

Universal Multiple-Octet Coded Character Set
 International Organization for Standardization
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 Международная организация по стандартизации

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1. Background

1.1. Basic introduction

JIANZI (减字) is a notation used to record the approaches of playing Chinese Guqin (古琴, one kind of seven-string instrument) and is the most ancient notation which is still in use in the real world. In 2003, the art of Guqin music was proclaimed as one of the *Masterpieces of the Oral and Intangible Heritage of Humanity* by UNESCO.

Fig. 1.1.1 Introduction of Guqin and its music in the website of UNESCO

<https://ich.unesco.org/en/RL/guqin-and-its-music-00061>

Guqin and its music

China

Inscribed in 2008 (3.COM) on the Representative List of the Intangible Cultural Heritage of Humanity (originally proclaimed in 2003)



The Chinese zither, called guqin, has existed for over 3,000 years and represents China's foremost solo musical instrument tradition. Described in early literary sources and corroborated by archaeological finds, this ancient instrument is inseparable from Chinese intellectual history. Guqin playing developed as an elite art form, practised by noblemen and scholars in intimate settings, and was therefore never intended for public performance. Furthermore, the guqin was one of the four arts – along with calligraphy, painting and an ancient form of chess – that Chinese scholars were expected to master. According to tradition, twenty years of training were required to attain proficiency.

The guqin has seven strings and thirteen marked pitch positions. By attaching the strings in ten different ways, players can obtain a range of four octaves. The three basic playing techniques are known as san (open string), an (stopped string) and fan (harmonics). San is played with the right hand and involves plucking open strings individually or in groups to produce strong and clear sounds for important notes. To play fan, the fingers of the left hand touch the string lightly at positions determined by the inlaid markers, and the right hand plucks, producing a light floating overtone. An is also played with both hands: while the right hand plucks, a left-hand finger presses the string firmly and may slide to other notes or create a variety of ornaments and vibratos.

Nowadays, there are fewer than one thousand well-trained guqin players and perhaps no more than fifty surviving masters. The original repertory of several thousand compositions has drastically dwindled to a mere hundred works that are regularly performed today.



Fig. 1.1.2 Guqin



The proposed symbols are called as Jianzi or Jianzi Musical Notation. Comparing with Chinese Guqin, an instrument of three thousand years, the history of Jianzi is relatively much shorter that it has been more than one thousand years since Jianzi was created in Tang dynasty of China.

Although there was the crisis after second world war that according to a survey there were less than 300 people who could still play the instrument not to mention the Jianzi. But now the figure has grown more than 1,000 times. A simple and rough calculation shows that number of people who use Jianzi has reached 500,000 in mainland China.

Until the founding of People's Republic of China, there are 150 books of scores of Chinese Guqin written in Jianzi which contains more than 3,000 songs. The modern musicians tried to improve the Jianzi system by using staff notation to address deficiencies of rhythm indication. Some even tried to completely replace Jianzi. However, after 60 years practice, it proves in the end that Jianzi and Jianzi Musical Notation cannot be replaced. Despite of the deficiencies, Jianzi and Jianzi Musical Notation are still the best writing system to record Chinese Guqin music.

In the Chinese history, Guqin, Game of Go, Calligraphy and Painting (琴棋書畫) are treated as a must for scholars and literati to cultivate themselves, among which Guqin is listed as the most important skill. Some useful symbols of Game of Go, the Xiangqi Symbols and so many CJK Ideographs which could be used in the Chinese Calligraphy have been encoded or defined in CJKUI, IVD and other existing blocks. In Unicode, 13.0.0., seven Gongche characters for Kunqu Opera and Peking Opera will be encoded in URO+.

1.2. Encoding history

China NB once submitted G_CY2255 to IRG CJK_F1 collection in IRGN1886 in the year of 2012, which the source is 《辞源》第二版 (*Cíyuán*, the second edition), P. 2255, and the SN in IRGN1886A1 is 1303.

Fig. 1.2.1 G_CY2255 in IRGN1886

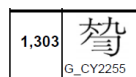


Fig. 1.2.2 Source of G_CY2255

【琴譜】⊖琴的曲譜。唐張籍張司業集二和陸裴司業習靜寄所知詩：“收拾新琴譜，尋封舊藥方。”⊖書名。記操琴音調指法，別造一種字記之。上記左手所按徽位，下記右手指法及所彈某弦。如𪚩謂左手大指按於九徽，而右手勾第三弦。唐有劉氏、周氏琴譜四卷，陳懷琴譜二十一卷。見舊唐書經籍志上。四庫著錄者皆為明以後人所撰。如楊嘉森撰琴譜正傳，楊表正撰琴譜大全、胡文煥撰文會堂琴譜等皆是。

In IRGN1921 and IRGN1945 (aka two versions of CJK_F1 collection, v1.0), the SN for G_CY2255 was 01689, which the IDS was 𪚩大九𪚩勺三。

Fig. 1.2.3 CJK_F1-01689 in IRGN1921

𪚩 01689	大 7 3	𪚩 G_CY2255			
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Fig. 1.2.4 CJK_F1-01689 in IRGN1945

𪚩 01689	37.0 大 7 3	𪚩 G_CY2255				
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Japan NB pointed out the evidence was unclear in IRGN1945_JPN_Review_attachP1.pdf.

Fig. 1.2.4 Japan NB's review comment on CJK_F1-01689 in IRGN1945

01689	𪚩 𪚩 01689 G_CY2255 IRGN1945-p160-01689	𪚩 G_CY2255 G_CY2255 @ 0025x0025+0026+0173	unclear evidence
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In IRG #41, China agreed to delay this character for ExtF1 because it's not the ideographs and not suitable to encode in CJKUI blocks. This decision was recorded in IRGN1973Appendix-Part2.pdf by Dr. Chen Zhixiang and Mr. Zhang Yifei.

IRGN1979CJK_F1v2.0.xls showed the discussion record is “delayed for more clear evidence (k), irg41.”

Fig. 1.2.5 The conclusion for CJK_F1-01689 in IRG #41

01689	𪚩 𪚩 01689 G_CY2255 IRGN1945-p160-01689	delay
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Andrew West added G_CY2255 in his famous CJK font, BabelStone Han, after IRG #41, and he provided the comment on the character is “an example of Qinpu notation but not a CJK

ideograph”. Notice that Qipu Notation is the other name of Jianzi Musical Notation.

1.3. Encoding experts

The Culture and Art Publishing House (文化艺术出版社) organized a team on the Jianzi Musical Notation encoding works. And we have submitted the preliminary proposal named *Preliminary proposal on encoding Jianzi Musical Notation and Jianzi Format Controls in SMP* to UTC and WG2 as L2/19-107 and WG2 N5041. The following is the experts list.

This preliminary proposal is incomplete; we will continue the collecting and encoding works. If any UTC or WG2 or IRG expert has comment on the preliminary proposal, please connect with Mr. Eiso Chan.

Music Consultant:	WU Zhao (吴钊), LIN Chen (林晨)
Design Consultant:	Gerry LEONIDAS
Organizing:	YANG Bin (杨斌), TAO Wei (陶玮)
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Platform Supporting:	FENG Xiaoping (冯小平), LONG Chao (龙超), CHEN Yue (陈月)
Designing:	Zhao LIU (刘钊), Eiso CHAN (陈永聪), SUN Mingyuan (孙明远)
Encoding:	Eiso CHAN (陈永聪), Kushim Jiang (姜兆勤)

2. Encoding Method

In the running text of Jianzi scores, there are two types of the visual glyphs. The first type looks like the single Chinese Ideograph, but they are the ligatures of different fingering letters and numerals in fact. The second type looks like more than one small-sized characters which are listed from the top to the bottom, and the width should be narrower than the big-sized one. Please see Fig. 2.1.

