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The theoretical significance of ancient Chinese ethnic writings

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Abstract
From ancient times to the early twentieth century, nearly 40 distinct ancient writing systems of China's ethnic minorities coexisted with Chinese characters, forming a richly diverse "garden of scripts." From the perspective of the general theory of writing systems, this paper examines the relationship between language and mnemonic symbols as exemplified by the Poya Songbook, the Ersu Shaba pictographs, and the Naxi Dongba pictographs. It argues that the evolution from mnemonic symbols to syllabic writing systems inherently involves the process of homophonic borrowing. The antiquity of a writing system should not be evaluated solely based on its appearance or communicative function; rather, greater emphasis should be placed on its connection to fixed speech units. Furthermore, this paper explores how the word-formation methods of these ancient writings have enriched the traditional Chinese theory of *Liushu* (the "Six Methods" of character formation) and investigates the factors and primary motivations driving an ethnic group's decision to adopt a script for recording their native language.

Keywords Mnemonic symbol · Developed writing · Ancient Chinese ethnic writings · General theory of writing systems

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1 Introduction

Ancient Chinese ethnic writings refer to writing systems that were either created by these minorities themselves or borrowed from other regions to represent their respective languages in pre-modern China. Some of these writings, which existed during specific historical periods, fell into disuse and gradually became "extinct" due to the integration, differentiation, or language shift of the communities that used them. Others have been adapted and are still in use by various ethnic minority groups to record their contemporary languages. Generally, the distinction between ancient writings and modern scripts in China is marked by the 1911 Revolution. Any writing systems developed or adopted in China before this event for recording ethnic languages can be classified as ancient ethnic writings. The earliest emergence and use of these writing systems can be traced back to the 2nd–3rd century CE. For instance, the Kharoṣṭhi script introduced to the regions of Khotan (now Hetian, Xinjiang) and Shanshan (now Ruoqiang, Xinjiang) around the second century represents one of the earliest examples. In contrast, the Manchu script, created during in the late sixteenth century and officially adopted in the seventeenth century during the Qing dynasty, remained in use until modern times. The Lisu syllabic script, invented by Wa Renbo (哇忍波) between 1923 and 1927, is also categorized as an ancient Chinese ethnic script due to its archaic characteristics.

China is one of the world's richest and most diverse repositories of writing systems. Fu Maoji[1] (1911–1988), a prominent Chinese linguist specializing in ethnic language scripts, documented 57 writing systems developed by ethnic minorities throughout history (Fu 1988). Nie Hongyin,[2] a researcher in Tangut (or Xixia) philology and the broader field of Chinese ethnic documents and writings, further expanded this figure, incorporating scripts designed by European missionaries in the twentieth century and experimental local writing systems created after the 1940s (Nie 1998). He estimated that nearly 100 writing systems have existed in Chinese history, with approximately 40 classified as ancient scripts of China's ethnic minorities. The origins and sources of these scripts exhibit remarkable diversity. Some were directly modeled on Chinese characters, such as the Square Zhuang script and the Bai script. Others, including the Khitan large and small scripts, the Jurchen and Tangut scripts, were adaptations based on Chinese characters. Several scripts derived from external ancient writing systems; for example, the Aramaic alphabet influenced the development of the Kharoṣṭhi script, Argi-Kuchean (also known as Tocharian), Khotanese, Sogdian, and Turkic scripts. The Sogdian script subsequently evolved into the Uyghur, Mongolian, Manchu, and Xibe scripts. The 'Phags-pa script, which served as the official writing system during the Yuan dynasty, originated from the Tibetan script, which itself can be traced back to the Indian Brahmi script. This abundance of scripts, alongside Chinese characters, forms a vibrant

[1] Fu is the family name. The Chinese names mentioned in this article follow the Chinese convention, where the surname precedes the given name.

[2] Nie is the family name. The Chinese names mentioned in this article follow the Chinese convention, where the surname precedes the given name.

"garden" that exemplifies the unparalleled diversity and richness of written language in China.

Based on the genetic relationships of writing systems, scholars generally classify the ancient ethnic writings that have appeared or been used within China into the following categories (Nie 1998):

1) Scripts of the Chinese family.
    a. Scripts modeled on Chinese characters: Quadrate Zhuang, Bai, Miao, Yao, Bouyei, Dong, Maonan, and Hani scripts.
    b. Scripts adapted from Chinese characters: Khitan large, Khitan small, Jurchen, Tangut, and Shu.

2) Scripts derived from the Aramaic alphabet.
    a. Kharoṣṭhi script.
    b. Brahmi-derived scripts include:
        - Central Asian variants: Tocharian (for the Argi-Kuchean language), Khotanese script;
        - Tibetan and its derivative 'Phags-pa script;
        - Tai branch scripts: Tai Lue (in both traditional and modern forms), Tai Nüa (Dehong), Tai Le (Beng), and Tai Dam (Jinping) scripts.
    c. Turkic script.
    d. Sogdian-derived scripts: including Sogdian, Uyghurian, Mongolian, Tod Mongolian, Manchu, and Xibe scripts.

3) Scripts derived from the Arabic alphabet: Chagatai, Uyghur, Kazakh, Kyrgyz, Uzbek, and Tatar scripts.
4) Writings of independent origin: Old Yi script from the heartland of the Yi people, in the area of present-day Yunnan, Guizhou, and Sichuan provinces; Naxi Dongba pictographs and Geba syllabic script (derived from Dongba); Ersu Shaba script; Lisu syllabic script.
5) Scripts derived from the Roman alphabet: Old Lisu, Northeastern Yunnan Miao, Pollard Lisu, Sara Wa, and others.

Since the eighteenth century, European expeditions have amassed a significant collection of artifacts along the Gansu Corridor (a vital segment of the Silk Road in China), including various manuscripts written in ancient scripts of China's ethnic minorities. By the late nineteenth century, as European missionaries and diplomats traversed northern China, they discovered inscriptions in 'Phags-pa, Tangut, Khitan small, Khitan large, and Jurchen scripts at historical sites such as the Juyong Pass, the Qianling Mausoleum of the Tang dynasty, the Qingling Mausoleum of the Liao dynasty, and locations in Kaifeng, Henan Province. Subsequently, the excavation of tens of thousands of manuscripts in Tibetan, Uyghur, Tangut, and other writing systems from the Mogao Grottoes in Dunhuang and the "Great Stūpa" in Khara-Khoto,

significantly expanded the corpus of ancient Chinese ethnic written monuments. The process of deciphering these scripts sparked a surge of scholarly interest in European academia, leading to the rise of ancient writing studies of China's ethnic minorities. In this historical context, an academic framework grounded in primary source materials from ancient scripts of China's ethnic minorities was soon established within the field of Oriental Studies, which later branched into specialized fields such as Dunhuangology and Tangutology.

