

The King Wen Sequence

Greg Rosser

The King Wen Sequence (first edition)

Copyright © 2022: Greg Rosser

All rights reserved.

First edition published in 2022

ISBN: 978-90-9036254-0

Published by Leura Press

contact: g.rosser552@gmail.com

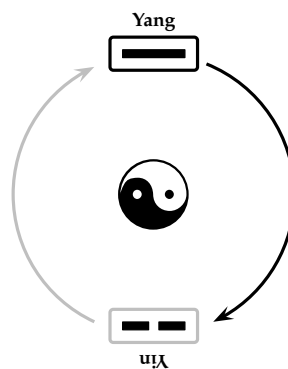
for my wife Anneke and our daughters, Femke and Susanna.

The King Wen Sequence

In sum, in the minds of the Jiahu people [Wuyang in Henan, China, 8000 B.C.E.], music with independent significance did not exist. What was called music, was the pitch gamut (including the scales and modes) and astrological calendrics and their several correlates in mediumistic rites (including the solar terms, eight trigrams, eight winds, heaven and earth, *yin* and *yang* .) Put another way, music was an embodiment in sound of the eight trigrams. In the *Spring and Autumn Annals of Mr. Lü* "Grand Music" (Dayue), it says, "All music is the harmonization of heaven and earth, the tuning of *yin* and *yang*."

- **Zhao Wu** "*The Origins of China's Musical Culture*"

- translation: **Kenneth de Voskin** and **Scott Cook**
La Pluridisciplinarité en Archéologie Musicale, Vol.II, 1990

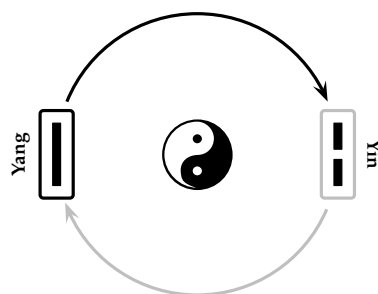


One observes that changes in the world always take the form of one yin and one yang in a relation of reciprocity and resonance. This experience comes from observation of the brightness of light together with the darkness or shade which forms the background of the light. Hence the word yang originally means the bright side of a hill facing south whereas yin means the shaded side facing north. It is then generalized to mean a contrasting correlation between the light and the dark. The phenomenological observation also indicates that whenever there is yang there is yin and where there is yin there is yang. Besides, we could experience the yang as the visible and the yin as the invisible or the yang as the formed and the yin as the unformed. Hence what is yin could be experienced as what is given as the invisible, pre-existing background of a thing, whereas what is yang is hence experienced as what is given as the visible thrust of the formation of a thing. In this sense yin and yang are to be understood phenomenologically in a dynamic context of alternation or correlation. The alternation of one yin and one yang as a process of dao no doubt contributes to our understanding of the dao as both the source-origin and the creative process of the yin and yang. For it implies that yin and yang are to emerge as a related pair of forces and states of becoming through the agency of the dao.

- **Chung-ying Cheng** "*The Yi-Jing and Yin-Yang Way of Thinking*"
Routledge History of Chinese Philosophy (2009)

Yinyang theory penetrates all aspects of music, including the selection of materials and design of the instruments themselves. We can take the *guqin*, a seven-stringed zither-like musical instrument, as an example. The *guqin* is amongst the oldest of musical instruments, according to legend originating at the time of the sage kings Yao and Shun. It was already very popular by the time of Confucius. The design of the *guqin* embodies yinyang principles. It is made of yang-type wood and yin-type wood. Because of the seasons and other natural influences, some parts of a tree will be hard and strong, and some parts soft and weak. Therefore, there is an art to picking the parts of the tree that make an instrument. One should select the yin portions that are soft and yielding to build the yin sections of the *guqin*, and one should select the hard\strong portions to construct the yang sections. The surface board is round and represents heaven, or yang. The bottom board is flat to represent the earth, or yin.

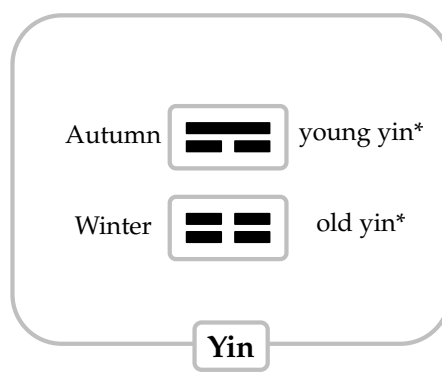
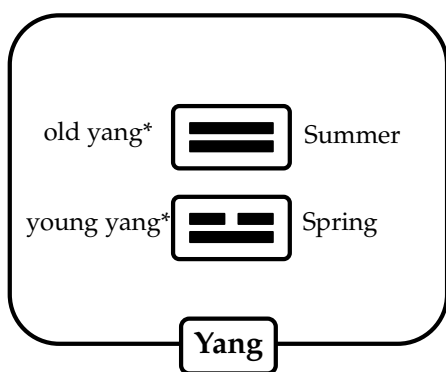
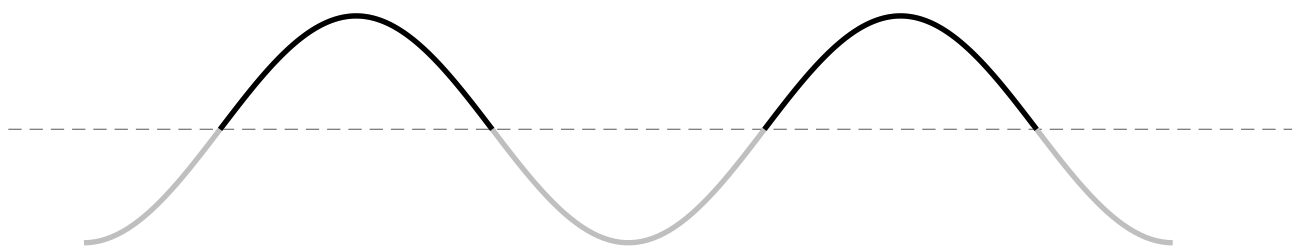
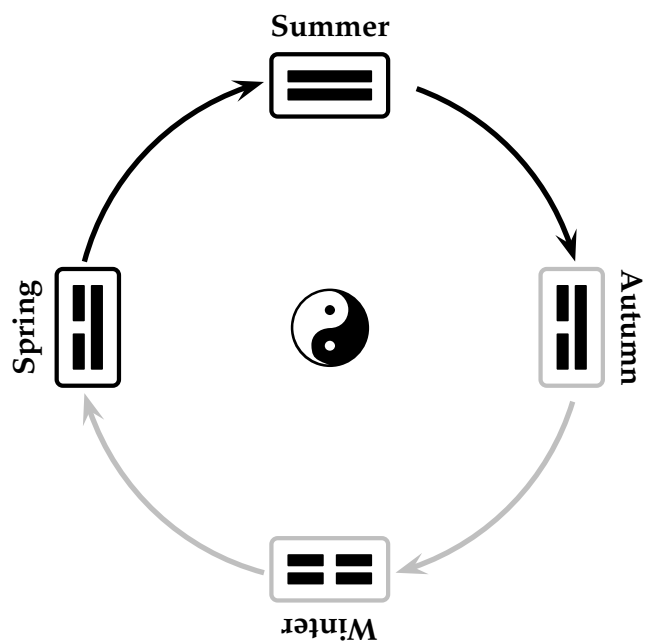
- Robin Wang "Yinyang" (2012)



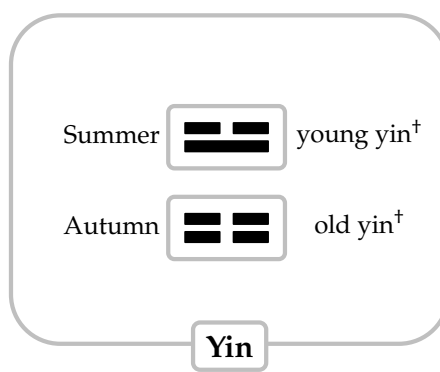
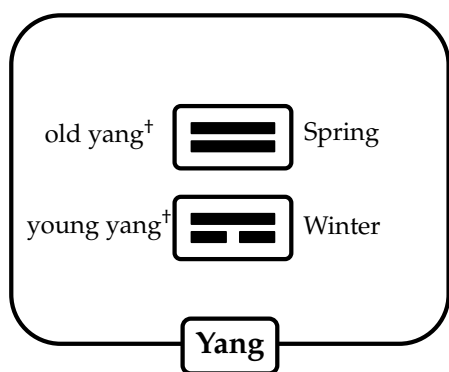
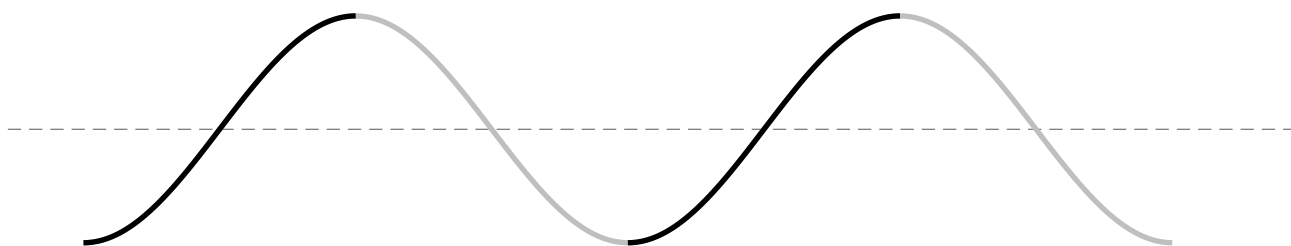
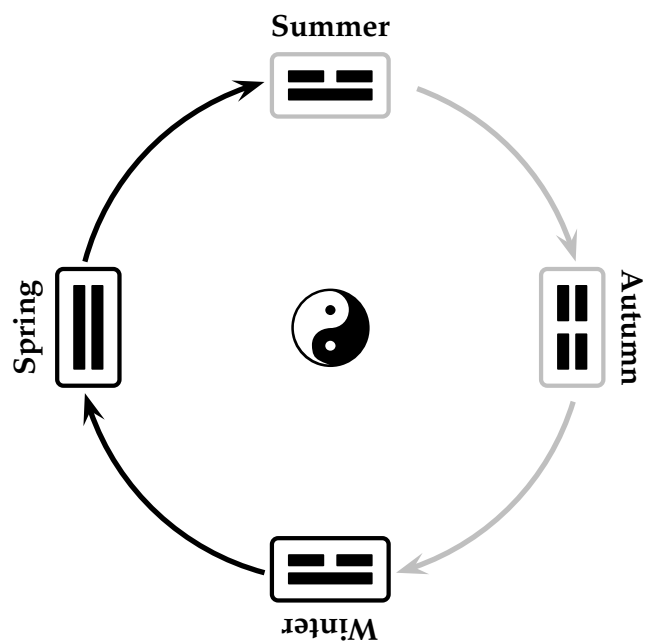
So pitch, beat, and notation not only can be, but must be changed in Chinese traditional music. Indeed, the philosophical requirement of constant change and flux, being and non-being, balance and harmony form the very base of Chinese music theory. Within each pitch are the infinite changeable pitch variations; though there is rhythm, it is not always evenly pulsating. Everything is in flux, yet everything is in harmony. The only unchanging thing is that things change all the time.

In the scheme of things - according to the Taoist [Daoist] world view and traditions of China - music was an important factor in every phase of life. Ceremonies and other occasions were accompanied by music, since it was believed that music reflected in harmony with *yin* and *yang*, an actual link between people (organs, emotions), nature (directions of the compass, colors, animals), as well as the universe (planets), was able to achieve or echo harmony. Taoism [Daoism] and Confucianism taught that music can unite people and heaven.

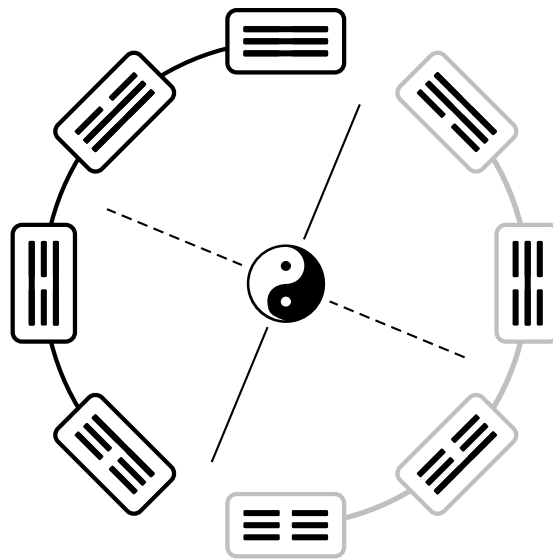
- Yaxiong Du "Fundamentals of Chinese Music Theory and its Cultural Basis"
Eurasian Studies Yearbook, 1999, Vol 71



* see **Richard Wilhelm, Cary Baynes, [Lao Naixuan]** *"The I Ching"* (1967) Ta Chuan[Dazhuan, Xicizhuan] - Part I, Chapter XI, 5.



