







Doc Type: Working Group Document**Title: Revised proposal to encode Mahjong, Domino, and Draughts symbols in the UCS****Source: Chen Zhuang, Michael Everson (Yè Mìháo), Lu Qin, Masuhiro Sekiguchi, Tseng Shih-Shyeng (Bear), Wei Lin-Mei, Andrew West (Wèi Ān)****Status: Individual Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Replaces: N2760, N2975, N3147, N3162****Date: 2006-09-27**





The UCS contains a number of symbols used in games. Chess pieces, card suits, and Japanese shogi pieces have been encoded to enable their use in discussions of these games. The tiles used in the game *Mahjong* have not been encoded; they are proposed here, as are *Domino* tiles and the men and kings used in *Draughts* or *Checkers*.





1. Mahjong's origin is unknown, and myths about it are common. Those attributing its origin to Confucius (Kǒng Fūzǐ, 551–479 BCE) are unlikely; somewhat more likely is the suggestion that it is related to a Chinese card game called Mádào which was popular in the early Ming dynasty (1368–1644 CE). Some sources suggest that Mahjong (Pinyin Májìàng) was devised on the basis of the earlier game of Mádào circa 1850 in the city of Níngbō by two unnamed brothers, who engraved the card designs onto small tiles made with ivory and bamboo. Others suggest that Chinese army officers serving during the Tàipíng Rebellion (1851–1864) created the game to pass the time. Whatever its origin, the quickly gained popularity in other countries. It spread to Japan in 1907 and to Britain and USA after 1920. Various rules for Mahjong play are known, and in different versions of the game different sets of tiles are known. This proposal encodes a superset of the tiles from various traditions. Mahjong's popularity has found its way to the Internet, where solitaire and group-play varieties of Mahjong games can be found.

The main set of tiles is comprised of three suits with nine members each. The most common English names for the suits are the *Characters* (in Chinese Wànzi 'ten thousand', 'myriad'), displaying the numbers 1 through 9 over the character wàn 一萬 二萬 三萬 四萬 伍萬 六萬 七萬 八萬 九萬; the *Bamboos* (also *Sticks*, *Boos*, or *Bams*; in Chinese Suǒzi 'woven thread' or Tiáo 'twig'), ranging from 1 to 9  (note that the One of Bamboos generally has a representation of a sparrow or other bird on it); and the *Circles* (also *Dots*; in Chinese Tǒngzi 'tube' or Bǐng 'flatbread') . In addition to the suits, two sets of "honour tiles" are used, the *Dragons* and the *Winds*. There are four Winds, each displaying its proper character: *East* (Dōng 東), *South* (Nán 南), *West* (Xī 西), and *North* (Běi 北). There are three Dragons: the *Red Dragon* (Hóngzhōng 'red centre' displaying the character zhōng 中), the *Green Dragon* (Qīngfā 'green transmission' with the character fā 發 signifying wealth) and the *White Dragon* (Báibǎn 'white board', which is normally blank, or represented by an empty border, or sometimes with the character bái 白). Two sets of "flower tiles" are also found. The *Flowers* proper include the *Plum* (Méi 梅), the *Orchid* (Lán 蘭), the *Chrysanthemum* (Jú 菊), and the *Bamboo* (Zhú 竹), and the *Seasons* include *Spring* (Chūn 春), *Summer* (Xià 夏), *Autumn* (Qiū 秋), and *Winter* (Dōng 冬). American Mahjong sets often offer Joker tiles, labelled with the characters for bǎidā 'a hundred links' 百搭.

Finally, this proposal encodes a reversed tile  to facilitate discussion of these in game manuals and the like. While some play manuals describe a blank tile  provided in some play sets to serve in the event of the loss of a regular tile, this proposal does not encode it, because the same glyph is used in Japan for the White Dragon and the inclusion of both  and  in the UCS could cause confusion as to which should be used in Japanese implementations.

2. Dominoes derive from Chinese tile games of the 12th century CE, which made use of tiles carved from bone or ivory with the indented pips made of ebony. The “tiles” are also known as “bones”, “stones”, or (apparently incorrectly) “dominoes”. The first recorded reference of the game in Europe is from the courts of Venice and Naples. There, the tiles were made by gluing and pinning two sheets of ebony on either side of the bone tile, which prevented cheating since the the pips could no longer be seen through the back of the tile if the bone or ivory were somewhat translucent. The most commonly-used dominoes are the “double-six” set. There are other sets – “double-nine”, “double-twelve”, “double-fifteen”, and “double-eighteen” – but only standard or “double-six” set of dominoes is proposed here. Note that domino fonts can be drawn as black tiles with white pips or white tiles with black pips; there is no distinction and the choice is a matter of glyph preference.

The domino tiles are encoded in horizontal and vertical orientations. When used in-line in text, the rotation is significant: see Figure 4 for an example where  DOMINO TILE HORIZONTAL-02-04 is found alongside  DOMINO TILE HORIZONTAL-04-02. In vertical orientation,  DOMINO TILE VERTICAL-02-04 and  DOMINO TILE VERTICAL-04-02 may likewise be distinguished. The horizontal and vertical are often used to set up play diagrams (see Figures 4 and 5), but both orientations may be seen in-line in text (see Figure 6).

3. Draughts/checkers characters are also proposed here, for encoding in the BMP along with the chess characters. Four characters are proposed, the WHITE DRAUGHTS MAN , the WHITE DRAUGHTS KING , the BLACK DRAUGHTS MAN , and the BLACK DRAUGHTS KING . Proposed code positions: U+26C0-U+26C3.

