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Yintelligence: The mapping of the pre-heaven or FuXi hexagrams to the post-heaven or King Wen hexagrams.

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Abstract

The Yijing[1] belongs to the famous group of the five classics. In the Ming and Qing dynasties, the *Four Books and Five Classics* were the subject of mandatory study by those Confucian scholars who wished to become government officials.

- The Book of Rites
- The Classic of Changes (I Ching / Yijing, The Classic of Changes/Changes of the Zhou Dynasty!)
- The Classic of History (Book of Documents)
- The Classic of Poetry
- Spring and Autumn Annals

The Yijing consists of 64 figures called hexagrams[2] formed by six Yin (broken) or Yang (unbroken) lines[3] and commentaries to each of these hexagrams and their lines. The whole set of the hexagrams and their interdependencies make a dynamic model for the understanding or anticipating of the different steps change goes through. The Yijing does not predict the future but gives a snap-shot of the actual situation and the holistic potentialities which may be deployed or not in order to better adapt to the on-going change. The different stages of a change are explained by the Yin-Yang polarity and the never-ending transformation of Yin in Yang and Yang in Yin. All the hexagrams are linked together through mutating lines and structural affinities. All this considered as a whole reflects a fractal organization.

The 64 hexagrams of the Yijing are organized in 16 "first degree" nuclear families[4], which may be consolidated in 4 "second degree" nuclear families. There are another 16 families organizing the 64 hexagrams in a different structure. In the literature they are called the pre-heaven hexagrams[5] , in this paper they are identified as the FuXi hexagrams. They form 16 cyclic families, whose structure will be analyzed in this paper.

While the 4 members of each nuclear family are centered on a "master" hexagram that corresponds to a common inner lines' structure, each FuXi family is cyclically[6] structured and we call the hexagrams belonging to the same family FuXi[7] related. Each Wen hexagram corresponds exactly to a FuXi hexagram. This correspondence reflects the respective trigrams' arrangements of King Wen and FuXi.

Usually a Yijing's casting consists of a set of hexagrams: situation, mutation, nuclear, opposite, and the lines hexagrams. The whole set of these hexagrams is called the explicate casting. The FuXi hexagrams are used to enrich its interpretation by evidencing the implicate[8] casting related to the corresponding situation and mutation hexagrams. By linking the explicate hexagrams to

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[1] (Faure und Javary 2002); (R. Wilhelm 1961); (Schlumberger 1987)

[2] For a better understanding of the genesis of the hexagrams: (Javary, Le Discours de la Tortue 2003), (Javary, Understanding the I Ching 1997)

[3] (Ning Lu 2008, page 23)

[4] Definition 4

[5] (Schlumberger 1987, page 66)

[6] The 4-cyclic character of this relation is explained in section 0

[7] The post-heaven or explicate hexagrams are called Wen hexagrams and the pre-heaven or implicate FuXi hexagrams.

[8] According to (Schöter 2011) and his connection with the implicate and explicate order in quantum mechanics (Bohm 1980). In the literature it is called the "hidden" casting but, the naming implicate casting seems to be more appropriate and therefore the casting corresponding to the Wen hexagrams is called explicate.

their related FuXi hexagrams the interpretation of the situation unfolds and reveals correlations between the different parameters which influence the analyzed change process.

The strong semantic relations observed between the explicate hexagrams and the related FuXi hexagrams suggest clear and deep bonds between these. This paper explains the correspondence between the post-heaven or explicate and pre-heaven or implicate trigrams' arrangements as rooted in the concept and structure of the "first and second degree" nuclear families.

The derivation of these new relationships is very helpful in assigning the right role of the FuXi hexagrams in order to better appreciate and interpret a casting. It also contributes to substantially enforce

1. The specific understanding of the 64 hexagrams and their interdependencies, especially the symmetry existing between the hexagrams' geometry and the carried semantic elements.
2. The perception of the Yijing internal logic as a 4-valued logical system and therefore the support of a thin granular conceptual framework for decision making.
3. The assumption that the trigrams play a significant role in organizing the hexagrams especially to describe the mapping of the pre-heaven to the post-heaven hexagrams

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Acknowledgement

Since 2008 I have been attending the monthly seminar series given by Pierre Faure in Paris. In my opinion Pierre Faure is one of the best Western Yijing experts. His contribution to the last French translation is no doubt an essential reason for the success the book has been rewarded with. His profound and holistic knowledge of the Book of Changes and his enthusiasm to share it with other Yijing practitioners and Yijing addicted persons has substantially helped me to better understand the fantastic entanglement[9] of the hexagrams and to develop the ideas used here to establish the connection between these two essential trigrams' arrangements. At this point I would like to express to him my sincere gratitude for everything I have had the chance to learn from him.

Also many thanks to Dr. Barbara Davies who guided me many years ago to the igniting discovery of Yijing, to Evelyn Frisch, my partner, for having supported for so long all the Yijing floodings in our everyday life, to Christine Lorgé for reviewing this manuscript, to Prof. Dr. Rolf Dornberger and Prof. Dr. Arie Verkuil, from the UNW, who always encouraged me and gave me their support to deploy Yijing-centered activities in the UNW, and to all my friends and colleagues not explicitly mentioned here for having helped me in some way or other.

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[9] The use of „entanglement„ is not fortuitous at all, it is more like a glance at the phenomena of entanglement experimentally verified in quantum mechanics. (Gisin 2012)

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Index of acronyms and definitions

Definition 1
Yin and Yang are considered as two basic Principles or attributes, well developed in the literature[10]. In this article Yin is defined as what is becoming Yang and Yang as what is becoming Yin.

Definition 2
A hexagram is called a Wen hexagram when no particular properties are considered. Therefore all of the 64 hexagrams are Wen hexagrams. This is in order to differentiate between first- or second-degree nuclear hexagrams or FuXi hexagrams which are characterized by specific properties.

Definition 3
Each Wen hexagram has a FuXi hexagram given by the trigram-based correspondence between the King Wen and FuXi trigrams' arrangements[11]. A Wen hexagram and its corresponding FuXi hexagram are called FuXi related and they belong to the same FuXi family.
This article establishes a mapping between these two arrangements considering some specific hexagram's properties like "nuclear" and "envelope".

Definition 4
A nuclear hexagram is extracted from a hexagram by dropping the first and sixth line and doubling the third and fourth line, it consists of line 2 / line 3 / line 4 / line 3 / line 4 / line 5 of the original hexagram. We distinguish between the first-degree nuclear hexagrams (line 2 = line 4; line 3 = line 5) and the second-degree nuclear hexagrams (line 1 = line 3 = line 5; line 2 = line 4 = line 6). They are the nuclears of the nuclears.
As an example we consider the hexagram 22 "Grace", its first-degree nuclear is the hexagram 40 "Deliverance"

Figure 1: The hexagram 22 (left) with its nuclear "Deliverance" (right).

Therefore, there are 16 hexagrams exhibiting a line structure corresponding to a first-degree nuclear hexagram (2 for the line 1 x 2 for the lines 2/4 x 2 for the lines 3/5 x 2 for the line 6) and 4 second-degree nuclear hexagrams (2 (line 1/3/5) x 2 (lines 2/4 /6).

Definition 5
In a hexagram, the lines 1 / 4 or 2 / 5 or 3 / 6 are corresponding if they are pairwise different (Yin/Yang). A hexagram can have 0, 2, 4 or 6 corresponding lines.

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[10] (Ning Lu 2008)

[11] Figure 4

Definition 6
The reverse of a hexagram is obtained by reversing the order of the lines.

Hexagram	Reversed hexagram
L6	L1
L5	L2
L4	L3
L3	L4
L2	L5
L1	L6

Figure 2: Definition of reverse hexagram. One example hexagram 31 and 32

Definition 7
The opposite hexagram is obtained by mutating all the lines (Yin becomes Yang, Yang becomes Yin)

Hexagram	Inversed hexagram
Yin / Yang	Yang / Yin
Yin / Yang	Yang / Yin
Yin / Yang	Yang / Yin
Yin / Yang	Yang / Yin
Yin / Yang	Yang / Yin
Yin / Yang	Yang / Yin

Figure 3: Definition of opposite hexagram. One example hexagram 31 and 41

1 Introduction

1.1 The two trigram's arrangements form FuXi and King Wen.

There are traditionally two basic organizations of the 8 trigrams, the King Wen and FuXi arrangements. Each of these illustrates a specific dynamic and the interdependencies between the trigrams.
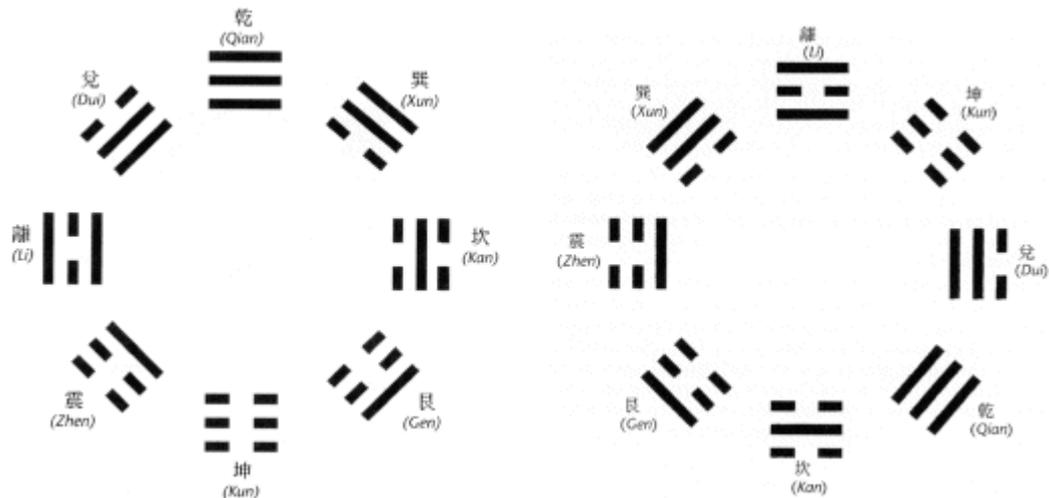
Figure 4: Pre-heaven (implicate) or FuXi (left circle) and post-heaven (explicate) or King Wen (right circle) arrangements.