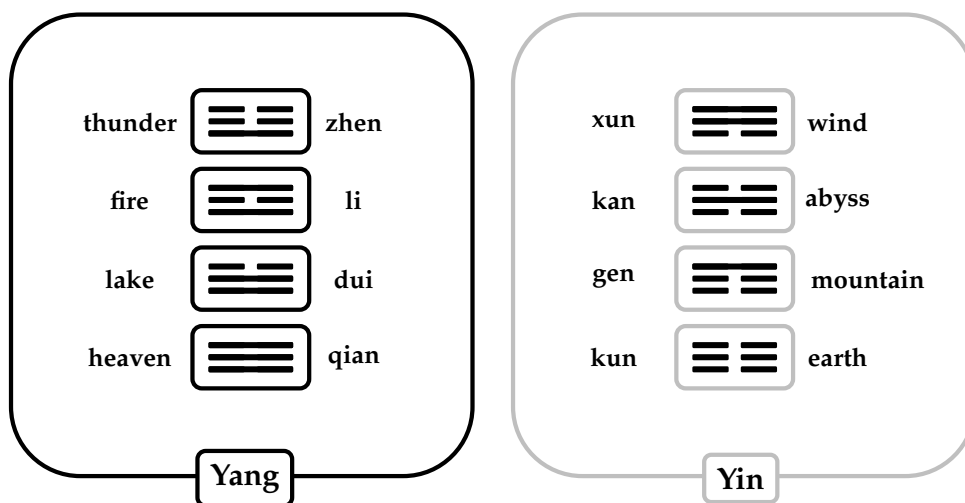
† see **Bent Nielsen** "A Companion to Yijing Numerology and Cosmology"(2003)
 - Si Xiang and **Richard Smith** "Fathoming the Cosmos and Ordering the World"
 (2008) - sixiang



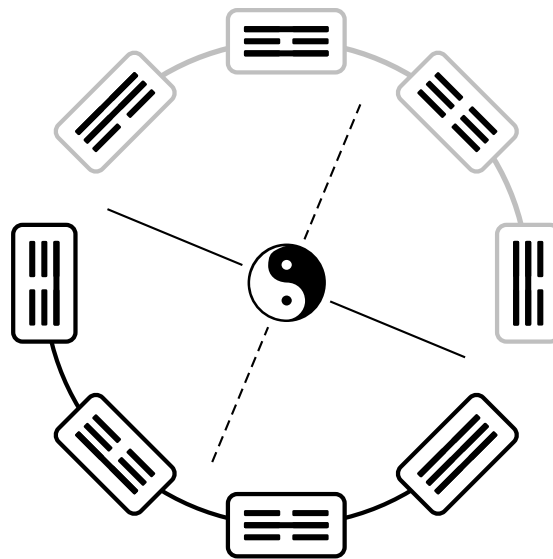
Xian Tian Tu

The *Primordial* arrangement of the eight trigrams, also known as *Former Heaven*, is traditionally attributed to **Fu Xi**, one of the legendary founders of China.

Interpreting the four quadrants of the Fu Xi diagram using the King Wen correspondences gives four pairs of yin and yang trigrams: (yang, yin), (yin,yang), (yin, yang), (yang, yin). Furthermore all the diametric pairs are yinyang pairs according to both the Fu Xi and King Wen associations.



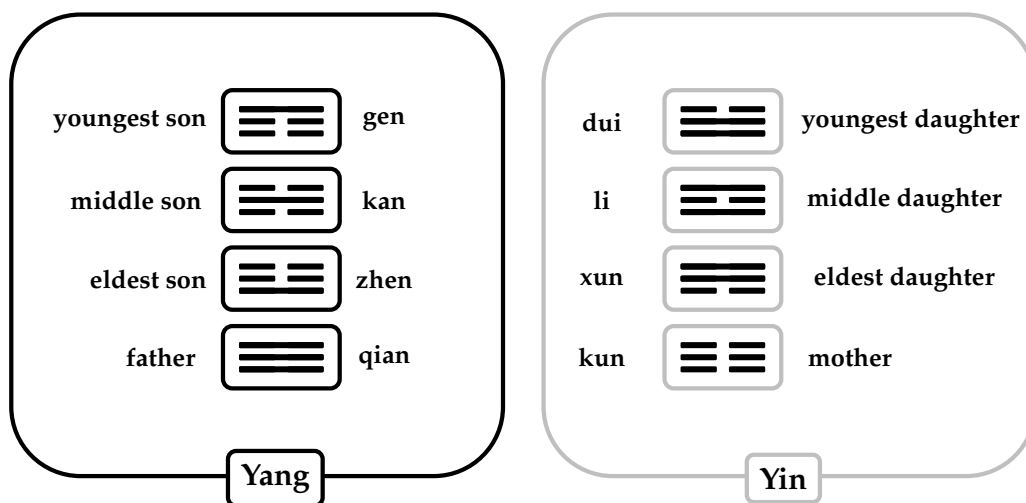
Fu Xi



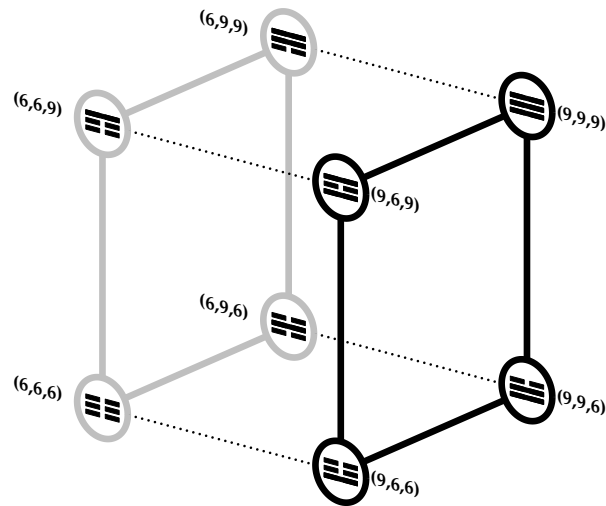
Hou Tian Tu

The *Manifested* arrangement, or *Later Heaven*, is traditionally attributed to **King Wen**, founder of the Zhou Dynasty.

Interpreting the four quadrants of the King Wen diagram using the Fu Xi correspondences gives four pairs of yin and yang trigrams: (yang, yin), (yin,yang), (yin, yang), (yin, yang).



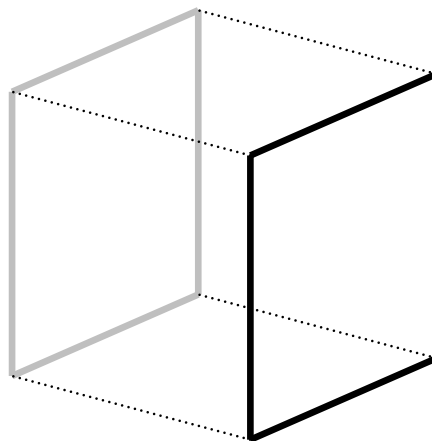
King Wen



Yin trigrams

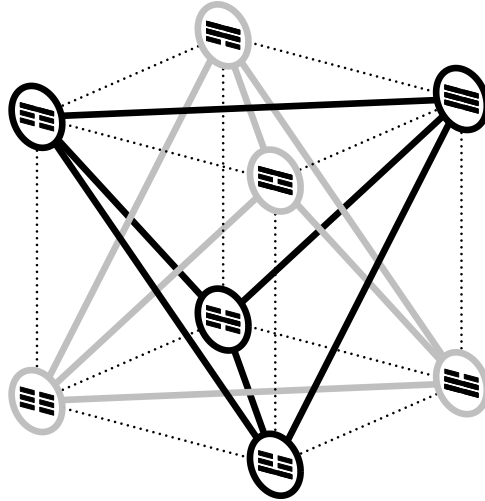
Yin=6 Yang=9

Yang trigrams



See also **Z.D. Sung** “*Symbols of Yi King*” (1934) and **Andreas Schöter** “*Flowers and Steps in the Boolean Lattice of Hexagrams*” (Journal of Chinese Philosophy, Vol.31, No. 4, Dec 2004).

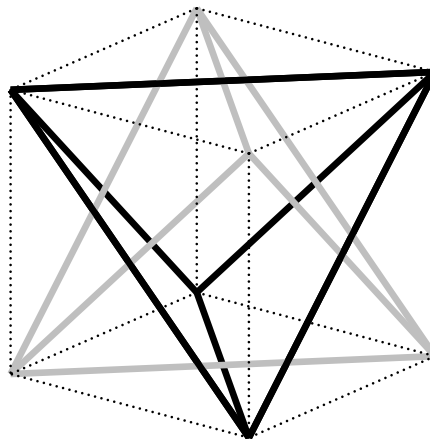
Fu Xi



Yin trigrams

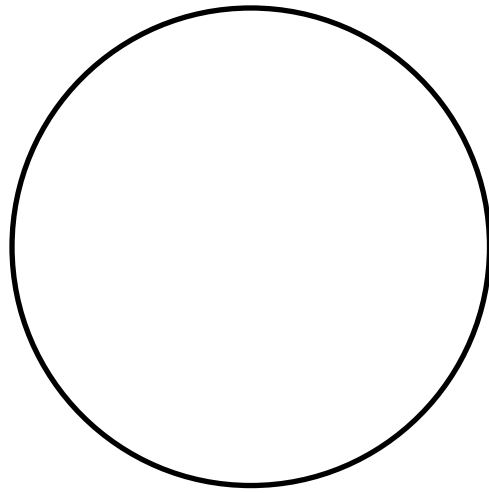
Yin=6 Yang=9

Yang trigrams

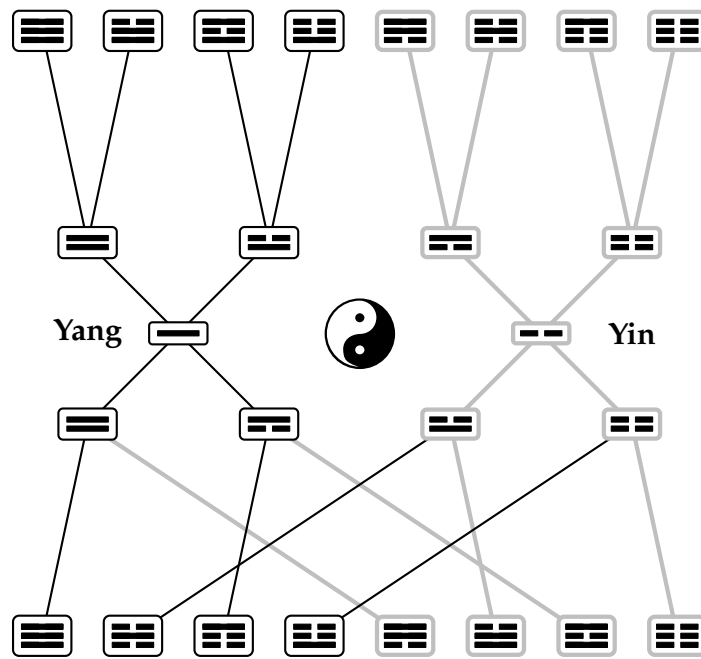


[Stella Octangula]

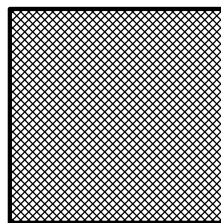
King Wen

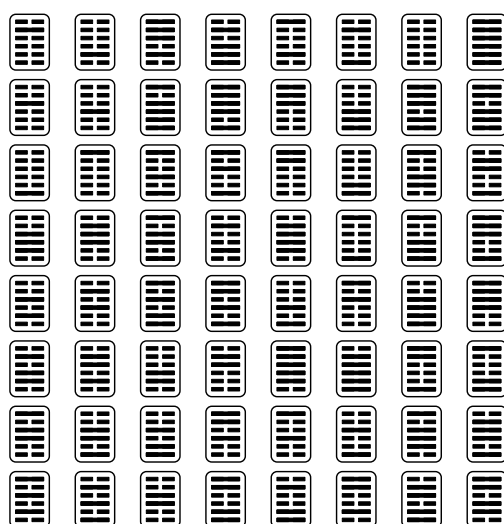
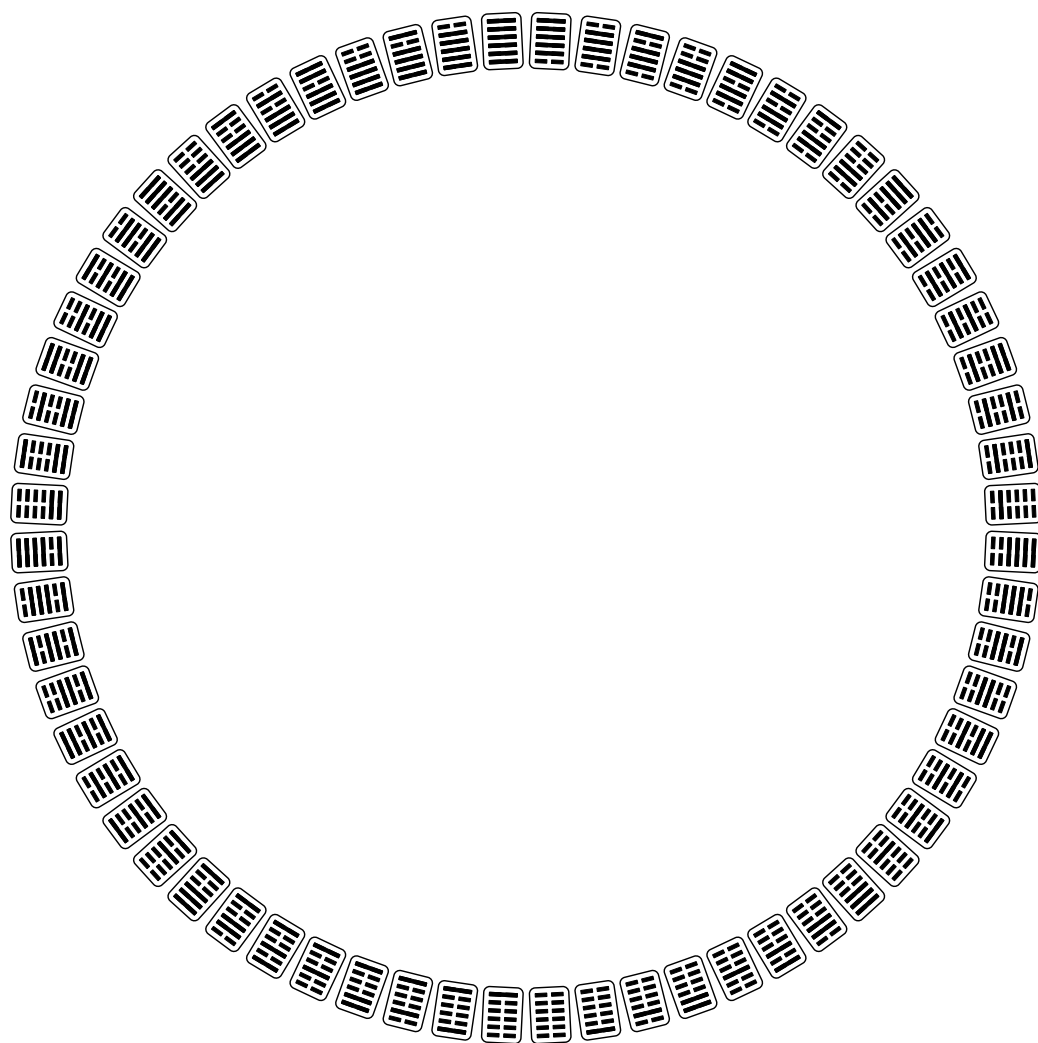