4. Issues. A number of “bones” are used together with Mahjong tiles to assist in tallying the score. There are, variously, three or four of them, which tend to have values of 2, 10, 100, and 500. At present they are not sufficiently well-understood to encode them, so they are not proposed for encoding here. See Figures 9a, 9b, 10, 11, and 12.

4. Unicode character properties

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26C0;WHITE DRAUGHTS MAN;So;0;ON;;;N;;;;
26C1;WHITE DRAUGHTS KING;So;0;ON;;;N;;;;
26C2;BLACK DRAUGHTS MAN;So;0;ON;;;N;;;;
26C3;BLACK DRAUGHTS KING;So;0;ON;;;N;;;;
1F000;MAHJONG TILE EAST WIND;So;0;ON;;;N;;;;
1F001;MAHJONG TILE SOUTH WIND;So;0;ON;;;N;;;;
1F002;MAHJONG TILE WEST WIND;So;0;ON;;;N;;;;
1F003;MAHJONG TILE NORTH WIND;So;0;ON;;;N;;;;
1F004;MAHJONG TILE RED DRAGON;So;0;ON;;;N;hongzhong;;
1F005;MAHJONG TILE GREEN DRAGON;So;0;ON;;;N;qingfa;;
1F006;MAHJONG TILE WHITE DRAGON;So;0;ON;;;N;baiban;;
1F007;MAHJONG TILE ONE OF CHARACTERS;So;0;ON;;;N;wan;;
1F008;MAHJONG TILE TWO OF CHARACTERS;So;0;ON;;;N;;;;
1F009;MAHJONG TILE THREE OF CHARACTERS;So;0;ON;;;N;;;;
1F00A;MAHJONG TILE FOUR OF CHARACTERS;So;0;ON;;;N;;;;
1F00B;MAHJONG TILE FIVE OF CHARACTERS;So;0;ON;;;N;;;;
1F00C;MAHJONG TILE SIX OF CHARACTERS;So;0;ON;;;N;;;;
1F00D;MAHJONG TILE SEVEN OF CHARACTERS;So;0;ON;;;N;;;;
1F00E;MAHJONG TILE EIGHT OF CHARACTERS;So;0;ON;;;N;;;;
1F00F;MAHJONG TILE NINE OF CHARACTERS;So;0;ON;;;N;;;;
1F010;MAHJONG TILE ONE OF BAMBOOS;So;0;ON;;;N;tiao;;
1F011;MAHJONG TILE TWO OF BAMBOOS;So;0;ON;;;N;;;;
1F012;MAHJONG TILE THREE OF BAMBOOS;So;0;ON;;;N;;;;
1F013;MAHJONG TILE FOUR OF BAMBOOS;So;0;ON;;;N;;;;
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1F014;MAHJONG TILE FIVE OF BAMBOOS;So;0;ON;;;;;N;;;;;
1F015;MAHJONG TILE SIX OF BAMBOOS;So;0;ON;;;;;N;;;;;
1F016;MAHJONG TILE SEVEN OF BAMBOOS;So;0;ON;;;;;N;;;;;
1F017;MAHJONG TILE EIGHT OF BAMBOOS;So;0;ON;;;;;N;;;;;
1F018;MAHJONG TILE NINE OF BAMBOOS;So;0;ON;;;;;N;;;;;
1F019;MAHJONG TILE ONE OF CIRCLES;So;0;ON;;;;;N;bing;;;
1F01A;MAHJONG TILE TWO OF CIRCLES;So;0;ON;;;;;N;;;;;
1F01B;MAHJONG TILE THREE OF CIRCLES;So;0;ON;;;;;N;;;;;
1F01C;MAHJONG TILE FOUR OF CIRCLES;So;0;ON;;;;;N;;;;;
1F01D;MAHJONG TILE FIVE OF CIRCLES;So;0;ON;;;;;N;;;;;
1F01E;MAHJONG TILE SIX OF CIRCLES;So;0;ON;;;;;N;;;;;
1F01F;MAHJONG TILE SEVEN OF CIRCLES;So;0;ON;;;;;N;;;;;
1F020;MAHJONG TILE EIGHT OF CIRCLES;So;0;ON;;;;;N;;;;;
1F021;MAHJONG TILE NINE OF CIRCLES;So;0;ON;;;;;N;;;;;
1F022;MAHJONG TILE PLUM;So;0;ON;;;;;N;mei;;;
1F023;MAHJONG TILE ORCHID;So;0;ON;;;;;N;lan;;;
1F024;MAHJONG TILE CHRYSANTHEMUM;So;0;ON;;;;;N;ju;;;
1F025;MAHJONG TILE BAMBOO;So;0;ON;;;;;N;zhu;;;
1F026;MAHJONG TILE SPRING;So;0;ON;;;;;N;;;;;
1F027;MAHJONG TILE SUMMER;So;0;ON;;;;;N;;;;;
1F028;MAHJONG TILE AUTUMN;So;0;ON;;;;;N;;;;;
1F029;MAHJONG TILE WINTER;So;0;ON;;;;;N;;;;;
1F02A;MAHJONG TILE JOKER;So;0;ON;;;;;N;;;;;
1F02B;MAHJONG TILE BACK;So;0;ON;;;;;N;;;;;
1F030;DOMINO TILE HORIZONTAL BACK;So;0;ON;;;;;N;;;;;
1F031;DOMINO TILE HORIZONTAL-00-00;So;0;ON;;;;;N;;;;;
1F032;DOMINO TILE HORIZONTAL-00-01;So;0;ON;;;;;N;;;;;
1F033;DOMINO TILE HORIZONTAL-00-02;So;0;ON;;;;;N;;;;;
1F034;DOMINO TILE HORIZONTAL-00-03;So;0;ON;;;;;N;;;;;
1F035;DOMINO TILE HORIZONTAL-00-04;So;0;ON;;;;;N;;;;;
1F036;DOMINO TILE HORIZONTAL-00-05;So;0;ON;;;;;N;;;;;
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1F038;DOMINO TILE HORIZONTAL-01-00;So;0;ON;;;;;N;;;;;
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1F03A;DOMINO TILE HORIZONTAL-01-02;So;0;ON;;;;;N;;;;;
1F03B;DOMINO TILE HORIZONTAL-01-03;So;0;ON;;;;;N;;;;;
1F03C;DOMINO TILE HORIZONTAL-01-04;So;0;ON;;;;;N;;;;;
1F03D;DOMINO TILE HORIZONTAL-01-05;So;0;ON;;;;;N;;;;;
1F03E;DOMINO TILE HORIZONTAL-01-06;So;0;ON;;;;;N;;;;;
1F03F;DOMINO TILE HORIZONTAL-02-00;So;0;ON;;;;;N;;;;;
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1F041;DOMINO TILE HORIZONTAL-02-02;So;0;ON;;;;;N;;;;;
1F042;DOMINO TILE HORIZONTAL-02-03;So;0;ON;;;;;N;;;;;
1F043;DOMINO TILE HORIZONTAL-02-04;So;0;ON;;;;;N;;;;;
1F044;DOMINO TILE HORIZONTAL-02-05;So;0;ON;;;;;N;;;;;
1F045;DOMINO TILE HORIZONTAL-02-06;So;0;ON;;;;;N;;;;;
1F046;DOMINO TILE HORIZONTAL-03-00;So;0;ON;;;;;N;;;;;
1F047;DOMINO TILE HORIZONTAL-03-01;So;0;ON;;;;;N;;;;;
1F048;DOMINO TILE HORIZONTAL-03-02;So;0;ON;;;;;N;;;;;
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1F04B;DOMINO TILE HORIZONTAL-03-05;So;0;ON;;;;;N;;;;;
1F04C;DOMINO TILE HORIZONTAL-03-06;So;0;ON;;;;;N;;;;;
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1F052;DOMINO TILE HORIZONTAL-04-05;So;0;ON;;;;;N;;;;;
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1F06D;DOMINO TILE VERTICAL-01-03;So;0;ON;;;;;N;;;;;
1F06E;DOMINO TILE VERTICAL-01-04;So;0;ON;;;;;N;;;;;
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1F07B;DOMINO TILE VERTICAL-03-03;So;0;ON;;;;;N;;;;;
1F07C;DOMINO TILE VERTICAL-03-04;So;0;ON;;;;;N;;;;;
1F07D;DOMINO TILE VERTICAL-03-05;So;0;ON;;;;;N;;;;;
1F07E;DOMINO TILE VERTICAL-03-06;So;0;ON;;;;;N;;;;;
1F07F;DOMINO TILE VERTICAL-04-00;So;0;ON;;;;;N;;;;;
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1F08B;DOMINO TILE VERTICAL-05-05;So;0;ON;;;;;N;;;;;
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1F091;DOMINO TILE VERTICAL-06-04;So;0;ON;;;;;N;;;;;
1F092;DOMINO TILE VERTICAL-06-05;So;0;ON;;;;;N;;;;;
1F093;DOMINO TILE VERTICAL-06-06;So;0;ON;;;;;N;;;;;

