Qīng dynasties on the development of Chinese vocabulary. I hope to continue this work in the future.

The syllable count in modern words is also a hot issue in Chinese linguistics. The current view is that disyllabic words make up the majority of words in the Chinese lexicon; this view is written into the modern Chinese textbooks in Chinese universities (Huáng & Liào, 2017, p. 6). But this perspective is debatable, since language is a dynamic continuum;[30] it is also a complex system that is constantly in contact with and acting on the outside world. During the Míng and Qīng dynasties, Western missionaries spearheaded by Ricci objectively triggered the process of the Europeanization of Chinese, namely, the emergence of the characteristics of Indo-European languages in Chinese, which are mainly reflected in the aspects of pronunciation, vocabulary, and grammatical structure. This phenomenon has always attracted attention, and it has also been criticized by many people. At present, Chinese linguistics generally believes that the process of Europeanization of Chinese began after the May Fourth movement. This book greatly transforms this chronology, arguing that Ricci was actually the earliest trigger for the Europeanization of Chinese and that this was manifested phonetically in the introduction of a large number of trisyllabic and longer polysyllabic terms from the Indo-European language family. Although some of these terms have become disyllabic in the subsequent evolution of modern Chinese (such as *yà-xì-yà* 亞細亞 "Asia"

becoming *yà-zhōu* 亞洲 "Asia"), Ricci subtly changed the structure of Chinese syllables – in other words, he destabilized the dominant position of disyllabic words and promoted the gradual development of Chinese words toward longer polysyllabic words.

Ricci often used analogy for word formation, thus promoting the development of Chinese analogy formation. The mainstream opinion on the development of Chinese vocabulary and word formation is that Chinese word formation is dominated by compounding and is supplemented by derivation. Word formation by analogy is essentially a derivative formation. For example, Chinese derivative word formations take the form of "center word + affix." There are not many original affixes – examples include *zi* -子, *-er*-兒, and *-tóu* -頭, in Chinese – and they have no practical meaning. The new words first seen in Ricci's Chinese writings developed the Chinese analogical method of forming words, as discussed in Section 7.3.

This type of word formation is highly productive. Once an affix (such as *~xiàn* 線) is recognized, it can be flexibly attached to various concepts in its related fields. The method not only enabled Ricci to create a large number of words, but also served as a reference in the generation of related new words in modern Chinese. For example, Ricci's creation of *~xiàn* 線 refers to the geometric noun "line; curve," that is, a figure formed by the arbitrary movement of a point. There are lines with different properties, such as *shí-xiàn* 實線 (solid line), *xū-xiàn* 虛線 (dashed line), *qū-xiàn* 曲線 (curve), and *zhí-xiàn* 直線 (straight line).

The concept of *xiàn* 線 has extended to other fields in modern Chinese, in the creation of new words such as *shēng-chǎn-xiàn* 生產線 (production line) and *yùn-shū-xiàn* 運輸線 (transportation line). When *xiàn* 線 refers to a railway line, railway track, or route, it can then lead to the creation of additional new words, such as *jīng-guǎng-xiàn* 京廣線 (Běijīng-Guǎngzhōu Line), *gǎng-tiě-xiàn* 港鐵線 (MTR line), *zhuān-xiàn* 專線 (special line), *gè-gàn-xiàn* 各幹線 (all trunk lines), *zhī-xiàn* 支線 (branch lines), and *xīn-gàn-xiàn* 新幹線 (Shinkansen). Further, when *xiàn* 線 refers to "ray," it can be used to create: *guāng-xiàn* 光線 (light), *zǐ-wài-xiàn* 紫外線 (ultraviolet), *hóng-wài-xiàn* 紅外線 (infrared), *yǔ-zhòu-xiàn* 宇宙線 (cosmic rays), and *shè-xiàn* 射線 (rays).

