The Regular Grouping of the Hexagrams before the *Yi jing* - The King Wen Groups

by József Drasny

Introduction

A question about the order of the sixty-four hexagrams in the Chinese classic *Yi jing* 易经 has come to the fore in recent decades. Namely, are the hexagrams arranged randomly or according to a conscious design?

The arrangement of the hexagrams is the same in all copies and editions of the *Yi jing* from the Han 汉 era to the present day.[1] This arrangement is the traditionally received, canonized King Wen (*Wen Wang* 文王, r. 1099-1050 B.C.E.) sequence (KWS).[2] In examining this sequence, it is hardly possible to find any relation between the content of a given sign and its place in the row. Though one commentary (the *Xu Gua* 卦卦) in the *Yi jing* contains an explanation of the order of the hexagrams, even Richard Wilhelm considered it unconvincing.[3] The Daoist philosopher Liu Yiming 劉一明 (1734–1821) analyzed the inner alchemy of the *Yi jing* and viewed the hexagrams as steps along the path towards perfect enlightenment.[4] Other scholars found or believed they found other explanations for the origin of the sequence. In their opinion, some type of complex system must exist in the succession of the sixty-four hexagrams, which may hide some ancient knowledge related to mathematics,

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[1] In the earliest known and complete manuscript of the sixty-four hexagrams, the Mawangdui silk texts (*Mawangdui Boshu* 馬王堆帛書, copied about 190 B.C.E.), the order of the hexagrams differs from this sequence. However, many facts make clear that "The received sequence was in existence before, and probably well before, the time that manuscript was copied." Edward L. Saughnessy, *I Ching. The Classic of Changes*, (New York: Ballantine Books, 1997), p. 18.

[2] In this text, the King Wen sequence (or King Wen's sequence) will often be simply called the received sequence. It is well known that the composer of this arrangement could have been someone else, one or more person, at the time of or later than King Wen.

[3] "The Ninth Wing, *Hsüe Kua*, the Sequence – or Order – of the Hexagrams, offers a rather unconvincing explanation of the present sequence of the hexagrams." Cary F. Baynes, trans., *The I Ching or Book of Changes*. The Richard Wilhelm Translation rendered into English. (Princeton: Princeton University Press, 1997), p. 260.

[4] Liu I-Ming, trans. Thomas Cleary, *The Taoist I Ching*, (Boston: Shambala, 2005).

history, biology, or other subjects. Another theory is that the sequence is random, thus making it futile to search for any reasoning underlying the order of the hexagrams.

Reviewing the entire body of literature referring to the above points of view is beyond the scope of this paper. However, the works of three authors of distinction in recent years have illustrated the divergent opinions well. In his comprehensive monograph, Richard S. Cook claims to have discovered the mathematical basis of the sequence.[5] In Scott Davis' opinion, the formal design together with the textual content determines the order of the hexagrams.[6] Larry J. Schulz found repetitive patterns in the arrangement, and he proposed that these patterns are structural elements that play a role in shaping the whole structure.[7] To the best of my knowledge, none of the known theories, including these three, has been widely accepted in the academic world of the *Yi jing*.

In this study, I accepted the theory of conscious design but adopted a new approach to discovering the original concept. In studying the general features of the old Chinese diagrams, I observed that in most of them, the hexagrams were divided into groups, and the groups were arranged in rows or columns. In addition, among the old diagrams, I found a single sequence in which the hexagrams were regularly segmented according to the concept of the unity of opposites. Jiao Xun 焦循 (1763–1820 C.E.) created this sequence circa two hundred years ago.[8] By designing different columnar variants of the received sequence, I found that the

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[5] "Cook shows how the Yi Jing's sequence of 64 hexagrams, each consisting of a six-line group of solid and broken lines, actually attests to a high degree of mathematical sophistication, previously unrecognized in a work of such antiquity, involving such arcane concepts as *linear recurrence sequences* (Fibonacci sequences) and *division in extreme and mean ratio* (the Golden Section)." James A. Matisoff, "Introduction," in: ed. Richard S. Cook, *Classical Chinese Combinatorics: Derivation of the Book of Changes Hexagram Sequence* (Berkeley: STEDT Monograph 5, 2006), p. iii.

[6] "... a comprehensive structural study of the *Zhou yi* textual model, *such as currently proposed*, aims to view synchronic relations of lines within hexagrams as functions of the diachronic order of the entire sequence, as a whole, *and also* to situate textual components as loci within the structure of the whole text." Scott Davis, *The Classic of Changes in Cultural Context: A Textual Archaeology of the Yi jing.* (Amherst: Cambria Press, 2012), pp. 70-71.

[7] "The Consolidated View shows the Hexagram Sequence to be a tightly contrived network of relationships within the Upper and Lower Classics and corresponding across them through parallel placement of Stations in groupings that share ten structural elements." Larry J. Schulz, "Structural Elements in the *Zhou Yijing* Hexagram Sequence," *Journal of Chinese Philosophy* 38 (2011), p. 663.

[8] Jiao Xun 焦循, *Yi tu lüe* 易图略, (China, 1860). (http://www.eee-learning.com/article/3383), accessed on March 15, 2015.

hexagrams originally might have been grouped according to a similar concept well before their arrangement in the known sequential form.

Please note that all subsequent statements concerning the existence of any earlier arrangements of the hexagrams should be regarded as assumptions. It is well known that there are no records or findings of the complete arrangement from the time before the received sequence. The theory presented here, however, is based on early (though posterior to the canonization) Chinese materials, and the conclusions were reached through strict logical reasoning.

The Main Features of the Early Hexagram Arrangements

Before beginning further investigations to find some order in the received sequence, it is necessary to review the arrangements by the old scholars to gain an understanding of their general concepts.

The Received Sequence

This well-known sequence of the hexagrams is shown below (Fig. 1).[9]