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<http://en.wikipedia.org/wiki/Mahjong> Wikipedia articles on Mahjong can also be found in Arabic, Bengali, Danish, German, Esperanto, Spanish, Finnish, French, Hebrew, Hungarian, Italian, Japanese, Dutch, Norwegian Bokmål, Polish, Portuguese, Russian, Swedish, and Chinese.
<http://kosti.tripod.com/mahjongbasic-big5.htm> (in Chinese)
<http://mahjongtime.com/> (in English)
<http://www.acergame.com.tw/document/mj.shtml> (in Chinese)
<http://www.by-art.com/mjong/mjong.php> (in English)
<http://www.mjonline.com.tw/> (in Chinese)

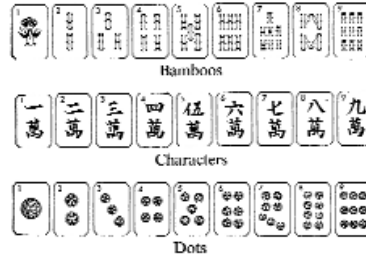
Figures

Individual sets vary, although the illustrations below will approximate any set the reader has. Some sets, made specially for export, have arabic numerals and letters (indicating the four winds) included on the tiles for the convenience of non-Oriental players. Learning the designations from the symbols and the Chinese characters is simple, however, and allows one more latitude in the purchase of his Mah Jong set.

The complete modern set consists of 136 tiles. These are divided into two groups, the *suits* and the *honors*, each group being further subdivided as indicated below. In addition to the 136 tiles, every set contains four extra blanks in case a tile should be damaged or lost, and some sets, especially those for export, contain other special tiles (flowers and seasons) which are no longer used in Japanese Mah Jong. See *Part Two, Chapter One*.

Suit Tiles

There are three suits, each consisting of thirty-six tiles: four 1's, four 2's, four 3's and so on up to 9. The names of these three suits are *bamboos*, *characters* and *dots*. There are four of each of the tiles depicted below.