The implicate arrangement shows a perfect symmetry of the trigrams, they are diametrically opposed. Considering the explicate arrangement this symmetry only exits for the South/North axis with the Li and Kan trigrams.

The logic of these arrangements has been explained by different authors[12] and we refer to the classic literature. It is noticeable, that these two arrangements are always described independently from each other, as if they were disconnected. This article aims to demonstrate how closely they are linked together.

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[12] (R. Wilhelm 1961); (Schlumberger 1987) ; (Schöter 2011)

1.2 The cyclic nature of the mapping and the 16 FuXi families

The two arrangements correspond to two different permutations of the order of the trigrams. Define P^{13} as the matrix defining this permutation. It results that $P^4 = I$ (identity matrix), therefore after 4 transformations the same trigram appears again. Two corresponding trigrams occupy the same place in the respective arrangements. As an example Qian corresponds to Li, Li to Zhen, Zhen to Gen and Gen goes back to Qian.
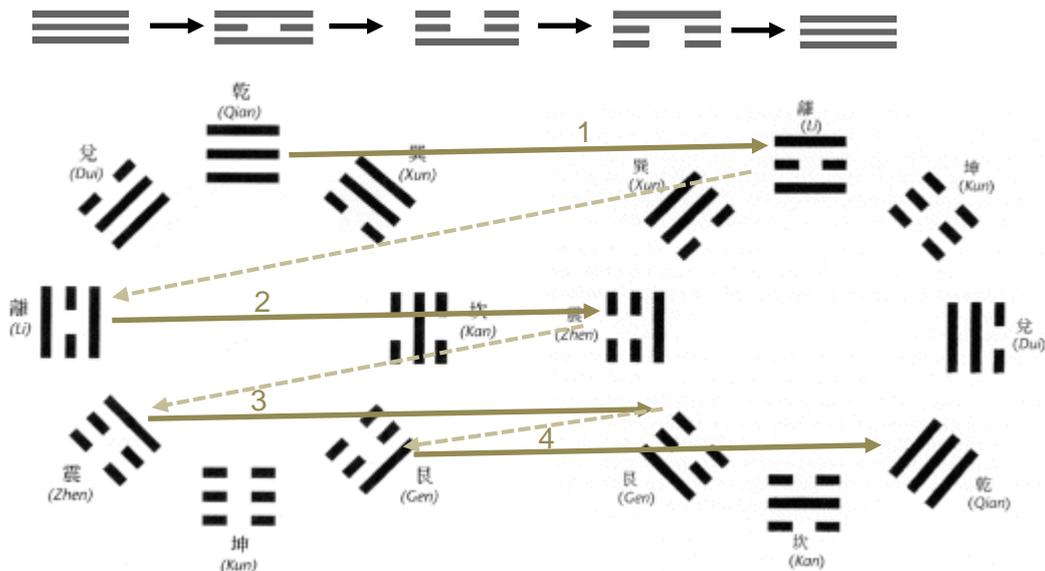
Figure 5: Illustrating the 4-cyclicity of the King Wen and FuXi arrangements with the trigram Qian.

There are 8! (40'320) distinct sequences to align the 8 trigrams differently. Each of these sequences corresponds one-to-one to a permutation matrix. Therefore it is relatively easy to convince oneself that the 4-cyclicity is not realized for any permutation. Section 8.1 displays the permutation matrix linking the arrangement of King Wen and FuXi. The following illustrations show the 16 different FuXi families cyclically arranged.

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[13] See Section 8.1 The permutation matrix between the King Wen and FuXi arrangements

1.3   The hexagrams and their 16 FuXi families

All the families, displayed below, have been derived using the correspondences between the two trigrams' arrangement forms (?) FuXi and King Wen and a reordering of the hexagrams as displayed in Figure 5.
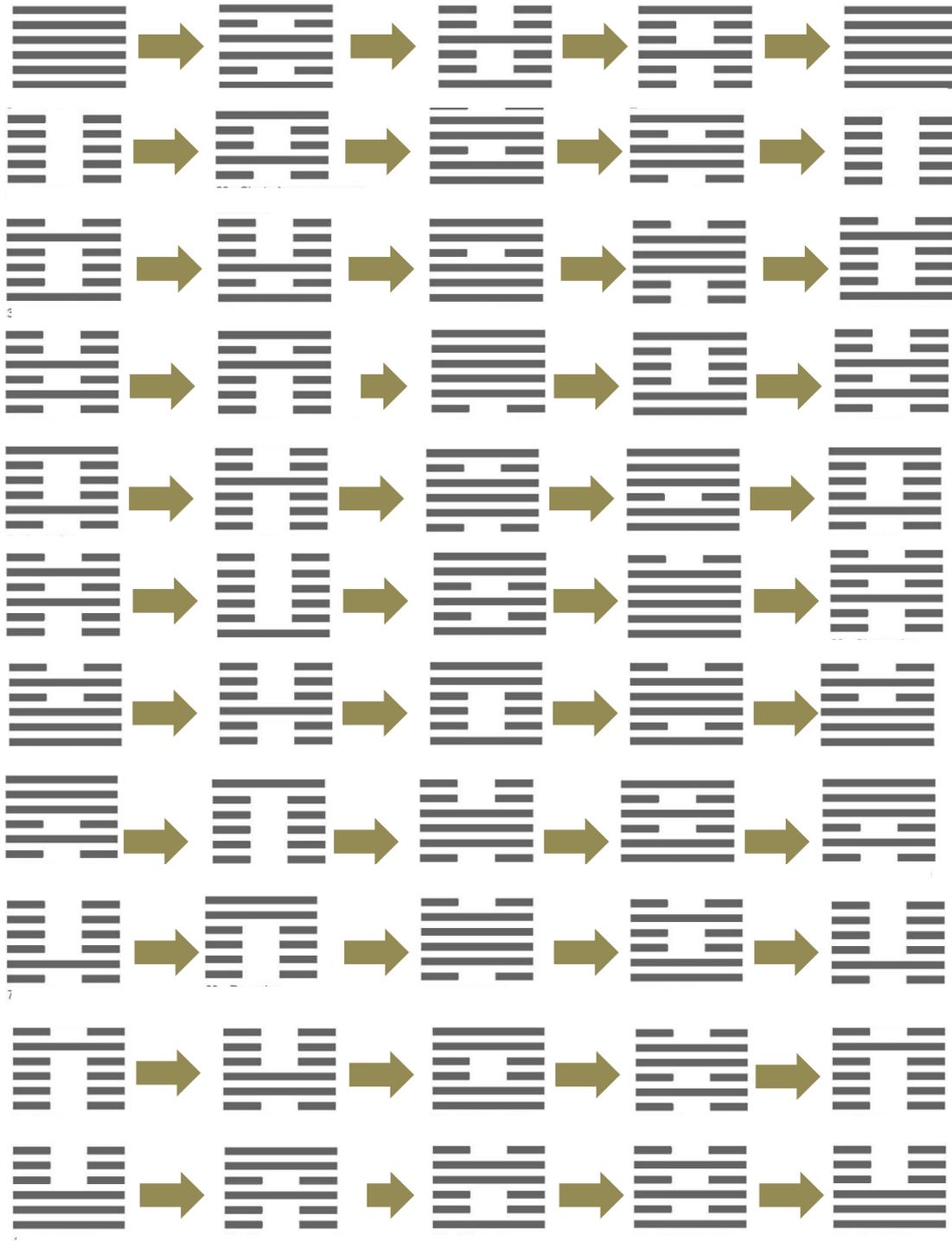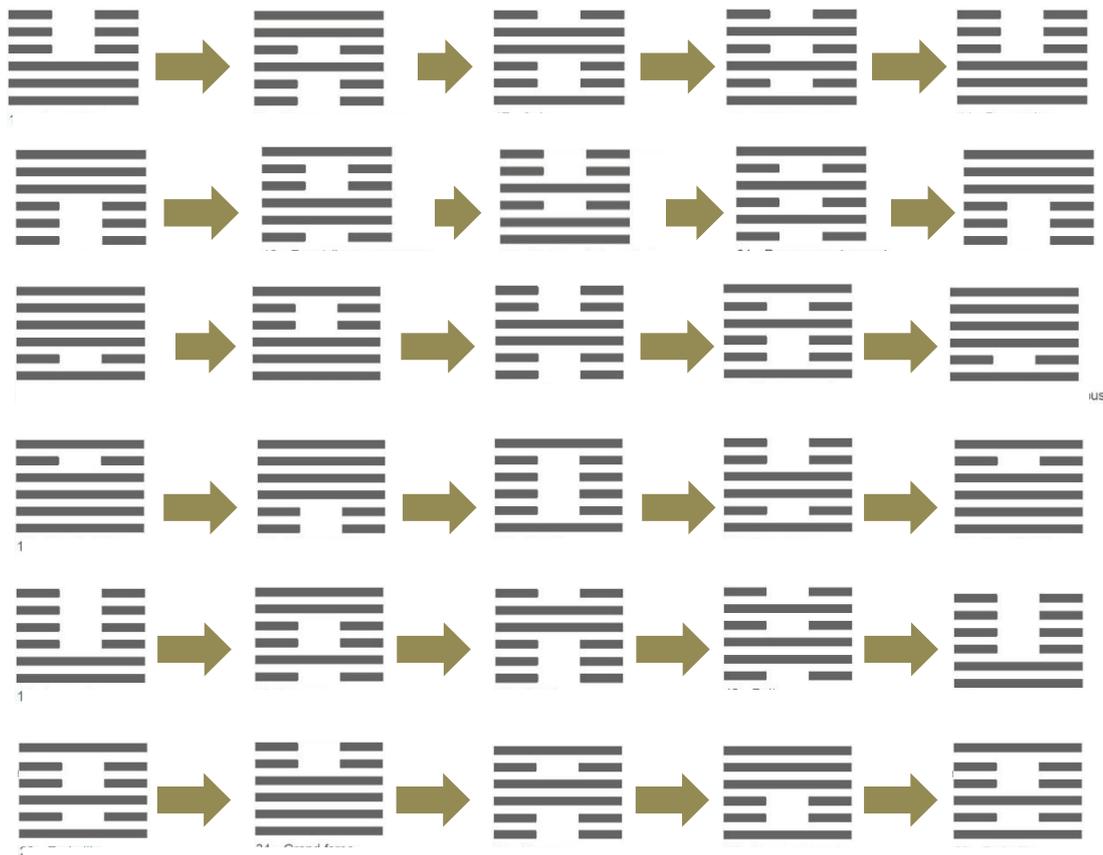
Figure 6: The 16 FuXi families.