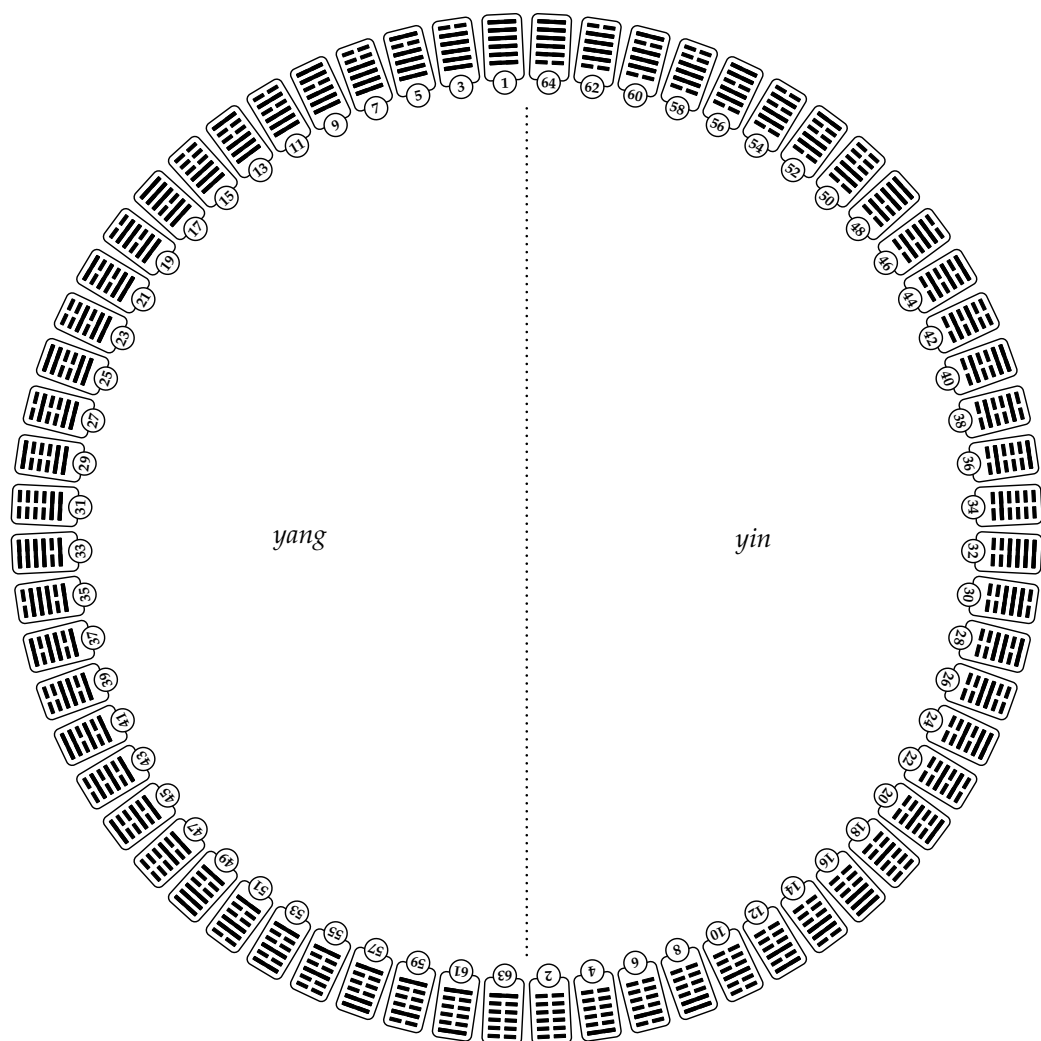
Fu Xi



King Wen







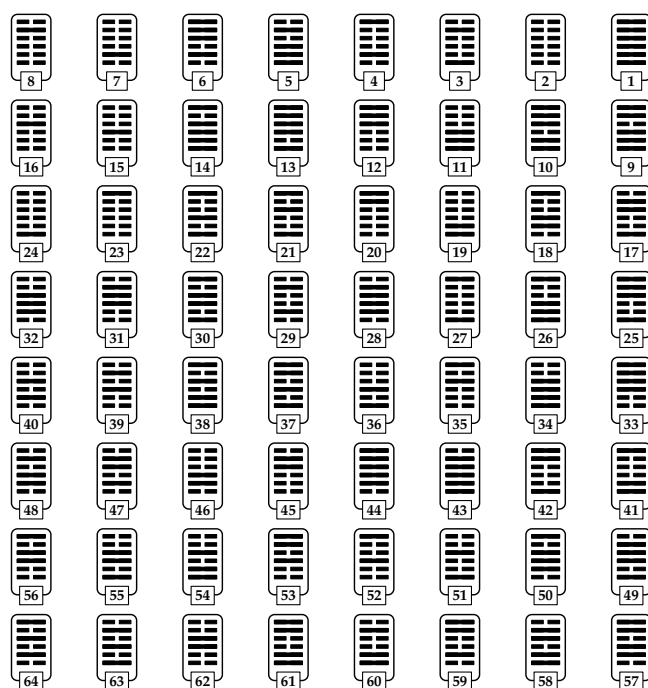
According to tradition the **Fu Xi** hexagram sequence predates the **King Wen** sequence (opposite page) by many centuries. The numbering of the **Fu Xi** sequence given here is not standard but is consistent with the *yinyang* correlation:

odd numbers are *yang*, even numbers are *yin*.

[The *yinyang* polarity of each hexagram in the **Fu Xi** sequence is determined by its first (lowest) line.]

For comparison see **Shao Yong's** "*Chart of the numbers of the 64 hexagrams that rule the world*", as presented in **Anne D. Birdwhistell's** "*Transition to Neo-Confucianism - Shao Yung[Yong] on Knowledge and Symbols of Reality*" (1989).

Fu Xi



The **King Wen** hexagram sequence, also known as 'King Wen Order' or 'Received Order', is dated to approximately 1000 B.C.E. This is the prevailing sequence of the hexagrams. See:

"The Yî King" **James Legge** (1882)

"The I Ching" **Richard Wilhelm, Cary Baynes, [Lao Naixuan]** (1967)

"The Taoist I Ching" **Liu I-ming, Thomas Cleary** (1986)

"The Classic of Changes" **Wang Bi, Richard John Lynn** (1994)

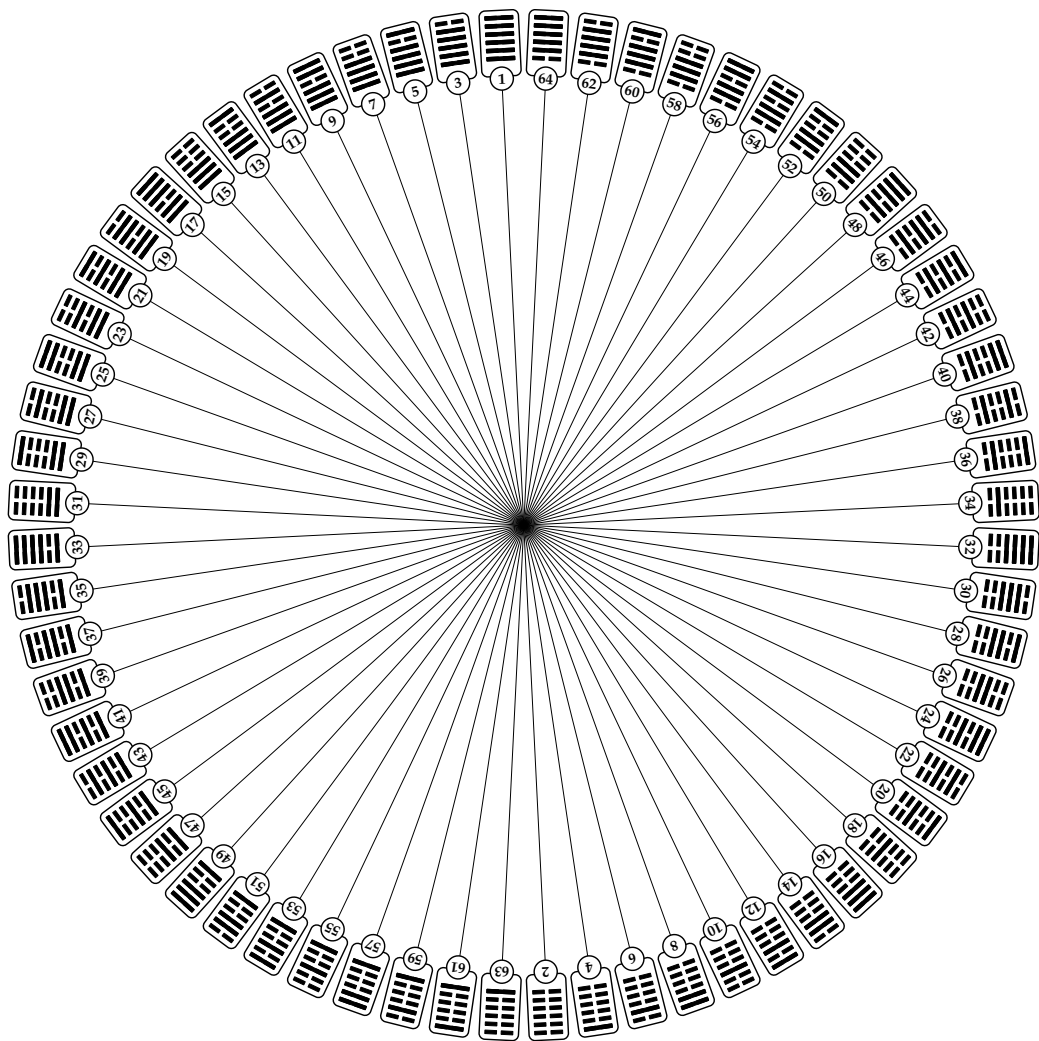
"The Complete I Ching" **Alfred Huang** (1998)

"Zhouyi: The Book of Changes" **Richard Rutt** (2002)

"The Essentials of the Yi Jing" **Chung Wu** (2003)

"The Original I Ching Oracle" **Rudolf Ritsema, Shantena Sabbadini** (2005)

King Wen



32 pairs

32 Complementary pairs

[(1, 2), (3, 4), (5, 6)...(63, 64)]

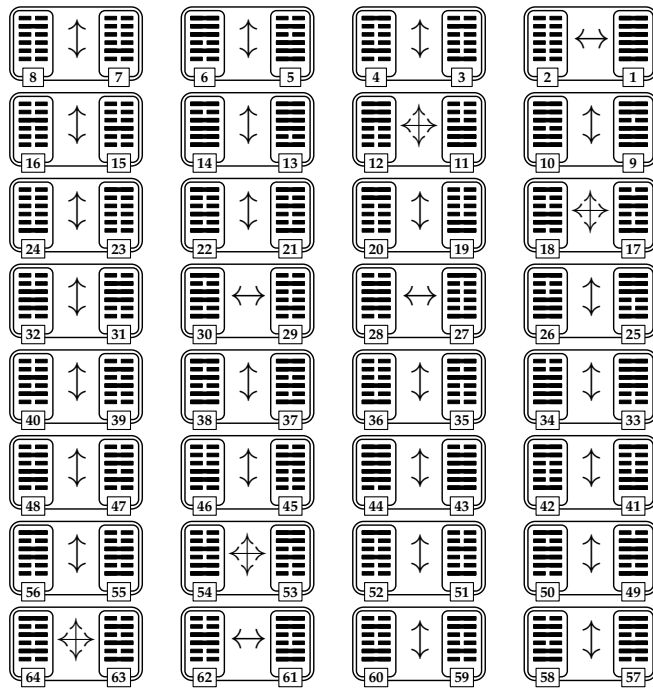
For each complementary pair locate a second complementary pair which is the inverse of the first:

complementary pair



complementary pair

Fu Xi



Inverse: $\updownarrow$

Complementary: $\leftrightarrow$

32 pairs

28 Inverse pairs and 4 Complementary pairs

[4 pairs are both inverse and complementary]