As the diversity of writing systems discovered worldwide expanded, Western philologists increasingly engaged in rational and mature discussions on the definition and nature of writing, the relationship between writing and language, and the distinction between writing and symbols. In contrast, the Chinese academic community in this field appeared relatively conservative, with in-depth research often confined to Chinese characters. Although by the end of twentieth century, Chinese scholars had made substantial progress in studying paleography and ancient documents and inscriptions, encompassing over 30 distinct writing systems and laying the foundation for a new interdisciplinary field at the intersection of philology and history, few discussions addressed the commonalities and principles of these writings from the perspective of general grammatology. Specifically, only a few scholars, such as Zhou Youguang, Nie Hongyin, and Wang Yuanlu, integrated these ancient ethnic scripts into the broader context of Chinese and global writing development and delved into how these scripts recorded languages. This scarcity of research contrasts sharply with China's status as a "treasure trove" of scripts.

2 Research methods

Based on the theory of grammatology, this study first identifies several early script samples discovered in southern China since the twentieth century—specifically the Naxi Dongba script, the Ersu Shaba script, and the Poya Songbook—as forms of mnemonic symbols. It then analyzes the fundamental distinction between incipient and fully developed writing systems, arguing that the crux lies in how each type corresponds to spoken language. On this basis, the paper proposes the following definition of writing: "Writing is a system of graphic symbols that serves to aid memory, transmit, or record language." Next, the study demonstrates that the evolution of such mnemonic symbols into a mature syllabic script typically proceeds through the mechanism of homophonic borrowing. Finally, it illustrates—through concrete examples—the flexible character-formation methods found in Chinese-inspired and Chinese-derived ethnic scripts, thereby extending and enriching the traditional framework of the *Liushu*[3] of Chinese character construction.

[3] *Liushu* (六书, the "Six Methods" of character formation) is a classic theory on Chinese character formation originally systematized by Xu Shen in his 100 CE *Shuowen Jiezi* (说文解字). The methods include *xiangxing* (象形, pictograms), *zhishi* (指事, ideograms), *huiyi* (会意, associative compounds), *xingsheng* (形声, phono-semanticcompounds), *zhuanzhu* (转注, derivative cognates), and *jiajie* (假借, phonetic loan characters).

3 Results and discussion

3.1 Naxi Dongba pictographs as systematic "mnemonic symbols"

In the 1920s, Joseph C. F. Rock, commissioned by the National Geographic Society, the United States Department of Agriculture, the Harvard Botanic Garden, and the Harvard-Yenching Institute, embarked on an expedition to southwestern China to collect plant specimens. During his stay in Xuesong Village at the foot of Yulong Mountain in Lijiang, Yunnan Province, he discovered the Naxi Dongba pictographs and subsequently introduced this unique writing system and its associated scriptures to the global academic community. This contribution not only provided scholars with a "living fossil" of writing — a script form still in its early developmental stage — but also shifted Chinese scholars' focus toward the study of ancient ethnic writings in southern China.

The Naxi Dongba pictographs are commonly believed to have originated around the seventh century CE (He 1990). Strictly speaking, the Naxi Dongba pictographs constitute a structured mnemonic symbol system. Developed by the Dongba priests of the Naxi local religion, these pictographs served as an aid for memorizing words, sentences, passages, and chapters in their sacred texts through the use of pictorial symbols. For grammatical elements such as negations that could not be easily represented pictorially, the script often employs homophonic borrowing. In practical application, a single symbol in the Naxi Dongba pictographs may represent an entire sentence or key words, or phrases within a sentence. To fully comprehend the meaning of these symbols, one must consult the Dongba priests, who can recite the speech components corresponding to the script.

The mnemonic function of the Naxi Dongba pictographs and the primordial forms association between the symbols and units of spoken language have prompted scholarly reflection on the distinction between mnemonic symbols and fully developed writing systems.

Traditionally, fully developed writing has been defined as "a system of written symbols used to record language." Henry Rogers (2016) defines writing as "a system of written marks that represent specific spoken utterances." Istrin (2018) provides a more comprehensive definition: "Writing is a supplementary communicative tool for spoken language, developed based on language structures, primarily used to transmit speech across distances, preserve it over time, and express it through graphic symbols or images. These symbols or images typically represent various linguistic elements — ranging from simple bits of information to words, morphemes, syllables, or phonemes." In his *Visible Speech: The Diverse Unity of Writing Systems*, John DeFrancis (1989) categorizes writing systems into fully developed and undeveloped forms. Undeveloped writing encompasses mnemonic symbols, which aid in the recall of existing information, and notificational pictographs, which function to convey novel or unfamiliar information. He asserts that "all fully developed writing systems function to record language."

In contrast to DeFrancis's classification, symbols such as those found in the Naxi Dongba pictographs, which can assist in recalling "words" in a language,

fall into the more comprehensive category of "mnemonic symbols" designed to support the recollection of pre-existing information. Conversely, the well-known "Ojibwa love-letter" of a Canadian Indigenous girl serves as an example of notificational pictographs intended to convey novel and previously unknown speech content. While the former prioritizes aiding the recall of speech information, the latter emphasizes the transmission of such information. If a definition of writing were to include both undeveloped and developed forms, it might be articulated as: "Writing is a system of graphic symbols employed to aid, transmit, or record language."

Generally, mnemonic symbols rarely evolve directly into fully developed writing systems because only partially symbolized graphical forms can retain their mnemonic function. In contrast, fully developed writing systems must prioritize the principle of writing efficiency and transform into a highly abstract symbolic system capable of recording basic language components such as words or syllables. According to the definition that "writing is a system of written symbols used to record language," the Naxi Dongba script is one step away from becoming a fully developed writing system—specifically, by establishing a direct association between its graphic symbols and basic linguistic components like words or syllables. This precise developmental stage is the primary reason why scholars often describe it as a "living fossil" of writing.

Besides the Dongba pictographs, the Dongba priests also created a syllabic writing system known as the Naxi Geba script. The Geba script is a purely phonetic writing system initially designed to record incantations in religious texts. However, among the tens of thousands of extant Dongba scriptures, texts written purely in Geba are extremely rare. More commonly, individual Geba symbols are embedded within texts dominated by Dongba pictographs.