1.4   The implicate casting and the FuXi hexagrams

As explained in the abstract, the explicate casting[14] generates the situation hexagram with its changing of old Yin and old Yang lines, defining the mutation hexagram.

The implicate casting results in transforming the situation and mutation hexagrams according to the King Wen and FuXi trigrams' arrangements. The building trigrams of the explicate hexagrams in the King Wen arrangement correspond to the implicate trigrams having the same position in the FuXi arrangement, thus delivering the FuXi hexagrams for the situation and mutation hexagrams.

The changing lines in the implicate casting are the lines which have to be mutated in order to transform the implicate situation hexagram into the implicate mutation hexagram.

Thus in the explicate casting, the old-Yin- and old-Yang-lines define the perspective hexagram, in the implicate casting, the FuXi hexagrams obtained using the King Wen and FuXi arrangements define the lines which have to mutate. In the section 8.4, it is explained how the FuXi families behave when corresponding[15] lines are mutated.

A further article will propose an attempt to analyze the different FuXi families as distinct semantic objects and their importance in the interpretation of castings.

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[14] using coins or the Achilles or Yarrow stalks

[15] Definition 5

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2   Definition of the envelope families

2.1   What is a hexagram's envelope

The envelope of a hexagram consists of its first and sixth lines. Therefore, there are 4 different envelopes called in this order winter, spring, summer, autumn.
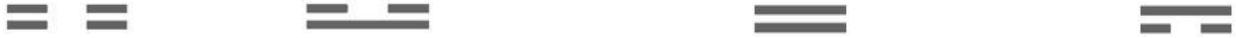
Figure 7: The 4 envelopes.

All the members of a nuclear family have identical inner lines (2/3/4/5), and only differ through their envelope.

2.2   The first- and second-degree nuclear hexagrams and the envelope families

According to the definition of a nuclear hexagram[16], there are 16 hexagrams corresponding to the structure of a first degree nuclear hexagram and each first degree nuclear hexagram builds a first degree nuclear family assembling 4 hexagrams which differ only by their specific envelopes.

Each of the 4 second degree nuclear hexagrams generates its own 4-hexagrams family and the family's members are all first-degree nuclear hexagrams and differ only through the envelope configuration inside their own family.

Figure 8: The 4 second-degree nuclear families.

The four second degree nuclear hexagrams condense some basic properties common to all the respective family members, which as first-degree nuclear hexagrams also condense some

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[16] Definition 4

basic properties of their family members. All the nuclear hexagrams, first- and second degree may be considered as semantic consolidators.

Inside a second-degree nuclear family and considering the inner lines 2/3/4/5 the 4 hexagrams are identical, only the respective envelopes differentiate between members.

The 4 envelopes act as differentiators in a family and are assemblers across the 4 considered second-degree nuclear families. Gathering together all the hexagrams having the same envelope generates 4 new families called envelope families: The South, North, West and East envelope family.

South	North	East	West
1/Creative	2/Receptive	43/Resoluteness	23 /Splitting Apart
27/Nourishment	28/Preponderance of the Great	24/Return	44/Coming to Meet
38/Opposition	39/Obstruction	54/Marrying Maiden	53/Gradual Progress
37/Clan	40/Deliverance	63/After Completion	64/Before Completion
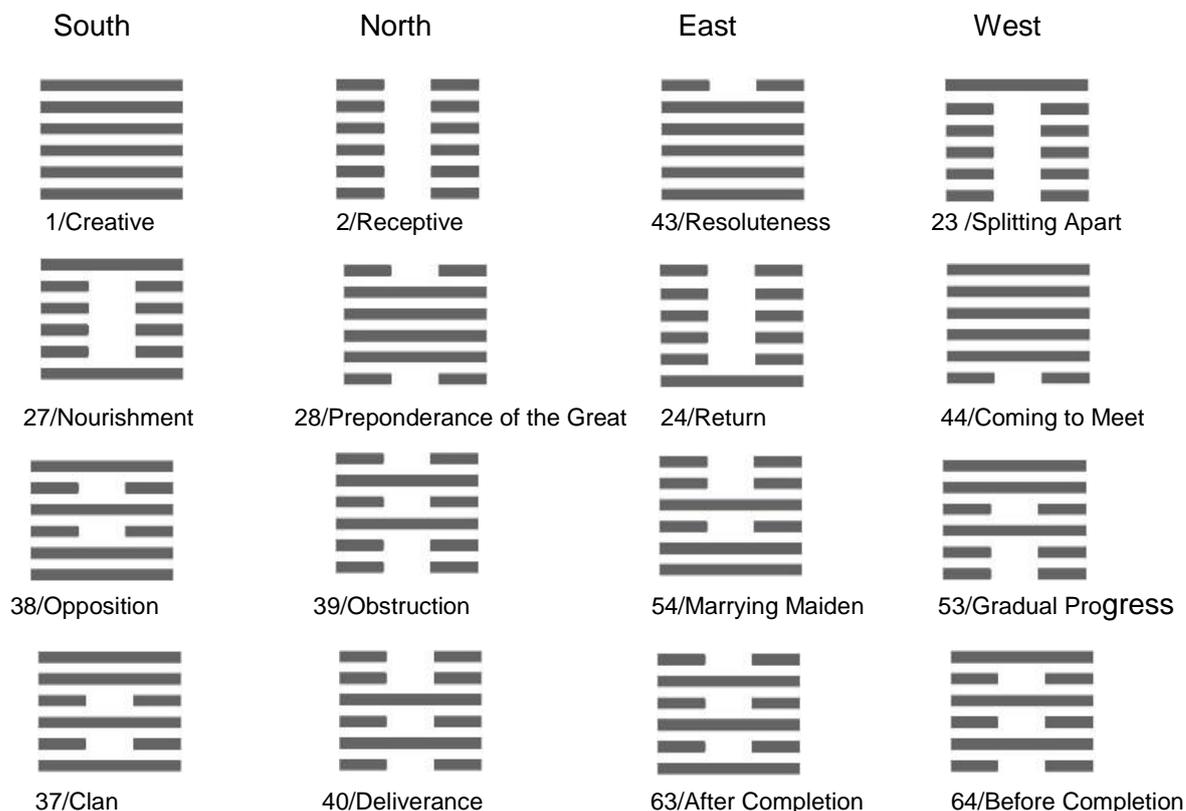
Figure 9: The 4 envelope families

These families own the following properties:

1. Members of the same family differ from each other through the inner lines (2/3/4/5).

2. Opposite envelopes generate opposite families. The members of the South-family have their opposite in the North-family and the same relations hold for the members of the East- and West-families.

3. Mutating the envelopes' lines (one or two) maps one family into another family.

4. Each member of an envelope family is a first degree nuclear hexagram and therefore can be considered as a wildcard for 4 hexagrams differing from each other through their specific envelope but exhibiting the same lines configuration (2/3/4/5).

3   Definition of the FuXi nuclear pairs and FuXi hexagrams

3.1   The FuXi nuclear pairs

Each member of the 16 envelope families is representative for 4 hexagrams as a first-degree nuclear hexagram.

Pairing every member of the South-envelope family with one member belonging to the North-envelope family delivers 16 pairs of first-degree nuclear hexagrams[17], the same occurs when pairing every member of the East-envelope family with members of the West-envelope family which delivers 16 pairs of first-degree nuclear hexagrams. These pairs of first-degree nuclear hexagrams are called the **FuXi nuclear pairs**. To facilitate the representation of these combinations, the hexagrams are replaced by their corresponding numbers, therefore the newly associated pairs look like this:

South	North
1	2
1	28
1	39
1	40
27	2
27	28
27	39
27	40
37	2
37	28
37	39
37	40
38	2
38	28
38	39
38	40

West	East
23	24
23	43
23	54
23	63
44	24
44	43
44	54
44	63
53	24
53	43
53	54
53	63
64	24
64	43
64	54
64	63

Table 1: Pairings of the envelope-families

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[17] 4 of them will also satisfy the conditions to be a second-degree nuclear hexagram

3.2 The FuXi hexagrams

The members of the envelope families are all first degree nuclear hexagrams, representing 4 hexagrams linked together by the same nuclear hexagram[18]. Table 2 shows the logic of pairing the members of the South-envelope family belonging to hexagram 1 ("The Creative") with the members of the 4 North-envelope families. To each member of the first-degree nuclear family generated by hexagram 1 exactly one member of one of the four first-degree nuclear families generated by the hexagrams 2/28/39/40[19] corresponds. The mapping of the South-envelope family corresponding to the hexagram 1 produces 4 pairs of hexagrams. Each of these pairs consists of one hexagram belonging to the first-degree nuclear family of hexagram 1 (either hexagram 1 or 44 or 28 or 43) and the second one is chosen out of the first-degree nuclear families of hexagram 2/28/39/40, thus delivering 4 pairs of hexagrams called **the FuXi hexagrams**.

South	North		
1	1	2	27
	44		23
	28		2
	43		24
	1	28	30
	44		56
	28		62
	43		55
	1	39	21
	44		35
	28		16
	43		51
	1	40	22
	44		52
	28		15
	43		36

Table 2: Detailed pairing for the South-envelope family of hexagram 1 with the sequence of North-envelope families.

The same algorithm has to be repeated for the first-degree nuclear hexagrams 27/37/38, members of the South-envelope family. The left-side part of table 2 changes accordingly to the

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[18] The first-degree nuclear families are displayed in 8.7

[19] The hexagrams in a family are ordered according to their envelopes Summer / West / Winter / East

first-degree nuclear families defined by the hexagrams 27/37/38 and the right-side part remains the same.