After Ricci created new words by analogy, it became widely used in the creation of new words in modern Chinese, bringing a wealth of affixes and quasi-affixes to Chinese. For example, the *chāo-* 超- (super-) nouns include *chāo-duǎn-bō* 超短波 (ultrashort wave), *chāo-shēng-bō* 超聲波 (ultrasonic wave), *chāo-gù-tài* 超固態 (supersolid state), *chāo-duǎn-qún* 超短裙 (ultrashort skirt), *chāo-lián-jiē* 超連結 (hyperlink), *chāo-néng-lì* 超能力 (superpower), *chāo-dī-wēn* 超低溫 (ultralow temperature), and *chāo-xīn-xīng* 超新星 (supernova). Distinguishing words[31] include *chāo-dà-guī-mó* 超大規模 (super-large-scale), *chāo-shì-jù* 超視距 (beyond visual distance), *chāo-xiàn-shí* 超現實 (surreal), chāo-*jiē-jí* 超階級 (super-class), and *chāo-zì-rán* 超自然 (supernatural).

The *qián-* 前- (former-) nouns are *qián hàn* 前漢 (former Han dynasty), *qián qīng* 前清 (former Qīng dynasty), *qián-zhèn* 前震 (former shock), *qián-zǒng-tǒng* 前總統 (former president), and *qián-kē-xué* 前科學 (pre-science). Distinguishing words include *qián-zī-běn-zhǔ-yì* 前資本主義 (pre-capitalism), *qián-hán-wǔ-jì* 前寒武紀 (Precambrian), and *qián-luǒ-zǐ* 前裸子 (Progymnospermophyta).

The *yìng* 硬 (hard) / *ruǎn* 軟 (soft) series of analogous word formations are *yìng-bāo-zhuāng* 硬包裝 / *ruǎn-bāo-zhuāng* 軟包裝 (hard packaging / soft packaging), *yìng-chéng-běn* 硬成本 /*ruǎn-chéng-běn* 軟成本 (hard cost / soft cost), *yìng-kāi-fā* 硬開發 / *ruǎn-kāi-fā* 軟開發 (hard development / soft development), *yìng-kē-xué* 硬科學 / *ruǎn-kē-xué* 軟科學 (hard science / soft science), *yìng-shi-lì* 硬實力 / *ruǎn-shí-lì* 軟實力 (hard power / soft power), *yìng-pán* 硬碟 / *ruǎn-pán* 軟碟 (hard disk / floppy disk), *yìng-wǔ-qì* 硬武器 / *ruǎn-wǔ-qì* 軟武器 (hard weapon / soft weapon), *yìng-wò* 硬臥 / *ruǎn-wò* 軟臥 (hard sleeper / soft sleeper), and *yìng-zī-yuán* 硬資源 / *ruǎn-zī-yuán* 軟資源 (hard resources / soft resources).

Lǔ (1979) has argued:

> There are not many authentic affixes in Chinese … There are many morphemes that can be regarded as prefixes or suffixes. However, they are not yet prefixes and suffixes and can only be called semi prefixes and semi suffixes … It is not enough to say that they are used as prefixes and suffixes, and the word "semi" has to be added because they have not been completely virtualized in terms of semantics (one feature of vocabulary is semantic virtualization), and sometimes they appear as root words… The existence of such class prefixes and class suffixes can be said to be the first characteristic of Chinese affixes… [my translation][32]
>
> (pp. 48–49)

Lǔ (1979) has mentioned that modern Chinese semi-affixes are a new feature of word formation but has not indicated when analogous word formations started to appear in Chinese in large numbers. As demonstrated above, at the end of Míng dynasty, the Western missionaries headed by Ricci had already begun the practice of analogical word formation, and their influence on the Chinese language system was far-reaching. Ricci's method of categorical word creation was also far-sighted; it has extended from the late Míng dynasty into modern Chinese, and its influence is growing.