3.2 Yi script, Lisu syllabic script, and the definition of developed writing

Regarding the origin of the Yi script, a widely accepted viewpoint posits that it was created during or before the Han dynasty. According to records in the *Dianxi* (滇系): "During the Han period, there was a descendant of the Nagou chieftain named A Ting, who hailed from the Malong Prefecture. He resigned from his position and retreated to a valley, where he devised the tadpole-like Cuan (爨) script. It took him two years to complete this system, which comprised over 1,840 characters. Consequently, he was revered as the Ancestor of Writing." Wu Zili and others agreed with this view (Wu and Chen 1990). Similarly, the 13th volume of the *Dading County Annals* (大定县志) records: "A Ting, a Nagou chieftain during the Tang dynasty, resided in a valley and created the tadpole-like Cuan script; it took him three years to complete. The script contained 1,840 characters and was referred to as the *weishu* (韙书), now known as the Yi script. Its text is read from left to right in reverse order and incorporates both pictographic and ideographic elements" (Chen 1984). In its early stages, the Yi script functioned as a system of mnemonic symbols. Over time, the Yi people increasingly employed homophonic borrowing, gradually transforming the traditional Yi script into a syllabic writing system. Before the establishment

of the People's Republic of China, the Yi script had not undergone systematic standardization. As a result, the script used by Bimo priests in Yi communities across Yunnan, Guizhou, Sichuan, and Guangxi exhibited significant regional variation. After 1949, authorities in Sichuan, Yunnan, and Guizhou successively standardized the traditional Yi script, developing modern standardized versions that included the Yunnan Standard Yi script, the Guizhou Standard Yi script, and the Liangshan Standard Yi script (also known as the Sichuan New Yi script). Among these, the Yunnan Standard Yi script consists of 2,508 characters, while the Liangshan Standard Yi script comprises 819 characters.

The Lisu syllabic script, developed by Wa Renbo, a local priest (*Nipa*), in the early 1920s in Weixi County, Diqing Prefecture, Yunnan Province, emerged as a fully developed writing system from its inception. During that period, this script was colloquially referred to as "bamboo-strip writing" or "deerskin books." Wa Renbo, renowned for his remarkable memory and recitation abilities, systematically codified the phonetic syllables of the Lisu language and designed distinctive graphic symbols to represent them (Han and Han 2017). According to Han and Han's research, *Wa Renbo's Literacy Songs* comprises 918 characters, while an additional 71 unique characters appear in texts such as *The Great Flood* and *Genesis*, totaling 989 symbols in the Lisu syllabic script. Structurally, many symbols in the Lisu syllabic script consist of curved and arched lines, exhibiting a lower degree of visual abstraction compared to Chinese characters.

The evolution of the Yi script and the creation of the Lisu syllabic script offer valuable insights into three key aspects:

1) The primary criterion for assessing the development of a script is not its degree of symbolization but rather its capacity to accurately record the smallest language components, such as words or syllables, in sequential order. As Zhou (1997) noted, "'maturity' signifies the ability to fully capture language in word order."
2) The transformation of systematic mnemonic symbols into a fully developed writing system typically involves homophonic borrowing. During this transition, the Yi script underwent both homophonic borrowing and graphic symbolization, processes often driven by the conscious efforts of its users. As mnemonic symbols evolve to represent words, their increasing complexity can prompt users to simplify them through merging and reducing symbols, leading to a fully developed writing system capable of recording language. This simplification and abstraction inherently involve symbolization. When mnemonic symbols transform into a purely syllabic script, their original forms may become cumbersome for memorization. The Yi script exemplifies this process of symbolization and homophonic borrowing, ultimately resulting in a syllabic writing system that accurately records morphemes in language.
3) The maturity of a script is not necessarily correlated with its time of origin. According to scholarly perspectives, the Naxi Dongba pictographs were developed later than the Yi script, and the Lisu syllabic script was developed even more recently. The chronological origin of a script can be referred to as its "historical age," while its stage in the development of writing systems can be termed its "evolutionary stage." Users of a script often emphasize its historical age,

assuming that scripts with archaic forms must have originated in ancient times. In reality, an archaic writing system may not necessarily date back to antiquity, and a developed script may not always emerge in more recent times (Nie 2012). Greater attention should be paid to the evolutionary stage of a script, as only a well-developed writing system capable of accurately recording language reflects its users' understanding of their mother tongue. In this sense, Wa Renbo was not only a script scholar but also an outstanding linguist who was the first to systematically categorize the syllables of his native language.

In addition to the development of mnemonic symbols into a fully-fledged writing system through homophonic borrowing, the transformation of a Canadian Indigenous Ojibwe girl's tryst letters from expressive pictographs into a mature writing system would also necessitate homophonic borrowing. Without this process, it would be challenging to accurately record grammatical elements such as function words (*xuci*虚词). As Nie (1998) noted, "The emergence and gradual increase of homophonic borrowing marks the transition from a pictorial writing system to a true hieroglyphic system."

3.3 The Poya Songbook and the mnemonic function of proto-writing

In 2006, government officials in Funing County, Wenshan Zhuang and Miao Autonomous Prefecture, Yunnan Province, discovered a piece of cloth in Poya Village, Bo'ai Town, bearing 81 graphic symbols (Fig. 1). According to the owner of the cloth, this was a songbook that had been passed down through her family for generations. Each symbol represented a specific Zhuang love song, allowing individuals to recall and sing the corresponding song upon seeing the symbols. The songs varied in length (Liu 2009). The discovery of the Poya Songbook ignited intense academic debate regarding the nature of these 81 graphic symbols and prompted scholars to explore the primordial function in the emergence of writing.

Fig. 1 The graphic symbols of the Poya Songbook (Image source: Liu, Bingshan. 2009. A songbook of Zhuangs of Funing County, China (中国富宁壮族坡芽歌书). Beijing: Minzu Publishing House.)

From a purely graphical perspective, these 81 symbols resemble pictographs, depicting natural forms such as the moon, people, rice grain, duck, and fish. However, since they aid in recalling structured pieces of language—specifically songs—they undoubtedly possess a mnemonic function and can be considered mnemonic symbols.

Before the discovery of the "Poya Songbook," the Ersu Shaba pictographs were frequently regarded as one of the earliest examples of archaic writing systems. Used by the Shaba priests of the Ersu people in Liangshan Prefecture, Sichuan Province, these pictographs have no confirmed origin or creator and comprise approximately 200 symbols. Their key characteristics include:

1) The pictographic nature of its symbols, which clearly resemble the objects they represent, along with some derived and ideographic forms.
2) Colors such as white, black, red, blue, green, and yellow are often integrated into the graphs to convey additional meanings (e.g., white symbolizes metal, green represents wood, blue signifies water, red denotes fire, and yellow corresponds to earth).
3) The graphs lack standardized stroke orders or writing formats, but characters are occasionally arranged in a specific sequence within a complex graphic to indicate chronological order, typically progressing from the lower left, upper left, upper right, lower right, and finally the center.
4) The relationship between graphs and language is not one-to-one; a single graph can correspond to multiple syllables or even represent an entire passage (Sun 1982). Considering the Poya Songbook, Ersu Shaba, and Naxi Dongba pictographs within an evolutionary framework, we observe a progression in the association between mnemonic symbols and language components. Initially, symbols served to prompt the recall of entire songs (as textual chapters), then evolved to prompt passages, and finally developed into symbols capable of prompting sentences and phrases.