At the end, the mapping of all the South-envelope families onto the North-envelope families generates 16 pairs of FuXi hexagrams.

Applying the same algorithm to the West- and East-envelope families, 16 further pairs of FuXi hexagrams are generated. Therefore, the whole mapping creates 32 pairs of FuXi hexagrams. Each of these 32 pairs of hexagrams has to be somehow related with a pair of Wen hexagrams in order to fit the correspondence involved by the King Wen and FuXi arrangements.

3.3   Conditions for the FuXi families

Obviously there are many possible pairings[20]. Supplementary conditions, based on some inherent hexagrams' properties are necessary to set clear requirements for this mapping to ensure a meaningful pairing scheme corresponding to the creation of the FuXi hexagrams given by the arrangements of King Wen and FuXi. Indeed, the three following further specifications are necessary and sufficient[21] to consistently describe the mapping of the FuXi to the King Wen arrangements.

Principle 1.   The FuXi Sudoku
To each pair of FuXi hexagrams corresponds a pair of opposite Wen[22] hexagrams. Table 3 illustrates this requirement and deserves a detailed explanation. In the left two cells there are two opposite Wen hexagrams XY, the two cells in the middle contain a pair of FuXi hexagrams, each of them is a member of a nuclear family defined in the cells to the right, which contain a pair of FuXi nuclear hexagrams. The two colors indicate the relations existing between the 6 hexagrams. Table 3 shows how the opposition of two Wen hexagrams (explicate casting) is translated in the implicate casting. The property of opposition between the hexagrams in the explicate casting is "smoothed or nuanced" in the implicate casting[23]. A FuXi nuclear pair is a pair of first-degree nuclear hexagrams with opposite envelopes and each of the corresponding FuXi hexagrams belong to one of these FuXi nuclear families[24].

Pair of opposite Wen hexagrams		FuXi pair of hexagrams		FuXi nuclear pair of hexagrams	
XY	Opposite of. XY	FuXi to XY	FuXi to Opp. XY	Nuclear of FuXi to XY	Nuclear of Opp. FuXi to XY

Table 3: Opposite Wen hexagrams and their corresponding pair of FuXi hexagrams and FuXi nuclear hexagrams.

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[20] The evaluation of the number of possible pairings is given in section 8.3

[21] See section 8.2 for more details.

[22] Definition 1
Yin and Yang are considered as two basic Principles or attributes, well developed in the literature. In this article Yin is defined as what is becoming Yang and Yang as what is becoming Yin.

Definition 2

[23] Compare sections 7.1 and 7.2

[24] There are still 32 pairs of Wen hexagrams to pair with 32 FuXi pairs (496 possible pairings)

Principle 2.   Inverse free
A FuXi family never contains two opposite hexagrams.

Principle 3.   FuXi invariance
Mutating all the corresponding lines of all the hexagrams of a FuXi family is still a FuXi family. There are families[25] mapped onto other families or onto themselves, especially FuXi families whose hexagrams do not have corresponding lines are considered as self-reflecting.

Principle 4.   4-Cyclicity
The FuXi families have a 4-cyclic pattern.

      H1 ⟶ H2 ⟶ H3 ⟶ H4 ⟶ H1

Hexagram H1 is the FuXi of hexagram H2 this is the FuXi of hexagram H3 which is the FuXi of hexagram H4 which closes the loop as the FuXi of hexagram H1.

In section 8.1 the different 8 x 8 permutation matrices Ps are analyzed. Especially the condition P4 = Identity, which is necessary to insure a 4-cyclic pattern.

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[25] Compare section 6.2

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4   Special groups of hexagrams

4.1   Two FuXi families without corresponding lines

According to Definition 5 the 8 hexagrams, obtained by doubling the 8 trigrams do not have corresponding lines. Therefore (Principle 3) they compose two self-reflecting FuXi families.

A FuXi family does not have two opposite hexagrams (Principle 2), thus there are pairs of hexagrams which do not belong to the same families, explicitly the pairs 1/2, 29/30, 51/57, 52/58.

| 1/The Creative | 2/The Receptive | 29/The Abysmal | 30/Fire |
| 51/Thunder | 5 /Mountain | 57/The Penetrating | 58/Lake |
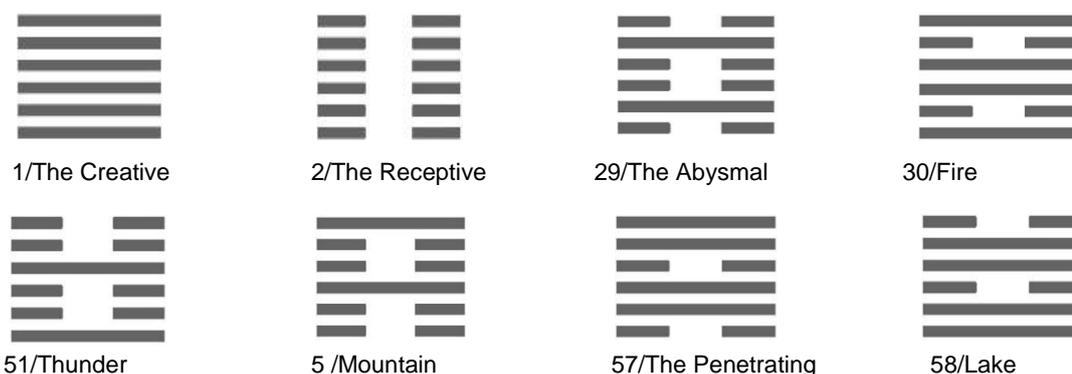
Figure 10: The 8 hexagrams without corresponding lines

While it is clear that these eight hexagrams form two FuXi families, there are still many different ways to select the members of each family and to arrange the family in the proper order. This question is being treated in chapter 5.

It is noticeable that the excluding hexagrams' pairs are formed by either exclusively Yin trigrams (for the hexagrams 2/30/57/58) or exclusively Yang trigrams (for the hexagrams 1/29/51/52).

Although this fact may be interpreted as the Yin-Yang polarity applied to configure the FuXi families, it is shown in chapter 5 that in each of these two families, there are three hexagrams made of Yin or Yang trigrams and one based respectively on Yang or Yin trigrams. One family is realized by doubling the three Yang trigrams Qian, Gen, Zhen, and the Yin trigram Li (hexagram 30) and the other by doubling the Yin trigrams Kun, Xun, Dui and the Yang trigram Kan (hexagram 29). In a predominantly Yin or Yang family, there is a representative for the Yang or Yin attributes.

This structure replicates very well the Yin Yang logo, illustrating the wholeness of the Yin-Yang pair bearing each their own nourishing opposite in an endless loop.

Figure 11: The seeding or analogically fractal property of Yin Yang.

This dynamic Yin-Yang creating process may be recognized in the 4-cyclic structure of the FuXi families, considering the FuXi hexagram like a "seed" for the corresponding Wen hexagram. Clearly this is a speculative statement, but it seems plausible and it reinforces the coherence of the Yijing's internal logic. It also contributes to better understand the role and power of the implicate hexagrams to interpret a casting.

4.2 Two further FuXi families with special properties

In section 8.5 hexagrams, whose reverse and opposite hexagrams are identical, are displayed. Applying the Principles 2 and 3 to this group of hexagrams, it is clear that opposite hexagrams do not belong to the same family and the mutation of the corresponding lines switch from one family to the other. Using these properties, it is possible to pair these 8 hexagrams so that each member of a pair belongs to a different FuXi family.

| 11/ Prosperity | 17/Following | 53/Gradual Progress | 63/After Completion |

| 12/Stagnation | 54/The Marrying Maiden | 18/Decay | 64/Before Completion |
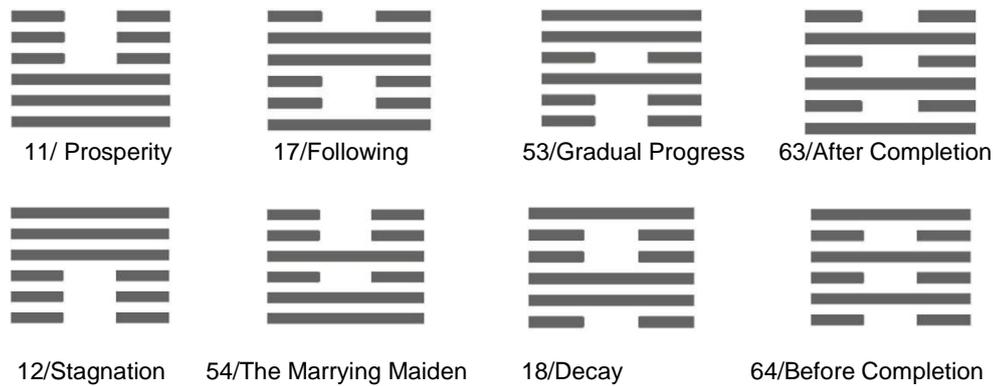
Figure 12: Pair-wise excluding hexagrams for the FuXi families.

The hexagrams 11/17/53/63 build one FuXi family and the hexagrams 12/18/54/64 the second one. Each hexagram in the first group has its opposite in the second group and the mutation of all the corresponding lines of the hexagrams in the first group just map into the second group. In chapter 5, these two groups of hexagrams are arranged in the correct order. This is defining the mapping of the eight trigrams to themselves and therefore recovering the King Wen and FuXi trigrams' arrangements.

5   Assigning each hexagram to its proper FuXi family

In the sections 4.1 and 4.22 hexagrams were identified, which belong to the same families like the hexagrams1,2,29,30,51,52,57,58 for one group and the hexagrams 11,12, 17,18,53,54,63,64 for a second group. They build four distinct FuXi families.

Sections 4.1 and 4.2 organize these 16 hexagrams in 8 pairs of opposite hexagrams, thus belonging to four different families. Next, all these hexagrams will be consistently organized in families using the Principles 1 to 4 defined in 3.3.

5.1   The FuXi nuclear pairs of hexagrams 1/2 the Creative, The Receptive, hexagrams 53/54, Gradual Progress, The Marrying Maiden, hexagrams 30/29, Fire, The Abysmal hexagrams 64/63 Before, After Completion and their generated FuXi hexagrams.