With regard to word meaning, the new terms created by Ricci have played a clear role in the development of polysemy in Chinese; this is mainly due to Ricci's method of imbuing old words with new meanings. Adding new meanings to old words is a very common method in Chinese word creation, but Ricci did it very successfully. The test of this kind of success is that modern Chinese people almost forget that *shàng-dì* 上帝 was originally a god in Heaven who ruled over all things, *tiān-zhǔ* 天主 was originally a god in the *Shǐjì* 史記 (Records of the Grand Historian), and *shèng-jīng* 聖經 originally referred

to Confucian classics, not the Catholic Bible. Matteo Ricci employed a very shrewd strategy for disseminating Catholic power in Confucian-influenced Chinese society. Through the infusion of new Catholic meanings into old Chinese words, many from ancient Chinese classics, these new meanings have not only survived as Chinese words during the following hundreds of years of evolution but have even replaced the original meanings.

In terms of Chinese morphemes, the most elementary unit of meaning in a word, it is no exaggeration to state that Ricci tried to fundamentally change the word-making genes of the Chinese lexical system. He objectively transformed the morphemes of traditional Confucian symbols into Catholic symbols and spread them widely. This influence was the consequence of Ricci's most brilliant missionary strategy: that is, starting from morphemes, the basic elements of a language's lexical system, to change the meaning of Confucian symbols into Catholic symbols and start a large number of word formations.

Matteo Ricci stands as a giant among the missionaries who came to China. The success of his mission began from within the Chinese lexicon. His religious role and his contribution to the development of Chinese lexicon deserve further study.

Notes

1 *Shī yí cháng jì yǐ zhì yí* was first seen in the *Hǎiguó túzhì* 海國圖志 [Illustrated treatise on the maritime kingdoms], a Chinese gazette compiled in 1843 primarily by Wèi Yuán 魏源, a scholar-official.

2 The *yángwù yùndòng* (1861–1895) was also known as the self-improvement movement, or the Western affairs movement. It was an industrial movement carried out throughout the country in the late Qīng dynasty, based on the "*Shī yí cháng jì yǐ zhì yí*." This movement lasted for thirty-five years, through the period of Tóngzhì (1861–1875) and Guāngxù Emperor (1875–1895), and was led by the empress dowagers Cí'ān (1837–1881) and Cíxǐ (1835–1908).

3 The *wùxū biànfǎ*, also known as the Hundred Days Reform, was a brief political reform movement during the twenty-four years of the Guāngxù period of the Qīng dynasty (11 June 1898–21 September 1898). It was initially tacitly approved by Empress Dowager Cíxǐ and led by the Guāngxù Emperor; it went deep into the economic, military, political, and bureaucratic systems, in the hopes that China would embark on the road of constitutional monarchy. However, the reforms were too intense and, coupled with the Guāngxù Emperor's intention to regain power from Cíxǐ, the conservative forces of the Qīng dynasty led by Cíxǐ were worried that this reform would eventually lead to the division of China by Japan and Britain. So they mounted a coup, ending this reform which lasted for only 103 days.

4 The original Chinese text of Dǒng is

> 漢語雙音詞最主要的歷史來源:從短語演變為雙音詞;由句法結構變為雙音詞;由跨層結構變為雙音詞。
>
> (Dǒng, 2011, pp. 33–35)

5 A good example of Givón's aphorism is "gonna." The predictive meaning of "going-to" originated through the extension of the spatial sense of the verb "go" to a temporal sense (a common change – the same phenomenon can be seen in the preposition "before"). The original construction involved physical movement with an intention, such as "I am going [outside] to harvest the crop." The location

later became unnecessary, and the expression was reinterpreted to represent a near future. This shows how "gonna" was originally a normal syntactic construction (be + VERB-ing + to).

6 "Language material" refers to an item that is basically textual in nature, whether printed, manuscript, microform, or an electronic resource.