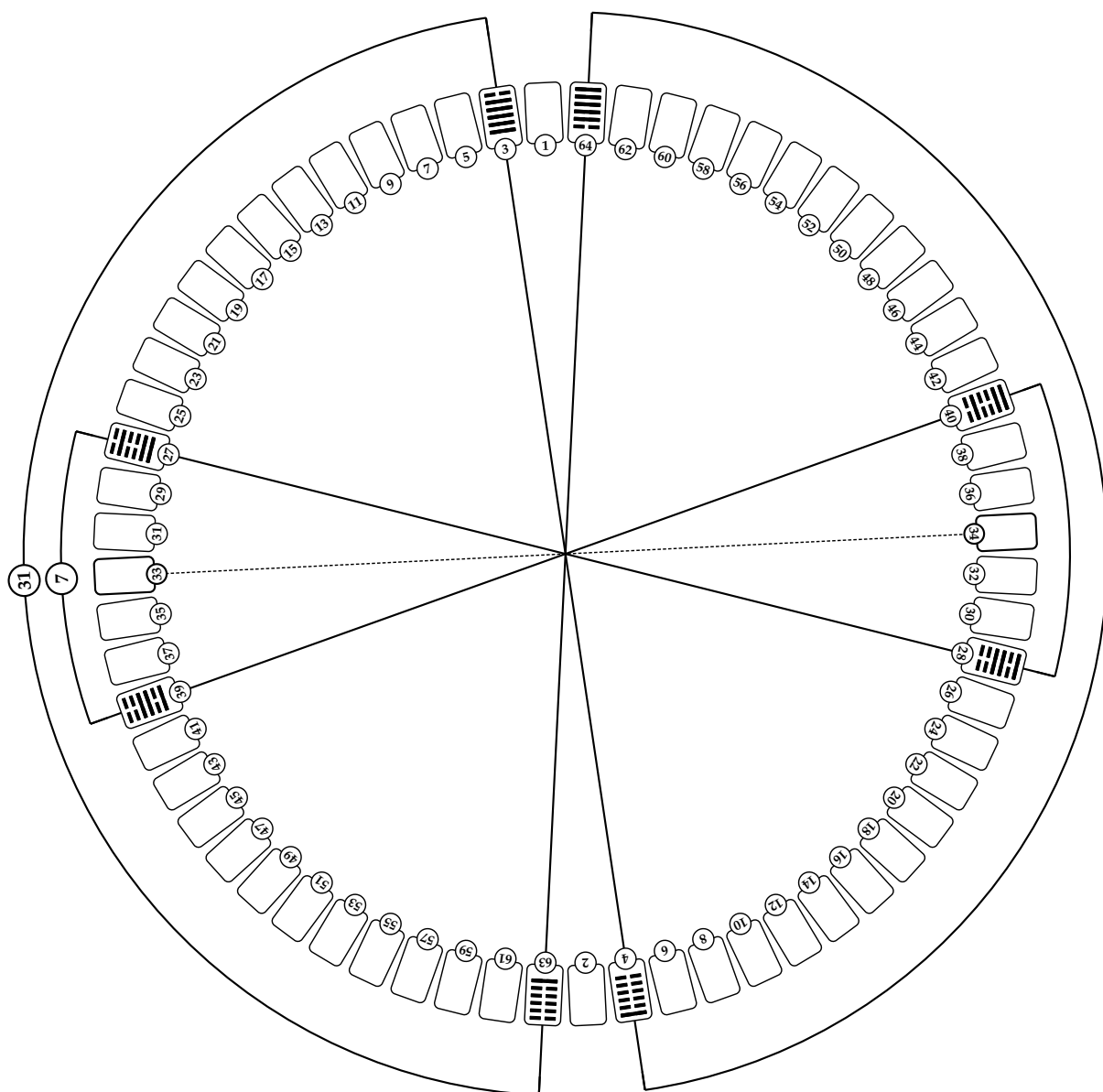
For each inverse pair locate a second inverse pair which is complementary to the first:

inverse pair

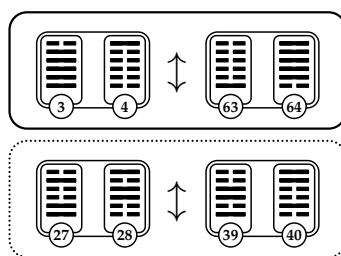
$\leftrightarrow$

inverse pair

King Wen



Axis of symmetry = (33,34)



inverse pairs

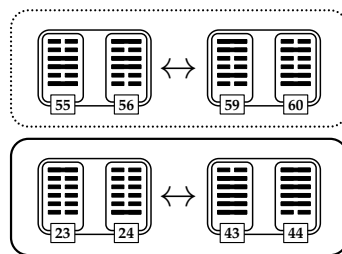
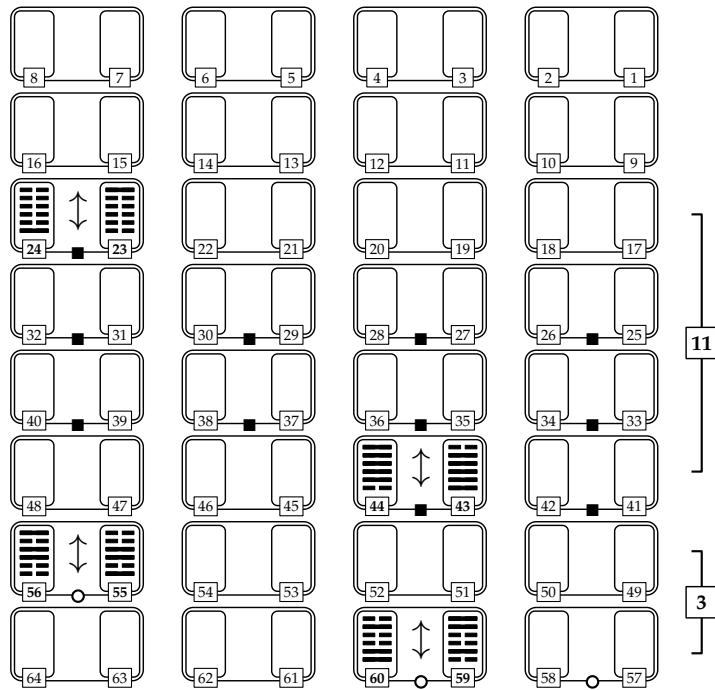


③① FX[(3,4)(63,64)]

⑦ FX[(27,28)(39,40)]

next: transpose to a descending spine

Fu Xi

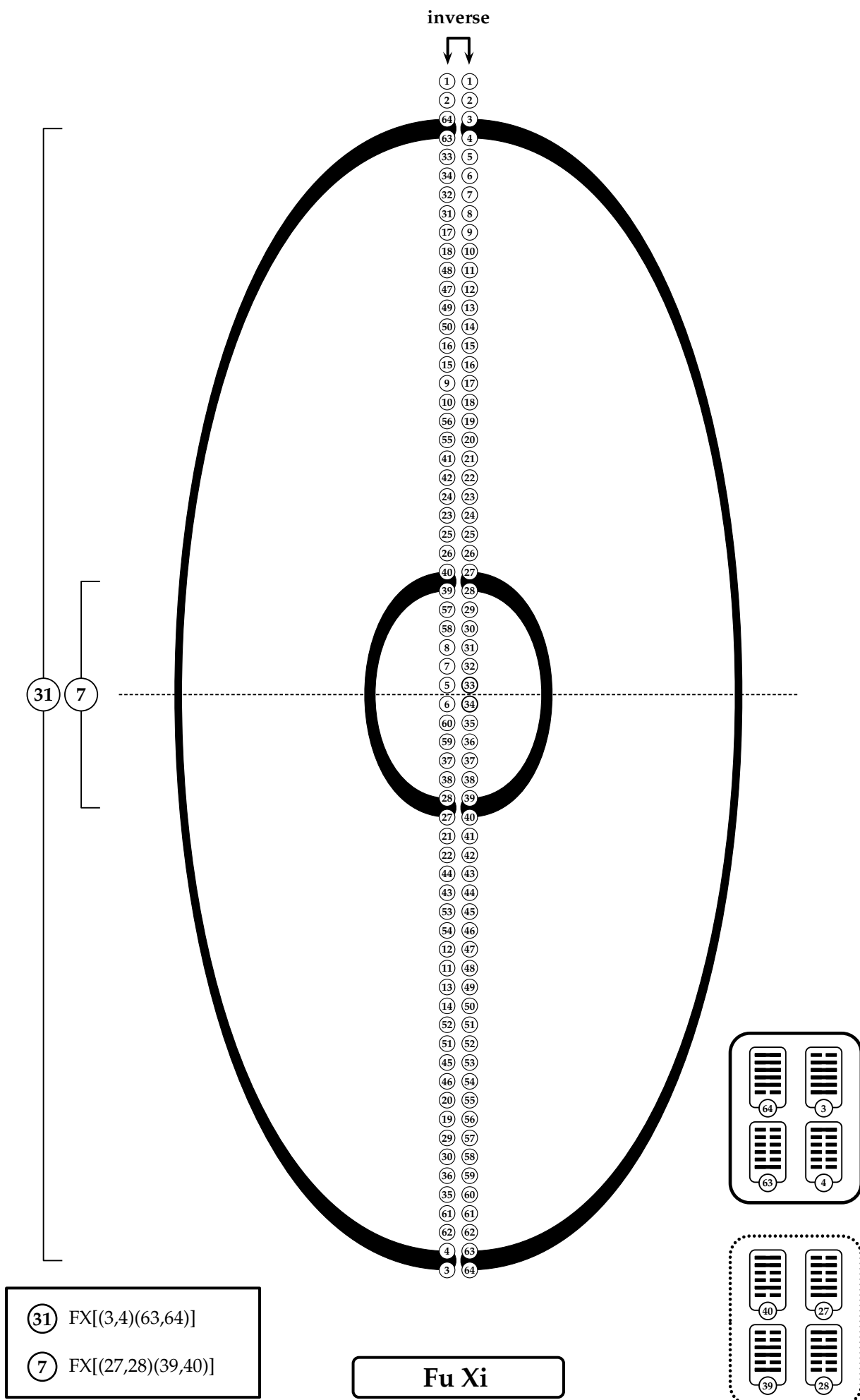


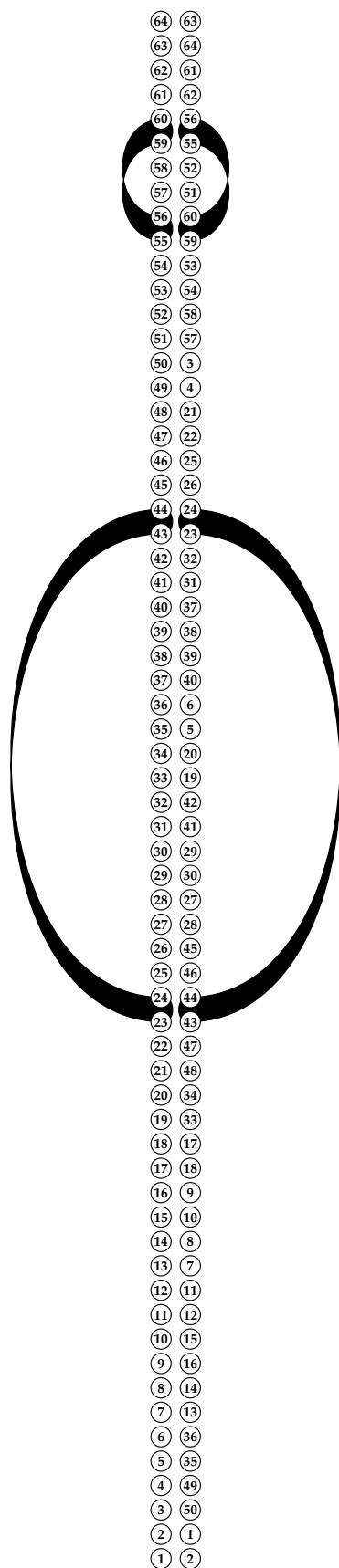
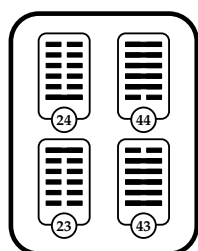
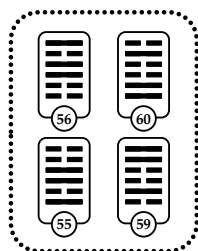
complementary pairs