Note that the 1 bamboo, above, depicts a bird. In some sets it depicts a bamboo shoot.

Figure 1. Example from Whitney 1964, showing the Mahjong suits.

The 1s and 9s of each suit are known as **terminals**. They are sometimes called the 'old head' tiles. The 1s and 9s are of equal value.



The dragons and the winds are known as **honour tiles**. There are four of each denomination.

There are three dragons: green, red and white. They are all of equal value.



The green and red dragons display Chinese ideographs. These tiles are easy to distinguish as they are invariably coloured green and red, respectively. The green dragon is associated with the East and is sometimes called a phoenix. It is referred to flippantly as 'spinach'. The white dragon is normally a blank tile (as above) but in some sets it is shown with a frame:



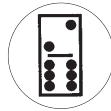
Figure 2. From Pritchard 2003, showing the three Dragon tiles. Note the two forms of the MAHJONG TILE WHITE DRAGON. The bordered form is used to distinguish it from the blank tile which is part of many sets.

Declaration of kongs

Now East may declare any kongs held in his hand. He puts out the tiles on the table next to one another with either the two end or the two central tiles face up and the other two face down. This arrangement indicates that the set was concealed, necessary for scoring purposes (see diagram).



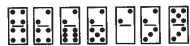
Figure 3. Example from Pritchard 2003, showing the use of the MAHJONG TILE BACK.



Keeping Track of the Tiles

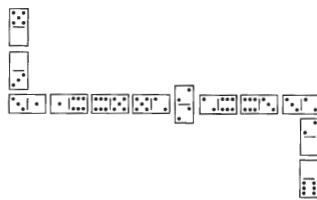
It is important to be able to keep track of the tiles as the skeleton is built. This applies both to the played and unplayed tiles, and both your team's as well as your opponents'.

Consider again the lead player's hand in the first sample game:



Not only is he aware of the five 2s he has, he should also realize the 2-6 and the 2-0 are the missing 2s. As the game is played, he keeps looking out for their appearance. He should also try to get them played as quickly as possible, so he'll have the last 2s left (First Law—develop your strong suit).

Figure 4. Example from Lugo 2002, showing DOMINO TILE VERTICAL-02-06 used to indicate the chapter number (8).



East passes. Now my partner is the new lead player, and he knows I have the last two doors to the 6s. He thinks on the 5 for quite a while, so he must have more than one 5. Let's try to figure out the possibilities. The 6-2 wouldn't allow a 2 to be played, the others would. Does he have another 3? The 2-3 comes to mind again. If he has it, it'll get hung if he plays the 6-2.

After thinking, he plays the 6-2. He either can't stop a 2 from being played (having the 6-2 and the 2-6, and the last 2s being the 2-5 and the 2-4), or he has the 6-2 and is afraid of his 2-3 getting hung. Perhaps he's really trying to get a 4 to me so I can jam the game ("asking for the jam").

West now plays the 2-3, without much thought. Did he realize he was setting up a jam? Did he have any choice about it? He'd better *not* have the 2-6, or his partner will kill him for not playing it!

Now I think about the jam. There are 110 points played after the game is jammed to 6s. The points in the hands are $168 - 110 = 58$. To tie, our team must have 29 points. I have the 6-2 and the 2-6, for a total of 10 points. Can my partner have 19 points in his three remaining tiles?

We already figured out he has another 5. The highest one left is the 5-4 (8 points), leaving 11 points in two tiles. The two highest tiles left are the 5-3 and the 5-2, which would add up to 13 points. That means that the

Figure 5. From Lugo 2002, showing the distinction between DOMINO TILE HORIZONTAL-02-04 and DOMINO TILE HORIZONTAL-04-02.



Figure 6. From Teun Spaans’ “Domino Plaza” web site (www.xs4all.nl/~spaanszt/Domino_Plaza.html), showing horizontal and vertical dominoes in text. The positioning of the horizontal and vertical tiles is significant, and can be maintained in plain-text fonts by positioning the glyphs appropriately with regard to the font baseline.

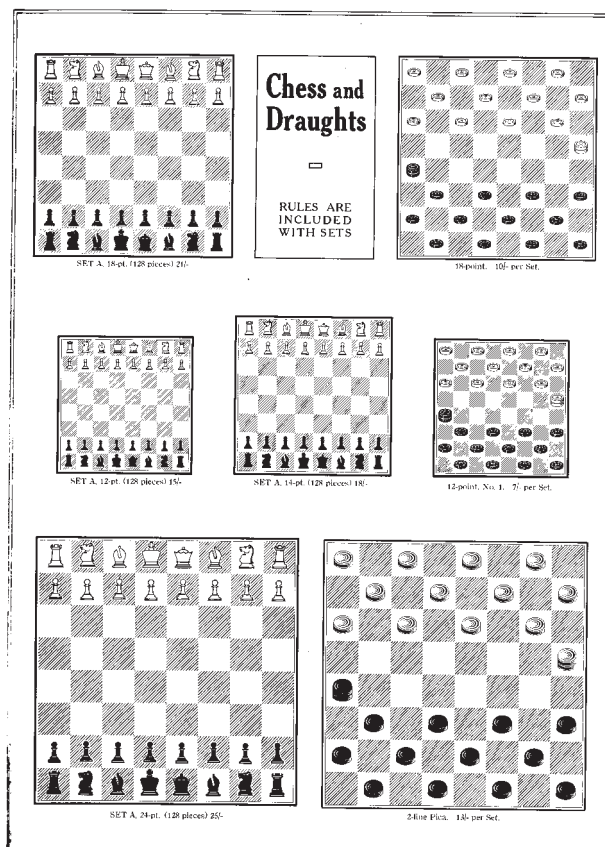



Figure 7. Example from the H. W. Caslon & Co. Ltd.’s *Printing types and catalogue of materials* (London, [1925]), showing the draughts (checkers) men and kings along with the chess pieces which have already been encoded.


