Article on “Chinese Writing” by David Prager Branner


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The Chinese characters are a unique form of writing in the modern, integrating world. They have been the primary form of writing across East Asia, and they have proven irresistibly fascinating to the entire world. In China, their two major forms are those of ancient inscriptions:

1. bronze (金文)
2. oracle bone or ‘OBI’ (甲骨文, 契文)
3. seal (篆文, 篆書, 小篆)

and the newer ink-brush styles:

1. clerical (隸書)
2. ‘running’ and ‘grass’ (行書, 草書)
3. modern square script (楷書)

In Chinese society today there is considerable knowledge about ancient scripts outside of the community of scholars of paleography. All known styles of Chinese script, including those recently rediscovered through archaeological excavation, are the subject of modern calligraphy practice, one of the prime vehicles of self-cultivation in Chinese traditional secular culture.

A. Ancient inscribed styles

A.1. Seal

Seal script has been used on signature seals since Warring States times (475–221 B.C.E.), and was the main form used in public inscriptions in the Qín (221–206 B.C.E.) and Hàn (B.C.E. 206–221 C.E.) dynasties. The Qín standardization of the script is thought to have involved seal
script, although it is less well known that Qín itself cultivated a highly conservative character structure in an effort to show that it was the worthy successor of the Zhōu. Seal script has long been used on official seals, and so is associated with political legitimacy.

Seal script has been the focus of traditional paleography and graphology, because it is documented in a first century dictionary, the Shuòwén jiézì 說文解字, the oldest native work of its kind. But seal script represents a highly evolved stage of development and is not ideal for research on the early history of Chinese writing. It is formalistic and most of its graphs are broadly isomorphic with modern square script, even though seal script differs in having lines of even weight, rounded corners, and rounded line-ends. See the example in Fig. 1, from a Sòng dynasty (960–1279) compendium. Characters are written so as to conform to an invisible box and look balanced and neat.

A.2. Bronze

Some of the most structurally conservative ancient graphs tend to be those cast on early bronze vessels, which abound from the period of the Shāng (1766–1122) and Western Zhōu dynasties (1122–221). Bronze script was a monumental form; the sacrificial vessels on which it appears were often costly and had ritual functions in the ancestral temples of important families. Many short inscriptions (5-20 characters) exist, recording little more than personal names and a few formal phrases associated with the commissioning of the vessel. An example appears in Fig. 2, from a Western Zhōu guǐ vessel. But some longer texts (as long as several hundred characters) also exist, and are a major source for historical and linguistic study of this period. Their formal nature, however, must never be forgotten; this was not a medium or a context that lent itself to casual writing or to the recording of natural speech.

Bronze script graphs tend to have both regular angles and smooth curves, with lines of varying thickness and separated by irregular spaces. Their size and shape may vary considerably within a single inscription, in contrast to more standardized graphs of later periods. Texts are generally written in columns, top to bottom, continuing right to left, and in the best inscriptions the columns have a largely linear appearance, with the graphs about equally spaced. But graphs themselves vary a great deal in form; this is true of both the appearance of primary elements and
the structure of compound graphs. Ancient bronzes have been known and handled continuously since their own time (there is a tradition in the received literature that possession of certain vessels of state betokens the possession of the throne). The collection and study of their inscriptions continues in a tradition unbroken since the Sòng dynasty, although modern archaeological finds and linguistic method have increased our knowledge incalculably in the past half century. The form shown here is taken from a modern rubbing (tàpiàn 片).

A.3. Bone

The oldest Chinese writing now known and definitively identified as writing is the oracle bone inscriptions (OBI), dating mainly from the time of the last 12 kings of the Shāngh dynasties, or the period c. mid-14th c. to 1122 B.C.E. Tortoise plastrons and carabao scapulas were used in ritual divination by or for the kings (some were also inscribed with related information), and finally they were either stored or discarded. They were first identified around the turn of the 20th century, and so their study is entirely modern. The great majority of authentic Shāngh bones come from an area near Anyáng in China’s Hénán Province 河南安陽, the site of the later Shāngh capital; there are also smaller finds from other parts of north China, as well as pieces dating from the early Western Zhōu. Inscriptions are generally classified into five very rough stylistic periods.