We proposed 336 base Jianzi musical symbols and 21 format controls in the preliminary proposal. The users can use these characters to get the running text like Fig. 2.1 by the encoding model. The reasons why we don't propose to encode the big-sized characters separation are shown as below.

1) The meaning structure is more regular than CJKUI or Tangut, which is something like the archaic Hangul syllables, it's easy to abstract the common meaning structure from different clusters.

2) In Table 2.1, we have gotten 芍芍芍芍芍 from different publishing sources, which they share

- the same meaning but change the inside component (aka string in these cases). However, we have not found out the seventh-string form yet. If we encode them separately, the seventh-string form, which maybe it will be found out in future, will be encode as far from its "brothers".
- 3) It's not better to encode a long vertical string of small-sized characters in one code, which will be not easy for the font developing.
- 4) Less characters in code charts.

Fig. 2.1 Xiang'e Yayun, P. 148

收五 滿 江 紅

《治心齋琴學練要》
岳 飛 詞
王 迪 定譜

$\overset{3}{\curvearrowright} 3$ 3 | $\overset{6}{\curvearrowright} 6$ $\overset{1\ 2}{\curvearrowright} 3$ — | $\overset{3}{\curvearrowright} 5$ 6 | 1 $\overset{2\ 3\ 2\ 1\ 2}{\curvearrowright}$ |
 范 烏 鼎 曲 舒 幸 夫 主 荷 幸 松 泣 楚 主 立 荷 幸
 怒 髮 冲 冠， 憑 欄 處，

$\overset{3}{\curvearrowright} 5$ $\overset{2}{\curvearrowright} 1$ | $\overset{2}{\curvearrowright} 1$ 6 | 6 — | $\overset{6}{\curvearrowright} 5$ $\overset{6}{\curvearrowright} 1$ 2 | 3 — |
 巴 美 空 下 七 立 荷 楚 荷 貝 自 荷 楚 荷 牙
 滿 滿 雨 歇。 抬 望 眼，

$\overset{5}{\curvearrowright} 6$ 1 | $\overset{2}{\curvearrowright}$ | $\overset{6}{\curvearrowright} 6$ $\overset{1}{\curvearrowright} 6$ 5 | 3 — | $\overset{5}{\curvearrowright} 6$ 3 |
 燒 上 木 上 松 立 篳 洵 牙 楚 上 楚
 仰 天 長 嘯， 壯 懷

$\overset{2}{\curvearrowright} 3$ $\overset{3}{\curvearrowright} 2$ 1 | $\overset{6}{\curvearrowright}$ — | $\overset{6}{\curvearrowright} 5$ 3 | $\overset{5}{\curvearrowright}$ | $\overset{6}{\curvearrowright} 5$ 6 1 |
 荷 六 巨 下 九 篳 勻 幸 楚 蘆 荷 荷 勻 貝 自 勻
 激 烈。 三 十 功 名

$\overset{1}{\curvearrowright} 2$ $\overset{3}{\curvearrowright} 5$ | 3 $\overset{2}{\curvearrowright} 1$ | $\overset{6}{\curvearrowright} 6$ | $\overset{1}{\curvearrowright} 2$ 3 $\overset{3}{\curvearrowright} 5$ 6 |
 上 九 上 六 上 九 篳 洵 楚 荷 楚 楚 幸 主
 慶 興 土， 八 千 里 路

Table 2.1 List of several big-sized characters which share the same meaning structure

		GQSSK	XGY Y	SQMP	LHT	XLT	TWG	HY
芍	散勾 一弦							
芍	散勾 二弦							
芍	散勾 三弦							
苟	散勾 四弦							
苟	散勾 五弦							
苟	散勾 六弦							

GQSSK=古琴三十课; SQMP=神奇秘谱; LHT=蓼怀堂琴谱; XLT=西麓堂琴谱; TWG=天闻阁琴谱; XGY Y=弦歌雅韵; HY=徽言秘旨訂

There are 336 proposed Jianzi musical symbols; 59 of them (17.56%) are similar to the encoded CJKUIs, but the encoding models and the property scripts are different. We think it's not suitable to unify and encode all of them in CJKUIs.

In WG2 N4795, Mr. Andrew West, Mr. Michael Everson and Mr. Viacheslav Zaytsev wrote "There are 50 Jurchen radicals; 29 of them (58%) could be unified with existing Kangxi and CJK radicals. But if we were to unify them, what would we do with the other 21? There is enough space in the CJK Radicals Supplement and Kangxi Radicals blocks. If we unify Jurchen radicals with CJK and Kangxi radicals, however, this would imply that the property script=Han would have to be changed to the property script=Common for Jurchen use. We do not think that this is a good idea—or that it would be a popular one." In WG2 #66 held in Hohhot, the Khitan and Jurchen encoding experts had an ad-hoc meeting on encoding the "radicals", and all the experts agreed to encode them separately at that time, which some of them are derived from CJK Ideographs and the shapes are as the same as the encoded CJK Ideographs or CJK Radicals. In WG2 N4905, Debbie recorded the discussion result of the Khitan Ad-Hoc Meeting held in Hohhot, she wrote "The Irish and UK ballot comments requested removal of 12

‘radicals’ (=components) from the Khitan Small Script code chart if they are only used as ‘radicals’, such as U+18B69. The ‘radicals’ are a modern device, and may be more appropriately located in a separate block of characters that can be shared across other script (i.e., Khitan and Jurchen). Prof. Wu agreed with this change.”

2.2. Repertoire

There are two parts for the proposed characters, the first one is the base characters in the Jianzi Musical Notation block, and the second one is the format controls in the Jianzi Format Controls block. And then we propose the encoding model for the variations and the clusters, which the font developers and designers could use two types of 'ccmp' GSUB feature to support the encoding model.

2.2.1. Jianzi Musical Notation

There are 336 proposed characters in the following repertoire. When we use them in the clusters, there are two types, one is numeral, the other is fingering.

1) Numerals

The numerals could be used as marker, string and time in the clusters. They are U+1DB00 一 (一), U+1DB02 二 (二), U+1DB03 十 (十), U+1DB06 七 (七), U+1DB08 卜 (外), U+1DB0A 八 (八), U+1DB0D 九 (九), U+1DB0E 三 (三), U+1DB10 半 (半), U+1DB11 卅 (十一), U+1DB12 下 (下), U+1DB13 厶 (至), U+1DB14 上 (上), U+1DB1D 卅 (十二), U+1DB21 五 (五), U+1DB24 日 (間), U+1DB29 六 (六), U+1DB2D 卅 (十三), U+1DB33 四 (四).

2) Fingerings

U+1DB12 上(下) and U+1DB14 下(上) could also be used as fingerings. Other non-numerals should be used as the fingerings.

Please see the details in Appendix 1, P. 14 – P. 18.

2.2.2. Jianzi Format Controls

There are 4 types of symbols in this block: joiners (2), filler (1), controls (7), selectors (11).

Please see the details in Section 2.3.