next: transpose to an ascending spine

3	KW[(55,56)(59,60)]
11	KW[(23,24)(43,44)]

King Wen





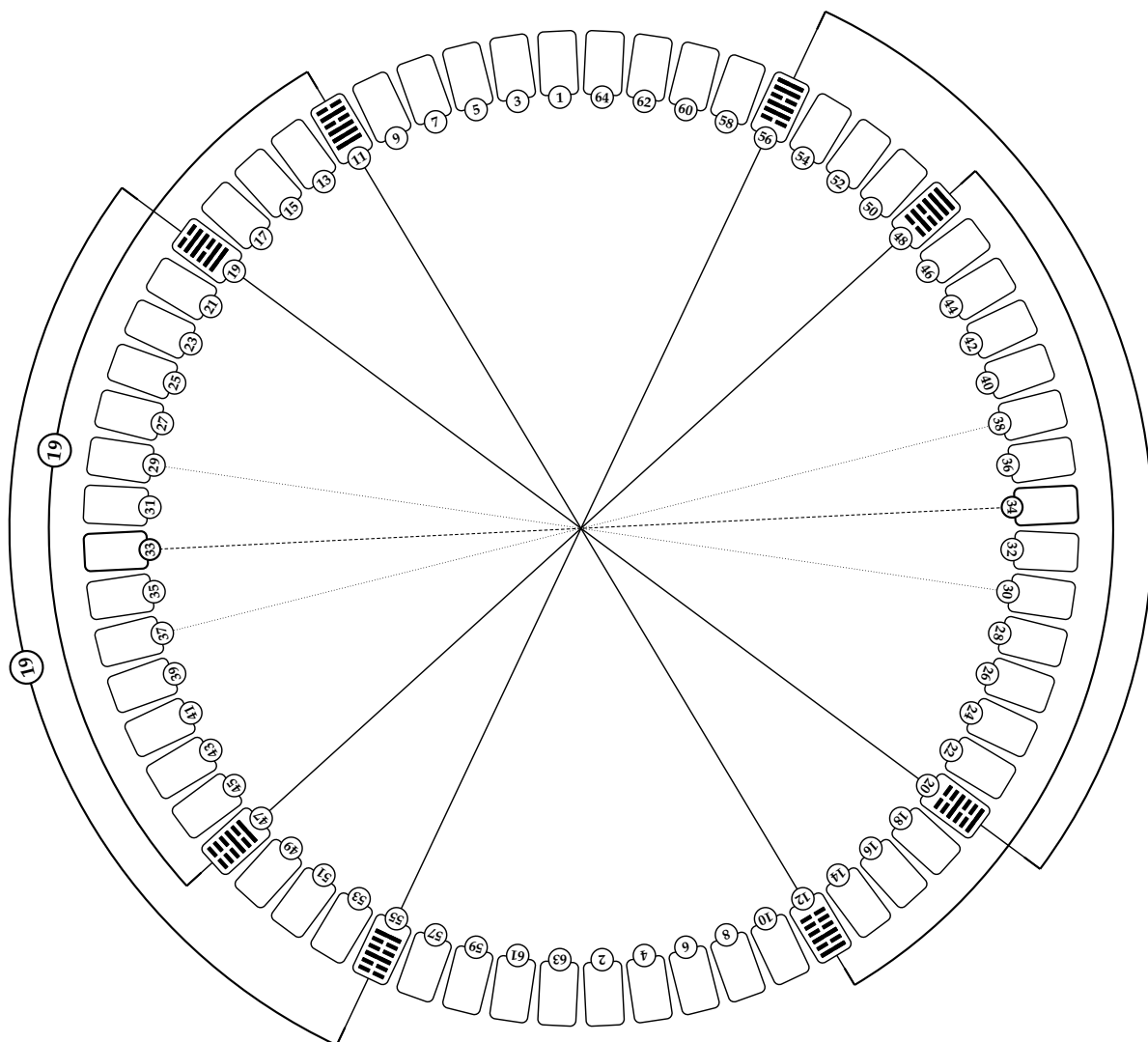
complementary

King Wen

3

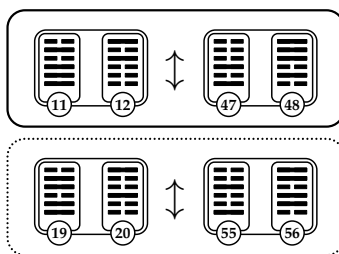
11

3	KW[(55,56)(59,60)]
11	KW[(23,24)(43,44)]



Axis of symmetry = (33,34)

line 1 $\neq$ line 6



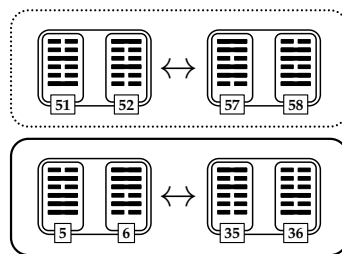
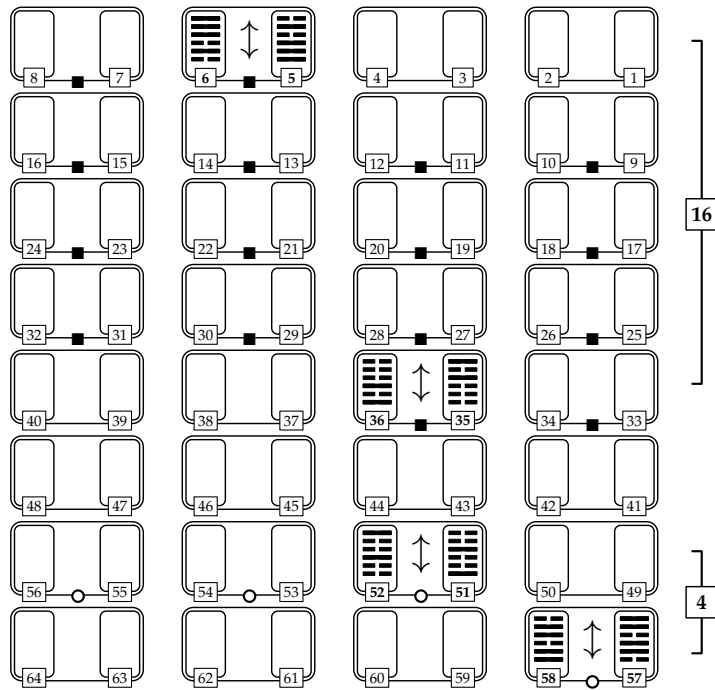
inverse pairs

①⑨ FX[(11,12)(47,48)]

①⑨ FX[(19,20)(55,56)]

*next: transpose to a **descending** spine*

Fu Xi

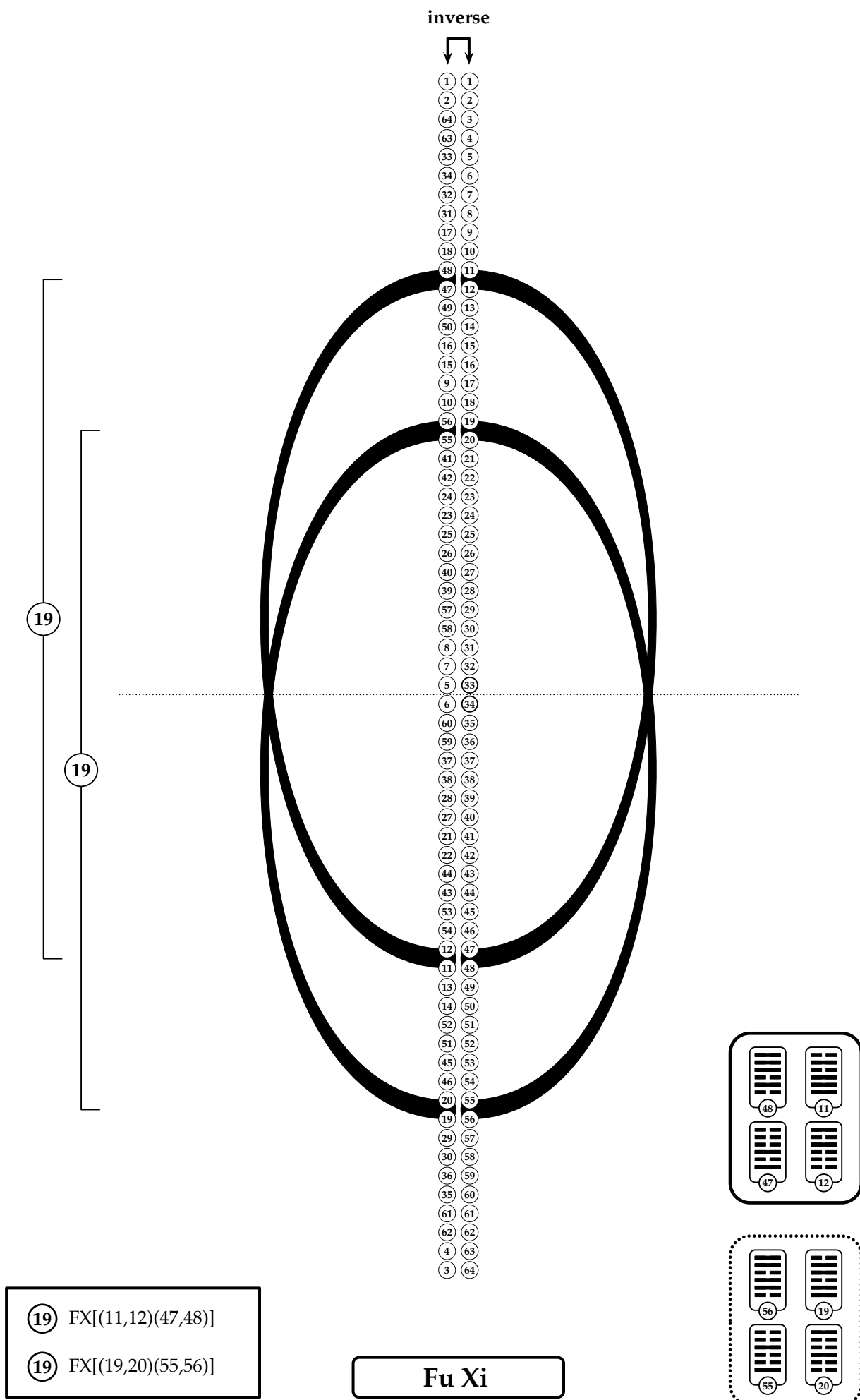


complementary pairs

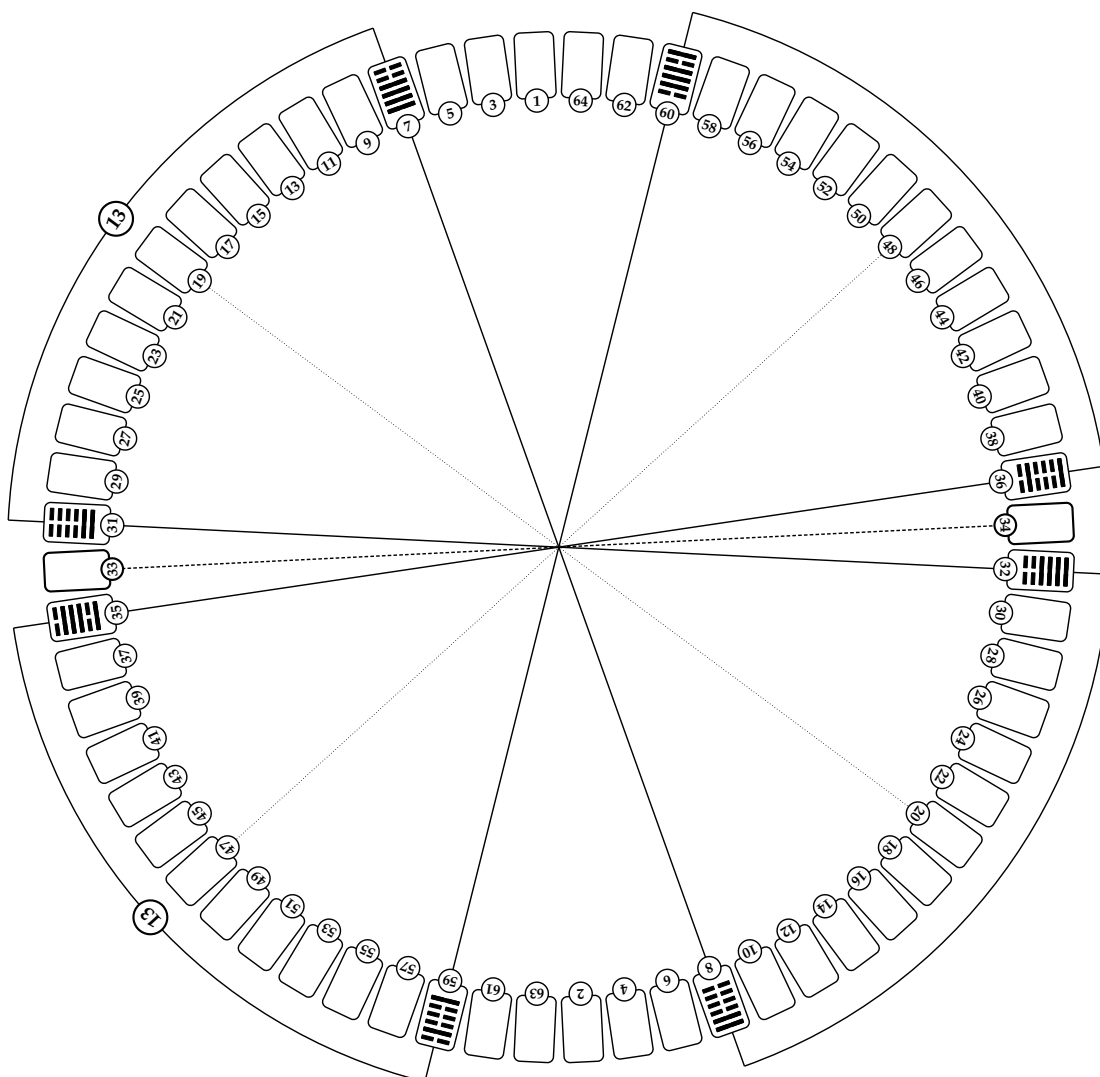
next: transpose to an *ascending spine*

King Wen

4	KW[(51,52)(57,58)]
16	KW[(5,6)(35,36)]

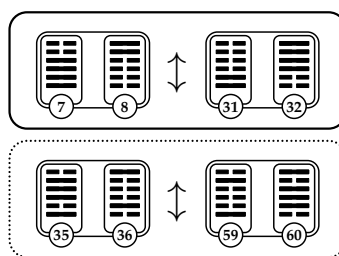






Axis of symmetry = (33,34)