From the current academic consensus, both the Ersu Shaba and the Naxi Dongba pictographs are classified as forms of writing. However, does the more archaic Poya Songbook also qualify as a form of writing? More specifically, can mnemonic symbols that are solely associated with textual units be considered writing? According to the classifications proposed by scholars such as DeFrancis, mnemonic symbols represent an underdeveloped stage of writing systems, placing the Poya Songbook within the realm of writing. If it is indeed regarded as writing, this would signify our encounter with one of the oldest and most archaic examples of writing—a system that has yet to fully evolve away from pictorial representation. Recent scholarly opinions predominantly affirm that the drawings in the Poya Songbook constitute a form of writing, fulfilling the traditional definition of writing as encompassing form, sound, and meaning. Zhou Youguang inscribed the phrase "Poya Songbook, the bud of writing" on the front page of *China's Funing Zhuang Poya Songbook* (Liu 2009), thereby endorsing a similar affirmative perspective. However, if we classify mnemonic symbols such as those

in the Poya Songbook as a form of writing, this classification may challenge prior academic understandings of the nature of archaic writing:

1) Writing as a tool for communication: The well-known "Ojibwa love-letter" of a Canadian Indigenous girl demonstrates that early pictorial writing was predominantly used as a medium for communication and expression. It is challenging to conceive of a writing system that functions solely as a memory aid without serving any communicative purpose.
2) Writing as a system of symbols for recording language: Writing systems generally consist of "discrete symbols" that can be recombined or reused independently, as exemplified by the radicals in the Yi script and Chinese characters or the symbols in the Naxi Dongba script. However, there is insufficient evidence to suggest the presence of such independent components in the Poya Songbook.
3) Convention and standardization in writing: Writing systems depend on conventional usage. For instance, the Naxi Dongba pictographs are regarded as writing because different Dongba priests consistently used the same symbols to represent the same phrases. In contrast, the Poya Songbook does not exhibit the level of standardization and conventionality required to be classified as a writing system.

In prior classifications of writing systems based on the history of writing development (Zhou 1998), scholars often focused on changes in graphical appearance while overlooking the fundamental distinction in how archaic and fully developed writing systems are associated with language. As previously discussed, DeFrancis categorizes undeveloped writing symbols into two types: mnemonic symbols, which assist in recalling existing information, and notificational pictographs, which convey new or unfamiliar information. Jensen (1970), in his *Signs, Symbols, and Scripts*, similarly highlights that "the purpose and function of writing lie in the dissemination of information (whether for communication with others or as a personal mnemonic aid)." Mnemonic symbols serve as memory aids for oral literature already stored in the human brain, functioning as prompts to facilitate the recall of spoken texts. The Naxi Dongba pictographs, Ersu Shaba pictographs, Yi script, Shui script, and Lisu syllabic script all originated from the need for mnemonic devices. Dongba priests, Bimo shamans, and Nipa priests not only conducted rituals such as exorcisms, deliverance rites, and sacrifices but also preserved their ethnic religious beliefs, history, astrology, calendars, and agricultural knowledge. Their minds contained vast amounts of oral literature, necessitating the assistance of mnemonic symbols in retaining and transmitting this knowledge. This archaic form of writing, functioning as mnemonic symbols, is fundamentally different from fully developed writing. Archaic writing does not require adherence to word order or prompt language on a word-by-word basis. Consequently, unlike fully developed writing, it does not need to record the smallest units of language.

The philological significance of the Poya Songbook lies in two key insights. First, they highlight that one of the earliest functions of writing was to aid memorization of language. Second, they prompt us to reconsider the criteria

for identifying pictographic systems as archaic writing. Similar to distinguishing between archaic and fully developed writing, the classification should not rely heavily on the pictorial resemblance of the symbols, their communicative function, or their historical period of origin. Instead, greater emphasis should be placed on whether these symbols are systematically linked to specific linguistic units. If a pictographic system serves prompt language—whether for texts, paragraphs, sentences, or phrases—it should be recognized as a form of archaic writing.

3.4 Ancient Chinese ethnic writings' engagement with the *Liushu (Six mtthods)*: adoption and adaptation

The Tangut script was officially created in 1036 as the writing system of the Xixia State (1038–1227) for recording the Tangut language. It was developed through a concentrated and systematic effort over a relatively short period. Volume 485 of *Songshi* (宋史) reads: "Yuanhao devised the Tangut script and entrusted Yeli Renrong with its development. The result consisted of twelve volumes. The characters were square and orderly, resembling the *lishu* (隶书, clerical script),[4] but their strokes were somewhat redundant. The Tangut people were educated to use the script for recording events, and translating key Chinese classics from the Central Plain, such as the *Xiaojing*, *Erya*, and *Four-Character Miscellaneous Texts*" (Tuotuo 1977a). The Tangut dictionary *Tongyin* contains 6,133 characters, though Li (1986) notes that the actual number of characters is slightly over 5,800. Unlike the Chinese *Liushu* in its application of the six methods, the Tangut script lacks the relatively archaic pictographs and indicatives found in the Chinese system. Instead, it primarily relies on *huiyi* (会意, associative compounds) and *xingsheng* (形声, phonosemantic compounds) for character creation, with *huiyi* characters being more prevalent. Additionally, the Tangut script adopted a method akin to the Chinese *zhuanzhu* "mutual explanation" (转注, derivative cognates), systematically creating synonymous or closely related words by swapping the components of a character.

1) The Tangut script's inheritance and development of the *liushu* in creating characters.

a. *Huiyi* (Associative Compounds)

Xu Shen, in the preface to *Shuowen Jiezi* (说文解字),[5] defines *huiyi* as: "Huiyi (associative Compounds) are those formed by combining related meanings to

[4] Another corresponding word is *bafen*八分 (eight-part calligraphy), originated in the Qin dynasty and flourished in the Han-Wei dynasties. Whereas in the Tang dynasty, it referred to the "clerical script" used on the stone inscriptions of classics (*shijing* 石经), which was calligraphically different from the so-called *hanli* 汉隶 (clerical script in the Han dynasty), and widely used in official and private documents. In minority areas during the Song era, the nomenclatures *bafen* and *lishu* tended to be confused for *kaishu* 楷书 (regular script).