2.3. Encoding Model for the Clusters for the Complex Characters

The so-called Jianzi is literally to reduce the redundant part and simplify the original Chinese Ideographs into the meaningful elements which can be directly used or combined into a new visual character. In the running Jianzi scores, there are two types of clusters. The first type of the clusters is written like the common Chinese Ideograph, but the people who don't know anything about Chinese Guqin can't understand what it means, which are the ligature of different Jianzi fingering letters and numerals in fact. The second type is written as the small-sized characters. In the modern horizontal running text, two or three or four characters are

written in a long and narrow visual rectangle from the top to the bottom. In the rectangle, the glyph widths should be changed to be narrower than the original ones. In the vertical running text, the characters are written like the annotated characters in the Chinese ancient books. On the other hand, there are several unifiable variants for some Jianzi fingering letters and numerals like CJKUIs.

In the running text of the Jianzi scores, the big-sized cluster or the Jianzi musical symbol or variant used separately mean the playing method of the musical sounds and the small-sized cluster or the small-sized Jianzi sequence mean the playing method of the decorative sounds which are sounds like the regular noise, but they are necessary for the Chinese Guqin performance.


2.3.1. Jianzi Variants


For the SVS and IVS, it's best to use the UVS table to process them according to ISO/IEC 14496-22:2019. In the Jianzi system, we need to use the Jianzi variant sequences in the more complex sequence, so we think it's best to encode the variation selectors only used for Jianzi separately like FVSes in the Mongolian block. The variation sequences are only required for the base Jianzi musical symbols, and the visual variants for the big-sized clusters are composed by the separate jianzi variation sequences.

The encoding model for Jianzi variants is similar to FVS, SVS and IVS.

<base Jianzi musical symbol>+<Jianzi variation selector>=<Jianzi variant>

The samples are shown as below.

𪚩	+		=	𪚩
U+1DC27		U+1DAF0		<U+1DC27,U+1DAF0>

𪚩	+		=	𪚩
U+1DC27		U+1DAF1		<U+1DC27,U+1DAF1>

2.3.2. Small-sized Jianzi Sequence

In the modern horizontal text, the Jianzi Musical Symbols could be used as the small-sized glyphs. The encoding model is shown as below.

<Jianzi small-sized control>+<base Jianzi musical symbol>=<small-sized Jianzi>

2.3.2.1. Horizontal Text

In the horizontal text, the small-sized Jianzi is set in the middle or lower in the visual rectangle.

Fig. 2.2.2.1. Qinxue Beiyao, P. 407



The sequence mentioned in the above picture should be <U+1DAE3,U+1DB0F>.

2.3.2.2. Vertical Text

In the vertical text, the small-sized Jianzi is set in the middle or right in the visual vertical rectangle.

Fig. 2.2.2.2. Baipingzhai Qinpu, Column 2, Folio 46A



The sequence mentioned in the above picture should be <U+1DAE3,U+1DB0F> as well. Notice that 伍 (U+4F0D) and two sesame dots besides these two Jianzi cluster and sequence are used for the corresponding Gongche score.

2.3.3. Joiner Sequence

The joiner sequence is only used for the encoding unit for the big-sized cluster and the small-sized cluster but not used separately, so there is no need to provide the alternate glyph in the font.

The fingerings joiner is only used between two fingering letters or among more fingering letters.

<fingering letter>+<fingerings joiner>+<fingering letter>

<fingering letter>+<fingerings joiner>+<fingering letter>+<fingerings joiner>+<fingering letter>

The numeral joiner is only used between two numerals or among more numerals.

<numeral>+<numerals joiner>+<numeral>

<numeral>+<numerals joiner>+<numeral>+<numerals joiner>+<numeral>

2.3.4. Encoding Units

The Jianzi variant, the small-sized Jianzi sequence and the joiner sequence could be used as parts of the big-sized cluster and the small-sized cluster via 'ccmp' GSUB feature, so we call them encoding units when they are included in a complex cluster.

2.3.5. Big-sized Cluster

Firstly, from structural perspective, the basic elements of Jianzi are derived from Chinese Ideographs which have only been simplified and/or restructured. For example, musicians will use 勾 (U+1DB0B) as derived form of the Chinese terms 勾 (U+52FE, gou) to indicate a right hand technic which is to pull the string with middle finger of right hand; the Jianzi musical symbols 大 (<U+1DBDF,U+1DAF0>) and 乚 (U+1DB06) on the other hand are combined to describe the position where left hand should be when playing, it means to move the thumb of left and to the fifth white dot on the surface of Chinese Guqin. The white dot is called 徽 (U+5FBD, Hui or sub-marker) like frets but not lay through the surface.

Secondly, it follows the square frame of Chinese Ideograph including the above to below, left to right, semi-surrounding and so on. The basic structure is as followed:



We found out three meaning structures like above used in the modern running text. The fourth meaning structures can be used as the big-sized cluster in the ancient books, but now this type is only used for the small-sized cluster.

For a stable cluster, we use a cluster control at the beginning of the sequence. The following encoding units of a cluster control is stable as well. The cluster control indicates the meaning structure as the explanation above, not visual glyph structure.

1) The first meaning structure:

<JZCC01>+<primary fingering>+<marker>+<secondary marker>+<secondary fingering>+<string>

The encoding unit after <JZCC01> (U+1DAE4) must be five.

2) The second meaning structure:

<JZCC02>+<left primary fingering>+<left marker>+<left secondary marker>+<left secondary fingering>+<left string>+<right primary fingering>+<right marker>+<right secondary marker>+<right secondary fingering>+<right string>+<final fingering>

The encoding unit after <JZCC02> (U+1DAE5) must be eleven.

3) The third meaning structure:

<JZCC03>+<primary fingering>+<marker>+<secondary marker>+<secondary fingering>+<primary string>+<tertiary fingering>+<secondary string>

The encoding unit after <JZCC03> (U+1DAE6) must be seven.

I show two examples as below.

(U+1DAE4) 脊(U+1DBDF) 十(U+1DB03) (U+1DAE2) 彳(U+1DB17) (U+1DAE0) 乚(U+1DB01) 乚(U+1DB06)	
---	--

𪛗(U+1DAE5) 𪛗(U+1DAE2) 𪛗(U+1DAE2) 𪛗(U+1DAE2) 𪛗(U+1DAE2) 六(U+1DB29) 𪛗(U+1DAE2) 𪛗(U+1DAE2) 𪛗(U+1DAE2) 𪛗(U+1DB23) 四(U+1DB33) 早(U+1DB52)	𪛗
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In the first case, there are five encoding units after 𪛗(U+1DAE4), they are 𪛗(U+1DBDF), 𪛗(U+1DB03), 𪛗(U+1DAE2), 𪛗(U+1DB17, U+1DAE0, U+1DB01) and 𪛗(U+1DB06). For the third encoding units, aka 𪛗(U+1DAE2), it means the secondary marker should be confirmed from the previous cluster. In Fig. 3.3.5, the secondary marker for 𪛗 could be confirmed as 𪛗(U+1DB14).

Fig. 2.3.5 Huiyan Mizhiding, Column 6, Folio 2A



In the second case, there are eleven encoding units after 𪛗(U+1DAE5), they are 𪛗(U+1DAE2), 六(U+1DB29), 𪛗(U+1DB23), 四(U+1DB33) and 早(U+1DB52). In this cluster, 𪛗(U+1DAE5) is used 7 times.

2.3.6. Small-sized Cluster

In the modern usage, there are three types of meaning structures for the small-sized clusters. But, the fifth type can be also used as the big-sized cluster in the ancient books.

In the small-sized cluster sequence, all the encoding unit must be the small-sized Jianzi sequence, that means all the Jianzi Musical Symbols used in the small-sized cluster must follow JZSC (𪛗, U+1DAE3). If the user removes all the JZSC in the small-sized cluster, so the possible new sequence means the big-sized cluster, no longer the small-sized cluster, especially in the fourth type.