Bone and scapula are harder materials than the soft clay on which bronze inscriptions were actually prepared, and OBI are rougher in appearance, with simpler structure and lines that are more jagged. See Fig. 3 for an unusually legible and large inscription. Most OBI finds are fragmentary, and even complete texts are usually short and highly compact. For these reasons, the identification of graphs by linguistic context is often much more tentative than with bronze inscriptions.

B. Ink-brush styles

Although there is internal evidence that OBI and bronze graphs must have developed from earlier ink or painted forms, no undisputed specimens have yet been unearthed. From the 4th and 3rd centuries B.C.E., however, there are a number of examples of cursive ink writing on
bamboo splints (zhújiǎn 竹簡) and silk (bóshū 帛書). Important recent finds come from sites at Bāoshān 包山 and Guōdiàn 郭店 in Húběi 湖北 Province. The texts represented in these documents tend to vary a good deal from received versions, and character structure seems to have been highly variable. The Shuōwén records a tradition that, in the fragmentation of ‘China’ prior to the Qín unification, each politically independent region developed its own style of writing. However, the variation is not simply geographical; we sometimes see the same character written quite differently even within the same document. Materials of this type were not well known in traditional times, although there is a Sòng dynasty dictionary, the Hànjiǎn, that contains some related forms.

Cursive brush forms tend to look much more abstract the older bone and bronze forms. Horizontal strokes are often greatly thickened, and vertical strokes tend to trail off unless they turn and continue horizontally. A sample of a recent find at Guōdiàn appears in Fig. 4.

In all brush styles, whether cursive or formal, the brush allows control of the amount of ink released, and the thickening or narrowing of lines becomes an essential part of the æsthetics of the script, in a way that was not seen in the older inscriptional styles. However, from the Hán onward we see inscriptions using ink-brush styles, because paper (first widely used in the Hán) could be pasted on stone and the ink characters on it carved there. This provided a way for medieval Chinese governments to promulgate standard texts in standard script: they erected official editions of the classical texts that were a part of their intellectual basis for rule, and visitors could make rubbings and take them home for study and emulation.

**B.1. Clerical**

True so-called clerical script is the term applied to cursive writing from the Qín and Hán, but these are clearly a development from Warring States cursive tradition. From the Hán we have a number of stone steles carved from ink models. The Cáo Quán Stele 曹全碑, dated 185 C.E. and unearthed in the 16th century, is one of the most striking examples of the style; see Fig. 5. The characters are square, with many of the basic stroke types formed in a regular and distinctive way. Writers are evidently paying close attention to control of the brush-tip. Structurally, most of the the characters are already very close to modern square script, in spite
of stylistic differences.

**B.2. ‘Running’ and ‘Grass’ Styles**

The ‘running’ (literally, ‘walking’) and ‘grass’ styles are both characterized by ellipsis of discrete structural elements and the flowing connection between various remaining lines of the graph. Grass style is the more elliptical of the two and, contrary to popular belief, is the older, dating from the Western Hàn (B.C.E. 206–8 C.E.); it was originally a cursive development of clerical script. It remains a favored style for calligraphy, and the elegance of fine specimens arouses a visceral aesthetic response in some aficionados, although the effect is often lost on viewers who cannot read Chinese, and is even baffling to them. In more extreme examples, even people who appreciate calligraphy cannot always make out every character. The (relatively moderate) work of the 14th century Kânglí Zîshân 康里子山 is shown in Fig. 6. Running style is generally much more legible for the modern reader; its forms bear a much closer relationship to modern square script, and it developed later, in the third century, probably as a casual style for use in letters. A rubbing of the running script of the 8th century Lî Yōng 李邕 is shown in Fig. 7. When the running and grass styles are compared with modern square script, the viewer becomes aware that a kind of systematic vocabulary of ellipsis is involved, and that vocabulary has been made the subject of a number of books, including one in English by Fred Fang-yü Wang.