7 The original Chinese text of Wáng is

> 佛教詞彙輸入中國，在歷史上算是一件大事，但是，比起(鴉片戰爭以後)西洋詞彙的輸入，那就要差千百倍。
>
> (Wáng, 2013, p. 501)

8 See the preface of *Jǐhé* 幾何 [Geometry] (Rénmín jiàoyù chūbǎn shè zhōngxué shùxué shì, 2001).

9 See 4.2.2 in this book.

10 See example (153) in chapter 5.

11 The original Chinese text of Shěn is

> 在現代漢語最重要的10317條詞中，有中日同形詞3882條(同形詞佔總條數的37.6%)。
>
> (Shěn, 2010, p. 22)

12 The original Chinese text of Wáng is

> 現代漢語中的日語"外來語"，數量是很驚人的。據統計，我們今天使用的社會和人文科學方面的名詞、術語，70%是從日本輸入的。
>
> (Wáng, 1998, p. 72)

13 The Wu Hsu Reform occurred in 1898, the twenty-fourth year of Guāng Xù's reign. Kāng Yǒuwéi 康有為 and Liáng Qǐchāo 梁啟超, representatives of the bourgeois reformists, launched a reform movement. The Guāng Xù Emperor accepted their proposal to change the law and issued a number of decrees from 11 June to 21 September 1898.

14 Robert Morrison (1782–1834), was a famous Anglo-Scottish Protestant missionary who came to China to preach in 1807.

15 See index 1 of this book.

16 Here, I use → to show the syllable evolution from late Míng to modern Chinese.

17 The translation of Buddhist scriptures after the two Han dynasties was China's first large-scale indirect foreign-language contact.

18 Applicable for most of the religious terms, such as *shàng-dì* 上帝 "God."

19 Applicable for some examples, such as *běi-jí* 北極 "Arctic"

20 Applicable for very few examples, such as *qiē* 切 "tangent"

21 Applicable for most of the astronomical terms, such as *shí* 時 "hour."

22 Applicable for some examples, such as *wěi-dù* 緯度 "latitude."

23 Applicable for most of the geometrical terms, such as *cháng-fāng-xíng* 長方形 "square."

24 Applicable for most of the astronomical terms, such as *bàn-qiú* 半球 "hemisphere."

25 Applicable for very few examples, such as *Yà-dǎng* 亞黨 "Adam."

26 Applicable for place names.

27 Applicable for terms of *the Five Continents* and *the Four Oceans.*

28 The Chinese economic reform, or *gǎigé kāifàng* 改革開放 ("reform and opening up"), was known in the West as the "opening of China."

29 Inflection is a process of word formation in which a word is modified to express different grammatical categories such as tense, case, etc.

30 Hartmann and Stork (1972) have pointed out the continuum theory in linguistics, which holds that the members of a category are not static and the same, but have their own ranks, ranging from the most typical member to the least typical member to form a continuum (p. 57).

31 Distinguishing words are also called non-predicate adjectives. These are words that denote the characteristics and classification of things and they are generally used only to modify nouns and noun phrases.

32 The original Chinese text of Lǔ is

> 漢語里地道的詞綴並不很多……有不少詞素差不多可以算是前綴或後綴，然而還是差一點兒，只可以稱為類前綴和類後綴。…… 說它們作為前綴和後綴還差點兒，還得加個"類"字，是因為它們在語義上沒有完全虛化，有時候還以詞根的面貌出現。…… 存在這種類前綴和類後綴可以說是漢語語綴的第一個特點。
>
> (Lǔ, 1979, pp. 48–49)