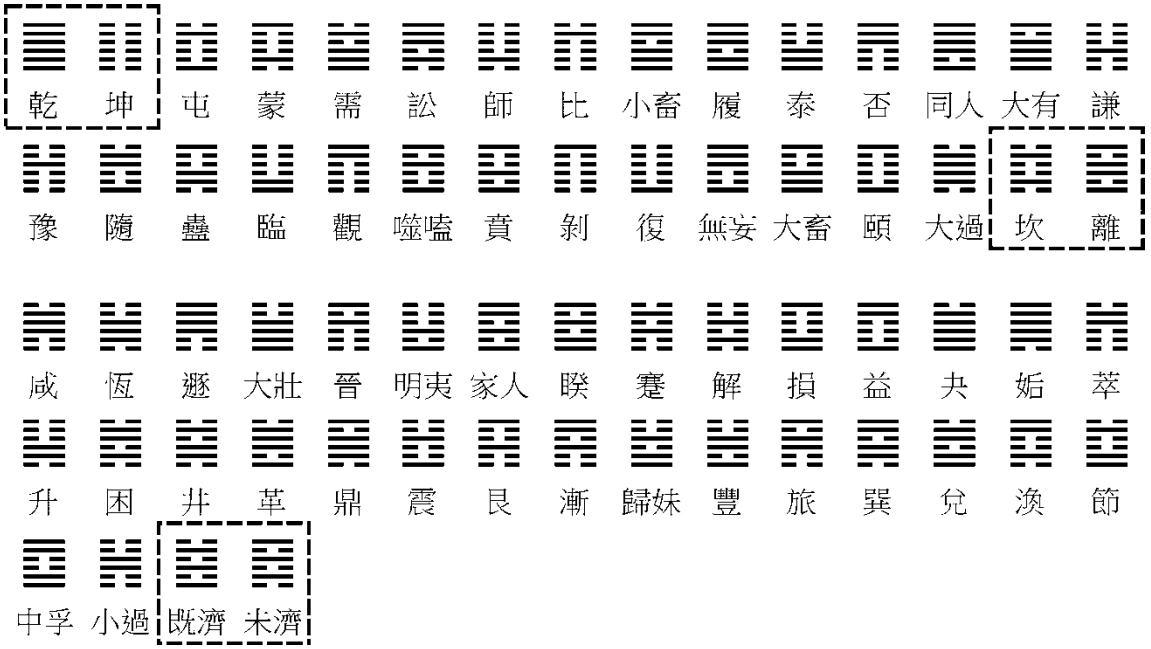

Figure 1. The King Wen sequence

[9] Because of the many different English translations, here and in the following text, I use the Chinese names of the hexagrams or the ordinal numbers in the sequence, referred as #1, #2, ..., #64.

In this sequence, there are two frequently noted regularities: Each odd-numbered hexagram, except the eight symmetrical ones, is followed by its inverse opposite (twenty-eight pairs altogether), and the eight symmetrical hexagrams are in pairs with their complementary opposites (four pairs).[10] Moreover, the hexagrams are traditionally divided into two sections: There are thirty hexagrams in the first section and thirty-four in the second section.

In the figure, there are three hexagram pairs framed by broken lines: One pair is at the beginning and another at the end of the first section, and the third is at the end of the second section. Their specific roles will be explained later in the text.

The Hexagram Arrangements in the Zhou Yi Tushi Dadian

A comprehensive collection of the *Zhou Yi* diagrams, the *Zhou Yi Tushi Dadian* 周易图释大典 (subsequently referred to as ZhTD), contains more than 1200 diagrams and their explanations from works on the *Zhou Yi* 周易 from the period of the Tang 唐 (618-907 C.E.) to the Qing 清 (1644-1911 C.E.) dynasties.[11] Among them are 151 complete lists of the hexagrams, arranged in different forms.[12]

In the ZhTD, one-half of the complete diagrams (seventy-five in number) illustrates Shao Yong's 邵雍 (1011-1077 C.E.) 'natural' sequence, also known as the Fu Xi 伏羲 sequence, or Primal Heaven diagram (*xiantiantu* 先天图). The other diagrams can be

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[10] Here and in the following text, I use the following terms for the opposing hexagrams:

- inverse opposite: The hexagram is turned upside down (*fangua* 反卦, *fugua* 覆卦, *qiangua* 潜卦, etc.),
- complementary opposite: Each line is changed to its opposite (*cuogua* 錯卦, or *pangtonggua* 旁通卦),
- permutated opposite: The two trigram components have exchanged places (*liangxiangyi* 兩象易, or *jiaogua* 交卦).

[11] Shi Wei 施维 and Qiu Xiaobo 邱小波, eds., *Zhou Yi Tushi Dadian* 周易图释大典, (Beijing: Zhongguo Gongren Chubanshe, 1994). (https://www.scribd.com/doc/220002470/周易图释大典-完整版), accessed on March 15, 2014.

[12] I counted only the complete diagrams in which the sixty-four hexagrams are represented by solid and broken lines and not by numbers, small circles, names, etc. The smaller groups (the parts of the whole set) have also been omitted.

distributed into a few categories, such as linear sequences, circles, rectangular or square arrays, and regularly segmented rows or columns.

The best-known diagrams are as follows:

- The complete KWS.
- The 'compact' KWS. Here, the hexagrams and their inverse pairs are contracted into a single picture (the first or the second member of the pair), but the symmetrical ones are shown individually. Thus, there are twenty-eight contracted inverse pairs and eight symmetrical hexagrams in the sequence. In most cases, the pictures are arranged in six-by-six, four-by-nine, and three-by-twelve arrays.
- The diagrams of Zhu Xi 朱熹 (1130-1200 C.E., also known as Master Zhu 朱子). These diagrams are often called 'the pictures of the hexagram changes' (*guabiantu* 卦变图). In them, the hexagrams are distributed into seven groups based on the number of solid and broken lines.[13] The groups are arranged in seven rows of 1, 6, 15, 20, 15, 6, and 1 hexagrams or in seven or more columns.
- Jing Fang's 京房 (78-37 B.C.E.) 'eight palaces' (*bagong* 八宫). These diagrams are usually arranged in eight-by-eight squares.[14]

Figure 2 shows the distribution of the diagrams according to their different forms.

	sequen-tial	circular	square array	rectang. array	rows	columns	**Sum**
King Wen	5	2	–	–	–	1	8
compact KW	4	1	5	5	–	–	15
Zhu Xi	2	–	–	–	9	10	21
Jing Fang	2	–	4	–	1	1	8
others	4	6	–	14	–	–	24
Sum	**17**	**9**	**9**	**19**	**10**	**12**	**76**
Fu Xi	6	40	29	–	–	–	75
Sum total							**151**

Figure 2. The distribution of the diagrams in the ZhTD

[13] Zhu Xi 朱熹, *Yixue Qimeng* 易学启蒙, (China, 1186). One of his diagrams was accessed in Wei and Xiaobo, *Zhou Yi Tushi Dadian*, p. 225, on October 15, 2015.
[14] Wei and Xiaobo, *Zhou Yi Tushi Dadian*, pp. 812, 1099, 1162.

As shown, the majority of the illustrations (not counting the Fu Xi diagrams) contain regular two-dimensional arrays or rows and columns of different length. In addition, in the King Wen arrangements, there are twice as many of the compact forms as of the complete ones.

It is also worthy of observation that in most cases, the old scholars divided the hexagrams into categories according to definite rules. In their diagrams, these groups are clearly shown: They form different rows or columns in the arrays or sections of consecutive hexagrams in the sequences. For example, there are eight groups in Jing Fang's array and seven groups in Zhu Xi's diagrams; the Fu Xi sequence has a single rule for the composition of each hexagram, so it is a regular group in itself. In addition, the sequence in the Mawangdui *Yi jing* manuscript apparently has eight separate sections, though it was found in linear form, similar to the received sequence.[15]

The features above come from common everyday life: If one wants to put numerous objects in order, whether colored pebbles, coat buttons, or items in a stamp collection, one starts by distributing them into groups according to their specific features (color, size, motif, etc.).

Comparison of the Received Sequence with the Other Arrangements

The diagrams of the received sequence differ radically from all the others in the ZhTD. According to tradition, King Wen *arranged* the sixty-four hexagrams into a sequence, that is, he put them in a specific order. However, there are no distinguishable groups either in the linear or in the two-dimensional forms. This distinctive feature may be ascribed to the fact that this sequence was canonized in the *Yi jing*, and the series of the hexagrams has come down to posterity in that single linear version. The authors of later times, apparently, did not recognize any systematic order in it and followed this form even in their square and rectangular arrangements. For example, Figure 3 shows a compact KWS arranged in a six-by-six array, taken from Shui Yuquan's 税与权 book.[16]

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[15] Saughnessy, *I Ching. The Classic of Changes*, p. 17.