TYPOGRAPHIC ACCESSORIES

CHESSMEN

16 Point Per font \$4 75



13 Per font \$4 75

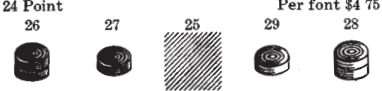


16 Point Chessmen makes board 11 2-3 ems square

24 Point Chessmen (board 17 ems square) Per font \$6 45 20 Point Chessmen (board 14 1-3 ems square) Per font \$6 45
(Prices include One Set of Brass Rules for Border)


CHECKERS

24 Point Per font \$4 75




24 Point Checkers makes board 17 ems square

20 Point Per font \$4 75




20 Point Checkers makes board 14 1-3 ems square

11 Point Per font \$3 00



11 Point Checkers makes board 8 1-3 ems square

16 Point Per font \$4 75

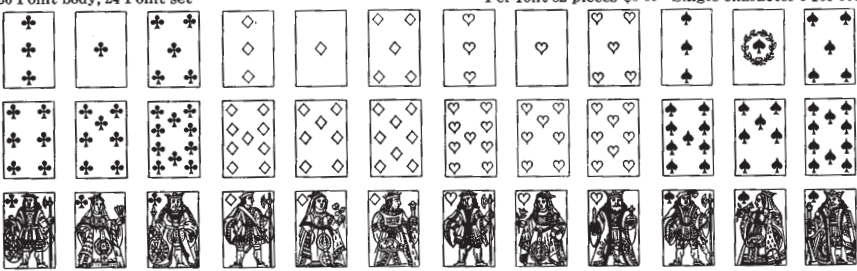


16 Point Checkers makes board 11 2-3 ems square

(Prices include One Set of Brass Rules for Border)

CARD PIPS, SERIES No. 2


36 Point body, 24 Point set Per font 52 pieces \$6 65 Single character 3 for 30c




CARD INDICATORS

SERIES No. 1


No. 82½ 2 for 30c




No. 83½ 2 for 30c



No. 84½ 2 for 30c




No. 85½ 2 for 30c




Set of four 50c

SERIES No. 2


No. 918E 25c




No. 919E 25c



No. 920E 25c




No. 921E 25c



Set of four 75c


SERIES No. 3

24 Point Per font \$3 65



10 Pt. Per font \$1 95

12 Pt. Per font \$1 95



Cast to order on 10 Point or 12 Point body

SERIES No. 4

3 ♠	A ♠	4 ♠	♠ 4
6 ♦	J ♦	K ♦	A ♦
7 ♦	9 ♦	2 ♦	Q ♦
♥ 9	♥ 10	5 ♦	10 ♦
♣ 2	♣ A	♣ 3	♣ 7
♥ 2	♣ J	♣ Q	♣ K
♥ 3	♣ 6	♥ A	♥ 4
2 ♠	♣ 5	♥ 5	♣ 5
5 ♠	♣ 6	K ♠	8 ♦
6 ♠	♣ 9	7 ♠	4 ♦
9 ♠	10 ♠	8 ♠	3 ♦
♥ Q	♥ K	10 ♠	♣ 8
♥ 7	♥ 8	J ♠	♥ J
		Q ♠	♥ J

6 Point No. 4 Per font \$3 50
Complete for two hands with rules, leads and spaces

WHIST MARKERS

18 Point Per lb. \$0 90




Figure 8. Example from the American Type Founders Company's *Specimen book and catalogue* (Jersey City, 1923), showing playing card pips and draughts (checkers) men and kings. The card suits encoded in the Miscellaneous Symbols block (omitting U+2664 and U+2667) are also shown. The first whist marker can be mapped to U+2935 (assuming that the fletches are optional), but I am not sure if the others are encoded.

7

Many sets, particularly those destined for the American market, are now sold with four or eight jokers. These tiles usually have a single design, for example a goose or a horse, but many carry different designs in bewildering array: cat, rat, cock, worm, old man, snow, moon and bag of gold are just a few. Jokers are not used in the Chinese and Japanese games, nor are they normally included in European sets.

Most sets include four blank tiles:



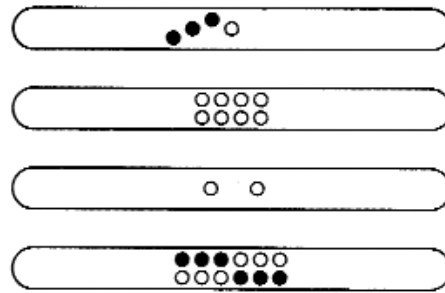
These are spares intended to replace any tiles that are lost or damaged. A felt pen can be used to mark a replacement tile. In China, one could take the tile to the local mahjong dealer and have it engraved for a modest charge. Spare tiles, sometimes used as jokers, should not be confused with white dragons. In many sets the two are identical. Where this occurs it is advisable to ring the changes so that the tiles endure the same wear.

Accessories

Accessories are useful aids for play but not essential for the game.