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Appendix 1

The evolution of word forms in Ricci's coinages

Original form (coined by Ricci)		*Meaning*	*New form (used in modern Chinese)*	
Ài-zhòng-rén	愛眾人	*(Love for all)*	*Bó-ài*	博愛
Ān-dū-lǐ-pān	安都裡潘	(Andros Island)	*Ān-dé-luó-sī-dǎo*	安德羅斯島
Ān-è-lì-yà	諳厄利亞	(England)	*Yīng-guó*	英國
Ān-yì-hé	安義河	(Ganges River)	*Héng-hé*	恒河
Bǎi-ér-mó-dá	百而謨達	(Bermuda)	*Bǎi-mù-dà*	百慕大
Bái-yáng	白羊	(Aries, constellation)	*Bái-yáng-zuò*	白羊座
Bǎo-píng	寶瓶	(Aquarius, constellation)	*Shuǐ-píng-zuò*	水瓶座
Bèi-lù	孛露	(Peru)	*Bì-lǔ*	秘魯
Bīng-hǎi	冰海	(Arctic Ocean)	*Běi-bīng-yáng*	北冰洋
Bó-xī-ér	伯西兒	(Brazil)	*Bā-xī*	巴西
Cháng-xié-fāng-xíng	長斜方形	(rhomboid)	*Piān-líng-xíng*	偏菱形
Dà-dōng-yáng	大東洋	(Pacific Ocean)	*Tài-píng-yáng*	太平洋
Dà-làng-fēng	大浪峰	(Cape of Good Hope)	*Hǎo-wàng-jiǎo*	好望角
Dà-làng-shān	大浪山	(Cape of Good Hope)	*Hǎo-wàng-jiǎo*	好望角
Dà-nǎi-hé	大乃河	(Don River)	*Dùn-hé*	頓河
Dōng-xī-zhú	東西竺	(Aur Island, Malaysia)	*Ào-dǎo*	澳島
Dǒu-sī	陡斯	(Deus)	*Shàng-dì*	上帝
È-ōu-bái-yà	厄歐白亞	(Euboea Island, Greece)	*Ōu-bō-yǎ-dǎo*	尤比亞島
È-wà	厄襪	(Eve)	*Xià-wá*	夏娃
Fú-láng-chá	拂郎察	(France)	*Fà-guó*	法國
Gān-dì-yà-dǎo	甘的亞島	(Crete)	*Kè-lǐ-tè-dǎo*	克裡特島
Gē-ér-fǔ	哥而府	(Corfu)	*Kē-fú-dǎo*	科孚島
Gē-ér-xī-jiā	哥而西加	(Corsica)	*Kē-xī-jiā-dǎo*	科西嘉島
Gé-luò-lán-dé	格落蘭得	(Greenland)	*Gé-líng-lán*	格陵蘭
Jīn-niú	金牛	(Taurus, constellation)	*Jīn-niú-zuò*	金牛座

(*Continued*)