[5] *Shuowen Jiezi* (说文解字, "Explaining Characters and Analyzing Words"), compiled by Xu Shen in the Eastern Han Dynasty, is China's first character dictionary that systematically analyzes the form, sound, and meaning of Chinese characters.

express an intended idea, such as *wu* 武 (military) and *xin* 信 (trust).” This method involves using two or more characters and combining their related meanings to form a new character. The associative Compounds in the Tangut script exhibit distinct characteristics compared to their Chinese counterparts.

Firstly, Chinese associative Compounds are predominantly used to represent verbs. In contrast, due to the absence of relatively archaic pictographs in the Tangut script, a wide range of parts of speech including nouns, verbs, and adjectives are expressed by using this method. Additionally, Tangut characters typically consist of multiple components, with each character containing at least two parts. For example, in *Wenhai* 36.121,[6] [illegible] njɨ^{1} (skirt) is formed by combining [illegible] kjir^{2} (waist) and [illegible] tśjɨ^{1} (wrap); in *Wenhai* 7.112, [illegible] bia^{2} (crawl) is formed by combining [illegible] ŋwer^{2} (knee), [illegible] lạ^{1} (hand), and [illegible] dzji (move), signifying “moving forward with the knees and hands touching the ground.”

Secondly, to enhance associative compound representation and facilitate memorization, the Tangut script extensively employs the method of graphic abbreviation (*shengxing* 省形) in character creation. Specific terms were devised to describe this process: [illegible] ɣu^{1} (head) indicates retention of the upper part of a character; [illegible] tśhjɨj^{1} (base) indicates retention of the lower part; [illegible] pha^{1} (half) indicates retention of the left half; [illegible] bjij^{2} (right) indicates retention of the right half; [illegible] njɨ̱j^{1} (middle) indicates the retention of the central part; [illegible] iọ^{1} (surround) indicates the retention of the outer frame; [illegible] khjɨ^{1} (foot) indicates the retention of the lower-left extending portion. For example, in *Wenhai* 14.121: [illegible] pie^{1} (broad) is formed by combining the left part of [illegible] zjij^{1} (spacious) and a complete [illegible] low^{2} (wide); in *Wenhai* 75.143: [illegible] tsə̱^{1} (autumn) is formed by combining the left part of [illegible] rer^{2} (rice) and a complete [illegible] ljij^{2} (see).

In addition, a significant number of characters in the Tangut script incorporate the “negation” element represented by [illegible] mji^{1} (not). For instance, in *Wenhai* 9.111, [illegible] dju^{1} (lawsuit) is formed by combining the left part of [illegible] mji^{1} (not) and the right part of [illegible] wə̱^{1} (obey). In *Wenhai* 30.231, [illegible] mja̱^{1} (thick) is formed by combining the left part of [illegible] mji^{1} (not) and the right part of [illegible] tshjɨj^{1} (thin). Furthermore, in *Wenhai* 31.211, [illegible] sã^{1} (scattered) is formed by combining the left part of [illegible] mji^{1} (not) and a complete [illegible] śio̱^{1} (gathered).

b. *Zhuanzhu* (Derivative Cognates/Component-Switching)

In the preface to *Shuowen Jiezi*, Xu Shen defines *zhuanzhu* as: “Establish a category with a shared radical, and let characters with related meanings interpret each other, as seen in kao 考 and lao 老 (both meaning ‘old’.” The phrase “establishing a category with a shared radical” refers to grouping semantically related characters under a structural component, while “mutual interpretation” indicates that two characters with similar or interrelated meanings one another. Duan Yucai, in his *Shuowen*

6 *Wenhai* (文海, “Sea of Characters”), a 12th-century Tangut rhyming dictionary, is a primary source for the study of the Tangut script and language, providing definitions, pronunciations, and character structure analyses.

Jiezi Zhu (说文解字注),[7] elaborates that "*zhuanzhu* means mutual glossing." In the Tangut script, some synonyms or near-synonyms are formed by switching the positions of two identical character components. Nishida (1966) first applied the term "*zhuanzhu*" to describe this method of character formation. For example (Table 1):

The characters formed using the "component-switching" method in the Tangut dictionary can generally interpret each other or combine to form disyllabic words. Taking the first pair as an example, *Wenhai* 7.111 states: "[Tangut character] dźjwu^{1}(人, person) means [Tangut character] wji̦^{1} (人, person)"; while Wenhai 72.152 states: "[Tangut character] wji̦^{1} (人, person) means [Tangut character] dźjwu^{1} (人, person)."

This format of "mutual glossing" closely mirrors the classic *zhuanzhu* examples in *Shuowen Jiezi*, where definitions are reciprocally given, as seen in "kao 考 is lao 老" and lao老, is kao考 (both meaning "old").

From the traditional perspective of *liushu*, the character formation methods of the Tangut script represent a creative inheritance and advancement of the Chinese principles of *huiyi* (associative compounds) and *zhuanzhu* (derivative cognates).

2) *Onyomi* (音读, phonetic reading) and *Kunyomi* (训读, semantic reading)

When Chinese characters are borrowed to write ethnic languages in China, their pronunciations primarily follow two methods: *onyomi* (phonetic reading), which approximates the original Chinese sound, and *kunyomi* (semantic reading), where the character is assigned a native word from the ethnic language. This phenomenon is observed across the Chinese-character cultural sphere. For instance, in Japanese, the character 東 (east) is read as *tō* (*onyomi*) and 川 (river) is read as *kawa* (*kunyomi*). Similarly, Chinese-inspired ethnic scripts in southern China commonly adopt this approach of combining phonetic and semantic borrowing (Nie 1998). For example, the Chinese character 風 (*feng,* wind) is borrowed into the Bai script with a *kunyomi* reading of *pi*^{35} (wind); similarly, the character 走 (*zou,* to walk) is borrowed into ancient Zhuang script with a *kunyomi* reading *byaij* (to walk). However, compared to Japanese, when Chinese-inspired ethnic scripts borrow Chinese characters, notable differences emerge:

a) Whole-word borrowing: When a Chinese borrowing is read in *onyomi*, its meaning often diverges from the original Chinese. For instance, the Chinese character 波 (bō, wave) in Bai script is read as *po*^{55} but signifies "his," while the character 斗 (dǒu, dipper) in ancient Zhuang script is read as *daeuj* but means "to come" (Nie 1998).
b) Whole-word borrowing: When a Chinese borrowing is read in *kunyomi*, a distinctive mark, generally a dot (丶), is added to the original character. For example, in ancient Zhuang script, 門 (door) is modified to signify 門丶 (tou, door) and 土 (tǔ, earth) is modified to signify 土丶 (to, earth)by adding a dot. Similarly, in Jurchen script, 日 (rì, sun) is modified to signify 日丶 (inengi, day) and 月 (yuè, moon) is modified to signify 月丶 (biya, month) with the same diacritic (Nie 2019). Addition-

[7] *Shuowen Jiezi Zhu* (说文解字注, "Annotations on Shuowen Jiezi"), by Duan Yucai, is a philological work of the Qing Dynasty. It serves as a systematic and highly influential annotative work on *Shuowen Jiezi*.