[16] Shui Yuquan 税与权, *Yixue Qimeng Xiaozhuan* 易学启蒙小传 (China, 13th cent. C.E.). The diagram in Figure 3 was accessed in Wei and Xiaobo, *Zhou Yi Tushi Dadian*, p. 401, on October 15, 2015.

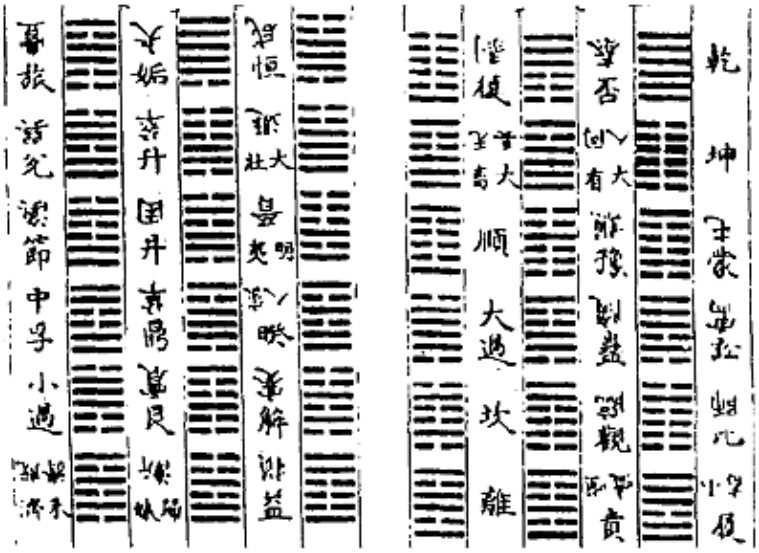


Figure 3. The six-by-six arrangement of the hexagrams in Shui Yuquan's diagram

Though this diagram is rather attractive in form, it does not have any meaningful features in content. In fact, this and the other compact arrangements are only simple mechanical transcriptions of the received sequence.

Thinking logically, we must not unconditionally accept the opinion that before the received sequence, no other arrangements existed. Theoretically, there might have been a preceding form, in which the hexagrams were arranged in the more usual, columnar way (but differently from the known, later diagrams), and there the original system (if there was any system) or its traces could be identified. Looking for the structure of this assumed predecessor, I found the works of Jiao Xun 焦循 a great help.

The Sequence by Jiao Xun

Jiao Xun was a famous mathematician and expert in the *Yi jing*. In the first chapter of his book *Yi tu lüe* 税与权, he addresses the *pangtong gua*s 旁通卦, namely, the relationships between two laterally linked (complementary) hexagrams. There, he enumerates the sixty-four hexagrams, arranged in thirty-two complementary pairs. This unique pairing system can be put in close relation with the KWS: The latter has twenty-eight inverse opposite pairs and four complementary ones. Besides, Jiao's sequence begins with the *Qian* 乾 and *Kun* 坤 and ends with the two hexagrams of Completion, *Ji ji* 既濟 and *Wei ji* 未濟, in the same way that they are positioned in the KWS. In Jiao's sequence, however, an additional regularity applies in the succession of the hexagrams: It can be divided into eleven distinct sections. Figure 4

shows the sequence without the textual parts and with the sections numbered in the order of their succession in the diagram.[17]

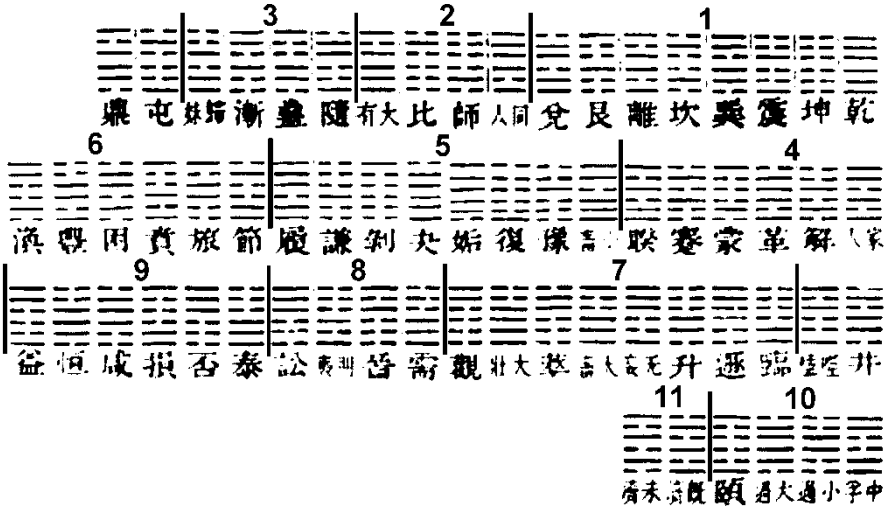


Figure 4. Jiao Xun's sequence with the eleven sections

In the sections (or groups) the hexagrams belong together according to the next rules: Four of the groups (sections 4, 5, 6, and 7) have four complementary pairs, and all hexagrams in the group are the opposites of each other. Taking the first hexagram in the section as the basis of the group,[18] the four pairs are as follows:

- The basic hexagram and its complementary hexagram,
- The permutated opposite of the first pair,
- The inverse opposite of the first pair,
- The inverse opposite of the permutated opposite pair.

The same rules apply to the other four groups, but there the inverse opposites would be identical with the complementary or permutated opposites; thus, these groups (sections 2, 3, 8, and 10) have only two pairs.

Moreover, there are two groups in which the hexagrams belong together according to their composing trigrams:

- The eight doubled trigrams (*chonggua* 重卦): each hexagram has two identical trigrams (section 1).

[17] After Xun, *Yi tu lüe*, Chapter 1.
[18] The basic hexagram does not have any distinct role. If any other hexagram would be chosen, the contents of the group will be the same.

- The eight hexagrams of the complementary trigrams: the eight trigrams are paired with their complementary opposites. This group is the union of sections 9 and 11. (It was Jiao's specific intention to place the pair *Ji ji*–*Wei ji* separately at the end of the sequence.)

Figure 5 shows the ten groups in detail. Their designations (J-1, J-2, etc.) refer to the corresponding sections of the sequence except for J-9, which is the joined set of the hexagrams in sections 9 and 11. Beside the hexagrams are shown their ordinal numbers in the KWS.

Jiao groups	Groups of opposite hexagrams							
	Basic	compl.	permut. + compl.	permut.	inverse + compl.	inverse	inverse + permut.	inverse + permut. + compl.
J-2	13	7	8	14				
J-3	17	18	53	54				
J-4	3	50	37	40	49	4	39	38
J-5	9	16	24	44	15	10	43	23
J-6	60	56	22	47	55	59	48	21
J-7	19	33	26	45	34	20	46	25
J-8	5	35	36	6				
J-10	61	62	27	28				
	The hexagrams of the doubled and the complementary trigrams							
J-1	1	2	51	57	29	30	52	58
J-9	11	12	41	31	32	42	63	64

Figure 5. The ten groups in Jiao Xun's sequence

The arrangement of the hexagrams indicates that Jiao Xun not only attached significance to the pairs of the complementary hexagrams but also considered the inverse and permutated opposites in placing them next to each other in the sequence. One can say that in this way, Jiao gave expression to the concept of the unity of opposites.