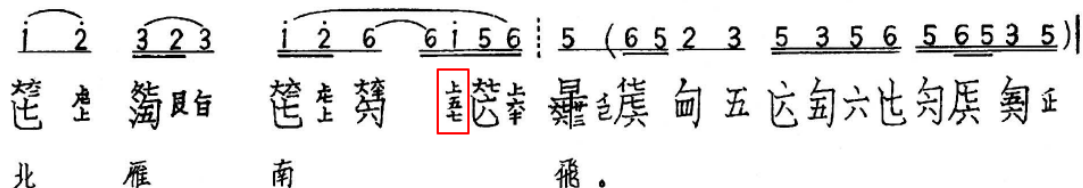
I show two examples as below. Please also see Fig. 3.3.6.1. and Fig. 3.3.6.2.

𪛗(U+1DAE7) 𪛗(U+1DAE3) 𪛗(U+1DB14) 𪛗(U+1DAE3) 𪛗(U+1DB06) 𪛗(U+1DAE3) 𪛗(U+1DB0D)	𪛗 𪛗 𪛗
𪛗(U+1DAE7) 𪛗(U+1DAE3) 𪛗(U+1DB14) 𪛗(U+1DAE3) 𪛗(U+1DB21) 𪛗(U+1DAE3) 𪛗(U+1DB06)	𪛗 𪛗 𪛗

Fig. 2.3.6.1. Xiangge Yayun, P. 157



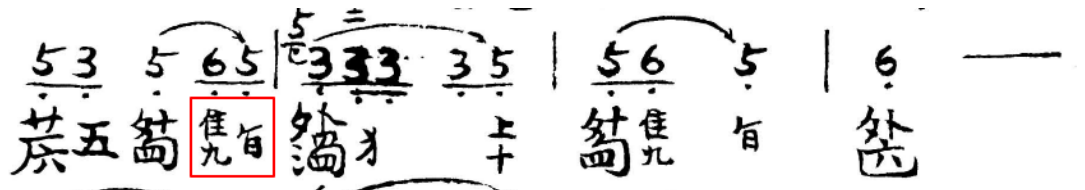
Fig. 2.3.6.2. Xiangge Yayun, P. 159



2.3.7. Layout Selector

The layout selector should be used after the sequence to indicate different visual glyph structure for the same meaning structure.

Fig. 2.2.7. Qinxue Beiyao, P. 672



In general, some authors like to move the last part or more than one part of a small-sized cluster to the right-hand side, but the new cluster is treated as the same as the previous one, so it's best to use the layout selector to process.

$\begin{smallmatrix} \text{U+1DAE7} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DAE3} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DC2B} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DAE3} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DB0D} \\ \text{U+1DAE2} \end{smallmatrix}$	佳九旨
$\begin{smallmatrix} \text{U+1DAE7} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DAE3} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DC2B} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DAE3} \\ \text{U+1DAE2} \end{smallmatrix}$ $\begin{smallmatrix} \text{U+1DB0D} \\ \text{U+1DAE2} \end{smallmatrix}$	佳九旨

3. Acknowledgements

Dr. Ken Lunde (小林劍) gave some helps at the beginning of the project.

Georg Seifert and Rainer Erich Scheichelbauer gave some helps on the Glyphs app.

Cheng Xunchang (程训昌) gave us some helps on the translation of the CJKUI designing terms.

The Tangut font, Tangut Yinchuan, used in the preliminary proposal was provided by BabelStone, and the copyright is Prof. Jing Yongshi.

The Khitan font, CCAMC Khitan Small Script Reg Unicode, used in the preliminary proposal

was designed by Jerry You and released in CCAMC.

Mr. Chen Zhihan (陳志翰), whose stage name is A-Guai, and his friend Clerk Ma, who is a famous LaTeX developer, were always concerning about the Jianzi Musical Notation encoding issue, and they once provided some comment to me when I went to PKU to attend IRG #51 in the middle of 2018, but what a pity that Mr. Chen Zhihan has left us forever.

Appendix 1: Draft Code Charts

































Appendix 2: The Jianzi Variation

(End of Document)

1DAE0



Jianzi Format Controls

1DAFF

	1DAE	1DAF
0	 1DAE0	 1DAF0
1	 1DAE1	 1DAF1
2	 1DAE2	 1DAF2
3	 1DAE3	 1DAF3
4	 1DAE4	 1DAF4
5	 1DAE5	 1DAF5
6	 1DAE6	 1DAF6
7	 1DAE7	 1DAF7
8	 1DAE8	 1DAF8
9	 1DAE9	 1DAF9
A	 1DAEA	 1DAFA
B	 1DAEB	 1DAFB
C	 1DAEC	 1DAFC
D	 1DAED	 1DAFD
E	 1DAEE	 1DAFE
F	 1DAEF	 1DAFF

These format controls are used to render Jianzi clusters.

Joiners

1DAE0  JIANZI FINGERINGS JOINER
1DAE1  JIANZI NUMERALS JOINER

Filler

1DAE2  JIANZI DITTO FILLER

Small-sized control

1DAE3  JIANZI SMALL-SIZED CONTROL

Cluster controls

1DAE4  JIANZI CLUSTER CONTROL-1
• used for the big-sized clusters

1DAE5  JIANZI CLUSTER CONTROL-2
• used for the big-sized clusters





1DAE6  JIANZI CLUSTER CONTROL-3
• used for the big-sized clusters

1DAE7  JIANZI CLUSTER CONTROL-4
• used for the small-sized clusters

1DAE8  JIANZI CLUSTER CONTROL-5
• used for the two types of clusters

1DAE9  JIANZI CLUSTER CONTROL-6
• used for the small-sized clusters

Layout selectors

1DAEC  JIANZI LAYOUT SELECTOR-1
1DAED  JIANZI LAYOUT SELECTOR-2
1DAEE  JIANZI LAYOUT SELECTOR-3
1DAEF  JIANZI LAYOUT SELECTOR-4

Variation selectors

1DAF0  JIANZI VARIATION SELECTOR-1
1DAF1  JIANZI VARIATION SELECTOR-2
1DAF2  JIANZI VARIATION SELECTOR-3
1DAF3  JIANZI VARIATION SELECTOR-4
1DAF4  JIANZI VARIATION SELECTOR-5
1DAF5  JIANZI VARIATION SELECTOR-6
1DAF6  JIANZI VARIATION SELECTOR-7