**B.3. Modern Square Script and the Simplification Movement**

Modern square script is the style in common use today. It seems to have developed by the third century, and rapidly became standard for official writing. No later than the end of the sixth century there were dictionaries circulating that exhibited standard square script forms, no doubt for emulation. Square script does not flow; lines are discrete and generally straight. Vertical lines are supposed to go straight up and down, and horizontal lines are supposed to be almost level, or rising very slightly from left to right. Changes of line-direction are clearly expressed, and the narrowing and flaring of the different parts of each line are exactly prescribed. Fig. 8 shows a 6th century example from the 7th century tomb inscription of Sū Cí 蘇慈. Even though it is obviously not contemporary, almost all the graphs are instantly readable by any literate
In the 20th century, both the Nationalist (KMT) and Communist governments of China promulgated official lists of ‘simplified’ characters (jiàntìzi 簡體字). Many of these graphs are essentially running script forms given a square script cast, and almost all of them have been in popular hand-written use for a very long time, at least regionally and often universally. When the Chinese civil war wound down to a stalemate in the 1950’s, the Communist-governed mainland was promoting a simplified script as an aid to proletarian literacy and as a step toward the eventual eradication of the characters, while the KMT-governed island of Taiwan was promoting traditional script, as commonly seen in printed texts from the previous several centuries. In some cases, systematic principles are involved in how characters are simplified, but those principles were never fully implemented. For example, the traditional form 變 is officially simplified to 变, 乱 to 乱, 鱉 to 蟲, 欢 to 欢, 让 to 让, and so on. The example of 變 is paralleled by 鵝, 鎮, and 樂 being simplified to 麥, 歌, and 義, and the case of 欢 is paralleled by 觀, 權, and 勸 being simplified to 观, 权, and 劝. But there are many other uncompleted sets: 織, 灌, and 獠 remain unchanged in the official simplified character set, as do 貢, 壕, and 嚴.

As of the turn of the 21st century, there has not been full popular integration of the simplified and traditional character sets in popular usage, even though the actual differences between the two are relatively superficial. Typically a week of review is all that is needed for someone literate in one character set to master the other set. But many native speakers of Chinese still claim only to be able to read one or the other set, a declaration that the neutral observer suspects is really about political or regional allegiance rather than any intrinsic incompatibility between the two. Software developers have quietly made it possible for the two sets to be integrated in most computer applications.

As for full alphabetization and the elimination of the characters, as of this writing it remains official Communist policy, but seems to this writer unlikely ever to take place, because of the dominating place of the script in Chinese identity. Enthusiasts of alphabetization include a number of prominent Western scholars. De Francis (1950) and Serruys (1962) give good
resumés of the early history of the simplification and alphabetization movement.

C. Other matters of form and punctuation

C.1. Form of connected writing

Until recent decades, Chinese has conventionally been written in straight columns, top to bottom and continuing right to left. (Bronze inscriptions occasionally run in columns from left to right, often in only one of a pair of inscriptions facing each other on the lid and body of a single vessel.) Over the course of the 20th century, it became usual to write in rows from left to right. Taiwan and conservative overseas newspapers made the switch in the late 1990’s. In Taiwan and Hong Kong, much literature continues to use the traditional format. In the mainland, only scholarly works of classical literature and philology still frequently follow the traditional format.

Chinese characters in modern print are generally all the same size and occupy an (invisible) square, with the same amount of space between them. Unstressed syllables and the one important Mandarin subsyllabic morpheme (the rhotacizing ‘suffix’ -r ḋ/.AddRange: ) always take up the same amount of space as ‘full’ syllables.