In Daoist philosophy, the 'unity of opposites' (*duilitongyi* 對立統一) is a dominant concept. The theory of *yin* and *yang* does not address the conflict of opposite forces but rather describes how these forces interrelate and cooperate with each other in the world. The *yin-yang* duality was mentioned for the first time in the Fifth Wing (*Xi Ci I* 繫辭上) of the *Yi jing*,[19] and the harmony of these two is the main idea of the book. In the Eighth Wing (*Shuo Gua* 說卦), the cooperation of the opposite trigrams of the Primal Heaven is enumerated, and the balance and harmony of the dual forces are clearly expressed.[20] Richard Wilhelm (and many others) regarded opposition and fellowship as the essential ideas of the *Yi jing*.[21]

Transformations of the King Wen Sequence

After reviewing the pairing system in the sequence of Jiao Xun, it seemed worthwhile to create a new variant of the rectangular compact KWS in which both the inverse and the complementary opposite hexagrams would be permanently joined together.

The Columnar KWS

For the comparison of different arrangements, I prepared the simplified form of Shui Yuquan's compact KWS diagram and turned it over from right to left. Figure 6 shows the result.

[19] "That which lets now the dark [yin], now the light [yang] appear is tao". Baynes, trans., *The I Ching or Book of Changes*, p. 297.
[20] "Heaven and earth determine the direction. The forces of mountain and lake are united. Thunder and wind arouse each other. Water and fire do not combat each other. Thus are the eight trigrams intermingled." Baynes, *The I Ching*, p. 265.
[21] "This, then, is essentially the idea of the *Book of Changes*: opposition and fellowship are produced together by time." Richard Wilhelm, "Opposition and Fellowship", in: eds. Hellmut Wilhelm and Richard Wilhelm, *Understanding the I Ching*, (Princeton: Princeton University Press, 1995), p. 154.

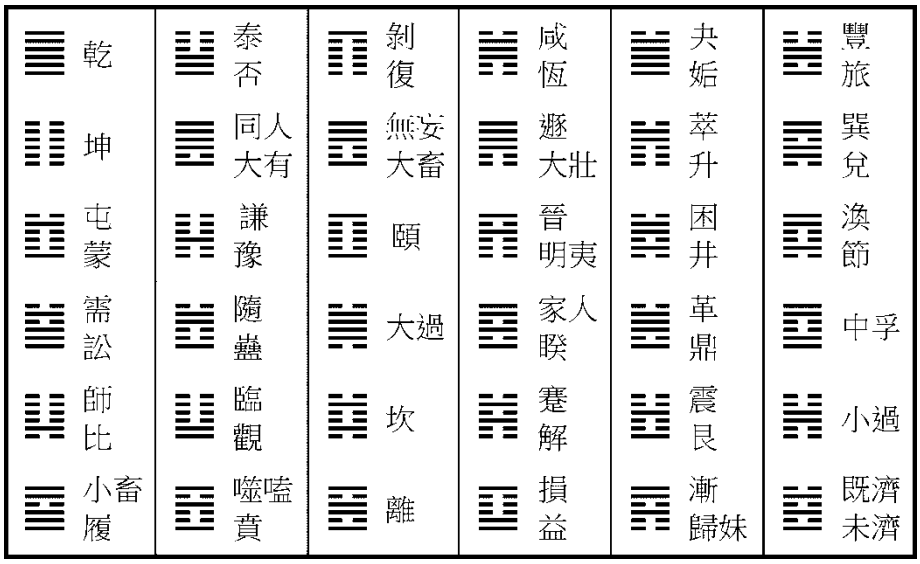


Figure 6. Shui Yuquan's arrangement, turned over from right to left

After a number of experiments, I designed the schema of a hypothetical predecessor. According to my conception, the early structure of the hexagrams was similar to the known rectangular diagrams (see Figure 6) but there were evenly ten hexagrams in the six columns (and four in the seventh), and the pairs always were together independently of the type of opposition (inverse or complementary). It is known that the number ten played an important role in the everyday life of Chinese people in the past. For example, it was the basis of the numeral system, and it was usual to thread certain items (cowrie shells, beads, metal coins, etc.) on strings in groups of ten. Hexagram groups of ten, as consecutive segments in the received sequence, were of interest to Scott Davis as well.[22]

This construction was a simple columnar variant of the linear sequence, thus it can be called the Columnar KWS (Fig. 7). Here, in the cells, both members of the pairs are shown together with their ordinal numbers.

[22] According to Scott Davis' hypothesis, there are correspondences between these groups and the periods of human lifetime. "Just as human hands show paired fives, and just as the archaic Chinese wealth items, cowrie shells, were strung ten per string to form the unit *peng* (朋), hanging down five per side, so King Wen sequence hexagrams were assembled in blocks of ten showing, in design segments, an individual lifetime progressing through the social matrix." Davis, *The Classic of Changes*, pp. 71–72.

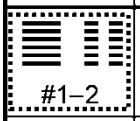
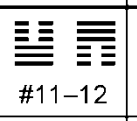
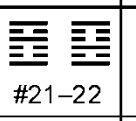
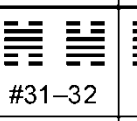
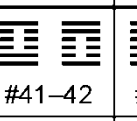
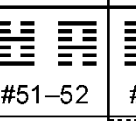
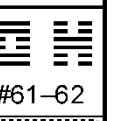
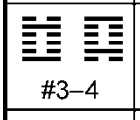
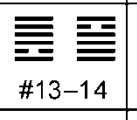
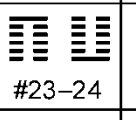
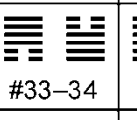
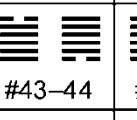
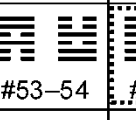
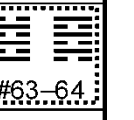
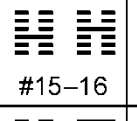
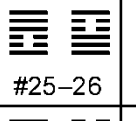
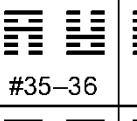
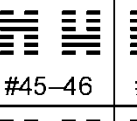
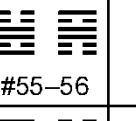
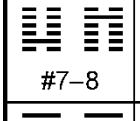
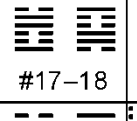
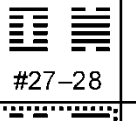
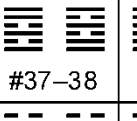
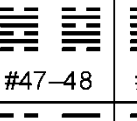
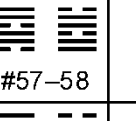
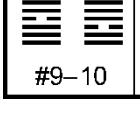
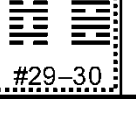
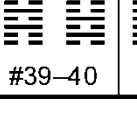
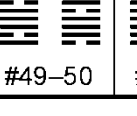
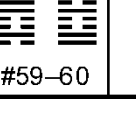
1 - 10	11 - 20	21 - 30	31 - 40	41 - 50	51 - 60	61 - 64
 #1–2	 #11–12	 #21–22	 #31–32	 #41–42	 #51–52	 #61–62
 #3–4	 #13–14	 #23–24	 #33–34	 #43–44	 #53–54	 #63–64
#5–6	 #15–16	 #25–26	 #35–36	 #45–46	 #55–56	
 #7–8	 #17–18	 #27–28	 #37–38	 #47–48	 #57–58	
 #9–10	#19–20	 #29–30	 #39–40	 #49–50	 #59–60	

Figure 7. The Columnar KWS

In this diagram and in the subsequent ones, the numbers on the top line indicate the addresses (the places) of the cells in the table. Below the hexagrams, the ordinal numbers of the hexagrams are given, conventionally marked with the number sign (#). Here, naturally, both numbers are the same: Hexagram pair #1–2 stays in cell 1–2, #3–4 is in cell 3–4, etc.