1DB00

Jianzi Musical Notation

1DB63

1DB00 1.10 一 YGZ-11201	1DB14 3.21 上 G2004-6830	1DB28 4.41 方 Z1958-682101	1DB3C 5.34 色 G2004-7910	1DB50 6.24 𠂇 Z1958-596401
1DB01 1.50 乚 G2004-482	1DB15 3.31 乇 G2004-4720	1DB29 4.41 六 YGZ-11206	1DB3D 5.41 立 G2004-6730	1DB51 6.25 𠂇 FXXP-412
1DB02 2.11 二 YGZ-11202	1DB16 3.35 𠂇 G2004-6510	1DB2A 4.41 𠂇 WZZ-6004	1DB3E 5.41 𠂇 G2004-4920	1DB52 6.25 早 G2004-5520
1DB03 2.12 十 YGZ-11210	1DB17 3.44 𠂇 G2004-6220	1DB2B 4.52 𠂇 Z1958-264101	1DB3F 5.44 𠂇 HY-0506	1DB53 6.25 𠂇 Z1958-410101
1DB04 2.12 丁 G2004-4910	1DB18 3.44 𠂇 G2004-7820	1DB2C 4.53 𠂇 G2004-5240	1DB40 5.45 𠂇 LY-0710	1DB54 6.25 𠂇 G2004-7630
1DB05 2.13 厂 G2004-5710	1DB19 3.51 尸 G2004-4710	1DB2D 5.12 𠂇 YGZ-11213	1DB41 5.51 弗 G2004-5740	1DB55 6.25 𠂇 Z1958-735302
1DB06 2.15 七 YGZ-11207	1DB1A 3.51 弓 Z1958-054101	1DB2E 5.12 𠂇 G2004-4930	1DB42 5.54 𠂇 G2004-5330	1DB56 6.25 𠂇 G2004-7650
1DB07 2.21 卜 G2004-6210	1DB1B 3.53 女 Z1958-521101	1DB2F 5.12 𠂇 G2004-5340	1DB43 6.11 𠂇 Z1958-0210201	1DB57 6.32 伏 G2004-5620
1DB08 2.24 𠂇 WZZ-6009	1DB1C 3.55 𠂇 Z1958-204101	1DB30 5.21 𠂇 WZZ-5204	1DB44 6.11 𠂇 HY-1706	1DB58 6.34 𠂇 Z1958-481301
1DB09 2.34 𠂇 G2004-7830	1DB1D 4.12 𠂇 YGZ-11212	1DB31 5.21 𠂇 Z1958-767401	1DB45 6.12 𠂇 G2004-5040	1DB59 6.34 𠂇 WZZ-4808
1DB0A 2.34 八 YGZ-11208	1DB1E 4.12 木 G2004-4810	1DB32 5.21 𠂇 G2004-6520	1DB46 6.12 𠂇 Z1958-421103	1DB5A 6.34 𠂇 LY-1102
1DB0B 2.35 𠂇 G2004-4830	1DB1F 4.12 支 Z1958-650101	1DB33 5.25 四 YGZ-11204	1DB47 6.12 𠂇 G2004-7640	1DB5B 6.35 𠂇 G2004-7420
1DB0C 2.35 𠂇 Z1958-271202	1DB20 4.13 𠂇 G2004-8630	1DB34 5.25 𠂇 G2004-5910	1DB48 6.13 𠂇 WZZ-6209	1DB5C 6.35 𠂇 Z1958-641201
1DB0D 2.35 九 YGZ-11209	1DB21 4.15 五 YGZ-11205	1DB35 5.25 田 Z1958-588402	1DB49 6.13 𠂇 Z1958-499302	1DB5D 6.35 𠂇 HY-1603
1DB0E 3.11 三 YGZ-11203	1DB22 4.15 𠂇 G2004-8520	1DB36 5.25 𠂇 Z1958-564102	1DB4A 6.13 𠂇 G2004-8730	1DB5E 6.35 𠂇 Z1958-444101
1DB0F 3.11 𠂇 WZZ-5102	1DB23 4.21 𠂇 G2004-7810	1DB37 5.32 白 Z1958-095101	1DB4B 6.13 𠂇 G2004-6630	1DB5F 6.41 𠂇 HY-1604
1DB10 3.11 𠂇 HY-1411	1DB24 4.25 日 UTNXX-001	1DB38 5.32 正 G2004-7920	1DB4C 6.13 𠂇 Z1958-313101	1DB60 6.41 𠂇 G2004-5730
1DB11 3.12 𠂇 YGZ-11211	1DB25 4.25 𠂇 G2004-7430	1DB39 5.32 𠂇 Z1958-744201	1DB4D 6.21 𠂇 G2004-8420	1DB61 6.41 𠂇 Z1958-750101
1DB12 3.12 下 G2004-6840	1DB26 4.25 𠂇 G2004-4840	1DB3A 5.34 𠂇 G2004-5050	1DB4E 6.23 𠂇 Z1958-609102	1DB62 6.44 𠂇 WZZ-5205
1DB13 3.15 𠂇 G2004-8640	1DB27 4.33 𠂇 Z1958-161103	1DB3B 5.34 𠂇 UTNXX-002	1DB4F 6.23 𠂇 G2004-5140	1DB63 6.44 𠂇 G2004-7010

1DB64

Jianzi Musical Notation

1DBC7

1DB64 6.44 汙 G2004-6530	1DB78 7.13 𪛗 G2004-5150	1DB8C 7.35 𪛗 Z1958-042203	1DBA0 8.25 𪛗 Z1958-751201	1DBB4 9.12 𪛗 G2004-5820
1DB65 6.44 𪛗 WZZ-5203	1DB79 7.15 𪛗 G2004-8350	1DB8D 7.35 𪛗 Z1958-559101	1DBA1 8.25 𪛗 Z1958-758301	1DBB5 9.13 𪛗 G2004-5530
1DB66 6.44 𪛗 G2004-6680	1DB7A 7.21 𪛗 Z1958-306103	1DB8E 7.41 𪛗 Z1958-334201	1DBA2 8.31 𪛗 Z1958-670104	1DBB6 9.13 𪛗 G2004-7050
1DB67 6.45 𪛗 G2004-5010	1DB7B 7.21 𪛗 Z1958-731101	1DB8F 7.54 𪛗 WZZ-5305	1DBA3 8.31 𪛗 UTNXX-003	1DBB7 9.13 𪛗 Z1958-331105
1DB68 6.51 𪛗 Z1958-735201	1DB7C 7.22 𪛗 Z1958-608201	1DB90 7.54 𪛗 G2004-6670	1DBA4 8.31 𪛗 G2004-5210	1DBB8 9.13 𪛗 Z1958-657103
1DB69 6.51 𪛗 Z1958-439101	1DB7D 7.23 𪛗 WZZ-5303	1DB91 8.11 𪛗 G2004-5220	1DBA5 8.31 𪛗 Z1958-713302	1DBB9 9.13 𪛗 HY-1609
1DB6A 6.51 𪛗 HY-0710	1DB7E 7.23 𪛗 Z1958-236102	1DB92 8.11 𪛗 Z1958-489101	1DBA6 8.35 𪛗 Z1958-632301	1DBBA 9.13 𪛗 G2004-6810
1DB6B 6.53 𪛗 Z1958-094102	1DB7F 7.23 𪛗 Z1958-306202	1DB93 8.12 𪛗 WZZ-5201	1DBA7 8.35 𪛗 WZZ-5301	1DBBB 9.13 𪛗 Z1958-592302
1DB6C 6.53 𪛗 Z1958-500103	1DB80 7.24 𪛗 G2004-6610	1DB94 8.12 𪛗 G2004-6550	1DBA8 8.35 𪛗 G2004-6640	1DBBC 9.13 𪛗 Z1958-406103
1DB6D 6.53 𪛗 Z1958-471301	1DB81 7.25 𪛗 G2004-6140	1DB95 8.12 𪛗 G2004-8750	1DBA9 8.41 𪛗 UTNXX-004	1DBBD 9.15 𪛗 HY-0709
1DB6E 6.54 𪛗 Z1958-530103	1DB82 7.25 𪛗 Z1958-130101	1DB96 8.13 𪛗 Z1958-750201	1DBAA 8.41 𪛗 G2004-6710	1DBBE 9.21 𪛗 Z1958-734202
1DB6F 6.55 𪛗 Z1958-279101	1DB83 7.31 𪛗 G2004-6920	1DB97 8.13 𪛗 G2004-6750	1DBAB 8.41 𪛗 HY-1004	1DBBF 9.21 𪛗 Z1958-541501
1DB70 6.55 𪛗 Z1958-632401	1DB84 7.31 𪛗 Z1958-541304	1DB98 8.14 𪛗 WZZ-6203	1DBAC 8.41 𪛗 G2004-8460	1DBC0 9.21 𪛗 Z1958-699102
1DB71 7.11 𪛗 WZZ-5207	1DB85 7.32 𪛗 G2004-6720	1DB99 8.15 𪛗 Z1958-396102	1DBAD 8.41 𪛗 Z1958-751101	1DBC1 9.23 𪛗 G2004-8540
1DB72 7.11 𪛗 G2004-8780	1DB86 7.33 𪛗 G2004-7610	1DB9A 8.21 𪛗 G2004-5130	1DBAE 8.43 𪛗 Z1958-731301	1DBC2 9.23 𪛗 Z1958-328105
1DB73 7.12 𪛗 G2004-5020	1DB87 7.33 𪛗 G2004-7440	1DB9B 8.22 𪛗 G2004-7510	1DBAF 8.44 𪛗 G2004-8430	1DBC3 9.23 𪛗 Z1958-633401
1DB74 7.12 𪛗 G2004-8510	1DB88 7.34 𪛗 Z1958-072103	1DB9C 8.23 𪛗 Z1958-750301	1DBB0 9.11 𪛗 G2004-5320	1DBC4 9.24 𪛗 HY-1610
1DB75 7.12 𪛗 G2004-6820	1DB89 7.34 𪛗 G2004-8550	1DB9D 8.24 𪛗 G2004-6740	1DBB1 9.12 𪛗 Z1958-686203	1DBC5 9.34 𪛗 G2004-8220
1DB76 7.13 𪛗 Z1958-731401	1DB8A 7.34 𪛗 Z1958-270102	1DB9E 8.25 𪛗 WZZ-5304	1DBB2 9.12 𪛗 Z1958-142201	1DBC6 9.34 𪛗 G2004-8552
1DB77 7.13 𪛗 Z1958-398101	1DB8B 7.35 𪛗 Z1958-432101	1DB9F 8.25 𪛗 G2004-6620	1DBB3 9.12 𪛗 G2004-8330	1DBC7 9.34 𪛗 UTNXX-005