Following Principle 1 Table 3 may be organized as follows with the hexagram 1 and 2 as a pair of FuXi nuclear hexagrams (Table 1).

In 4.1 it is explained that the hexagrams 1,2,29,30,51,52 and 57, 58 build two FuXi families.

Hexagrams 1 and 2 are FuXi nuclear hexagrams and are placed accordingly into the appropriate cells to the right.

The two cells in the center receive respectively one member of the first-degree nuclear family structured by the hexagrams 1 and 2. Hexagrams 1 and 2 belong to the considered nuclear families and also have to belong to the generated FuXi families, thus they are the only suitable candidates to occupy these cells.

The left cells are filled with two opposite hexagrams. It has been established in 4.1 that the hexagrams 29 and 30 belong to different families, formed with the eight hexagrams without corresponding lines, they also are reciprocally opposite and therefore satisfy Principle1. [26]

Pair of opposite Wen hexagrams 30/29		FuXi pair of hexagrams 1/2		FuXi nuclear pair of hexagrams 1/2	

Table 4: FuXi Assignment for the hexagrams 30 and 29

The restrictions explained in 4.2 set further conditions for the mapping. Within the eight hexagrams considered there, which form two FuXi families, there are two FuXi nuclear pairs[27] formed with respectively the hexagrams 53/54 and the hexagrams 63/64. The hexagrams 12 and 11 belong to the first-degree families linked respectively to the hexagrams 53 and 54. The hexagrams 1,2,11,12, own the same trigrams, Qian and Kun. The hexagrams 29,30,63,64 also own the same trigrams, Kan and Li. In both cases the trigrams are interchanged.

The FuXi mapping is trigram's based, therefore in order to ensure consistency in the mapping, the following disposition is requested.

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[26] The choice of this order of hexagrams 30 and 29 is discussed later in section 8.2.

[27] Section 3.1 The FuXi nuclear pairs

Pair of opposite Wen hexagrams 64 / 63	FuXi pair of hexagrams 12 / 11	FuXi nuclear pair of hexagrams 53 / 54

Table 5: FuXi assignment for the hexagrams 64 and 63.

The trigrams Qian and Kun in FuXi arrangements correspond to the trigrams Li and Kan in Wen arrangements, as already mentioned in section 4.11.

5.2 The FuXi nuclear pairs of hexagrams 53/63, Gradual Progress, After Completion, hexagrams 54/64, The Marrying Maiden, Before Completion, hexagrams 63/64 and their generated FuXi hexagrams.

According to Table 1 the pairs of first-degree nuclear hexagrams 53-63, 54-64 and 64-63 also build FuXi nuclear pairs. Therefore using Principle 1, these three pairs of first-degree nuclear hexagrams can be organized as shown in the following table.

Pairs of opposite Wen hexagrams X/X-X/X-X/X[28]		FuXi pairs of hexagrams X/X-X/X-X/X		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 6: The FuXi nuclear pairs 53-54, 54-64 and 63-64

In section Two further FuXi families with special properties4.2 it is explained, that the hexagrams 11,12,17,18,53,54,63, 64 form two FuXi families. The links between the hexagrams 11,12,63,64 has been shown in 5.1. The hexagrams 63 and 64 have as FuXi hexagrams respectively the hexagrams 11 and 12 (Table 5).

The corresponding FuXi hexagrams for the remaining hexagrams 11,12,17,18 and 53,54 still have to be determined.

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[28] X is a wildcard for a not yet defined hexagram. "/" indicate left/right column, "-" indicates a row's change

The hexagrams 17 and18 are members of the first-degree nuclear hexagrams 53 and 54, therefore their respective places in Table 6 are uniquely defined as shown in the next table.

Pairs of opposite Wen hexagrams X/X-X/X-X/X		FuXi pairs of hexagrams 17/X-18/X-X/X		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 7: The FuXi nuclear pairs 53-54, 54-64 and 63-64 and the hexagrams 17,18

The hexagrams 17 and18 are not only reverse but also opposite to each other. Following Principle 1, they have to be positioned in two cells in the first two columns of Table 7. Principle 2 forbids having two opposite hexagrams in a FuXi family; therefore the only suitable locations are the two left cells in the third row:

Pairs of opposite Wen hexagrams X/X-X/X-18/17		FuXi pairs of hexagrams 17/X -18/X-X/X		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 8: The FuXi nuclear pairs 53-54, 54-64 and 63-64 and the hexagrams 17,18.

In section 4.2 it is explained that hexagram 12 and 18 belong to the same FuXi family, thus hexagram 12 is placed as shown in Table 9. To place hexagram 12, immediately positions hexagram 11 as the opposite of hexagram 12.

Pairs of opposite Wen hexagrams X/X-12/11 – 18/17		FuXi pairs of hexagrams 17/X–18/53-X/X		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 9: The FuXi nuclear pairs 53-54, 54-64 and 63-64 and the hexagrams 11,12

The FuXi hexagram of hexagram 12 is hexagram 18. The FuXi hexagram of hexagram 11 is necessarily hexagram 53, because hexagram 53 and 11 are, as explained in section 4.2, in the same FuXi family and hexagram 64 is the first-degree nuclear of hexagram 53.

Still following the reasoning deployed in section 4.2 for the third row, the pairs of hexagrams 17/63 and 18/54 are respectively in the same FuXi families. Hexagram 63 belongs to the first-degree nuclear family of hexagram 64 and hexagram 54 to that of hexagram 63.

Pairs of opposite Wen hexagrams X/X-12/11-18/17		FuXi pairs of hexagrams 17/X – 18/53- 54/63		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 10: The FuXi nuclear pairs 53-54, 54-64 and 63-64 and the hexagrams 63,54

The pair of opposite hexagrams 53-54 occupies the two left cells in the upper corner of Table 10, and the order is given by the fact that hexagram 17 and hexagram 53 are in the same family, this implies the following arrangement.

Pairs of opposite Wen hexagrams 53/54-12/11-18/17		FuXi pairs of hexagrams 17/X –18/53-54/63		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 11: The FuXi nuclear pairs 53-54, 54-64 and 63-64 and the hexagrams 53, 54

The hexagrams 54 and 64 lie in the same FuXi family, therefore the FuXi hexagram of 54 is hexagram 64 and the final arrangement is given by the next table.

Pairs of opposite Wen hexagrams 53/54-12/11-18/17		FuXi pairs of hexagrams 17/64–18/53-54/63		FuXi nuclear pairs of hexagrams 53/63-54/64-63/64	

Table 12: The FuXi nuclear pairs 53-54, 54-64 and 63-64 and the hexagrams 54,64

6 Recovering the King Wen and FuXi trigrams' arrangements

6.1 Consolidation of the tables and validation of the results

Consolidating the tables 5 and 12 assign to each of the hexagrams 64,63,53,54, 12,11,18,17 their corresponding FuXi hexagram.

Pairs of opposite Wen hexagrams 64/63-53/54-12/11-18/17		FuXi pairs of hexagrams 12/11-17/64–18/53-54/63		FuXi nuclear pairs of hexagrams 53/54-53/63-54/64-63/64	

Table 13: Consolidated table.

Comparing the hexagrams in the first two left columns with the ones in the third and fourth columns establishes the correspondences between the King Wen and FuXi trigrams' arrangements.

Order Wen (explicate)			Order Fuxi (implicate)		
Qian		1	**Gen**		5
Kun		2	**Xun**		6
Zhen		3	**Li**		7
Kan		4	**Kun**		2
Gen		5	**Zhen**		3
Xun		6	**Dui**		8
Li		7	**Qian**		1
Dui		8	**Kan**		4

Table 14: Translating the correspondences between the hexagrams of Table 13 into trigrams' correspondences.

Organizing Table 14 in two circles produces again the Figure 4
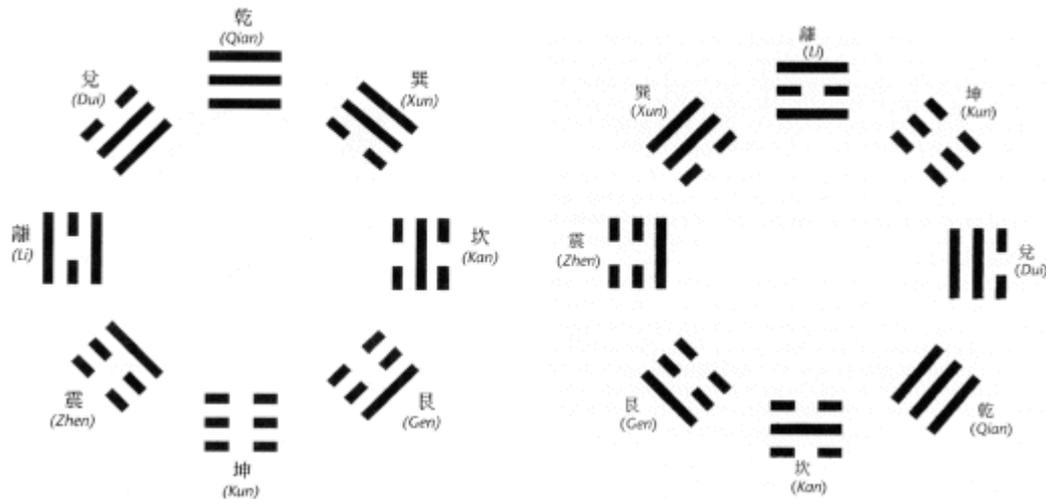
Figure 13: Pre-heaven (implicate) or FuXi (left circle) and post-heaven (explicate) or King Wen (right circle) arrangements.