line 1 $\neq$ line 6



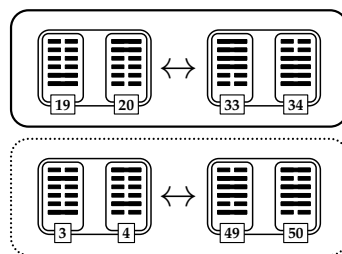
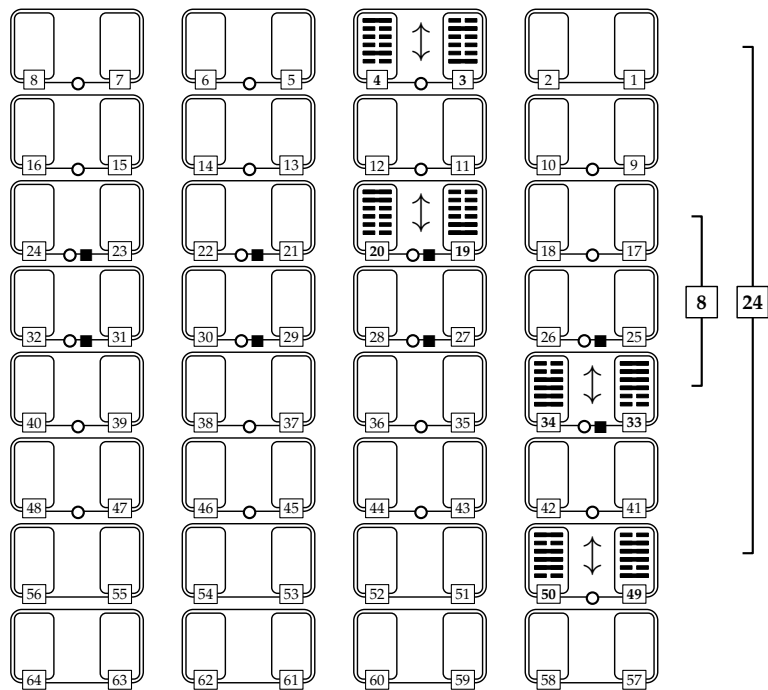
inverse pairs

⑬ FX[(7,8)(31,32)]

⑬ FX[(35,36)(59,60)]

next: transpose to a descending spine

Fu Xi



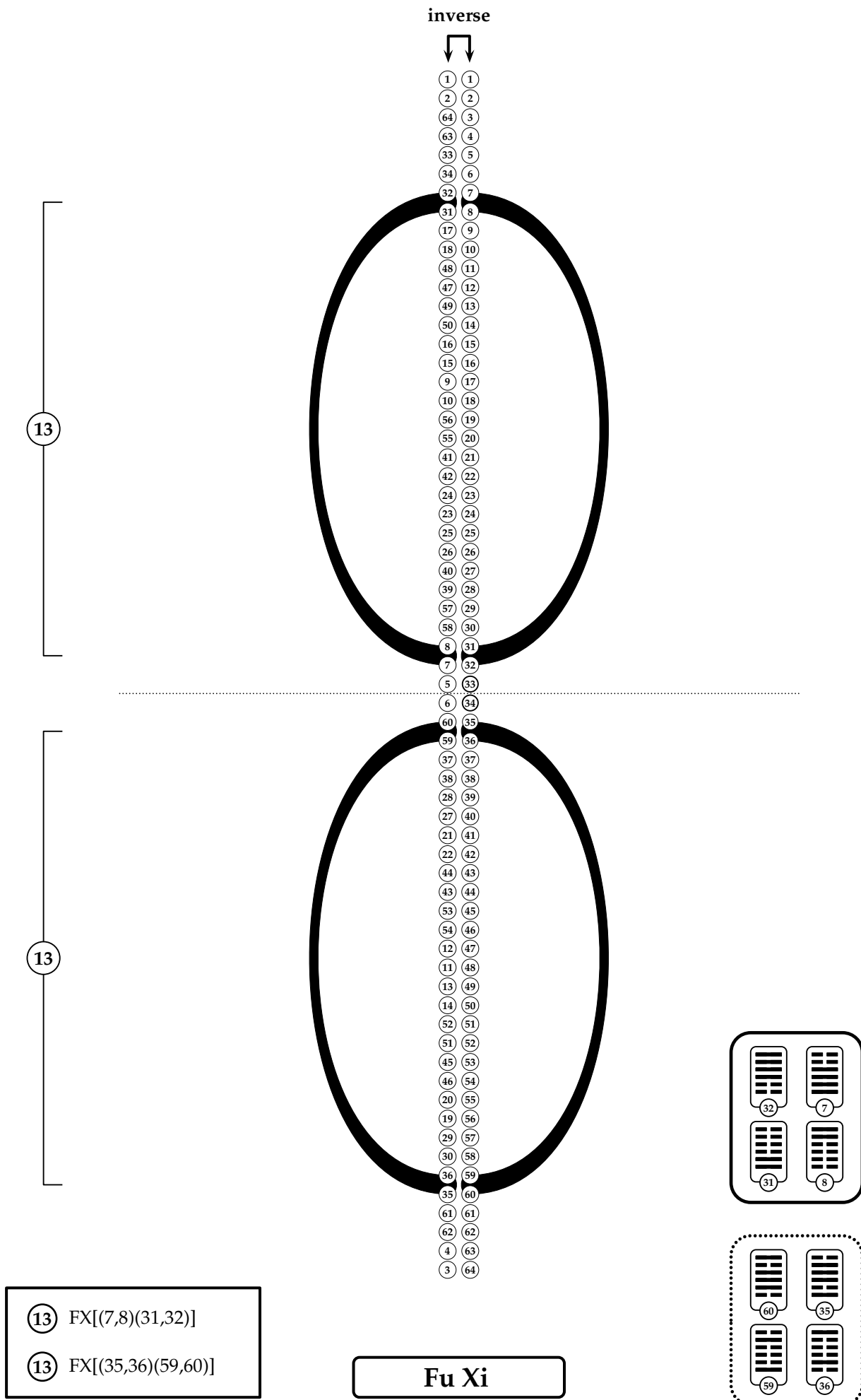
complementary pairs

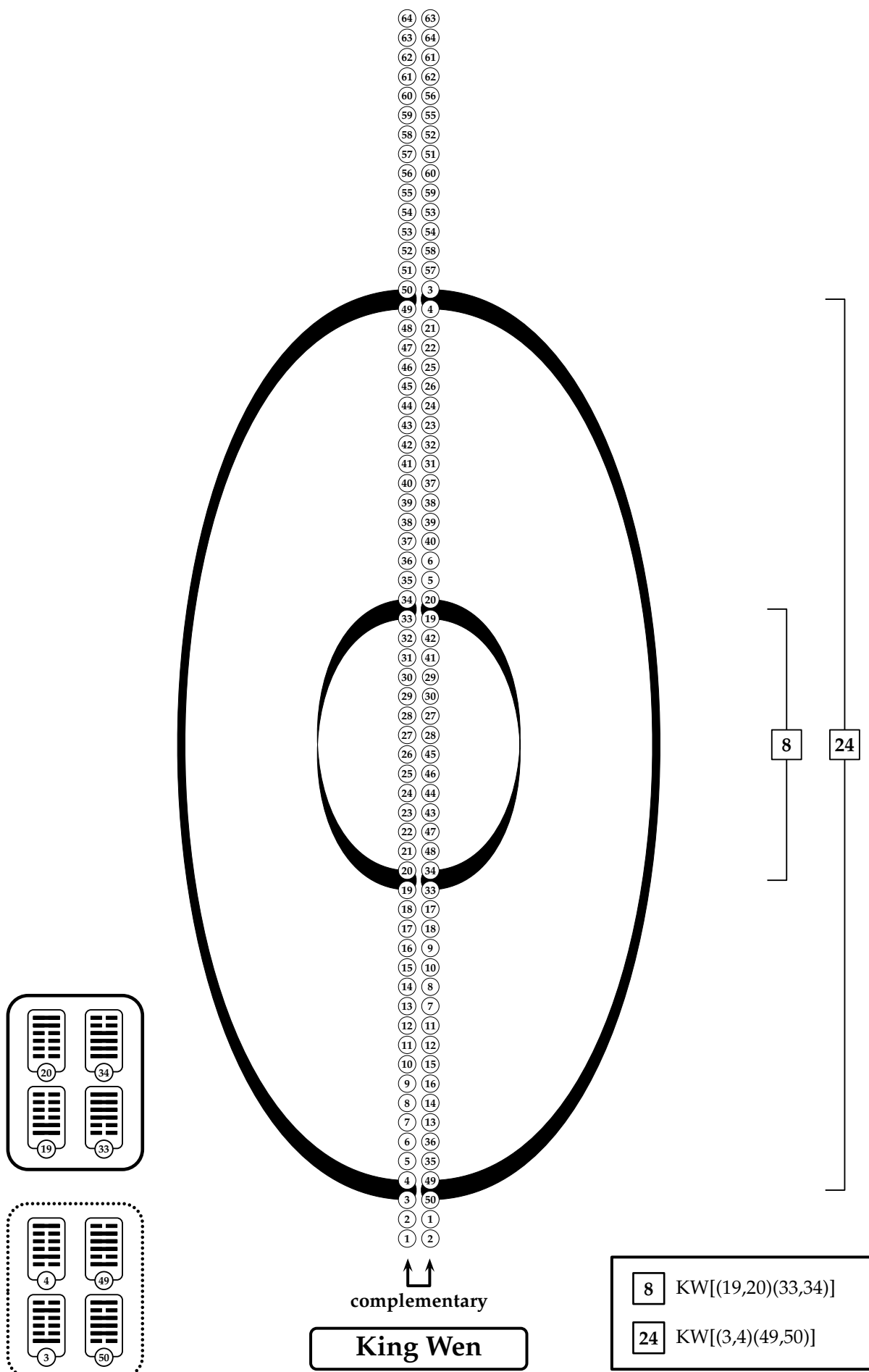
next: transpose to an ascending spine

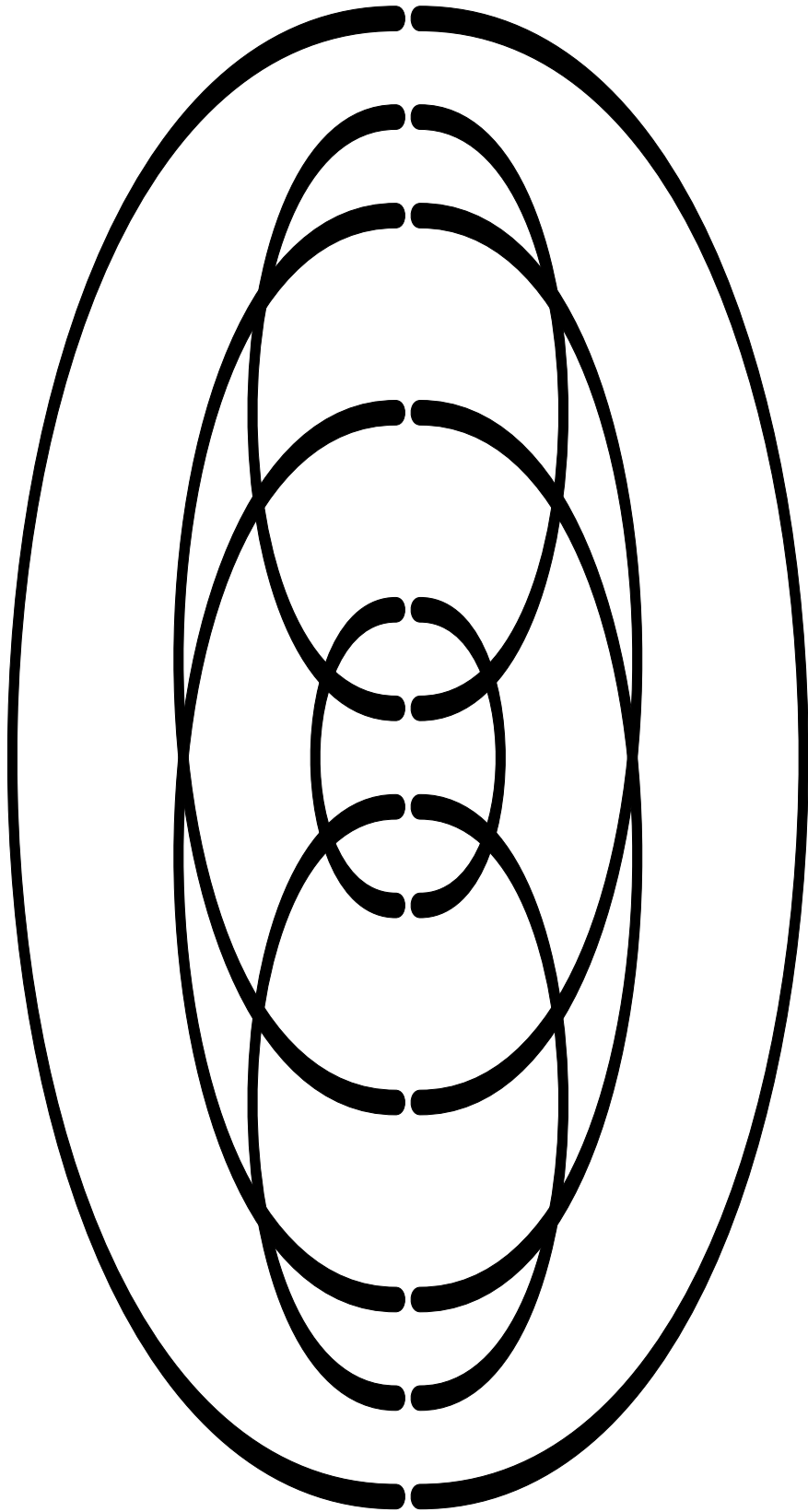
8 KW[(19,20)(33,34)]