It is well worth looking at the Columnar KWS because, in contrast to the received sequence, even a brief examination reveals three regular regions (A, B, and C) in which the hexagrams are closely connected with each other. The three regions are shown in Figure 8.

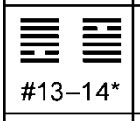
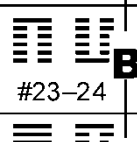
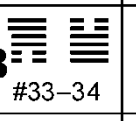
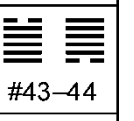
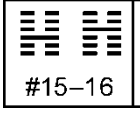
#11–12	#21–22*	#31–32	#41–42
 #13–14*	 #23–24	 #33–34	 #43–44
 #15–16	#25–26	#35–36*	#45–46

Figure 8. Three groups in the Columnar KWS

In the three rows, the majority of the hexagrams (three of the four pairs) belong together in content: They are the elements of well-known sequences or groups. In fact, the original groups are made up of eight hexagrams (four pairs) each, but here, one pair is missing and has been replaced by an unrelated (alien) pair. These alien pairs are marked with an asterisk (*).

The first row in the table contains three pairs of a group in which the hexagrams are composed of two complementary trigrams, as they are paired in the Eighth Wing in Chapter 3 of the *Yi jing*.[23] The same trigram pairs are shown in the diagram of the Primal Heaven at the endpoints of the four diagonals.[24] The eight hexagrams of this group are shown in Figure 9.

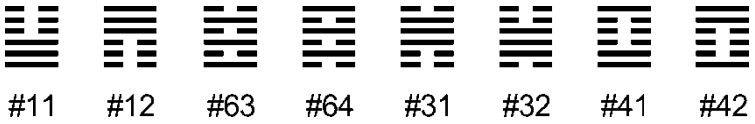


Figure 9. The hexagrams of the Primal Heaven

The group in region A of the Columnar KWS is not complete: The two hexagrams of Completion (#63–64) are missing and are replaced by an alien pair (#21–22).

In the second row (region B), the elements of a widely known sequence are found. The whole sequence contains twelve hexagrams; they are the so-called 'waxing and waning' hexagrams (*xiaoxigua* 消息卦) or, in other words, the sovereign hexagrams (*bigua* 辟卦). The complete sequence is shown in Figure 10.

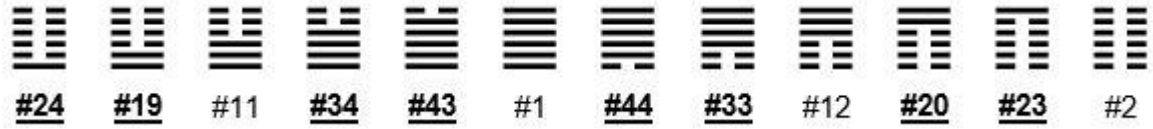


Figure 10. The twelve sovereign hexagrams

The two cardinal hexagrams, the *Qian* and *Kun*, are positioned in the first cell in the Columnar KWS. The hexagrams *Tai* (泰, #11) and *Pi* (否, #12) belong to the group of the Primal Heaven and have a cell in region A. The remaining eight hexagrams (with underlined numbers in Fig. 10) form a second group in region B. As in region A, one pair is missing (#19–20), and there is an alien pair (#13–14).

The third row (region C), is apparently the place of the permutated opposites of the eight sovereign hexagrams (Fig. 11). In region C, pair #9–10 is replaced by the alien hexagrams #35–36.

[23] Baynes, *The I Ching*, pp. 265-272.
[24] Baynes, *The I Ching*, p. 266.

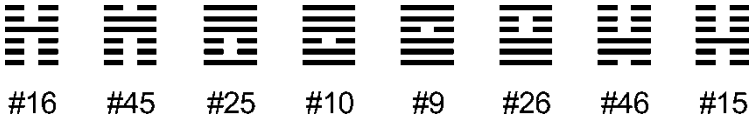


Figure 11. The permutated opposites of the eight sovereign hexagrams

It can be observed that these groups are present in the Jiao sequence as well, in the same or almost the same form. Though the members of the inverse opposite pairs are separated, they are in pairs with their complementary opposites and remain in the same group.

The hexagrams of the Primal Heaven agree with those in the ninth Jiao group (J-9). In region A, the missing fourth pair (#63–64) is at the end of the received sequence, as it is the last pair in the Jiao sequence as well.

If the two alien pairs (#13–14 and #35–36) are replaced with the correct ones (#19–20 and #9–10, respectively), the hexagrams in regions B and C would be the same as those in groups J-5 and J-7. In the Columnar KWS, the groups give expression to their symbolic contents; thus, these hexagrams are separated as sovereign hexagrams (region B) and their permutated opposites (region C). The two Jiao groups, however, adhere to the general principle, and the logically related opposites are united in each of them.

In summary, it can be supposed that the presence of the three groups in the Columnar KWS, their (quasi-)regular positions in the table, and the connections with Jiao Xun's sequence (that is, with the concept of the unity of opposites) are significant qualities to be regarded as indications of some kind of order in the whole composition. Based on these features, the Columnar KWS leads us one step closer to the hypothetical regular arrangement of the distant past.

The Next Predecessor

As shown above, the Columnar KWS disclosed some regular groups in the hexagrams that were not visible in the received sequence, meaning that the columnar variant must have preceded the linear arrangement. Here, an important question occurs: Was the received sequence directly derived from the Columnar KWS, or did some unknown changes occur in the linear variant before its canonization in the *Yi jing*? Naturally, this question cannot be definitively answered, but there are indications of a purposeful design during this critical period.

It can be seen that three cardinal pairs have dominant positions in the received sequence (see Fig. 1).

- The first section begins with the *Qian* and *Kun* (#1–2).
- The pair *Kan–Li* (坎 and 離, #29–30) closes the first section.
- The sequence ends with the pair *Ji ji–Wei ji* (#63–64).

In comparison with the sequence, the Columnar KWS is a two-dimensional composition. In this diagram, only two dominant positions can be found:

- The top of the first column is of equal importance to the first place in the KWS. Additionally, the pair *Qian–Kun* is correctly located there.
- The other meaningful position is at the top of the last column. In the Columnar KWS, however, a less significant pair (*Zhong fu–Xiao guo,* 中孚 and 小過, #61–62) is there. The pair *Kan–Li,* worthy of that place, is at the bottom of the third column, in an inferior position.