Table 1 Examples of *Zhuanzhu* in Tangut script

Tangut script	Reconstruction	Meaning	Tangut script	Reconstruction	Meaning
	dźjwu[1] wjị[1]	everyone		khwej[2] ljɨj[2]	vastly
	pjowr[2] phu[2]	luxuriant		dźjwu[1] thjɨj[1]	lightning
	war[2] bạ[2]	foliage		·jiw[1] niu̲w[1]	causality

ally, in Tangut literature, some Chinese characters borrowed for *kunyomi* reading are distinguished by adding the 口 (kou) radical. For instance, the character 嘿 (hei) in *Zhangzhongzhu*[8] is used to phonetically annotate the Tangut word 𗥃 (njaa[1], black). This same character also corresponds to ñā in the Sanskrit transliteration of prajñā (transcribed in Chinese as 不啰嘿, bùluōhēi). This indicates that the Chinese character 黑 (hēi, black) was modified with the 口 radical to form hēi 嘿, representing a kunyomi reading of na with the meaning "black" in the Hexi dialect (Nie 2005).

c) Semantic compounds: Forming a new character by combining a semantic component with a phonetic component is read as in Chinese (onyomi). For example, in ancient Zhuang script, 𥲍 (*gyaj*) means "seedling" and reads as the Chinese 加 (jia); the character 𠵎 (dat) means "to cut" and reads as the Chinese 达 (da); in Dong script, the character 伀 (*pu*) means "father" and reads as the Chinese 不 (bù) (Nie 1998).

d) Semantic compounds: Forming a new character by combining a semantic component with a phonetic component read in *kunyomi*. For example, in the ancient Zhuang script, the character 𰯲 (ndaem, to plant) adopts the *kunyomi* reading "ndaem," which is homophonic with the Zhuang word for "black" (Nie 1998).

The borrowing and creative adaptation of Chinese characters in Chinese-inspired and Chinese-derived ethnic scripts have not only significantly expanded the scope of the *liushu* methods of Chinese character formation, but also vividly illustrated the profound cultural exchanges and integration among various ethnic groups in ancient China. As a Xixia school teacher named Gule Maocai stated in the preface to *Zhangzhongzhu*, "In our time, both Fan (番, Tangut) and Han (汉, Chinese) languages can be mastered. Without learning the Tangut language, how can one reach an understanding with its people? Without mastering Chinese, how can one find acceptance among the Han? It occurs that a wise Tangut person receives no respect from the Han, and a worthy Han person receives no honor from the Fan. Such situations arise from a failure to communicate across languages and go against the teachings of the sages" (Huang et al. 1989).

3.5 Khitan small script and Jurchen small script: the applicability of writing to language

After the establishment of the Liao dynasty, two distinct writing systems were successively created: the Khitan large script and the Khitan small script. The large script was created and officially adopted in the fifth year of the Shence era (920 CE) under Emperor Taizu (Abaoji), who commissioned the scholars Tulübu and Lubugu to design it based on Chinese clerical script (*lishu*). As recorded in *Liaoshi* (History

[8] Zhangzhongzhu (掌中珠, "Pearl in the Palm"), a 12th-century bilingual Chinese-Tangut glossary, is a primary source for deciphering the Tangut script and studying the Tangut language.

of Liao): "In the spring of the fifth year of Shence (神册), on the yichou day (the 3rd day) of the first Chinese lunar month, the creation of the Khitan large script was initiated… In the ninth lunar month, on the day of Jichou (the 1st day of the month), the Liang envoy Lang Gongyuan, arrived on a diplomatic mission. On the Day of Renyin (the 14th day), the large script was completed, and an imperial edict was issued to promulgate it throughout the realm" (Tuotuo 1974b). Soon afterward, Yelü Diela, the emperor's younger brother, created the Khitan small script. *Liaoshi* recounts: "Diela, courtesy name Yundukun… was exceptionally intelligent and resourceful… When a Uyghur envoy arrived and no one at court could understand his language, the Empress Dowager said to Emperor Taizu: 'Diela is intelligent and can act as an interpreter.' Subsequently, Diela was sent to accompany the envoy. Within twenty days, he had mastered both the spoken and written forms of the Uyghur language. On this basis, Diela created the Khitan small script—compact in inventory yet comprehensive in scope" (Tuotuo 1974a). The Khitan large script was an ideographic system modeled on Chinese characters, simplifying complex components and adding strokes to simpler ones in the Chinese script. In contrast, the Khitan small script, inspired by the Uyghur writing, utilized some of the Khitan large script characters as fixed phonetic symbols, forming a syllabic writing system. These symbols, often referred to as "original characters" in scholarship, number nearly 500.

Corresponding to the Khitan large and small scripts, the Jin dynasty also created two writing systems: the Jurchen large and the Jurchen small script. The large script is an ideographic system, while the small script is a phonetic one. The large script was promulgated in the 3rd year of the Tianfu era (1119), while the small script was created and promulgated in the 1st year of the Tianjuan era (1138), with its initial official use recorded in the 5th year of the Huangtong era (1145). According to *Jinshi* (History of Jin): "The Jurchen people initially had no scripts. As the state grew stronger and its interactions with neighboring countries increased, it adopted the Khitan script. Emperor Taizu then ordered Wanyan Xiyin to create a script for the Jurchen court and establish corresponding institutions. Basing it on Chinese regular script and inspired by the structure of the Khitan script, Xiyin adapted it to the Jurchen language and created the Jurchen large script. In the 8th month of the 3rd year of Tianfu (1119), the *Character Book* was completed. Emperor Taizu was greatly pleased and ordered its promulgation throughout the land, rewarding Xiyin with a horse and a suit of clothing. Later, Emperor Xizong also created a Jurchen script, which was used alongside Xiyin's version. The script created by Xiyin is known as the Jurchen large script, while Xizong's version is referred to as the Jurchen small script" (Tuotuo 1975a). According to Volume 4 of *Jinshi* (History of Jin): "on the Wuzi day (the 1 st day) of the 1 st Chinese lunar month in the first year of Tianjuan (天眷), Emperor Xizong held court at Mingde Palace. Envoys from Goryeo and XiXia (Western Xia) came to offer their congratulations. On this occasion, the Jurchen small script was officially promulgated … On the Wuwu day (戊午, the 14th day) of the fifth month in the fifth year of Huangtong (皇统), the small script was first employed in official imperial documents" (Tuotuo 1975b).