6.2 Verification of the Principle of FuXi invariance

Figure 6 shows all the 16 FuXi families derived using the original FuXi and King Wen trigrams' arrangements. These families are obviously identical with them, defined by using the four Principles. Table 15 below arranges the FuXi families by bracketed pairs, linked through the mutation of their corresponding lines and four standing-alone FuXi families reflecting themselves by mutating the corresponding lines. Therefore the validity of the FuXi invariance principle is verified.
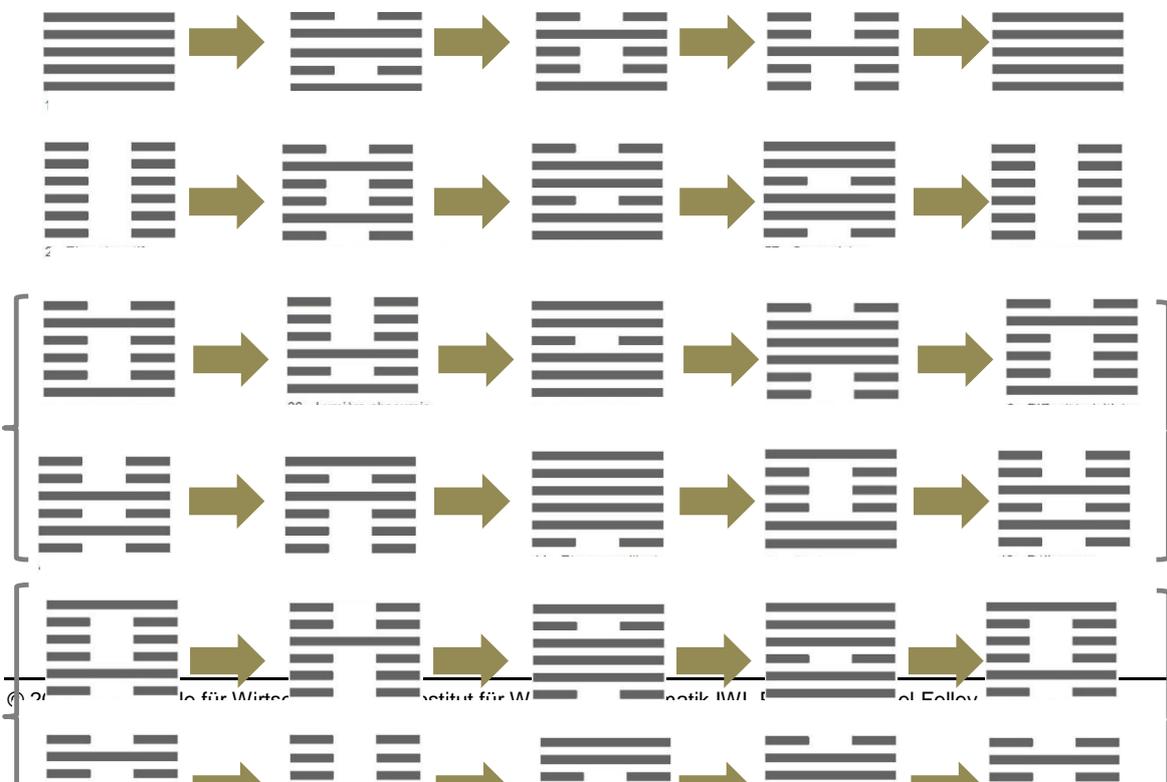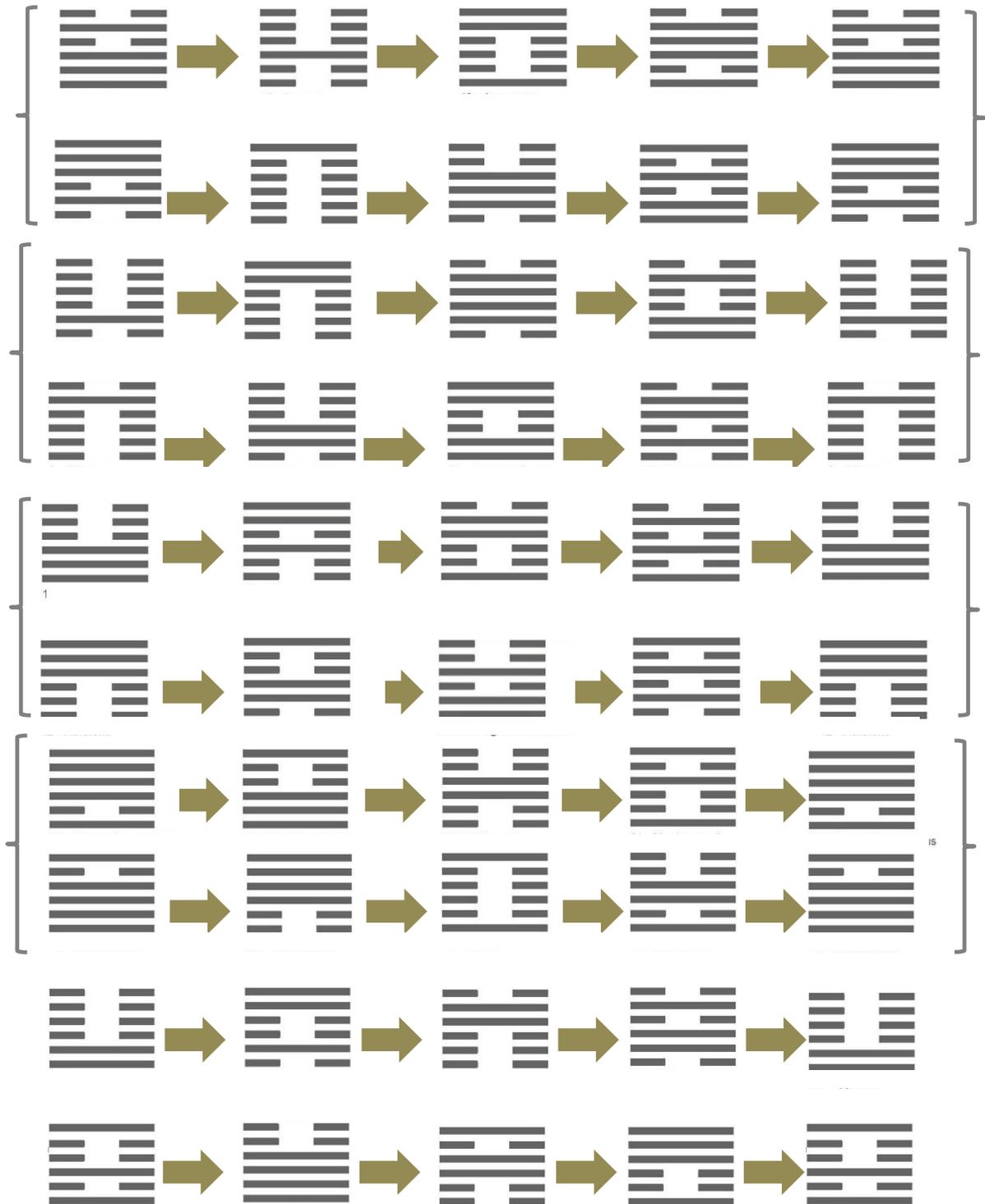
Table 15: The twelve bracketed FuXi families arranged by pairs, linked through the mutation of their corresponding lines, and four FuXi families reflecting themselves.

7 Conclusion and further investigations

7.1 The four-valued logic underpinning the Yijing

Among the 64 hexagrams there are some couples with a strong polarity.

For example hexagrams 1,2,11,12,31,32,41,42,63,64.
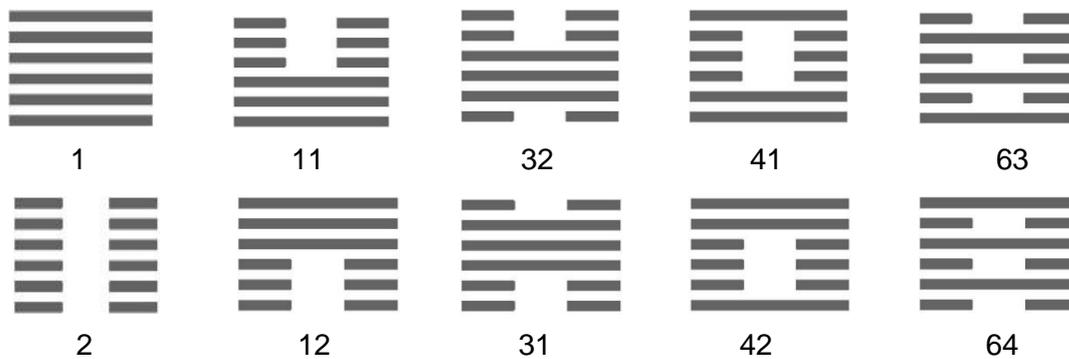
Figure 14: A special sequence of pairs of hexagrams

These sequences may be considered as a line of growing complexity in the hexagrams' specific logic. Starting with hexagrams 1 and 2, equipped with a uniform, erratic Yang and Yin logic, this sequence goes through different states to end with hexagrams 63 and 64 both displaying a sophisticated intricacy

The process is launched with the re-arrangement of the trigrams Qian and Kun, creating six corresponding lines, which generate the two-cyclic dynamic of hexagrams 11/12. This dynamic culminates in the delicate interplay of the hexagrams 63 and 64, the last closes the Book of Change igniting a new organization.


Figure 15: Cyclic dynamic of hexagrams 11/12, 31/32, 41/42, 63/64

This entanglement of the hexagrams is deployed by means of mutating the corresponding lines of the pair of hexagrams 11/12. Mutating the lines 1 and 4 produces hexagrams 32/42, mutating the lines 3 and 6 produces hexagrams 41/31 and mutating the inner lines 2 and 5 results in the last two hexagrams 63 and 64. While the hexagrams 31,32,41,42 are related to each other being either reverse or opposite and the hexagrams 11 and 12 are reverse and opposite[29], the hexagrams 63/64 are the only two consolidating all these attributes with the fact that they are the reciprocal first-degree nuclear hexagrams and identical to their second-degree nuclear hexagrams, the last property being also shared by the hexagrams 1 and 2. Thus the four hexagrams

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[29] Like the hexagrams 17/18 and 53/54. All of them resulting from mutating the lines 3 and 4 or 1 and 6 from hexagrams 11/12.