C.2. Punctuation

Modern Chinese since the early 20th century has been punctuated with a set of symbols derived from Western usage: the period  or ·, the comma, colon, semicolon, question mark, quotation marks, and exclamation point: ：；？！. There is also a special ‘half-comma’ (、) used for separating items in a list (and not rendered orally as a pause, as a comma is in English). The half-comma is derived from the shape of a simple dot as conventionally written with a brush. There are traditional quotation marks 「 and 」 (or  and  in columnar format) and brackets 【 and 】 (  /  ), and 〈 and 〉 (  /  ). It is usual for all of these punctuation marks to be given the same amount of space as a normal character, although with the advent of computers and wider exposure to other written languages, many typographical practices are in rapid co-evolution. There was historically no such thing as italicization, but its presence in word processors has introduced it to the Chinese printed world since the late 1980’s.
Traditional printed books usually had no punctuation, although individual readers might ‘point’ the text by hand, as needed, using a circle or half-comma. However, Warring States bamboo manuscripts often have ‘half-comma’-like marks at the ends of what we can identify as phrases and sentences. Traditional teachers would sometimes mark alternate tonal readings of a given character by putting a dot or a small circle in one or another of its corner (so-called quānpò 圈破 ‘circling the “broken” reading’). Ancient bronze inscriptions and bamboo texts made frequent use of a ‘doubling mark’ (chónɡwén 重文), which is the numeral ‘two’ (二) added to the bottom right corner of a character to indicate that the character was to be read twice — sometimes a series of characters could be so marked, meaning that a phrase was to be read twice. Fig. 2 contains one such example in the upper left corner.

In later texts, broadly speaking from the Hàn onward, the doubling mark is given its own space as a character, fitting into its own invisible square. By the 6th century we see a more elaborate doubling mark 々 used, which survives in handwriting today.

C.3. Ligatures

Ligatures (héwén 合文) are very common in ancient texts. We find two common characters pressed into the space of one, often written in such a way as to share strokes, and the doubling mark added at bottom right. There is no firm evidence on how these were to be read; possibly two morphemes were to be read, or possibly there was some kind of spoken contraction involved.

In Warring States bamboo texts there is a second kind of ligature, where a single compound character has the doubling mark but is meant to be read as two different morphemes. For example, the graph bìng 並 ‘together’ with the doubling mark added is understood to be read as bìnglì 並立 ‘standing together’; the graph 並 itself is historically two 立 written side by side, and the use of the doubling mark to indicate 立立 requires that fact to be known to the reader.

D. The internal linguistic structure of the Chinese script

The Chinese script is famous for being non-phonetic. Although phonetic principles have plainly determined its development, it remains highly ‘defective’ in the technical sense: the sounds of
speech are represented inconsistently, and often totally concealed.

**D.1. Primary elements**

Chinese characters are of two basic types: primary elements and compound characters made from two or more primary elements.

A primary element is one we recognize as being indivisible, so that no discrete linguistic meaning attaches to smaller components. Most primary elements are derived from ‘pictographs’ (xiàngxíng 象形 ‘form-depicting’ characters), which stylize some physical object. Examples (from c.10th century B.C.E. bronze inscriptions) are shown in Fig. 9: the characters shown represent common Chinese words for ‘horse’, ‘to stand’, ‘large’ (in the top row) and ‘mouth’, ‘eye’, and ‘moon, month’ (bottom row). In their modern square script forms, the graphs are 马, 立, 大 (top) and 口, 目, 月 (bottom).

Another traditional category of primary elements is the zhīshì 指事, graphs that ‘indicate a matter’. They are abstract and non-depictive. Fig. 10 shows a few examples: ‘one’ 一, ‘two’ 二 (top) and ‘five’ 五, ‘on top; to ascend’ 上 (bottom). Relatively few primary elements are of this type.

**D.2. Compounding: extension of primary elements through polyvalence**

Primary elements often appear as discrete graphs, but frequently we do not see them used in their primary meaning. Rather, the earliest attested usage is often as a loan for a near homophone or synonym standing distance distance from what we believe to be the primary sense. Such ‘polyvalent’ usage is known in Chinese as jiàojie 假借 (‘loan’) usage. Its best known form is semantic polyvalence — ‘polysemy’, or the ‘rebus’ principle, in which one graph represents two words with different meanings but very similar sounds. Polysemy allows us to write words for which no obvious physical symbol can be found, by using any other word that has a sound that is the same or similar. Polysemy is a phonetic principle, and is the most fundamental linguistic principle involved in grasping the structure of Chinese script.