Both the Khitan and Jurchen languages belong to the Altaic family and are agglutinative, relying primarily on affixes to convey grammatical relationships.

The Khitan and Jurchen small scripts were developed precisely to accommodate the complex morphological patterns of agglutinative languages, refining the earlier large scripts by modifying ideographs or adding phonetic components. Although both scripts are referred to as "small scripts," the two systems differ significantly. The Khitan small script, inspired by the Uyghur script, functions as a syllabic writing system. Although it did not develop into a fully alphabetic system like the Uyghur script, it unequivocally operates as a phonetic writing system. In contrast, the Jurchen small script created by Emperor Jin Xizong contained only phonetic affixes and grammatical markers, falling short of a complete, independent writing system. In other words, Xizong's reform of the Jurchen large script was less thorough than Yelü Diela's reworking of the Khitan large script; Xizong merely supplemented Wanyan Xiyin's earlier ideographic system with phonetic characters used to write suffixes and grammatical elements. Consequently, the Jurchen script employed two complementary writing systems to record the language, much like the modern Japanese use of both *kanji* and *kana* in their writing system.

In the Ming dynasty, the Jurchen script in the *Nüzhen Yiyu* (女真译语) had not yet fully transitioned away from the ideographic system, with word roots typically recorded using ideographs, while derivational and grammatical elements were rendered phonetically. Nevertheless, the text shows significant replacement of original ideographs for word roots with phonetic characters, alongside widespread homophonic borrowing of ideographs for purely syllabic use. For example:

(1)  (*bie*), a verb suffix in its basic form. In *Nüzhen Yiyu*,  (*xa-ʧa-bie*) means "to see," and  (*o-mia-bie*) means "to meet." Additionally, (*bie*) can also function as a purely phonetic character, as seen in  (*ʧi-bie-xuŋ*, swallow).

(2)  (*ali*), originally meaning "mountain," is exemplified in *Nüzhen Yiyu* by *ali-in*  (mountain). It can also serve as a phonetic character, such as in  (*ali-buwi*, bestow).

Although the existing Jurchen script cannot be strictly classified as a pure syllabic system from a structural perspective, it clearly exhibits a tendency toward evolving into a syllabic script.

The reforms embodied in the Khitan small script and the Jurchen small script represent adaptations of their respective large characters that were carefully tailored to the linguistic features of each languages. The philological significance of this evolution lies in demonstrating that while writing systems develop according to their own internal logic, and while a community's choice of a script may be shaped by religious, cultural, and other non-linguistic factors, writing remains fundamentally a system of graphic symbols for recording language. Consequently, through use, a script will inevitably develop a closer fit to the distinctive characteristics of the language it represents.

3.6 The creation of the 'Phags-pa script and the social attributes of writing

The 'Phags-pa script, also known as the "Mongolian new script," was developed by the Imperial Preceptor 'Phags-pa Blo-gros rgyal-mtshan under the order of Khubilai Khan. It was based on the Tibetan script and officially promulgated in the 6th year of the Zhiyuan era (1269). According to *Yuanshi* 元史 (History of Yuan): "In the sixth year of Zhiyuan, an edict was issued to promulgate it ('Phags-pa script) throughout the empire. The edict read: I reflect that writing records speech, and speech records events—this is a universal principle throughout history. Our state, founded in the northern regions, adheres to a tradition of simplicity and antiquity and has not yet developed a writing system. In all applications of writing, we have therefore used Chinese regular script and the Uyghur script to convey our dynasty's language. Observing the Liao, Jin, and other distant states, each has its own script. Now as civil administration expands, the lack of a dedicated script leaves our dynasty's institutions incomplete. Thus I have specifically commanded the imperial preceptor 'Phags-pa to create the Mongolian new script to translate all languages, aiming only to accord with speech and convey meaning clearly. From now on, all official documents bearing the imperial seal will use the Mongolian new script, with each document still accompanied by its corresponding script of each respective state" (Song 1976). Existing'Phags-pa script texts include not only translations of Mongolian and Chinese but also encompass translations of Tibetan, Sanskrit, and Uyghur.

In order to fully embody the characteristics of the 'Phags-pa script as a system designed to "translate and write all languages" and serve as the "state script," Imperial Preceptor 'Phags-pa introduced several modifications to the Tibetan script's glyphs and writing style: First, the letters were squared off in imitation of Chinese characters; second, character were combined in vertical stacks following the Uyghur-Mongolian model; third, several additional letters were introduced to represent Sanskrit phonetic sounds; and fourth, the writing direction was changed to vertical left-to-right following the Uyghur-Mongolian practice.

Prior to this development, the Uyghur-Mongolian script had already been used to write Mongolian. In 1204, during Genghis Khan's westward campaign against the Naiman tribe, he captured Tatatong'a, a Uyghur official in charge of seals. Genghis Khan then ordered him to teach the Uyghur script to the Crown Prince and other princes for writing the Mongolian. As noted in the *Yuanshi*, "In all applications of writing, we have therefore used Chinese regular script and the Uyghur script to convey our dynasty's language" — here "the Uyghur script" refers specifically to the Uyghur-Mongolian script. Furthermore, since both Uyghur and Mongolian belong to the Altaic language family, the Uyghur script proved well-suited to represent Mongolian's agglutinative morphology. Without other influencing factors, there would have been no need to create a new script.

Khubilai Khan's motivation for commissioning 'Phags-pa to create a new script based on Tibetan was rooted in profound social and political considerations.