1DBC8

Jianzi Musical Notation

1DC2B

1DBC8 9.34 𢇛 Z1958-634301	1DBDC 9.55 𢇛 WZZ-6222	1DBF0 10.35 𢇛 Z1958-568101	1DC04 11.33 𢇛 Z1958-489202	1DC18 12.25 𢇛 Z1958-732201
1DBC9 9.34 𢇛 HY-1403	1DBDD 10.12 𢇛 UTNXX-006	1DBF1 10.41 𢇛 Z1958-081302	1DC05 11.34 𢇛 Z1958-621201	1DC19 12.33 𢇛 YJL-304
1DBCA 9.34 𢇛 HY-1806	1DBDE 10.12 𢇛 G2004-6910	1DBF2 10.41 𢇛 G2004-7720	1DC06 11.34 𢇛 G2004-8610	1DC1A 12.34 𢇛 G2004-6650
1DBC8B 9.35 𢇛 Z1958-733301	1DBDF 10.13 𢇛 HY-1807	1DBF3 10.44 𢇛 Z1958-404104	1DC07 11.34 𢇛 G2004-8760	1DC1B 12.35 𢇛 Z1958-634101
1DBCC 9.35 𢇛 Z1958-619101	1DBE0 10.13 𢇛 G2004-5540	1DBF4 10.44 𢇛 Z1958-305105	1DC08 11.35 𢇛 Z1958-632101	1DC1C 12.35 𢇛 Z1958-740101
1DBCD 9.35 𢇛 Z1958-314106	1DBE1 10.21 𢇛 WZZ-5208	1DBF5 10.54 𢇛 G2004-5410	1DC09 11.35 𢇛 Z1958-638201	1DC1D 12.41 𢇛 HY-1908
1DBCE 9.35 𢇛 Z1958-634201	1DBE2 10.21 𢇛 G2004-7330	1DBF6 10.54 𢇛 G2004-5310	1DC0A 11.41 𢇛 G2004-5720	1DC1E 12.51 𢇛 G2004-7040
1DBC8F 9.35 𢇛 Z1958-640101	1DBE3 10.21 𢇛 WZZ-5803	1DBF7 10.54 𢇛 G2004-5030	1DC0B 11.41 𢇛 G2004-5810	1DC1F 12.51 𢇛 Z1958-639201
1DBD0 9.35 𢇛 Z1958-607301	1DBE4 10.23 𢇛 Z1958-740201	1DBF8 11.11 𢇛 HY-1902	1DC0C 11.41 𢇛 Z1958-621101	1DC20 13.13 𢇛 G2004-7120
1DBD1 9.41 𢇛 Z1958-020103	1DBE5 10.25 𢇛 UTNXX-007	1DBF9 11.12 𢇛 Z1958-652102	1DC0D 11.43 𢇛 UTNXX-008	1DC21 13.21 𢇛 Z1958-367105
1DBD2 9.41 𢇛 HY-1109	1DBE6 10.31 𢇛 Z1958-744101	1DBFA 11.15 𢇛 G2004-5160	1DC0E 11.44 𢇛 Z1958-751301	1DC22 13.21 𢇛 Z1958-302106
1DBD3 9.41 𢇛 G2004-754	1DBE7 10.33 𢇛 Z1958-294101	1DBFB 11.21 𢇛 G2004-7340	1DC0F 12.11 𢇛 G2004-7111	1DC23 13.23 𢇛 G2004-7130
1DBD4 9.41 𢇛 Z1958-732101	1DBE8 10.33 𢇛 G2004-7660	1DBFC 11.23 𢇛 YJL-306	1DC10 12.12 𢇛 SFG-0212	1DC24 13.32 𢇛 Z1958-413103
1DBD5 9.44 𢇛 Z1958-550101	1DBE9 10.33 𢇛 Z1958-529101	1DBFD 11.23 𢇛 G2004-7020	1DC11 12.12 𢇛 Z1958-678101	1DC25 13.41 𢇛 UTNXX-009
1DBD6 9.51 𢇛 EX-513	1DBEA 10.34 𢇛 G2004-8552	1DBFE 11.25 𢇛 HY-1805	1DC12 12.13 𢇛 G2004-8620	1DC26 14.12 𢇛 Z1958-605101
1DBD7 9.51 𢇛 Z1958-639101	1DBEB 10.35 𢇛 Z1958-690201	1DBFF 11.25 𢇛 G2004-8840	1DC13 12.13 𢇛 Z1958-164103	1DC27 14.13 𢇛 Z1958-527106
1DBD8 9.52 𢇛 G2004-7250	1DBEC 10.35 𢇛 HY-1808	1DC00 11.25 𢇛 Z1958-750401	1DC14 12.21 𢇛 Z1958-453102	1DC28 14.13 𢇛 Z1958-145103
1DBD9 9.54 𢇛 G2004-6760	1DBED 10.35 𢇛 WZZ-5306	1DC01 11.32 𢇛 BPZ-1401	1DC15 12.23 𢇛 Z1958-165103	1DC29 14.25 𢇛 G2004-5430
1DBDA 9.55 𢇛 WZZ-5206	1DBEE 10.35 𢇛 G2004-6540	1DC02 11.32 𢇛 G2004-7240	1DC16 12.25 𢇛 Z1958-740601	1DC2A 14.25 𢇛 G2004-8830
1DBDB 9.55 𢇛 G2004-6560	1DBEF 10.35 𢇛 G2004-8310	1DC03 11.33 𢇛 Z1958-455101	1DC17 12.25 𢇛 Z1958-737301	1DC2B 14.32 𢇛 G2004-7030