As an example, 立 represents an intransitive verb meaning ‘to stand’, but we often see it used in
senses other than as the intransitive verb ‘to stand’. One such usage is the transitive ‘to erect’, although that is not usually considered to be Jiǎjiè because the meaning “to erect” is not now associated with a different graph or word. But 立 also stands for the word we now write 位 ‘place, position’. The ancient spoken word originally written 立 is reconstructed *g-rap (Mandarin lì), and 位 is reconstructed *raps (wèi); we believe the two words were alike enough in sound and meaning that the use of one to stand for the other would not have been a big jump for a literate reader. A third word sometimes written with 立 is 草 *g-raps (qì) ‘to arrive at one’s place’.

The three words standardly written 立, 位, and 草 are close enough that we can believe they may have been cognate, and so the use of a single form to stand for all three does not surprise us. But to date we have found no explicit native statement about these relationships, and so are forced to make deductions about the range of loangraph relationships. We also have no explicit wordlists — lexicons showing sound, meaning, and a conventional graphic representation — older than about the sixth century C.E., and those from the sixth century are filled with archaisms and late standardizations. Consequently, our ability to reconstruct the early language and identify the words represented by graphs in excavated materials is still very limited.

A second form of polyvalence is ‘polyphony’ — writing a graph usually associated with one word to represent another word with a totally different sound but similar in meaning. Relatively few examples of this kind have survived the standardizing tendencies of the past 2200 years, but we do see occasional examples such as 卽, associated both with *hngrat ‘sprout’ (a word long obsolete) and *tshu? 草 ‘plant’ in the received literature. In excavated ancient documents, however, there appear to be a great many examples of this kind.

D.3. Extension of primary elements through compounding

Primary elements are only a minute proportion of the total number of Chinese graphs. In most cases, a typical Chinese graph is a compound of two or more of them. Compounding is thought to have come about at an early date because of the intrinsic ambiguity of polyvalence. To resolve the ambiguity, 'determinative elements' were added, forming a compound graph. Determinatives may be either phonetic or semantic: they may give the reader a clue to the
intended word through either sound or meaning.

The overwhelming majority of compounds involve the addition of a semantic determinative to a primary phonetic element that may once have been used polyphonically. Such 'phonetic compounds' (形聲 xíngshēng ‘form and sound’ graphs) make up the vast proportion of all of the Chinese characters attested from antiquity. Table 1 shows three graphs, two of which are compounds, differentiated semantically from the first, which was a polysemous primary graph:

From 到, another graph 倒 was derived for the word *ˈtaw? ‘to fall down (said of a person)’. 倒 is two derivational steps away from 刀: in it, the compound 到 (associated with *ˈtaws ‘to arrive’ and *ˈtaw? ‘to fall down’) has been disambiguated by the addition of semantic determinative 人 *nin ‘person’ for the word *ˈtaw? but not for *ˈtaws.

From 召 have sprung a whole series of secondary compound graphs, shown in Table 2.

And from 祭 another (tertiary) compound 照 has been derived, for *taws ‘to shine on’ by the addition of the semantic determinative 火 *ˈhmaj ‘fire’. None of the elements 至, 口, 人, 日, 手, 水, 言, 走, 音, 系, 予, or 火 appear to contribute to the overall phonetic value of these graphs; in every case, our ability to read a character stems from the original association of the element 刀 with the sound *ˈtaw. Many scholars have proposed etymologizing these words so as to link them to the basic meaning of 刀 *ˈtaw, ‘blade or knife’: perhaps “bright” and “to shine” suggest the sharpness or glint of a blade, or perhaps “summon” and “command” suggest compulsion by force of arms. But that is speculation; there is no reason to assume that 刀 was used as anything except a token of sound in these graphs. If “blade” and “bright” are related, that is mainly a matter of the etymology of spoken words.