First, the creation of a new script, like calendar reform or changes in ceremonial dress, has traditionally been regarded as a symbol of a legitimate dynasty. The creation of the Khitan, Jurchen, and Tangut all occurred within this context of state-building and institutional consolidation. As recorded in *Liaoshi*: "When our Great

Ancestor assumed the throne, he created a script, established rituals and laws, conferred the title of 'Heavenly Emperor,' constructed palaces to display authority, promoted welfare, eliminated harms, and unified the land" (Tuotuo 1974c). Similarly, *Jinshi* reads: "Initially, the Jurchens had no script. As the state grew more powerful and engaged with neighboring polities, it adopted the Khitan script. Emperor Taizu then ordered Wanyan Xiyin to create a state script and establish corresponding institutions" (Tuotuo 1975a). After consolidating control over the Hexi Corridor and completing his territorial expansion, Xixia founder Emperor Yuanhao created the Tangut script in 1036 (the third reign year of Jingyou). In a memorial submitted to the Song court, Yuanhao explicitly likened script creation with the establishment of ritual and institutions: "I, your subject and vassal, in a moment of unwarranted audacity, have presumptuously created a script for our minor western realm and reformed the ceremonial dress of the Great Han. Now that dress has been standardized and the script implemented, rituals have been established and instruments prepared. All lands—from Tibet and the Tatar tribes to Zhangye and Jiaohe—have submitted to my rule. Declaring myself 'King' brings no satisfaction, yet paying homage to the 'Emperor' meets with compliance. Let the multitudes gather like spokes to a hub, time and again, raising unified acclamations in reverence. I humbly request a parcel of land to found a state with ten thousand chariots" (Tuotuo 1977b). In modern times, the adoption of the Cyrillic script for recording the language in Mongolia undoubtedly also reflects political considerations.

Second, the decision regarding which script to adopt for recording a native language was primarily shaped by religious, cultural, and other non-linguistic factors. The creation of the 'Phags-pa script, which was based on Tibetan, was significantly influenced by Tibetan Buddhism. During the transition in the Xixia and Yuan dynasties, regions such as Ganzhou, Yongchang, and Liangzhou, located near Tibet, retained the traditions of the Xixia and were deeply devoted to Tibetan Buddhism. In 1240, the Mongol prince Khoton dispatched a military expedition led by Doorda Nagpo from Liangzhou into Tibet, and extended an invitation to Janggya Chakna, the throne-holder of Drigung Monastery (the main seat of the Drigung Kagyu tradition), to Liangzhou. However, Janggya Chakna recommended Sa'gya Pandita instead leading to a historic meeting in 1247 between Sa'gya Pandita, 'Phags-pa and the Yuan rulers in Liangzhou. This encounter laid the foundation for the subsequent flourishing of the Sakya school of Tibetan Buddhism at the Yuan court over the next century, with'Phags-pa later becoming the imperial preceptor. Similarly, the Liao, Xixia, and Jin dynasties all created new scripts modeled on Chinese characters. The fact that the Khitan small script did not adopt the Uyghur script was influenced by the dissemination of Confucianism during the Tang-Song periods among surrounding ethnic groups. This influence is evident in the following passage from Volume 72 of *Liaoshi* (the History of Liao): "At that time, Emperor Taizu asked his ministers: 'As a ruler ordained by heaven, one should worship heaven and revere the Deities. I wish to worship those who have performed great deeds. Whom should be honor first?' The ministers unanimously responded: 'Buddha'. The Emperor remarked, 'Buddhism is not a native religion of China'. Yelü Bei interjected: 'Confucius should be the first, because he is the greatest sage revered through the ages.' Emperor Taizu was

greatly pleased and thus ordered the construction of a Confucius temple, decreeing that the crown prince should perform spring and autumn sacrifices" (Tuotuo 1974b). From the thirteenth century onward, Islam began to spread extensively eastward from the Western Regions (西域) into central China. It rapidly supplanted Buddhism in Xinjiang; as a result, many ethnic groups in the region abandoned their original scripts and adopted the Arabic alphabet to write their languages.

The 'Phags-pa script's adaptation of Tibetan letters is of significance to the general theory of writing systems. While writing systems function as symbolic frameworks for recording language, the choice of a writing system for a given language is not necessarily determined by linguistic factors alone. Writing systems possess a social dimension, and elements such as religious beliefs, political context, and cultural identity often play a decisive role in a community's choice of a writing system.

4 Conclusion

Although we are accustomed to coupling language and writing, from a scientific standpoint, language and writing have different genealogical origins. Linguistics and the study of writing systems differ essentially in their research goals, subjects of investigation, and methodologies. Linguistic research typically does not require detailed consideration of writing systems, whereas the study of writing systems must appropriately account for linguistic issues, given that a writing system must be fitted to the language it records. If a writing system fails to adequately represent a native language, the linguistic characteristics responsible for such inadequacy must be analyzed, and modifications to the writing system may be required accordingly.

Although writing is a system of symbols used to record language and is named after language, it cannot be classified solely on linguistic criteria. Writing emerged from the need to aid memory and convey meaning, eventually evolving into a developed system capable of recording language word-by-word according to its structure. The ancient writing systems of China's ethnic groups exhibit remarkable diversity. We can primarily categorize them into two groups: those serving as "mnemonic symbols for language" and "symbols for recording language." The former includes scripts such as the Naxi Dongba and Ersu Shaba pictographs. The latter, which can be regarded as developed writing systems, can be further classified based on the linguistic units they represent and their system types:

1) Phonemic scripts: Kharoṣṭhi script, Argi-Kuchean, Khotan, Tibetan, Dai, 'Phags-pa, Turkic, Sogdian, Uyghur, Uyghur-Mongolian, Tot-Mongolian, Manchu, Chagatai, Kazakh, Kyrgyz, Old Lisu, Old Miao script from northeastern Yunnan, etc.
2) Syllabic scripts: Yi, Khitan small, Naxi Geba, Lisu syllabic script, etc.
3) Mixed systems of ideograms and phonetic symbols: Jurchen script, etc.
4) Ideographic scripts: Khitan large script, Tangut script, Square Zhuang script, Square Bai script, etc.

Compared to language, the borrowing of writing systems more vividly demonstrates the influence of external cultures and religions on a particular ethnic group. However, almost all writing systems that borrow from an existing script are not merely copied but rather a creative adaptation and evolution, which may eventually become a distinctive symbolic feature of that ethnicity. Most of the ethnic scripts that have emerged in China, both historically and in modern times, were systematically devised by individuals, such as the Tibetan, Khitan, Jurchen, Tangut, 'Phags-pa, and Lisu syllabic scripts. The flexible character formation methods employed in these Chinese-style scripts have significantly enriched the theoretical framework of Chinese character studies, particularly the *liushu*, or the "Six Methods" of character formation.

We refer to the time of the creation of a writing system as its "historical era," and evaluate its "philological era" based on the extent to which the script can record language word-by-word. A script that emerged earlier does not necessarily belong to an earlier philological era, nor does a script that emerged later necessarily belong to a later philological era, and vice versa. The academic community frequently overemphasizes the creation time of a script, assuming that an earlier creation time equates to a more historically mature writing system. In reality, this assumption does not hold true.

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Comments