1DC2C

Jianzi Musical Notation

1DC8F

1DC2C 14.33 𪛗 YJL-311	1DC40 19.55 縹 UTNXX-010			
1DC2D 14.33 𪛘 G2004-8320	1DC41 20.32 𪛙 HY-1203			
1DC2E 14.34 𪛚 G2004-8560	1DC42 20.32 𪛛 HY-1111			
1DC2F 14.44 𪛜 Z1958-640301	1DC43 20.35 𪛝 HY-1202			
1DC30 14.55 𪛞 G2004-8850	1DC44 20.35 𪛞 HY-1304			
1DC31 15.21 𪛟 HY-1705	1DC45 20.41 𪛟 HY-1201			
1DC32 15.24 𪛠 G2004-7620	1DC46 20.41 𪛠 HY-1301			
1DC33 15.35 𪛡 Z1958-314107	1DC47 20.51 𪛡 HY-1303			
1DC34 15.41 𪛢 Z1958-649101	1DC48 20.51 𪛢 HY-1302			
1DC35 15.41 𪛣 G2004-5420	1DC49 21.12 𪛤 EX-611			
1DC36 17.33 𪛥 YJL-313	1DC4A 21.34 𪛦 G2004-5610			
1DC37 17.34 𪛧 G2004-6660	1DC4B 22.32 𪛨 HY-1206			
1DC38 17.34 𪛩 G2004-5550	1DC4C 22.32 𪛨 HY-1204			
1DC39 18.13 𪛪 HY-1305	1DC4D 22.35 𪛩 HY-1207			
1DC3A 18.24 𪛫 HY-1306	1DC4E 22.41 𪛪 HY-1205			
1DC3B 18.35 𪛬 HY-1210	1DC4F 23.44 𪛭 G2004-8570			
1DC3C 18.41 𪛮 HY-1211				
1DC3D 18.51 𪛯 HY-1209				
1DC3E 18.51 𪛰 HY-1212				
1DC3F 19.12 𪛱 BPZ-1707				

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DB07,U+1DAF0>	𠂇										
<U+1DB08,U+1DAF0>	𠂈										
<U+1DB0B,U+1DAF0>	𠂋										
<U+1DB0C,U+1DAF0>	𠂌										
<U+1DB0F,U+1DAF0>	𠂏	<U+1DB0F,U+1DAF1>	𠂐	<U+1DB0F,U+1DAF2>	𠂑						
<U+1DB17,U+1DAF0>	主										
<U+1DB1E,U+1DAF0>	末										
<U+1DB20,U+1DAF0>	尢										
<U+1DB25,U+1DAF0>	𠂕										
<U+1DB26,U+1DAF0>	𠂖	<U+1DB26,U+1DAF1>	𠂗								
<U+1DB2A,U+1DAF0>	𠂚	<U+1DB2A,U+1DAF1>	𠂛								
<U+1DB2C,U+1DAF0>	𠂜	<U+1DB2C,U+1DAF1>	𠂝								
<U+1DB2E,U+1DAF0>	𠂞										
<U+1DB30,U+1DAF0>	𠂠	<U+1DB30,U+1DAF1>	𠂡								
<U+1DB31,U+1DAF0>	卓										

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DB36,U+1DAF0>	𠂇										
<U+1DB38,U+1DAF0>	𠂈										
<U+1DB3A,U+1DAF0>	𠂉	<U+1DB3A,U+1DAF1>	𠂊								
<U+1DB3B,U+1DAF0>	𠂋										
<U+1DB3C,U+1DAF0>	𠂌										
<U+1DB3E,U+1DAF0>	𠂍	<U+1DB3E,U+1DAF1>	𠂎								
<U+1DB3F,U+1DAF0>	𠂏	<U+1DB3F,U+1DAF1>	𠂐								
<U+1DB45,U+1DAF0>	𠂑										
<U+1DB46,U+1DAF0>	𠂒										
<U+1DB47,U+1DAF0>	𠂓	<U+1DB47,U+1DAF1>	𠂔								
<U+1DB48,U+1DAF0>	𠂕	<U+1DB48,U+1DAF1>	𠂖								
<U+1DB49,U+1DAF0>	𠂗										
<U+1DB4A,U+1DAF0>	𠂘										
<U+1DB4B,U+1DAF0>	𠂙										
<U+1DB4D,U+1DAF0>	𠂚										

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DB4F,U+1DAF0>	尒										
<U+1DB50,U+1DAF0>	𠂇										
<U+1DB52,U+1DAF0>	𠂈	<U+1DB52,U+1DAF1>	𠂉	<U+1DB52,U+1DAF2>	𠂊						
<U+1DB54,U+1DAF0>	𠂋										
<U+1DB57,U+1DAF0>	𠂌										
<U+1DB5A,U+1DAF0>	𠂍										
<U+1DB5B,U+1DAF0>	𠂎										
<U+1DB62,U+1DAF0>	𠂏	<U+1DB62,U+1DAF1>	𠂐	<U+1DB62,U+1DAF2>	𠂑	<U+1DB62,U+1DAF3>	𠂒				
<U+1DB65,U+1DAF0>	𠂓	<U+1DB65,U+1DAF1>	𠂔	<U+1DB65,U+1DAF2>	𠂕	<U+1DB65,U+1DAF3>	𠂖				
<U+1DB67,U+1DAF0>	𠂗	<U+1DB67,U+1DAF1>	𠂘	<U+1DB67,U+1DAF2>	𠂙						
<U+1DB6B,U+1DAF0>	𠂚	<U+1DB6B,U+1DAF1>	𠂛								
<U+1DB6C,U+1DAF0>	𠂜	<U+1DB6C,U+1DAF1>	𠂝	<U+1DB6C,U+1DAF2>	𠂞						
<U+1DB6E,U+1DAF0>	𠂟										
<U+1DB71,U+1DAF0>	𠂠	<U+1DB71,U+1DAF1>	𠂡	<U+1DB71,U+1DAF2>	𠂢						
<U+1DB75,U+1DAF0>	𠂣										

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DB79,U+1DAF0>	𠂔										
<U+1DB7D,U+1DAF0>	𠂕										
<U+1DB81,U+1DAF0>	𠂖										
<U+1DB84,U+1DAF0>	𠂗	<U+1DB84,U+1DAF1>	𠂗								
<U+1DB88,U+1DAF0>	𠂘	<U+1DB88,U+1DAF1>	𠂘								
<U+1DB8A,U+1DAF0>	𠂙										
<U+1DB8C,U+1DAF0>	𠂚	<U+1DB8C,U+1DAF1>	𠂚								
<U+1DB8F,U+1DAF0>	𠂛	<U+1DB8F,U+1DAF1>	𠂛	<U+1DB8F,U+1DAF2>	𠂛						
<U+1DB91,U+1DAF0>	𠂜										
<U+1DB93,U+1DAF0>	𠂝	<U+1DB93,U+1DAF1>	𠂝	<U+1DB93,U+1DAF2>	𠂝						
<U+1DB94,U+1DAF0>	𠂞										
<U+1DB95,U+1DAF0>	𠂟	<U+1DB95,U+1DAF1>	𠂟								
<U+1DB98,U+1DAF0>	𠂠										
<U+1DB99,U+1DAF0>	𠂡	<U+1DB99,U+1DAF1>	𠂡	<U+1DB99,U+1DAF2>	𠂡						
<U+1DB9A,U+1DAF0>	𠂢										