Our ability to describe early graphic evolution in Chinese is greatly complicated by two problems. First, compound graphs are rarely seen in their earliest meanings, and, second, primary graphs are rarely seen in the loan usages that we believe to have been disambiguated later as distinct phonetic compounds. Full documentation may never be possible, because it
seems likely that many phonetic compound graphs known in post-Hàn times were perhaps formed directly as compounds without having gone through the process of disambiguation of a primary polyphonic pictograph.

A minority of compound graphs were formed by the addition of a phonetic element to an older pictograph. An example is the word zhù ‘to cast in metal’ now written 銅 *tus (?). The modern square-script form is a phonetic compound, with *du? as the phonetic element and 金 ‘metal’ *k(r)om as the semantic determinative. Fig. 11 shows several ancient forms of 銅: the three in the top row have in common the primarily elements 皿 ‘vessel’ at the bottom and what appear to be two hands holding some sort of inverted vessel at the top. Between these two parts are variously 火 *’hmaj ‘fire’, 金 ‘metal’ *k(r)om, and the element 彈, whose reading and meaning are disputed but which appears to be the phonetic element in modern 銅. Of these three graphs, only the one containing 役 is recognizable to us as a phonetic compound, in which 役 specifies that a word resembling 銅 *du? is intended; the other two must be understood as compounds of some sort. In the bottom row of Fig. 11, we see a form containing 火, 金, and 役, followed by another form containing only 金 and 役 with 口 *’kho? ‘mouth’ (an element of modern 銅). Both of these must be forebears of modern 銅. Last is a form containing only 金 and 寸 *stu? (?; likely variant of 手 ‘hand’, phonetic in 守 *stu? ‘to protect’); this is also a phonetic compound graph, using a different phonetic element from the received form. In sum, it appears that early ways of writing “to cast” were not phonetic, but that 役 was first added as a phonetic determinative and the complex pictographic elements gradually reduced to 金, which looks like a semantic determinative. But we can see that simple phonetic-plus-semantic structure is actually late in this graph, and developed following a different path than the 刀 compounds.

D.4. Semantic compounds

Because compound characters are made of two or more primary elements, it is often thought that it is the meanings of those elements that combine to indicate the meaning of the whole compound. That is a misconception, one widespread in China as well as abroad. Chinese traaditionally call such ‘semantic compounds’ 會義, graphs with ‘meanings conjoined’.
There are some graphs that (at present) are almost always explained as semantic compounds; for instance 木 林 ‘forest’ is apparently composed of the element 木 ‘tree’ doubled. But by far the overwhelming majority of compound graphs contain at least one patently phonetic element. Moreover, modern scholars continue to study those compounds that are ambiguous, and in some cases they have been plausibly explained as originally phonetic compounds in which the phonetic element has ceased to be recognized. A fine example is *mreng ‘to crow’, apparently a compound of the elements 口 *’kho? ‘mouth’ and 鸟 *’tiw? ‘bird’, neither of which can be phonetic. However, it has been proposed by modern scholars that 口 is actually a polyphonic element, and that in addition to ‘mouth’ it also stands for a word meaning ‘to call’. In addition to *mreng, common words using 口 phonetically for this sound are 名 *meng ‘name, to name’ and 命 *mrings ‘to command’. Presumably, one of the three words *mreng ‘to crow’, *meng ‘name’, and *mrings ‘to command’ is what was originally intended by the use of the primary element 口 in all three graphs. Findings like this are disputed in many circles, however; the huìyì-type compound is part of the traditional lore of the Chinese script, whether or not it turns out to have a historical basis.