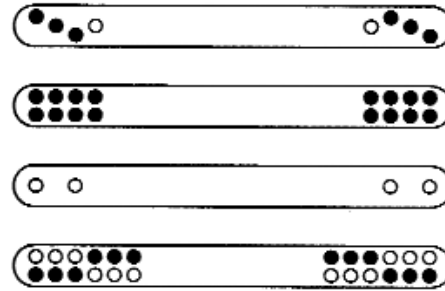
Scoring sticks, known as tallies, chips or bones, are often included with a mahjong set. Except in modern sets bought in the Far East, tallies are in four values. These carry markings in contrasting colours, often crude, and have the following values, illogical to Western eyes:

- 1 red and 3 black spots: 2 points
- 8 black or red spots: 10 points
- 2 red spots: 100 points
- 6 black and 6 red spots: 500 points



tallies — old style

Better-quality tallies tend to have the same markings, but at both ends:

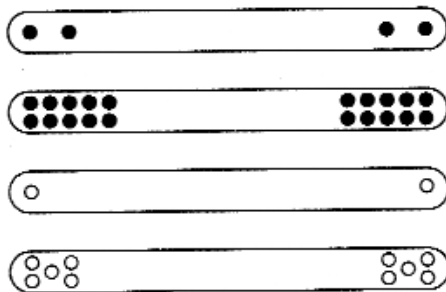


end markings — old style

In many sets intended for Western markets, the values are the same as in the old style but the markings correspond more closely with the values.

- 2 black spots: 2 points
- 10 black spots: 10 points
- 1 red spot: 100 points
- 5 red spots: 500 points

Figure 9a. From Pritchard 2003, describing Mahjong scoring bones.



modern-style tallies

In sets sold today in China and Hong Kong, and rarely exported, there are only three values, represented by counters without markings but in contrasting colours: 12 in one colour, 16 in another and 40 in a third colour. These are compatible with the radical scoring system of faans and laaks introduced to the native game in the last few decades. Other types of tallies are rarely met.

A wind indicator is usually included in a set. This may take the form of a rotating disc in which the prevailing wind is shown in the window:



wind disc showing prevailing wind

An alternative is a small box, the *chuang-tzu*, also known as the tong or jong (dealer) box, which contains four wind counters, shown below, and serves the same purpose as the wind disc. Notice that the directions are not in the conventional sequence: North, South, East and West. This will be explained later.



wind counters

left to right: East, South, West, North

A set usually includes three or four small cubic dice, although only two are used in the game. The numbers 1 and 4 on the dice are invariably in red, an auspicious colour for the Chinese; the other four numbers are in black.

Racks for holding the players' hands are a useful accessory. They have a secondary use as rulers. Racks are almost invariably sold separately. Racks are the same length as the sides of the walls (building walls is a necessary preliminary of the game, as will be seen). The Chinese, incidentally, scorn racks; they either stand the tiles upright on the table in front of them or hold them in their hand.

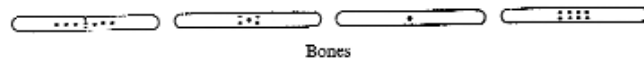
Rulers (four, if included in a set) are commonly the length of 17 tiles and are used for evening up the tiles in a line in the preliminary stage. Rulers are a luxury and are unnecessary if racks are used since they can serve the same purpose.

Figure 9b. Example from Pritchard 2003, describing Mahjong scoring bones.

Bones

In addition to the tiles, the complete Mah Jong set also contains a set of *bones* used, like the chips in poker, for scoring. In some American sets these have been replaced by chips with holes in the middle, which can be stacked on poles, but they will be called bones throughout this book. Each player receives the same number of bones at the beginning of the game. At the end of each hand the winner receives bones equal in value to his score from the loser(s). At the end of the game, the player with the highest count in bones is the winner.

There are usually four kinds of bones; the markings vary, but the most numerous ones should always be assigned the lowest value.



The Japan Mah Jong Association rules state that the bones should be valued at 500, 100 and 10. The one shown on the left should not be used. Each player receives two 500-point bones, nine 100-point bones, and ten 10-point bones at the beginning of the game, making a total of 2000 points.

Figure 10. Example from Whitney 1964, describing Mahjong scoring bones.



Figure 11. Example of some Mahjong scoring bones for sale on the Internet.



Figure 12. Example of some Mahjong scoring bones for sale on the Internet. On the left a more modern style is shown; the right have the traditional dot patterns (see Figure 9.)

TABLE XX - Row 1F0: MAHJONG TILES

	1F00	1F01	1F02
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
A			
B			
C			
D			
E			
F			