Original form (coined by Ricci)		*Meaning*	*New form (used in modern Chinese)*	
Jù-xiè	巨蟹	(Cancer, constellation)	*Jù-xiè-zuò*	巨蟹座
Liǎng-biān-děng-sān-jiǎo-xíng	兩邊等三角形	(Isosceles triangle)	*Děng-yāo-sān-jiǎo-xíng*	等腰三角形
Lì-wèi-yà-zhōu	利未亞洲	(Africa)	*Fēi-zhōu*	非洲
Méi-gàn	煤幹	(Coral atolls in the Maldives)	*Mǎ-ěr-dài-fū-de-shān-hú-huán-jiāo*	馬爾地夫的珊瑚環礁
Mò-hé-dì-hú	墨何的湖	(Sea of Azov)	*Yà-sù-hǎi*	亞速海
Mó-jié	磨羯	(Capricornus)	*Mó-jié-zuò*	摩羯座
Mò-shì-kě	墨是可	(Mexico)	*Mò-xī-gē*	墨西哥
Mò-wǎ-là-ní-jiā-zhōu	墨瓦臘泥加洲	(Antarctica)	*Nán-jí-zhōu*	南極洲
Ōu-luó-bā	歐羅巴	(Europe)	*Ōu-zhōu*	歐洲
Pào-ní-dǎo	泡泥島	(Kalimantan Island)	*Jiā-lǐ-màn-dān-dǎo*	加里曼丹島
Píng-biān-sān-jiǎo-xíng	平邊三角形	(Equilateral triangle)	*Děng-biān-sān-jiǎo-xíng*	等邊三角形
Pō-bā-yá-nà	坡巴牙那	(Popayan, Colombia)	*Bō-pà-yáng*	波帕揚
Qī-jì-lǐ-yà	棲濟裡亞	(Sicily)	*Xī-xī-lǐ*	西西里
Rén-mǎ	人馬	(Sagittarius, constellation)	*Rén-mǎ-zuò*	人馬座
Sān-biān-dùn-jiǎo-xíng	三邊鈍角形	(Obtuse triangle)	*Dùn-jiǎo-sān-jiǎo-xíng*	鈍角三角形
Sān-biān-gè-ruì-jiǎo-xíng	三邊各銳角形	(Acute triangle)	*Ruì-jiǎo-sān-jiǎo-xíng*	銳角三角形
Sān-biān-zhí-jiǎo-xíng	三邊直角形	(Right triangle)	*Zhí-jiǎo-sānjiǎoxíng*	直角三角形
Sān-bù-děng-sān-jiǎo-xíng	三不等三角形	(Scalene triangle)	*Bù-děng-biān-sān-jiǎo-xíng*	不等邊三角形
Shēn-dú-hé	身毒河	(Indus River)	*Yìn-dù-hé*	印度河
Shī-zi	獅子	(Leo, constellation)	*Shī-zi-zuò*	獅子座
Shì-nǚ	室女	(Virgo, constellation)	*Chǔ-nǚ-zuò*	處女座
Shuāng-xiōng	雙兄	(Gemini, constellation)	*Shuāng-zǐ-zuò*	雙子座
Shuāng-yú	雙魚	(Pisces, constellation)	*Shuāng-yú-zuò*	雙魚座
Tài-xī	太西	(Western countries)	*Xī-fāng-guó-jiā*	西方國家
Tiān-chèng	天秤	(Libra, constellation)	*Tiān-chèng-zuò*	天秤座
Tiān-dì	天帝	(God)	*Shàng-dì*	上帝
Tiān-dì-huáng	天帝皇	(God)	*Shàng-dì*	上帝
Tiān-xiē	天蠍	(Scorpio, constellation)	*Tiān-xiē-zuò*	天蠍座
Wò-lán-dì-yà	臥蘭的亞	(Greenland)	*Gé-líng-lán*	格陵蘭

(*Continued*)

Original form (coined by Ricci)		*Meaning*	*New form (used in modern Chinese)*	
Wú-fǎ-sì-biān-xíng	無法四邊形	(Trapezoid)	*Tī-xíng*	梯形
Xiǎo-xī-yáng	小西洋	(Indian Ocean)	*Yìn-dù-yáng*	印度洋
Xié-fāng-xíng	斜方形	(Rhombus)	*Líng-xíng*	菱形
Xī-fēi-lǐ-yǎ	昔非裡雅	(Westphalia)	*Wēi-sī-tè-fá-lì-yǎ*	威斯特伐利亞
Xī-guó	西國	(Western countries)	*Xī-fāng-guó-jiā*	西方國家
Xīn-rù-nì	新入匿	(New Guinea)	*Xīn-jǐ-nèi-yǎ*	新幾內亞
Xī-tǔ	西土	(West)	*Xī-fāng*	西方
Xī-yáng	西洋	(Europe and the United States)	*Ōu-měi*	歐美
Xī-yì	西邑	(West)	*Xī-fāng*	西方
Xī-yù	西域	(West)	*Xī-fāng*	西方
Yà-dà-là-shān	亞大蠟山	(Atlas Mountains, northwest Africa)	*Ā-tè-lā-sī-shān-mài*	阿特拉斯山脈
Yà-dǎng	亞黨	(Adam)	*Yà-dāng*	亞當
Yà-mò-lì-jiā-zhōu	亞墨利加洲	(Americas)	*Měi-zhōu*	美洲
Yà-xì-yà	亞細亞	(Asia)	*Yà-zhōu*	亞洲
Zhèng-dài	正帶	(Temperate zone)	*Wēn-dài*	溫帶
Zhí-jiǎo-fāng-xíng	直角方形	(Rectangle)	*Cháng-fāng-xíng*	長方形
Zhí-jiǎo-xíng	直角形	(Rectangle)	*Cháng-fāng-xíng*	長方形
Zhì-lǐ	智裡	(Chile)	*Zhì-lì*	智利
Zhòu-cháng-guī	晝長規	(Tropic of Cancer)	*Běi-huí-guī-xiàn*	北回歸線
Zhòu-duǎn-guī	晝短規	(Tropic of Capricorn)	*Nán-huí-guī-xiàn*	南回歸線
Zhòu-yè-píng-guī	晝夜平規	(Equator)	*Chì-dào*	赤道