It is possible that in the columnar arrangement, the *Kan* and *Li* were placed at the top of the last column, in cell 61–62. In this way, the two pairs, *Qian–Kun* and *Kan–Li,* would have framed the entire structure. Later, this idea was transferred to the sequence, and the *Kan–Li* pair moved to end of the first section, to cell 29–30. Thus, the pairs *Kan–Li* and *Zhong fu–Xiao gu* swapped places and correspondingly received the current ordinal numbers #29–30 and #61–62, respectively.

A similar changeover might have occurred in cells 21–22 and 63–64. In the columnar form, the functionally correct place of the pair *Ji ji–Wei ji* (#63–64) was in cell 21–22, among the other hexagrams of the Primal Heaven. After the linear transformation, it might have been necessary to close the second section of the sequence with a meaningful pair. For this reason, these two signs were moved to the end of the sequence, swapping places with the less important pair *Shi he–Bi* (大過 and 賁, #21–22).

Based on the reasoning above, a possible predecessor to the received sequence might have been similar to the arrangement shown in Figure 12. Here, the hexagram pairs #1–2 and #29–30 are in the two dominant positions (in cells 1–2 and 61–62), and pair #63–64 is in its correct place in the Primal Heaven group (in cell 21–22). Additionally, the less significant pairs #61–62 and #21–22 are shown in their earlier cells (29–30 and 63–64).

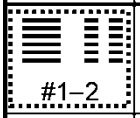
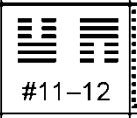
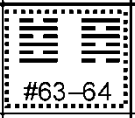
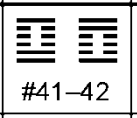
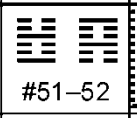
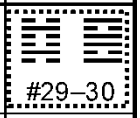
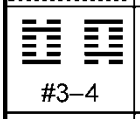
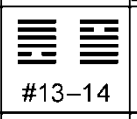
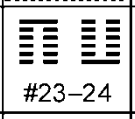
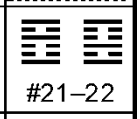
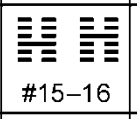
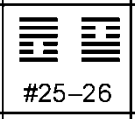
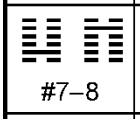
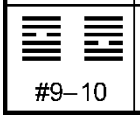
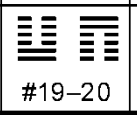
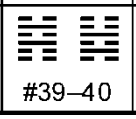
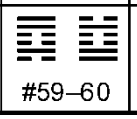
1 - 10	11 - 20	21 - 30	31 - 40	41 - 50	51 - 60	61 - 64
 #1–2	 #11–12	 #63–64	#31–32	 #41–42	 #51–52	 #29–30
 #3–4	 #13–14	 #23–24	#33–34	#43–44	#53–54	 #21–22
#5–6	 #15–16	 #25–26	#35–36	#45–46	#55–56	
 #7–8	#17–18	#27–28	#37–38	#47–48	#57–58	
 #9–10	 #19–20	#61–62	 #39–40	#49–50	 #59–60	

Figure 12. The Next Predecessor

It is difficult to associate a name with the formation of the hexagrams in the table. One could say it is the last columnar arrangement from which a linear sequence was formed. In other words, it might be defined as One of the Possible Close Predecessors of the received sequence. For the sake of simplicity, it will be called the Next Predecessor.

The Reconstruction of an Early Regular Arrangement

Regarding the Next Predecessor as an arrangement that existed in the past, we must look for regularities here, not in the received sequence. The presence of the alien hexagrams in regions B and C of the Next Predecessor makes it probable that some changes occurred (by intention or by mistake) in the arrangement of the hexagrams between the time of the original creator and the canonization of the sequence.[25] That is, we must go back in time to a consciously designed, regular structure.

Regular Groups in the Next Predecessor

As explained in the previous section, the Next Predecessor displays three definite hexagram groups and their regular placement in a columnar structure. If one could find similar groups in the other parts of the arrangement, that would be a strong argument for its

[25] Quite a few similar changes can be found in the diagrams of the ZhTD. For example, there are seven horizontal variants of Zhu Xi's arrangement, all from different times. Five of them have fifteen drawing errors altogether, and only two are without faults. In four diagrams, the order of the hexagrams in the rows is also multiply changed. Wei and Xiaobo, *Zhou Yi Tushi Dadian,* pp. 661, 853, 887, 903, 1286, 1502, and 1622.

conscious design. For this purpose, Jiao Xun's sequence provides a good basis because the comparison of the Jiao groups with the regions in the Next Predecessor reveals a very close relationship between the two arrangements. For the sake of visibility, I have integrated them in the same table (Fig. 13). Here, the groups are shown beside the hexagrams where the hexagrams belong to Jiao Xun's sequence.

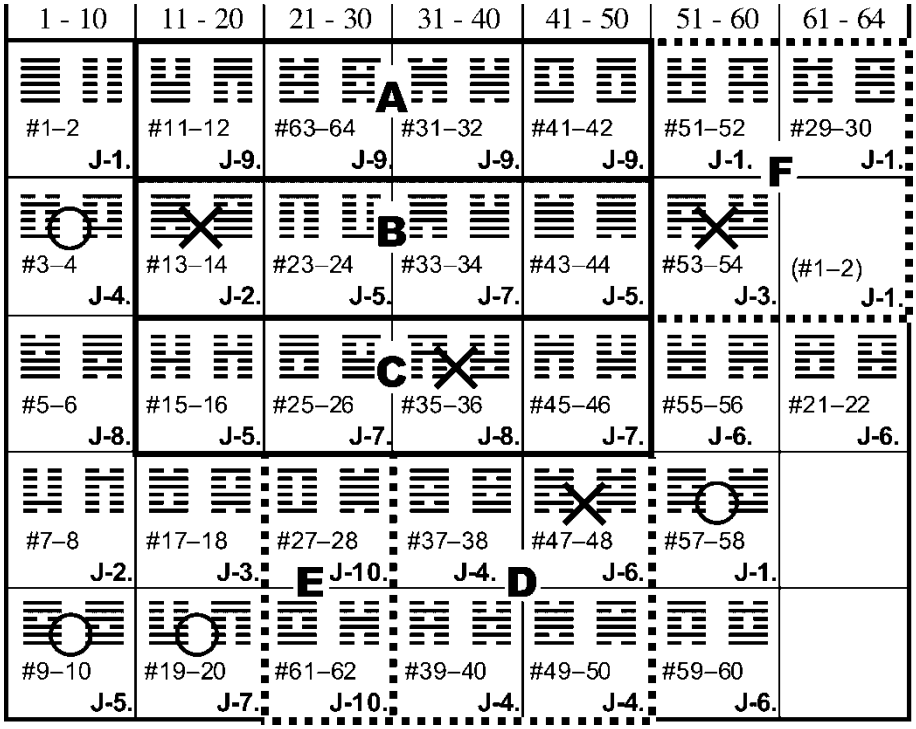


Figure 13. The Jiao groups in the Next Predecessor

As was shown above, groups A, B, and C of the Columnar KWS were closely connected to three others in the Jiao sequence. Here, in the Next Predecessor, region A contains all four pairs of the hexagrams of the Primal Heaven (group J-9). In region B and region C (J-7 plus J-5), the alien hexagrams are still present.

Still, there are three regions in the table that can be regarded as the locations of other regular groups. They are marked with dotted lines.