G = 00
P = 01

TABLE XX - Row 1F0: MAHJONG TILES

hex	Name	hex	Name
00	MAHJONG TILE EAST WIND		
01	MAHJONG TILE SOUTH WIND		
02	MAHJONG TILE WEST WIND		
03	MAHJONG TILE NORTH WIND		
04	MAHJONG TILE RED DRAGON (hongzhong)		
05	MAHJONG TILE GREEN DRAGON (qingfa)		
06	MAHJONG TILE WHITE DRAGON (baiban)		
07	MAHJONG TILE ONE OF CHARACTERS (wan)		
08	MAHJONG TILE TWO OF CHARACTERS		
09	MAHJONG TILE THREE OF CHARACTERS		
0A	MAHJONG TILE FOUR OF CHARACTERS		
0B	MAHJONG TILE FIVE OF CHARACTERS		
0C	MAHJONG TILE SIX OF CHARACTERS		
0D	MAHJONG TILE SEVEN OF CHARACTERS		
0E	MAHJONG TILE EIGHT OF CHARACTERS		
0F	MAHJONG TILE NINE OF CHARACTERS		
10	MAHJONG TILE ONE OF BAMBOOS (tiao)		
11	MAHJONG TILE TWO OF BAMBOOS		
12	MAHJONG TILE THREE OF BAMBOOS		
13	MAHJONG TILE FOUR OF BAMBOOS		
14	MAHJONG TILE FIVE OF BAMBOOS		
15	MAHJONG TILE SIX OF BAMBOOS		
16	MAHJONG TILE SEVEN OF BAMBOOS		
17	MAHJONG TILE EIGHT OF BAMBOOS		
18	MAHJONG TILE NINE OF BAMBOOS		
19	MAHJONG TILE ONE OF CIRCLES (bing)		
1A	MAHJONG TILE TWO OF CIRCLES		
1B	MAHJONG TILE THREE OF CIRCLES		
1C	MAHJONG TILE FOUR OF CIRCLES		
1D	MAHJONG TILE FIVE OF CIRCLES		
1E	MAHJONG TILE SIX OF CIRCLES		
1F	MAHJONG TILE SEVEN OF CIRCLES		
20	MAHJONG TILE EIGHT OF CIRCLES		
21	MAHJONG TILE NINE OF CIRCLES		
22	MAHJONG TILE PLUM (mei)		
23	MAHJONG TILE ORCHID (lan)		
24	MAHJONG TILE CHRYSANTHEMUM (ju)		
25	MAHJONG TILE BAMBOO (zhu)		
26	MAHJONG TILE SPRING		
27	MAHJONG TILE SUMMER		
28	MAHJONG TILE AUTUMN		
29	MAHJONG TILE WINTER		
2A	MAHJONG TILE JOKER		
2B	MAHJONG TILE BACK		
2C	(This position shall not be used)		
2D	(This position shall not be used)		
2E	(This position shall not be used)		
2F	(This position shall not be used)		

TABLE XX - Row 1F0: DOMINO TILES

	1F03	1F04	1F05	1F06	1F07	1F08	1F09
0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
A							
B							
C							
D							
E							
F							

G = 00
P = 01

TABLE XX - Row 1F0: DOMINO TILES

hex	Name	hex	Name
30	DOMINO TILE HORIZONTAL BACK	89	DOMINO TILE VERTICAL-05-03
31	DOMINO TILE HORIZONTAL-00-00	8A	DOMINO TILE VERTICAL-05-04
32	DOMINO TILE HORIZONTAL-00-01	8B	DOMINO TILE VERTICAL-05-05
33	DOMINO TILE HORIZONTAL-00-02	8C	DOMINO TILE VERTICAL-05-06
34	DOMINO TILE HORIZONTAL-00-03	8D	DOMINO TILE VERTICAL-06-00
35	DOMINO TILE HORIZONTAL-00-04	8E	DOMINO TILE VERTICAL-06-01
36	DOMINO TILE HORIZONTAL-00-05	8F	DOMINO TILE VERTICAL-06-02
37	DOMINO TILE HORIZONTAL-00-06	90	DOMINO TILE VERTICAL-06-03
38	DOMINO TILE HORIZONTAL-01-00	91	DOMINO TILE VERTICAL-06-04
39	DOMINO TILE HORIZONTAL-01-01	92	DOMINO TILE VERTICAL-06-05
3A	DOMINO TILE HORIZONTAL-01-02	93	DOMINO TILE VERTICAL-06-06
3B	DOMINO TILE HORIZONTAL-01-03	94	(This position shall not be used)
3C	DOMINO TILE HORIZONTAL-01-04	95	(This position shall not be used)
3D	DOMINO TILE HORIZONTAL-01-05	96	(This position shall not be used)
3E	DOMINO TILE HORIZONTAL-01-06	97	(This position shall not be used)
3F	DOMINO TILE HORIZONTAL-02-00	98	(This position shall not be used)
40	DOMINO TILE HORIZONTAL-02-01	99	(This position shall not be used)
41	DOMINO TILE HORIZONTAL-02-02	9A	(This position shall not be used)
42	DOMINO TILE HORIZONTAL-02-03	9B	(This position shall not be used)
43	DOMINO TILE HORIZONTAL-02-04	9C	(This position shall not be used)
44	DOMINO TILE HORIZONTAL-02-05	9D	(This position shall not be used)
45	DOMINO TILE HORIZONTAL-02-06	9E	(This position shall not be used)
46	DOMINO TILE HORIZONTAL-03-00	9F	(This position shall not be used)
47	DOMINO TILE HORIZONTAL-03-01		
48	DOMINO TILE HORIZONTAL-03-02		
49	DOMINO TILE HORIZONTAL-03-03		
4A	DOMINO TILE HORIZONTAL-03-04		
4B	DOMINO TILE HORIZONTAL-03-05		
4C	DOMINO TILE HORIZONTAL-03-06		
4D	DOMINO TILE HORIZONTAL-04-00		
4E	DOMINO TILE HORIZONTAL-04-01		
4F	DOMINO TILE HORIZONTAL-04-02		
50	DOMINO TILE HORIZONTAL-04-03		
51	DOMINO TILE HORIZONTAL-04-04		
52	DOMINO TILE HORIZONTAL-04-05		
53	DOMINO TILE HORIZONTAL-04-06		
54	DOMINO TILE HORIZONTAL-05-00		
55	DOMINO TILE HORIZONTAL-05-01		
56	DOMINO TILE HORIZONTAL-05-02		
57	DOMINO TILE HORIZONTAL-05-03		
58	DOMINO TILE HORIZONTAL-05-04		
59	DOMINO TILE HORIZONTAL-05-05		
5A	DOMINO TILE HORIZONTAL-05-06		
5B	DOMINO TILE HORIZONTAL-06-00		
5C	DOMINO TILE HORIZONTAL-06-01		
5D	DOMINO TILE HORIZONTAL-06-02		
5E	DOMINO TILE HORIZONTAL-06-03		
5F	DOMINO TILE HORIZONTAL-06-04		
60	DOMINO TILE HORIZONTAL-06-05		
61	DOMINO TILE HORIZONTAL-06-06		
62	DOMINO TILE VERTICAL BACK		
63	DOMINO TILE VERTICAL-00-00		
64	DOMINO TILE VERTICAL-00-01		
65	DOMINO TILE VERTICAL-00-02		
66	DOMINO TILE VERTICAL-00-03		
67	DOMINO TILE VERTICAL-00-04		
68	DOMINO TILE VERTICAL-00-05		
69	DOMINO TILE VERTICAL-00-06		
6A	DOMINO TILE VERTICAL-01-00		
6B	DOMINO TILE VERTICAL-01-01		
6C	DOMINO TILE VERTICAL-01-02		
6D	DOMINO TILE VERTICAL-01-03		
6E	DOMINO TILE VERTICAL-01-04		
6F	DOMINO TILE VERTICAL-01-05		
70	DOMINO TILE VERTICAL-01-06		
71	DOMINO TILE VERTICAL-02-00		
72	DOMINO TILE VERTICAL-02-01		
73	DOMINO TILE VERTICAL-02-02		
74	DOMINO TILE VERTICAL-02-03		
75	DOMINO TILE VERTICAL-02-04		
76	DOMINO TILE VERTICAL-02-05		
77	DOMINO TILE VERTICAL-02-06		
78	DOMINO TILE VERTICAL-03-00		
79	DOMINO TILE VERTICAL-03-01		
7A	DOMINO TILE VERTICAL-03-02		
7B	DOMINO TILE VERTICAL-03-03		
7C	DOMINO TILE VERTICAL-03-04		
7D	DOMINO TILE VERTICAL-03-05		
7E	DOMINO TILE VERTICAL-03-06		
7F	DOMINO TILE VERTICAL-04-00		
80	DOMINO TILE VERTICAL-04-01		
81	DOMINO TILE VERTICAL-04-02		
82	DOMINO TILE VERTICAL-04-03		
83	DOMINO TILE VERTICAL-04-04		
84	DOMINO TILE VERTICAL-04-05		
85	DOMINO TILE VERTICAL-04-06		
86	DOMINO TILE VERTICAL-05-00		
87	DOMINO TILE VERTICAL-05-01		
88	DOMINO TILE VERTICAL-05-02		