24 KW[(3,4)(49,50)]

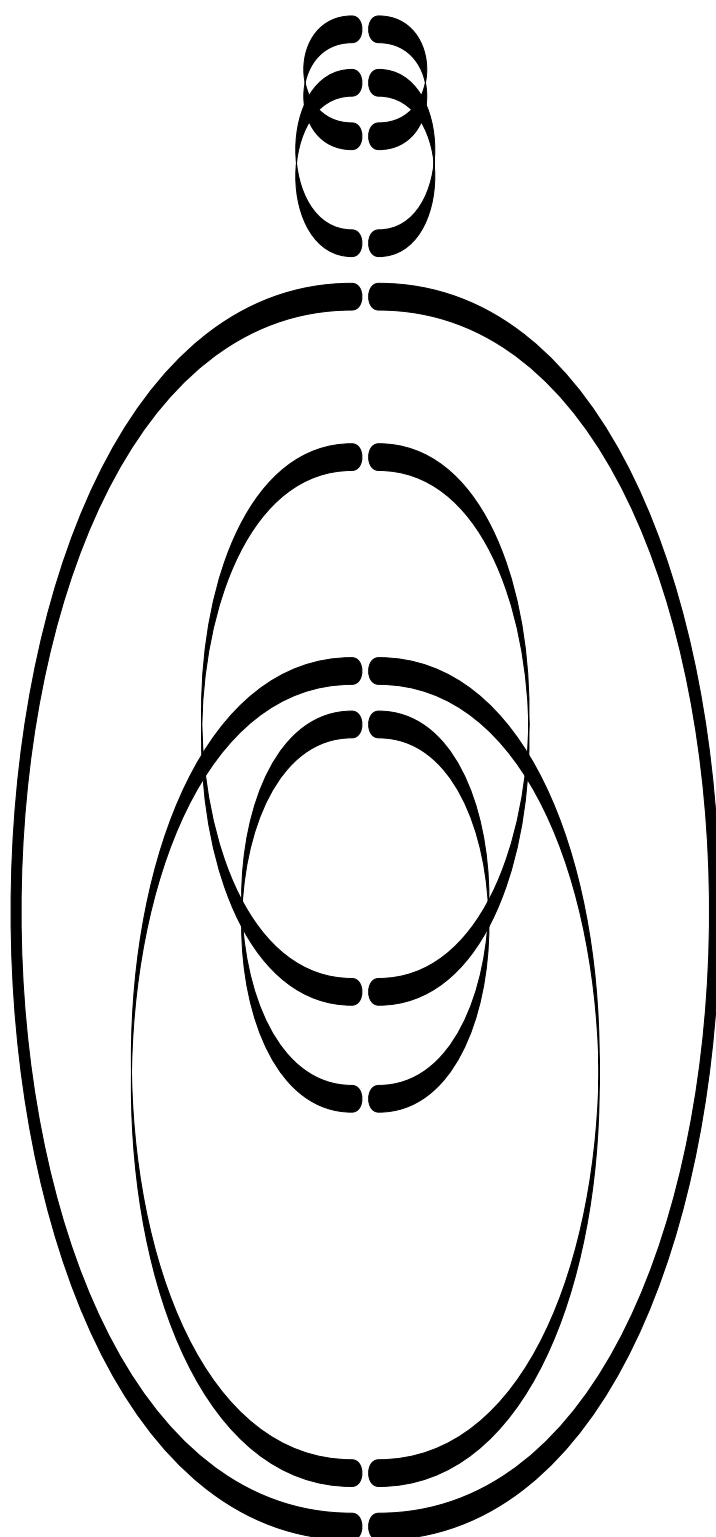
King Wen



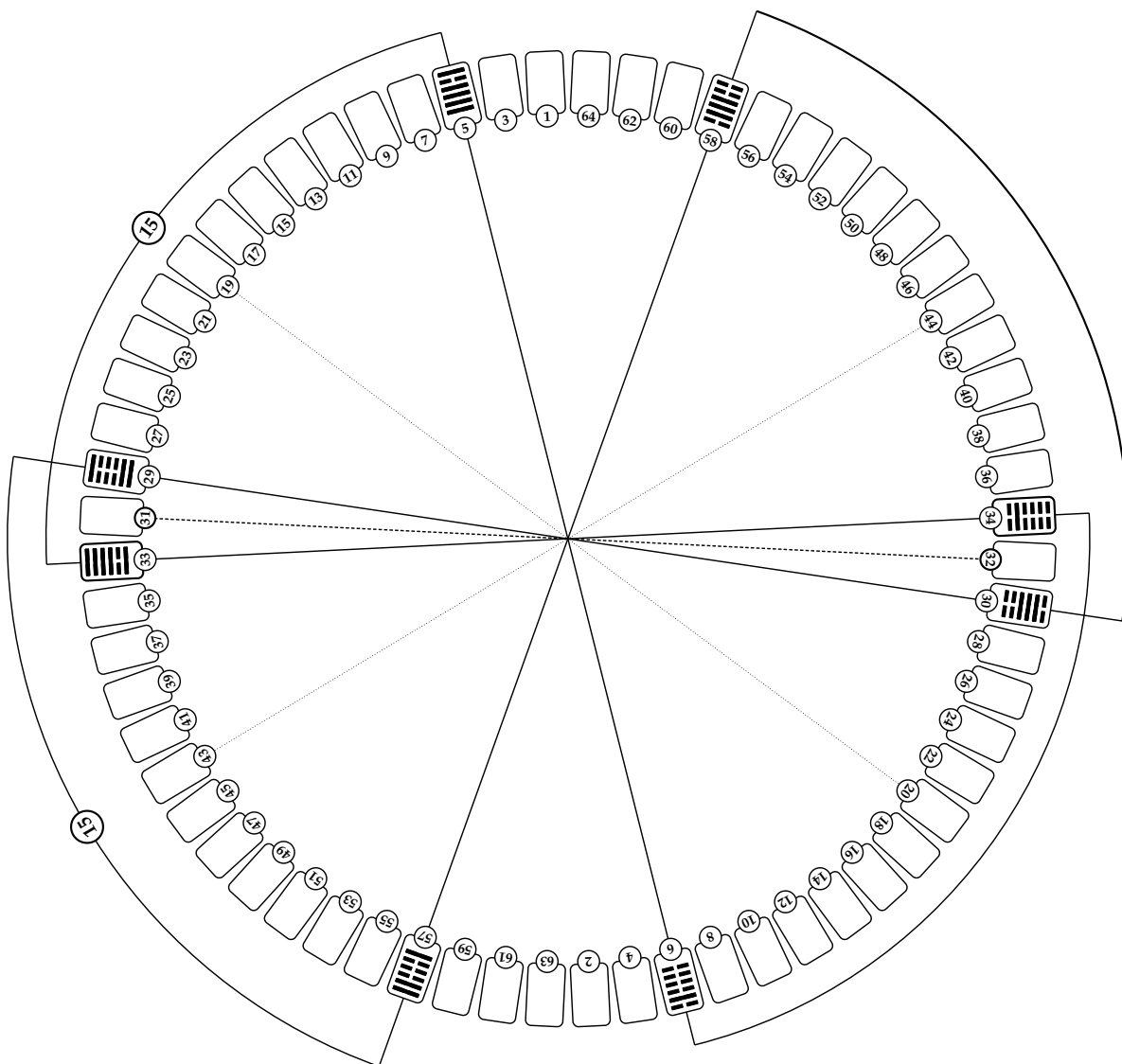




Fu Xi

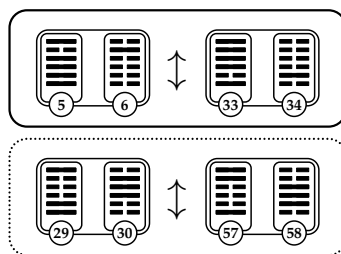


King Wen



Axis of symmetry = (31,32)

line 1 = line 6



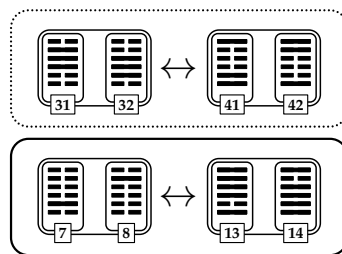
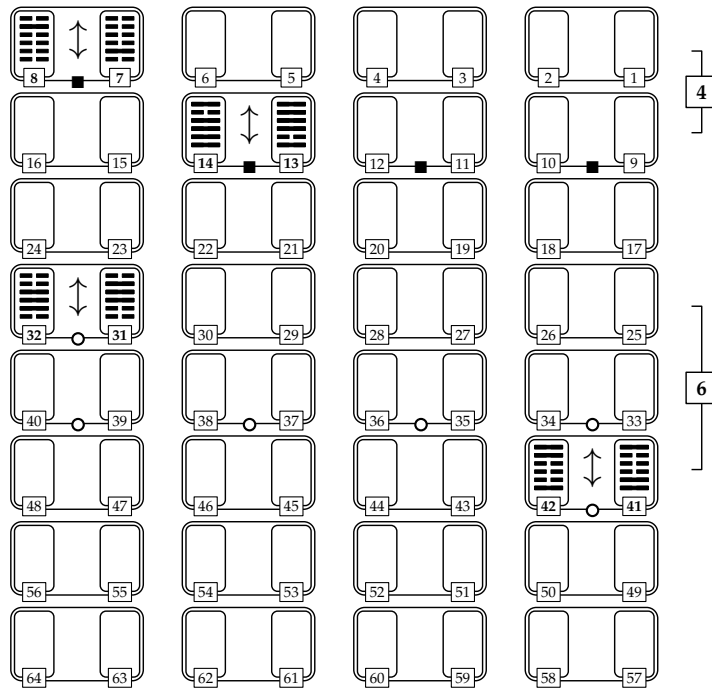
inverse pairs

⑮ FX[(5,6)(33,34)]