- The hexagrams of group J-4 are placed in the square region D in the same way that regions B and C were formed: Three pairs belong together, and the fourth pair is alien (#47–48 is here from group J-6).
- As a consequence of the mutual changes of the hexagrams in the Columnar KWS, in cells 29–30 and 61–62, a new region has been formed at the end of the third column (region E) containing the four symmetrical hexagrams of Jiao group J-10.

- At the beginning of Jiao Xun's sequence (group J-1), the eight doubled trigrams are together. In the Next Predecessor, the superior pair *Qian–Kun* is placed separately, at the top of the first column. Two other pairs of the group, *Zhen–Gen* (震 and 艮, #51–52) and *Kan–Li*, come together at the top of the last two columns and begin to form a new region (region F). The fourth pair, *Xun–Dui* (巽 and 兌, #57–58), stands alone in the sixth column, although it should join the others and occupy a position in cell 53–54, making region F more complete. Thus, the pair *Jian–Gui mei* (漸 and 歸妹, #53–54), because it occupies that cell, has been designated alien. In addition (only in the interest of a 'good-looking' arrangement), a small formal modification was made to the table: Region F was completed by a cell marking the empty regular place of the *Qian* and *Kun*. Thus, the pair *Shi he–Bi* (#21–22) moved one place down.

As shown, two-thirds of the hexagrams (twenty-two pairs) belong to the six groups defined above (from A to F). These groups are regularly placed in six regions where only four pairs are misplaced (not counting pair #1–2, which holds its place for a special purpose). In Figure 13, the alien pairs are marked with a cross and the missing correct pairs with a circle.

The Early Predecessor

To get closer to the supposed original arrangement, one must replace the alien hexagrams with the missing pairs of the given groups and find the correct places for the aliens.

The pairs to be replaced are as follows:

- In region B, pair #13–14 must be replaced by #19–20, the missing pair of the sovereign hexagrams.
- In region C, pair #35–36 must be replaced by #9–10, the missing pair of the permutated sovereigns.
- In region D, pair #47–48 must be replaced by #3–4, the fourth pair of group J-4.
- In region F, pair #53–54 must be replaced by #57–58, the third pair of the doubled trigrams.

Thus, the five groups (A, B, C, D, and E) would be complete in the five regions. Additionally, region F would be partly completed by a third pair.

It seems reasonable to apply the general rule to the four alien pairs, joining them with their opposites, as they are together in the Jiao groups. That is, they should move to the following cells:

- Pair #13–14 goes to cell 9–10, under the other pair of group J-2.
- Pair #35–36 goes to cell 3–4, above the other pair of group J-8.
- Pair #47–48 goes to cell 57–58, between the two pairs of group J-6.
- Pair #53–54 goes to cell 19–20, under the other pair of group J-3.

As a result, four new regular groups in four new regions take shape. They are marked by the capital letters G, H, J, and K in Figure 14. This table shows the final, fully reconstructed arrangement of the hexagrams. It is supposed to be an early, regular variant of the Next Predecessor and will be called the Early Predecessor.

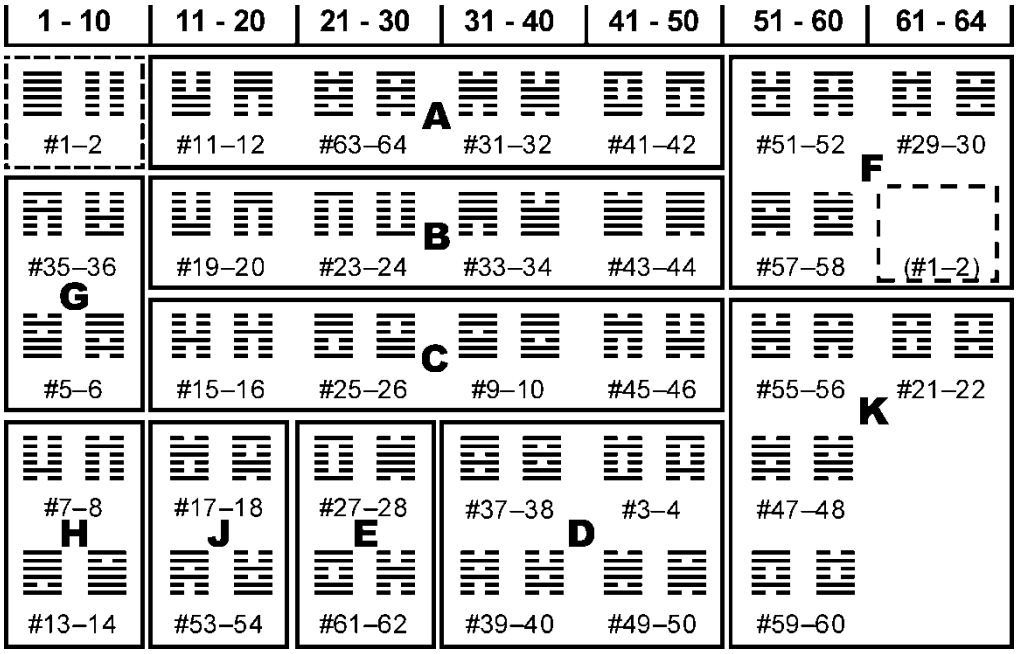


Figure 14. The Early Predecessor

The preceding reasoning perhaps was lengthy, but the results can be briefly recapitulated in three sentences.

In the Next Predecessor (the closest variant of the received sequence), altogether, four mutual changes have been made; thus, the Early Predecessor was achieved:

- In regions B, C, D, and F, the four alien pairs were replaced by the proper ones.
- The four alien pairs were joined to their corresponding (opposite) counterparts in regions G, H, J, and K.

The Classification of the Hexagrams – The King Wen Groups

Based on the structure of the Early Predecessor, one can define the rules for the distribution of the hexagrams into ten groups.

There are two groups in which the trigram components are the determining elements:

1. The eight doubled trigrams (Region F) and
2. The eight hexagrams of the Primal Heaven (Region A).

In eight groups, the general rule, the unity of opposites, applies. A basic hexagram is grouped together with the three opposite hexagrams and, if they exist, with the four combinations of the opposites.

In two groups of the eight, the general rule applies, but in the final structure, the hexagrams are separated based on their worldly meaning:

3. The eight sovereign hexagrams (Region B) and
4. The eight permutated opposites of the sovereign hexagrams (Region C).

The next six groups clearly correspond to the general rule:

5. The four hexagrams of Region G,
6. The four hexagrams of Region H,
7. The four hexagrams of Region J,
8. The four hexagrams of Region E,
9. The eight hexagrams of Region D, and
10. The eight hexagrams of Region K.

These groups can be called King Wen Groups because they preceded the received "King Wen" sequence and rightly can be considered its predecessor. Figure 15a shows them in a tabular form.

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
#1–2	#11–12	#19–20	#15–16	#35–36	#7–8	#17–18	#27–28	#37–38	#55–56
#29–30	#63–64	#23–24	#25–26	#5–6	#13–14	#53–54	#61–62	#39–40	#47–48
#51–52	#31–32	#33–34	#9–10					#3–4	#59–60
#57–58	#41–42	#43–44	#45–46					#49–50	#21–22

Figure 15a. The ten King Wen Groups of the hexagrams

Figure 15b shows the same arrangement in the style of the old Chinese documents.