A. Administrative

1. Title

Proposal to encode Mahjong, Domino, and Draughts symbols in the UCS

2. Requester's name

Chen Zhuang, Michael Everson, Masuhiro Sekiguchi, Tseng Shih-Shyeng, Wei Lin-Mei, Andrew West

3. Requester type (Member body/Liaison/Individual contribution)

Individual contribution.

4. Submission date

2006-09-27

5. Requester's reference (if applicable)

6. Choose one of the following:

6a. This is a complete proposal

Yes.

6b. More information will be provided later

No.

B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters)

Yes

1b. Proposed name of script

Mahjong Tiles is proposed for U+1F000–U+1F02F; Domino Tiles is proposed for .U+1F030–U+1F09F.

1c. The proposal is for addition of character(s) to an existing block

Yes.

1d. Name of the existing block

Miscellaneous Symbols.

2. Number of characters in proposal

148 (Mahjong 44, Dominoes 100, Draughts 4).

3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)

Category B-1.

4a. Is a repertoire including character names provided?

Yes.

4b. If YES, are the names in accordance with the “character naming guidelines” in Annex L of P&P document?

Yes.

4c. Are the character shapes attached in a legible form suitable for review?

Yes.

5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

Michael Everson.

5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

Michael Everson, Fontographer.

6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes.

7b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

7. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Yes.

8. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see Unicode Character Database <http://www.unicode.org/Public/UNIDATA/UnicodeCharacterDatabase.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

See above.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

Yes. See N2760, N2975, N3147, N3162.

2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?

Yes.

2b. If YES, with whom?

Paul Proft and Teun Spaans (domino experts) have reviewed the proposal and have supported it.

2c. If YES, available relevant documents

In private e-mails, Proft said: "I can hardly wait to quit using domino images. Hopefully, later generation browsers will accommodate more Unicode character sets." Spaans noted that it was important to encode the larger sets as well as the double sixes.

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?

Players of Mahjong, Dominoes, and Draughts

4a. The context of use for the proposed characters (type of use; common or rare)

Used to play games, increasingly on the internet; the characters are also used in publication of teaching materials in print and on the web.

4b. Reference

5a. Are the proposed characters in current use by the user community?

Yes.

5b. If YES, where?

Worldwide.

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

The Draughts men should be in the BMP, the others in the SMP.

6b. If YES, is a rationale provided?

Yes.

6c. If YES, reference

Keep Draughts with Chess.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

No.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No.

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

No.

10b. If YES, is a rationale for its inclusion provided?

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

No.

11b. If YES, is a rationale for such use provided?

11c. If YES, reference

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No.

11e. If YES, reference

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

No.

13b. If YES, is the equivalent corresponding unified ideographic character(s) identified?