1, 2, 63, 64 play an outstanding role in the Yijing's inherent logical structure. This is based on a four-valued logic defined by the very deep characteristics of each of these four special hexagrams. These characteristics will be analyzed more in detail in a forthcoming article at a later date

7.2   Principle of opposition or complementarity

The pre-heaven or implicate hexagrams and post-heaven or explicate hexagrams are related primarily through different relations of opposition. The opposition is explicitly given by:

1. The 32 pairs of opposite Wen hexagrams are related to 32 pairs of first-degree FuXi nuclear hexagrams.
2. The two hexagrams of a pair of FuXi nuclear hexagrams differ at least by their opposite envelope (hexagrams 1/28, 2/27..,), or they are line-by-line opposite.

Each pair of FuXi nuclear hexagrams generates a pair of FuXi hexagrams, each of these belonging to one of the two first-degree nuclear families and they correspond to a pair of opposite Wen hexagrams.

This means that the links between the implicate/pre-heaven and explicate/post-heaven are entirely based on the six-line structure of the hexagrams. The use of the trigrams is extremely helpful to facilitate the determination of the corresponding FuXi hexagram for each given Wen hexagram. The two trigrams' arrangement, form King Wen and FuXi, allow to condensate the large Table 20, listed in section 8.6, but they are not very meaningful to help to understand the role of the implicate/pre-heaven hexagrams.

7.3   Principle of inheritance or seeding

Within a given FuXi family, the cyclic chain of the four hexagrams defines a predecessor and a successor for each hexagram, thus creating a kind of "inheritance" of hexagram specific attributes. The impact of these influences deserves more attention and will be analyzed in a forthcoming article.

$$H1 \longrightarrow H2 \longrightarrow H3 \longrightarrow H4 \longrightarrow H1$$
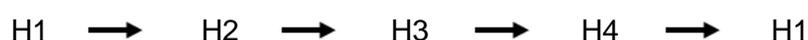
As an example, hexagrams 3 and 50 are considered in more detail. These two hexagrams have a special meaning, because they also divide the Book of Change in two parts. All the hexagrams between these two also have their opposite between them and consequently all hexagrams between the hexagrams 51 and 64 have their opposite in that range[30].

---

[30] This fact explains the positions of the hexagrams, "Difficulty in the Beginning" and "The Caldron", in the Book of Change. Hexagram "Difficulty in the Beginning" has to be placed in the right beginning after hexagrams "The Creative" and "The Receptive" therefore it becomes the number 3. Hexagram "The Caldron" as the opposite of hexagram 3 has to be placed at the end of the first part, thus receiving the number 50. This immediately fixes the position of the hexagrams 4 and 49 as the respective reverses of hexagrams 3 and 50.

Table 20 gives the allocated pairs of FuXi hexagrams and FuXi nuclear hexagrams.

Pair of opposite Wen hexagrams 3/50	FuXi pair of hexagrams 36/10	FuXi nuclear pair of hexagrams 40/37

Table 16: Hexagrams 3 and 50 with their FuXi hexagrams

The opposition of the Wen hexagrams 3 and 50 corresponds to the opposition of the FuXi nuclear hexagrams 40 and 37. Noticeable is the fact that the two FuXi hexagrams 36 and 10 are almost opposite each other. Only the line 1 does not fulfill the right conditions.

The hexagrams 3 and 50 both describe situations of qualitatively different renewals, the hexagrams 36 and 10 explain qualitatively different behavioral attitudes rooted in the opposite nuclear hexagrams 40 and 37, most suitable to achieve the respective goals of the hexagrams 3 and 50.

To investigate all these interdependencies between the hexagrams belonging to the same FuXi family and their assigned FuXi nuclear pairs will be the central theme of forthcoming publications. This example aims to demonstrate the possible benefits derived from this consideration of the generation process for the FuXi hexagrams.

7.4   The FuXi hexagrams as marks for the Book of Changes

It is usual to consider the hexagrams 1 to 30 as the first part of the Book of Change and the remaining hexagrams 31 to 64 as its second part. Each part contains 18 different hexagram figures, some of them can be reversed; some cannot.
The hexagrams 1 and 2 are respectively the FuXi hexagrams of the hexagrams "Fire" and "Abysmal"[31], and they close the first part of the Book of changes.

Further[32] hexagram 3, "The difficulty of the Beginning", is the FuXi of hexagram 31, "Influence", the hexagram initiating the second part of the Book of Changes.

Pair of opposite Wen hexagrams 31/41	FuXi pair of *hexagrams* 3/40	FuXi nuclear pair of hexagrams 23/63

Table 17: FuXi mapping for hexagrams 31 and 41

This correspondence between the implicate or pre-heaven order and the partitions of the Book of Changes demonstrates again how smartly, precisely and differentiated the Yijing methodology was conceptualized with the support of the hexagram's structure! How far may the FuXi arrangement help to understand the organization of the Book of Changes?

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[31] Compare Table 4 or Table 20.

[32] See Table 20

7.5 FuXi hexagrams and nuclear families

A further prospective field deserving more attention is to consider identifiable relations between the hexagrams coupled with FuXi hexagrams rooted in the same nuclear family. As an example see hexagram 64.

Pairs of opposite Wen hexagrams 11/12-17/18-24/44-43/23		FuXi pairs of hexagrams 53/18,63/54,37/41,39/32		FuXi nuclear pairs of hexagrams 64/54,64/63,64/24,64/43	

Table 18: The FuXi nuclear family and its related hexagrams

What kind of characteristics have the hexagrams 11,17,24,43 in common? What happens when hexagram 63 substitutes hexagram 64? This is a large set of questions, whose answers will help to enhance the understanding of the rules of change.

7.6 To summarize

A hexagram consists of a structured figure of six-lines and specific semantic contents. Moving from one hexagram's geometry to another one moves in a "parallel manner" the semantic contents. This is no doubt one of the most interesting characteristic features of the Yijing.

The network of the FuXi families interferes strongly with the nuclear families. The perspective of looking at the structural roots of the pre-heaven or implicate hexagrams developed in this paper opens new ways to better understand the links between the hexagrams and to more appreciate the semantic identity of each of them. This results in an enhanced analysis and better groundwork to validate the strategy suggested by the casting and therefore to help promoting the Yijing as a valuable tool for decision making in a managerial environment.

8   Appendices

8.1   The permutation matrix between the King Wen and FuXi arrangements

The two fundamental trigrams' arrangements can be deployed as two different permutations of 8 objects numbered from 1 to 8 as follows:

Order Wen (explicate)			Order Fuxi (implicate)		
Qian		1	Gen		5
Kun		2	Xun		6
Zhen		3	Li		7
Kan		4	Kun		2
Gen		5	Zhen		3
Xun		6	Dui		8
Li		7	Qian		1
Dui		8	Kan		4

Table 19: Trigrams' permutations corresponding to the King Wen (explicate) and FuXi (implicate) arrangements

Therefore, the corresponding permutation's matrix is explicitly given by P with

$$
P = \begin{vmatrix}
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0
\end{vmatrix}
$$

and

$$
P^4 = \begin{vmatrix}
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{vmatrix}
$$

Equation 1 Permutation matrices P and P^4

8.2 Consequences of exchanging the trigrams Li and Kan in the FuXi arrangement

In section 5.1 the trigram Li is assigned to Qian and Kan to Kun. This choice is critical because it ensures the four-cyclicity of the FuXi families. As mentioned in section 4.1 it underlines the intricacy between Yin and Yang, which is the real trigger for the dynamic of change.

Exchanging the trigrams Li and Kan in the FuXi arrangement corresponds to a new permutation matrix P* explicitly given by

Order Wen (explicate)			Order Fuxi (implicate)		
Qian		1	Gen		5
Kun		2	Xun		6
Zhen		3	Li		7
Kan		4	Kun		1
Gen		5	Zhen		3
Xun		6	Dui		8
Li		7	Qian		2
Dui		8	Kan		4

$$
P^* = \begin{vmatrix}
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0
\end{vmatrix}
$$

$$
P^{*4} = \begin{vmatrix}
0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0
\end{vmatrix}
$$

So P* does not satisfy Principle 4 and this option has to be discarded. The other trigram assignments are completely defined by the Principles 1 through 3. Therefore, this set of principles is necessary and sufficient to establish the mapping of the King Wen and FuXi trigram arrangements.

Figure 16: The FuXi sequence

This sequence indicates the hexagram 30, "Fire" as the corresponding pre-heaven/implicate hexagram to "The Thunder, The Arousing". This may be interpreted pictorially, considering the lightning as preceding the thunder and the thunder being echoed or absorbed by the mountains.

8.3 Evaluation of the number of possible pairings for the South-envelope family of hexagram 1

South		North	
1	1	2	27
	44		23
	28		2
	43		24
	1	28	30
	44		56
	28		62
	43		55
	1	39	21
	44		35
	28		16
	43		51
	1	40	22
	44		52
	28		15
	43		36

For hexagram 1 there are   16 possible pairing-partners

For hexagram 44 there are 12 possible pairing-partners[33]

For hexagram 28 there are   8 possible pairing-partners

For hexagram 43 there are   4 possible pairing-partners

Therefore, only for the South-envelope family of hexagram 1 we have (16 x 12 x 8 x 4 =) 6144 possible pairings. There is no real interest to know exactly how many different pairings are theoretically feasible. It shows clearly that more conditions have to be explained in order to retrieve the mapping between the arrangements of King Wen and FuXi.

---

[33] Each member of the first-degree nuclear family of hexagram 1 has to be mapped in a different North-envelope family.

8.4   The mutation of the corresponding lines

To mutate all the corresponding lines[34] of any hexagram is like interchanging its lower and upper trigram.

One hexagram may have zero[35], two (1/4 or 2/5 or 3/6), four or six[36] corresponding lines. If the considered hexagram has two corresponding lines, then the lower and upper trigrams differ only on these two lines and mutating them corresponds to changing the trigram's order. The same applies to four or six corresponding lines.

If the hexagram in question has no corresponding lines, then the two trigrams are the same and the exchange is considered as obvious.

Applying this rule to the trigrams' arrangements of Wen and FuXi it is clear why a FuXi family remains a FuXi family even if all the corresponding lines are mutated. Exchanging the trigrams order in the Wen arrangement induces the same move in the FuXi arrangement. Therefore, the mutation of all the corresponding lines of the four hexagrams of a FuXi family necessarily results in another FuXi family.