Appendix 2

Ricci's timeline in China

In August 1582, Ricci arrived in Macau. During this period, he improved the *Púhàn cídiǎn* written by Michele Ruggieri after his arrival in Macao in July 1579.

In 1583, Ricci and Ruggieri entered Zhàoqìng of Guǎngdōng. In 1588, Ruggieri returned to Rome.

In 1589, Ricci arrived in Sháoguān.

In 1595, Ricci arrived in Nánjīng, but failed to settle there. He then went to Nánchāng. In that year, he wrote his first Chinese book *Jiāoyǒulùn*.

In 1596, Ricci was appointed head of the Diocese of China in the Society of Jesus by Alessandro Valignano.

In June 1598, Ricci arrived in Nánjīng.

In September 1598, Ricci arrived in Běijīng. In October of the same year, Ricci left Běijīng due to the Japanese invasions of Korea (1592–1598).

In February 1599, Ricci returned to Nánjīng. During this period, he wrote his second Chinese work *Èrshíwǔyán*.

In 1600, Ricci wrote the book *Xīqín qǔyì*. In May of the same year, Ricci left Nánjīng for Běijīng again with a gift, prepared by Diego de Pantoja, to be presented to the Emperor in China.

In January 1601, he arrived in Běijīng and presented to the emperor a striking clock, *Kūnyú wàn'guó quántú*, and other ceremonial objects. In the meantime, he wrote *Shàng dàmínghuángdì gòngxiàntǔwùzòu*.

In 1602, Ricci's *Kūnyú wàn'guó quántú* was painted by Lǐ Zhīzǎo.

In 1603, Ricci wrote the Chinese book *Tiānzhǔ shíyì*.

In 1606, Ricci wrote the Chinese book *Xīzì qíjī*.

In 1607, Ricci translated *Euclid's Elements* (the first six volumes) into a Chinese version called *Jǐhé yuánběn* with Xú Guāngqǐ. In the same year, he translated an illustrated explanation of the sphere and the astrolabe into the Chinese version *Húngài tōngxiàn túshuō* with Lǐ Zhīzǎo.

In 1608, Ricci wrote the book *Jīrén shípiān*.

In May 1610, Ricci took a long sleep in Běijīng. After his death in this year, Xú Guāngqǐ and his other friends collected his work *Qiánkūn tǐyì*.

List of Chinese terms coined by Ricci

Note: The symbol "【 】" indicates new concepts with new forms that are still used in modern Chinese. The symbol "[ ]" indicates new concepts that are still used in modern Chinese, but whose word forms have been changed. The symbol "*" is used to mark disyllabic words. The symbol "●" is used to mark monosyllabic words. The remaining terms that use neither "*" nor "●" are polysyllabic words (trisyllabic or longer). Page numbers followed by "n" refer to endnotes.

Subject Index

Note: Page numbers followed by "n" refer to endnotes.