D.5. Character structure and the dictionary

Chinese dictionaries have been arranged by sound since at least the 6th century C.E., but how do you find a character if you don’t know how it is pronounced? To solve this problem, Chinese dictionaries are also arranged by character structure. Usually, the semantic determinative, if there is one, is identified as the classifying element of a graph, and all the characters that have the same semantic determinative are placed together. For example, the characters 首, 馳, 駛, 驍, 马, 騎, and 贏 are all placed under 马 in the dictionary, because 马 is identified as a recurring determinative element in all of them.

Westerners generally call this element the ‘radical’ of the character, but the Chinese name (bùshǒu 部首) is better translated as ‘classifier’. ‘Radical’ suggests that the determinative element is somehow the etymological ‘root’ of the graph, when in fact most semantic determinatives are late additions in compound characters; it is the original polysemous phonetic element that really deserves the name ‘root’.
Further reading

The best Western-language overview of the modern native tradition of paleography is Qiú (2000). The best presentation of modern linguistic analysis of the structure of the script is Boltz (2003), which, however, remains controversial among traditionalists.

Captions for illustrations

Fig. 1. A page from a Sòng dynasty dictionary of seal forms, with text in square script

Fig. 2. A Western Zhōu bronze inscription

Fig. 3. A fine oracle bone inscription on scapula

Fig. 4. A fragment of Warring States brushwork

Fig. 5. From a Hàn stele inscription in clerical script

Fig. 6. A sample of Mongol-era “grass” script

Fig. 7. A sample of 8th century “running” script

Fig. 8. A sample of 7th century square script

Fig. 9. Pictographs: 馬, 立, 大 (top) and 口, 目, 月 (bottom)

Fig. 10. Symbol-graphs: 一, 二 (top) and 五, 上 (bottom)

Fig. 11. Six bronze forms of zhù 鑄 ‘to cast in metal’

Table 1.:  
  
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<th>graph</th>
<th>reconstruction</th>
<th>meaning</th>
<th>structure of graph</th>
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<tr>
<td>刀</td>
<td>*taw</td>
<td>‘blade, knife’</td>
<td>pictograph</td>
</tr>
<tr>
<td>到</td>
<td>*taws</td>
<td>‘to arrive’</td>
<td>刀 disambiguated by the addition of semantic determinant 至 *tits ‘to arrive’ (the element ⚬ is an altered form of 刀)</td>
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Table 2:

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<th>meaning</th>
<th>structure of graph</th>
</tr>
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<tbody>
<tr>
<td>昭</td>
<td>*taw</td>
<td>‘bright’</td>
<td>昭 disambiguated by the addition of semantic determinative 日 *nit ‘sun’</td>
</tr>
<tr>
<td>招</td>
<td>*taw</td>
<td>‘to summon with the hand’</td>
<td>昭 disambiguated by the addition of semantic determinative 手 *hu? ‘hand’</td>
</tr>
<tr>
<td>沼</td>
<td>*taw?</td>
<td>‘pond’</td>
<td>昭 disambiguated by the addition of semantic determinative 水 *h(l)uj? ‘water’</td>
</tr>
<tr>
<td>諾</td>
<td>*taws</td>
<td>‘to command’</td>
<td>諾 disambiguated by the addition of semantic determinative 言 *ngan ‘to say’</td>
</tr>
<tr>
<td>超</td>
<td>*throw</td>
<td>‘to exceed, surpass’</td>
<td>諾 disambiguated by the addition of semantic determinative 走 *’tsok? ‘to run’</td>
</tr>
<tr>
<td>詩</td>
<td>*daw</td>
<td>‘kind of ritual music’</td>
<td>詩 disambiguated by the addition of semantic determinative 音 *(r)om ‘music’</td>
</tr>
<tr>
<td>賢</td>
<td>*daw?</td>
<td>‘to connect’</td>
<td>賢 disambiguated by the addition of semantic determinative 纓 *sə ‘thread’</td>
</tr>
<tr>
<td>賜</td>
<td>*tew</td>
<td>‘marten: kind of weasel’</td>
<td>賜 disambiguated by the addition of semantic determinative 矢 *lre (?) ‘any legless wild creature’ (!)</td>
</tr>
</tbody>
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Bibliography


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