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DB9B,U+1DAF0>	𪛗										
<U+1DB9E,U+1DAF0>	𪛚	<U+1DB9E,U+1DAF1>	𪛚								
<U+1DBA2,U+1DAF0>	𪛜										
<U+1DBA4,U+1DAF0>	𪛞										
<U+1DBA7,U+1DAF0>	𪛟	<U+1DBA7,U+1DAF1>	𪛟	<U+1DBA7,U+1DAF2>	𪛟	<U+1DBA7,U+1DAF3>	𪛟	<U+1DBA7,U+1DAF4>	𪛟		
<U+1DBA8,U+1DAF0>	𪛠	<U+1DBA8,U+1DAF1>	𪛠								
<U+1DBB0,U+1DAF0>	𪛡										
<U+1DBB1,U+1DAF0>	𪛢	<U+1DBB1,U+1DAF1>	𪛢	<U+1DBB1,U+1DAF2>	𪛢						
<U+1DBB3,U+1DAF0>	𪛣	<U+1DBB3,U+1DAF1>	𪛣								
<U+1DBB5,U+1DAF0>	𪛥	<U+1DBB5,U+1DAF1>	𪛥								
<U+1DBB7,U+1DAF0>	𪛧	<U+1DBB7,U+1DAF1>	𪛧	<U+1DBB7,U+1DAF2>	𪛧						
<U+1DBBC,U+1DAF0>	𪛨	<U+1DBBC,U+1DAF1>	𪛨								
<U+1DBBE,U+1DAF0>	𪛩										
<U+1DBBF,U+1DAF0>	𪛪										
<U+1DBC0,U+1DAF0>	𪛫										

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DBC1,U+1DAF0>	𠂇										
<U+1DBC2,U+1DAF0>	𠂈	<U+1DBC2,U+1DAF1>	𠂉	<U+1DBC2,U+1DAF2>	𠂊						
<U+1DBC5,U+1DAF0>	𠂋										
<U+1DBC7,U+1DAF0>	𠂌										
<U+1DBCA,U+1DAF0>	𠂍	<U+1DBCA,U+1DAF1>	𠂎								
<U+1DBD5,U+1DAF0>	𠂏										
<U+1DBD6,U+1DAF0>	𠂐	<U+1DBD6,U+1DAF1>	𠂑								
<U+1DBD8,U+1DAF0>	𠂒										
<U+1DBDA,U+1DAF0>	𠂓	<U+1DBDA,U+1DAF1>	𠂔	<U+1DBDA,U+1DAF2>	𠂕	<U+1DBDA,U+1DAF3>	𠂖	<U+1DBDA,U+1DAF4>	𠂗	<U+1DBDA,U+1DAF5>	𠂘
<U+1DBDB,U+1DAF0>	𠂙										
<U+1DBDC,U+1DAF0>	𠂚										
<U+1DBDF,U+1DAF0>	𠂛										
<U+1DBE0,U+1DAF0>	𠂜	<U+1DBE0,U+1DAF1>	𠂝								
<U+1DBE1,U+1DAF0>	𠂞										
<U+1DBE3,U+1DAF0>	𠂟	<U+1DBE3,U+1DAF1>	𠂠	<U+1DBE3,U+1DAF2>	𠂡						

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DBE6,U+1DAF0>	𣎵										
<U+1DBE7,U+1DAF0>	徠	<U+1DBE7,U+1DAF1>	徠	<U+1DBE7,U+1DAF2>	徠						
<U+1DBEC,U+1DAF0>	夕										
<U+1DBED,U+1DAF0>	𣎵										
<U+1DBF0,U+1DAF0>	𣎵										
<U+1DBF1,U+1DAF0>	卓										
<U+1DBF3,U+1DAF0>	𣎵										
<U+1DBF4,U+1DAF0>	𣎵	<U+1DBF4,U+1DAF1>	𣎵								
<U+1DBF5,U+1DAF0>	𣎵										
<U+1DBF6,U+1DAF0>	𣎵	<U+1DBF6,U+1DAF1>	𣎵	<U+1DBF6,U+1DAF2>	𣎵	<U+1DBF6,U+1DAF3>	𣎵	<U+1DBF6,U+1DAF4>	𣎵		
<U+1DBF7,U+1DAF0>	𣎵	<U+1DBF7,U+1DAF1>	𣎵	<U+1DBF7,U+1DAF2>	𣎵						
<U+1DBF9,U+1DAF0>	𣎵										
<U+1DBFB,U+1DAF0>	𣎵										
<U+1DBFC,U+1DAF0>	𣎵										
<U+1DBFE,U+1DAF0>	中										

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DBFF,U+1DAF0>	紬										
<U+1DC01,U+1DAF0>	隼										
<U+1DC09,U+1DAF0>	帛										
<U+1DC0A,U+1DAF0>	帛										
<U+1DC0B,U+1DAF0>	𦃟										
<U+1DC0D,U+1DAF0>	𦃟										
<U+1DC0F,U+1DAF0>	𦃟										
<U+1DC10,U+1DAF0>	𦃟										
<U+1DC11,U+1DAF0>	𦃟										
<U+1DC13,U+1DAF0>	𦃟										
<U+1DC15,U+1DAF0>	𦃟										
<U+1DC19,U+1DAF0>	𦃟	<U+1DC19,U+1DAF1>	𦃟	<U+1DC19,U+1DAF2>	𦃟	<U+1DC19,U+1DAF3>	𦃟				
<U+1DC1A,U+1DAF0>	𦃟										
<U+1DC1C,U+1DAF0>	𦃟										
<U+1DC1D,U+1DAF0>	𦃟	<U+1DC1D,U+1DAF1>	𦃟								

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DC1E,U+1DAF0>	晷	<U+1DC1E,U+1DAF1>	晷	<U+1DC1E,U+1DAF2>	晷						
<U+1DC1F,U+1DAF0>	𠂔										
<U+1DC21,U+1DAF0>	廬										
<U+1DC26,U+1DAF0>	𡗗										
<U+1DC27,U+1DAF0>	𡗘	<U+1DC27,U+1DAF1>	𡗘								
<U+1DC29,U+1DAF0>	團	<U+1DC29,U+1DAF1>	圀	<U+1DC29,U+1DAF2>	困						
<U+1DC2A,U+1DAF0>	𢇛										
<U+1DC2B,U+1DAF0>	𢇜	<U+1DC2B,U+1DAF1>	𢇜	<U+1DC2B,U+1DAF2>	𢇜						
<U+1DC2C,U+1DAF0>	𢇝	<U+1DC2C,U+1DAF1>	𢇝	<U+1DC2C,U+1DAF2>	𢇝						
<U+1DC2D,U+1DAF0>	𢇞	<U+1DC2D,U+1DAF1>	𢇞								
<U+1DC30,U+1DAF0>	𢇟										
<U+1DC32,U+1DAF0>	𢇡										
<U+1DC35,U+1DAF0>	𢇤										
<U+1DC36,U+1DAF0>	𢇥	<U+1DC36,U+1DAF1>	𢇥								
<U+1DC38,U+1DAF0>	𢇦	<U+1DC38,U+1DAF1>	𢇦								

Appendix 2: The Jianzi Variation

JZVS1	Variant 1	JZVS2	Variant 2	JZVS3	Variant 3	JZVS4	Variant 4	JZVS5	Variant 5	JZVS6	Variant 6
<U+1DC49,U+1DAF0>	變										
<U+1DC4F,U+1DAF0>	暫										