This property is very helpful to identify the corresponding hexagrams as shown in chapter 5.

8.5   Hexagrams with identical reverse and opposite hexagrams

According to Definition 7 and Definition 7 there are only 8 hexagrams whose opposite is identical with the reverse.

One hexagram with these properties has its sixth, fifth and fourth lines defined by the first, second and third line. There are two possibilities for each of these lines; therefore, there are eight hexagrams with this property.

| 11/ Prosperity | 12/Stagnation | 17/Following | 18/Decay |

| 53/Gradual | Progress 54/The Marrying Maiden | 63/After Completion | 64/Before Completion |

Figure 17: The 8 hexagrams with identical reverse and opposite.

---

[34] Definition 5

[35] This concerns the eight hexagrams obtained by doubling the trigrams: hexagrams 1,2,29,30,51,52,57,58

[36] Line 1/2/3 completely defines the lines 4/5/6; therefore, there are eight hexagrams with six corresponding lines. The hexagrams 11/12, 31/32 41/42, 63/64. All these hexagrams are derived from 11/12 by mutating the lines 1/4, 3/6 and 2/5 respectively.

8.6 The complete list of the FuXi hexagrams and their related FuXi nuclear pairs

The following table shows all the pairs of opposite Wen hexagrams, the related FuXi hexagrams and FuXi nuclear pairs as formulated in the FuXi Sudoku.

Pair of opposite Wen hexagrams		FuXi pair of Hexagram		FuXi nuclear pair of hexagrams with envelope			
30	29	1	2	1	Summer	2	Winter
20	34	28	56	1	Summer	28	Winter
37	40	43	35	1	Summer	39	Winter
35	5	44	15	1	Summer	40	Winter
29	30	2	1	2	Winter	1	Summer
33	19	27	59	2	Winter	27	Summer
39	38	24	6	2	Winter	37	Summer
6	36	23	9	2	Winter	38	Summer
15	10	42	4	23	Autumn	24	Spring
47	22	8	34	23	Autumn	43	Spring
7	13	20	26	23	Autumn	54	Spring
31	41	3	40	23	Autumn	63	Spring
10	15	4	42	24	Spring	23	Autumn
48	21	19	13	24	Spring	44	Autumn
60	56	7	25	24	Spring	53	Autumn
44	24	41	37	24	Spring	64	Autumn
19	33	59	27	27	Summer	2	Winter
28	27	60	55	27	Summer	28	Winter
58	52	29	51	27	Summer	39	Winter
46	25	61	22	27	Summer	40	Winter
34	20	56	28	28	Winter	1	Summer
27	28	55	60	28	Winter	27	Summer
51	57	30	58	28	Winter	37	Summer
26	45	62	48	28	Winter	38	Summer
38	39	6	24	37	Summer	2	Winter
57	51	58	30	37	Summer	28	Winter
61	62	47	21	37	Summer	39	Winter
50	3	10	36	37	Summer	40	Winter
36	6	9	23	38	Summer	2	Winter
45	26	48	62	38	Summer	28	Winter
49	4	5	16	38	Summer	39	Winter
2	1	57	52	38	Summer	40	Winter
40	37	35	43	39	Winter	1	Summer
52	58	51	29	39	Winter	27	Summer
62	61	21	47	39	Winter	37	Summer
4	49	16	5	39	Winter	38	Summer
5	35	15	44	40	Winter	1	Summer

Pair of opposite Wen hexagrams Hexagram #		FuXi pair of hexagrams Hexagram		FuXi nuclear pair of hexagrams with envelope				
25	46	22	61	40	Winter	27	Summer	
3	50	36	10	40	Winter	37	Summer	
1	2	52	57	40	Winter	38	Summer	
22	47	34	8	43	Spring	23	Autumn	
16	9	50	31	43	Spring	44	Autumn	
55	59	14	45	43	Spring	53	Autumn	
23	43	32	39	43	Spring	64	Autumn	
21	48	13	19	44	Autumn	24	Spring	
9	16	31	50	44	Autumn	43	Spring	
14	8	33	46	44	Autumn	54	Spring	
42	32	49	38	44	Autumn	63	Spring	
56	60	25	7	53	Autumn	24	Spring	
59	55	45	14	53	Autumn	43	Spring	
64	63	12	11	53	Autumn	54	Spring	
53	54	17	64	53	Autumn	63	Spring	
13	7	26	20	54	Spring	23	Autumn	
8	14	46	33	54	Spring	44	Autumn	
63	64	11	12	54	Spring	53	Autumn	
12	11	18	53	54	Spring	64	Autumn	
41	31	40	3	63	Spring	23	Autumn	
32	42	38	49	63	Spring	44	Autumn	
54	53	64	17	63	Spring	53	Autumn	
18	17	54	63	63	Spring	64	Autumn	
24	44	37	41	64	Autumn	24	Spring	
43	23	39	32	64	Autumn	43	Spring	
11	12	53	18	64	Autumn	54	Spring	
17	18	63	54	64	Autumn	63	Spring	

Table 20: 32 Couples of opposite Wen hexagrams with their FuXi nuclear pairs

8.7   The first and second degree nuclear families
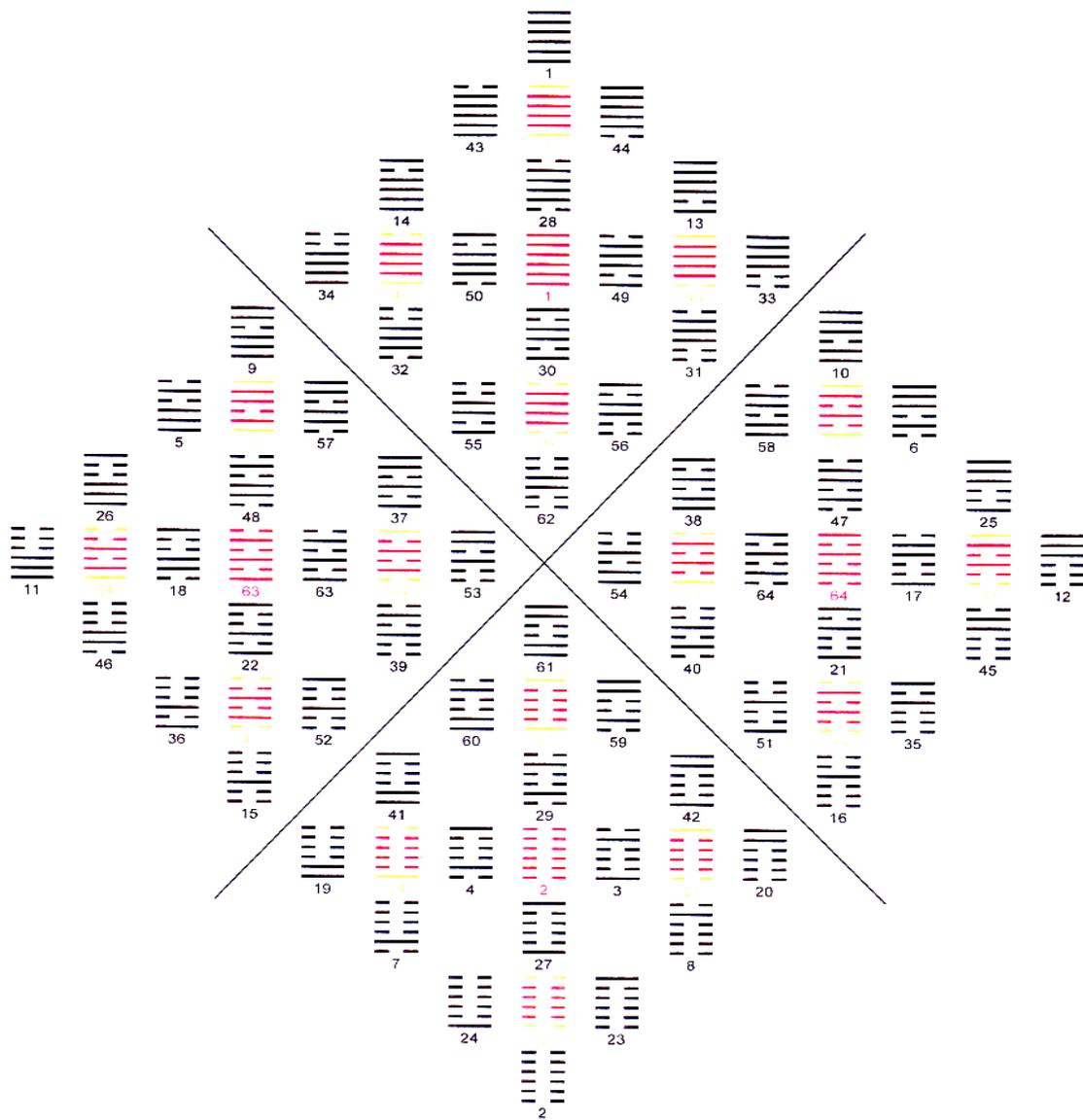
Figure 18: The nuclear families[37]

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[37] (Faure, Le Yijing par lui-même 2006)

9   Literature

Bohm, David. *Wholeness and the Implicate Order.* Routledge Kegan Paul, 1980.

Faure , Pierre, und Cyrille Javary. *Yi Jing.* 2002.

Faure, Pierre. *Le Yijing par lui-même.* Alphée. 2006.

Gisin, Nicolas. *L'impensable hasard.* Odile Jacob, 2012.

Javary, Cyrille. *Le Discours de la Tortue.* Albin Michel, 2003.

—. *Understanding the I Ching.* Übersetzung: Kirk McElhearn. Shambhala, Boston, 1997.

Ning Lu, Ph.D. *Yin-Yang Code.* California: Moutain View, 2008.

R. Wilhelm, Richard. *The I Ching.* Übersetzung: Baynes. 1961.

Schlumberger, J-P. *Yi King Principes, pratique et interprétation.* Editions Dangles, 1987.

Schöter, Andreas. «The Yi Jing: Metaphysics and Physics.» *Journal of Chinese Philosophy*, September 2011: 412-426.

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