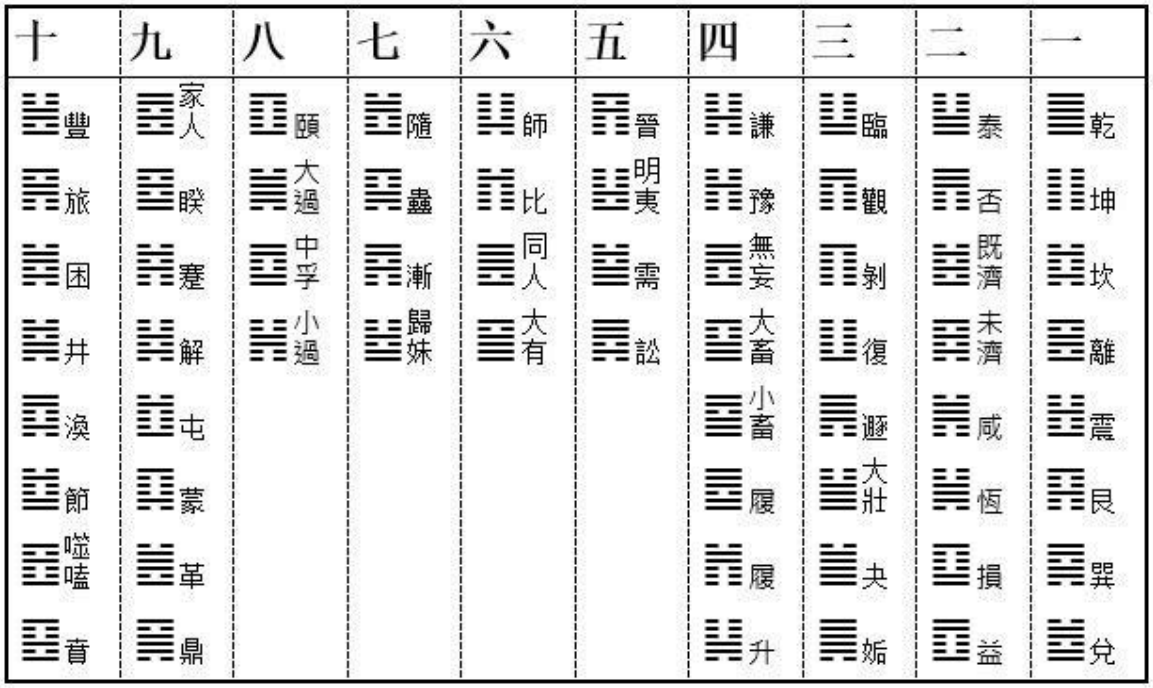


Figure 15b. The old style of the ten King Wen Groups

A simpler arrangement can also be designed in which the groups have eight hexagrams each. The hexagrams in groups 5 and 6, in one respect, belong together: One of their trigrams is *Qian* or *Kun*, and the other is *Kan* or *Li*. That is, all these hexagrams are combinations of the four cardinal trigrams. In addition, they are next to each other (in regions G and H) in the Early Predecessor. The hexagrams of groups 6 and 7 also have common features: They are in complementary opposition, and their regions are adjacent (J and E). Thus, these hexagrams can be correctly considered two groups of eight.

The next table shows the eight groups (Fig. 16).

1.	2.	3.	4.	5.	6.	7.	8.
#1–2	#11–12	#19–20	#15–16	#35–36	#17–18	#37–38	#55–56
#29–30	#63–64	#23–24	#25–26	#5–6	#53–54	#39–40	#47–48
#51–52	#31–32	#33–34	#9–10	#7–8	#27–28	#3–4	#59–60
#57–58	#41–42	#43–44	#45–46	#13–14	#61–62	#49–50	#21–22

Figure 16. Contracting the hexagrams in eight groups

At the end of this section, three features of the previous arrangements must be emphasized.

The first is the constancy of the pairs. The hexagrams of the pairs always remained together in the different arrangements and in the course of the accidental or methodical changes.

There is a negative feature: The hexagram pairs do not show any apparent order in the individual groups. For this and the above feature, the contemporary physical representation of the hexagrams gives a vague explanation. During the Zhou era, the hexagrams were pictured (painted or carved) on materials such as pieces of bone, tortoiseshells, bamboo slips, etc. The members of the hexagram pairs (both the inverse and the complementary ones) might have had a piece of material in common. Thus, only thirty-two pieces were necessary, and the pairs remained together. Still, the groups might have been composed of small heaps or bundles of these materials in which the individual elements did not have any prescribed order.

Additionally, we do not know of any explanation of the arrangement of the groups in the rectangular form (the Early Predecessor), though its structure seems to be rather consciously designed.

Conclusion – The philosophical ground is: the idea of the unity of opposites

The purpose of my hypothesis on the origin of the received sequence was to argue for the conscious design of a preceding arrangement and its gradual changes until the sequential form. The results exclude the possibility that the hexagrams were originally arranged in the known sequence, consciously or by chance. In the article, I described a process of how the received sequence might have gradually emerged from a preceding arrangement and the

earlier variants back to some regular groups. Here, the same process will be summarized according to the real course of time.

The most essential deduction in my work was that the sixty-four hexagrams were arranged in ten or eight separate groups sometime in the past, before the composition of the *Yi jing*. The basic concept of the classification apparently was the unity of opposites. This might have been the very first action in the evolution of the received sequence. Figures 15 and 16 show the two possible outcomes of this type of grouping.

Later, these groups might have been laid out in the plane for demonstration or other appropriate purpose. In these layouts, the groups were regarded as structural elements of two or four pairs, arranged in lines and in square forms. The Early Predecessor might be one of these arrangements (Fig. 14).

Over the course of time, the contents of several groups were changed, probably due to mistakes. Altogether, four pairs were removed from their original groups and four others were substituted for them. The Next Predecessor (Fig. 12) shows the hexagrams in this corrupted form.

At the time of listing the hexagrams, the Next Predecessor was certainly read according to the rules of vertical writing: by column and from top to bottom. In this way, the horizontal and square groups were decomposed, and their elements (the hexagram pairs) were distributed all along the sequence. Thus, the original groups became unrecognizable. Then or later, two more changes were purposely made: The cardinal hexagram pairs, *Kan–Li* and *Ji ji–Wei ji*, were moved to the distinguished places at the ends of the first and the second parts of the sequence, respectively.

The columnar variant of the received sequence (Fig. 7) clearly demonstrates the group-like origin of this arrangement.

The events outlined above represent the main stages of a supposed but rational process between the first groups of the hexagrams and the received sequence. This process might indicate the way in which the ‘King Wen’ sequence was developed.

The most essential point that lends credibility to this hypothesis is the harmonious relation of the opposite elements, that is, the *idea of the unity of opposites* in the classification of the hexagrams. This means that the arrangement of the hexagrams originally had a true *philosophical ground* which corresponds to the culture and mentality of the Zhou era and has remained an important principle in Chinese philosophy until the present day.

Acknowledgment

I wish to express my grateful thanks to Steve J. Marshall, the author of *The Mandate of Heaven*, who kindly read my earlier writings on this subject and gave me useful critical comments and advice that helped me eliminate some of the weak points in the material.