⑮ FX[(29,30)(57,58)]

next: transpose to a descending spine

Fu Xi

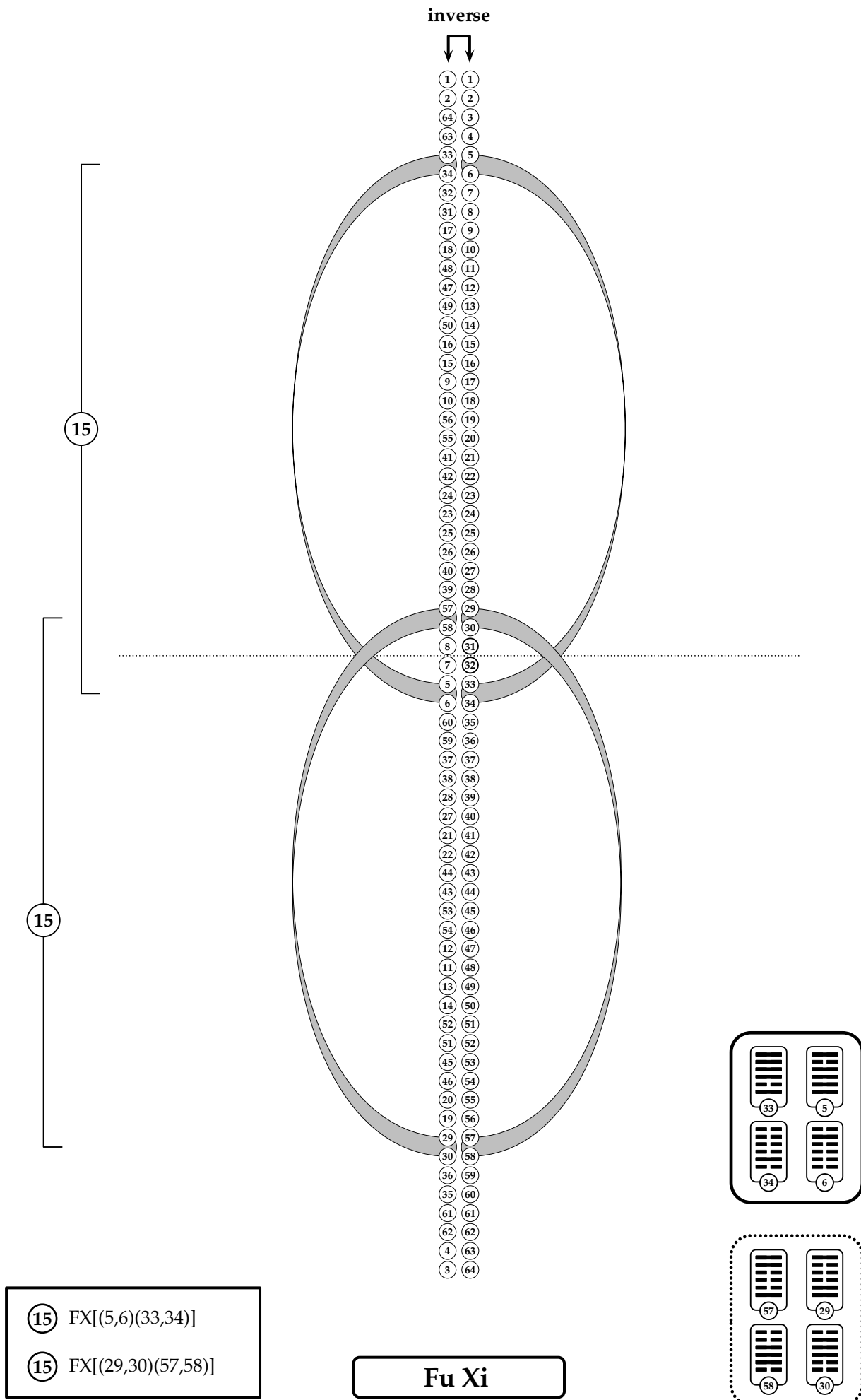


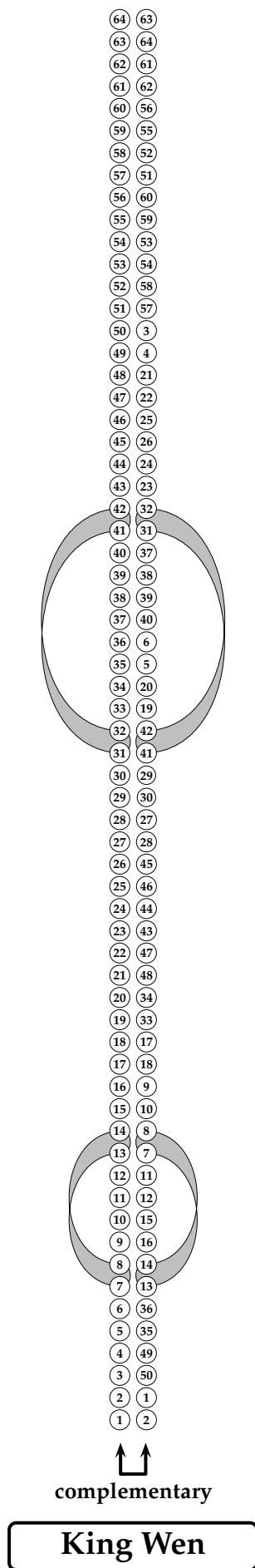
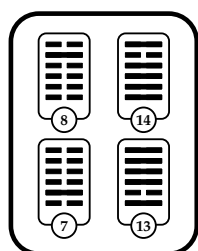
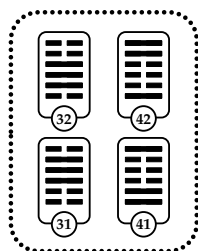
complementary pairs

next: transpose to an *ascending spine*

King Wen

6	KW[(31,32)(41,42)]
4	KW[(7,8)(13,14)]

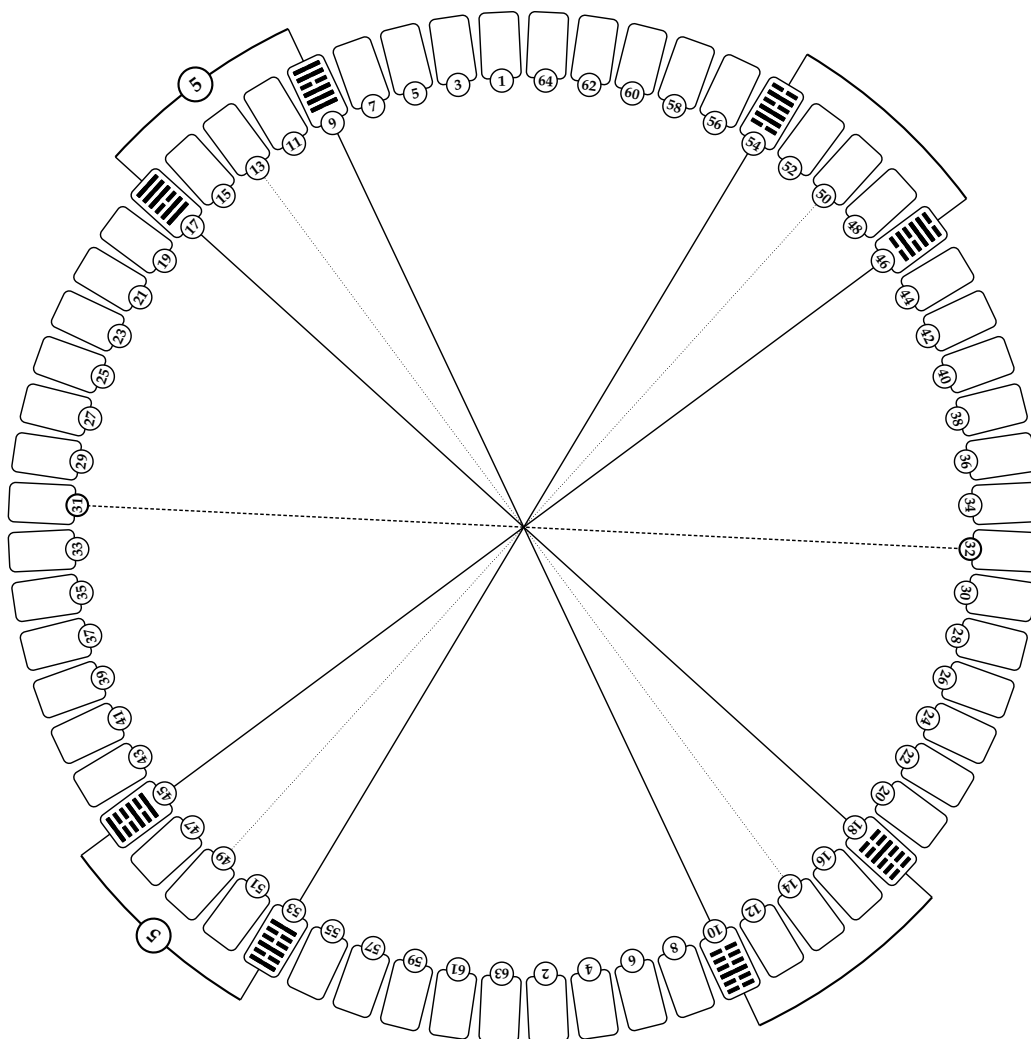




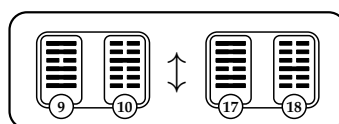
6	KW[(31,32)(41,42)]
4	KW[(7,8)(13,14)]

6

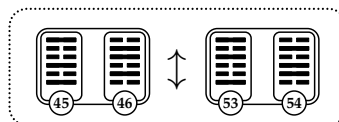
4



Axis of symmetry = (31,32)



line 1 = line 6



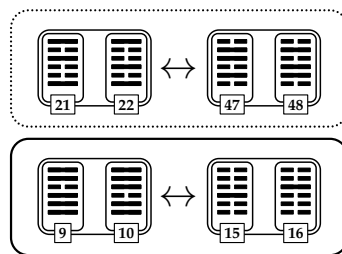
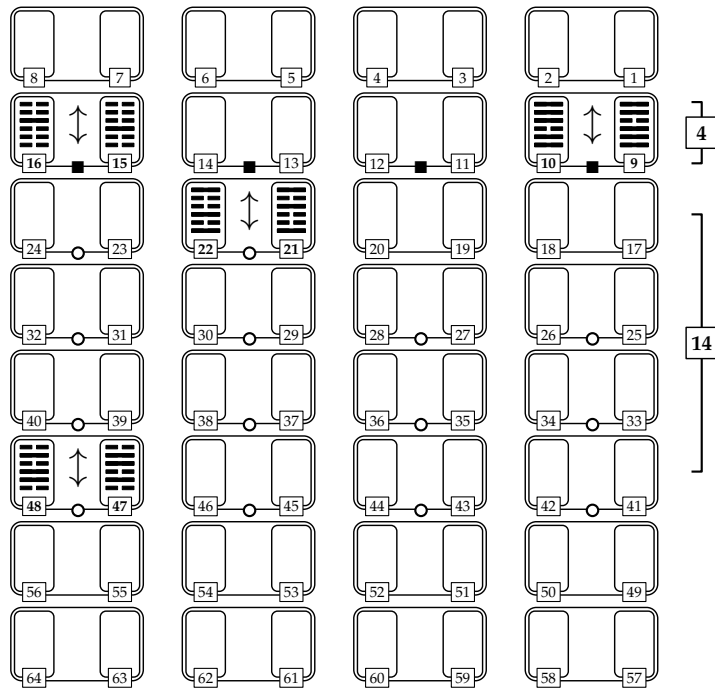
inverse pairs

⑤ FX[(9,10)(17,18)]

⑤ FX[(45,46)(53,54)]

*next: transpose to a **descending** spine*

Fu Xi



complementary pairs

next: transpose to an *ascending spine*

King Wen

14	KW[(21,22)(47,48)]
4	KW[(9,10)(15,16)]

inverse

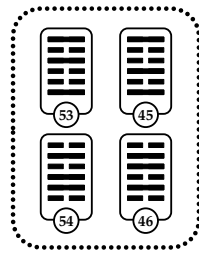
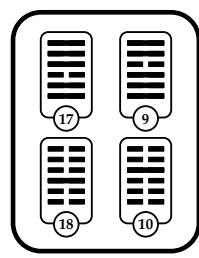


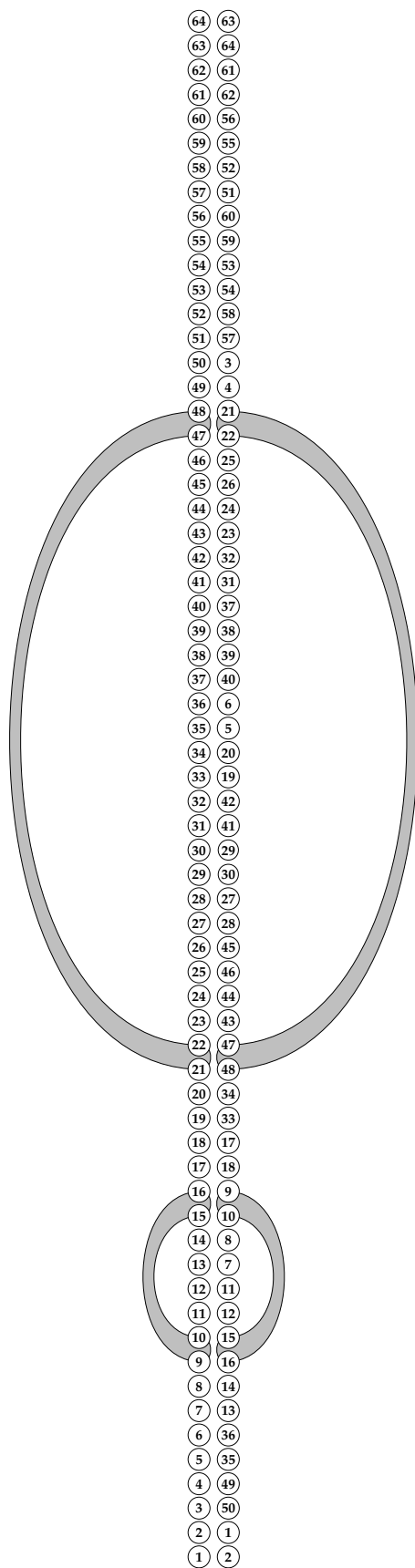
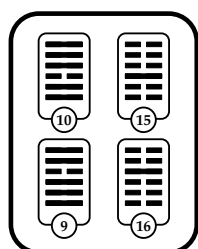
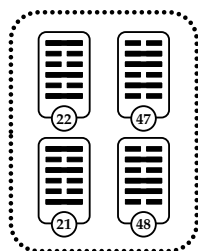
- | | |
|----|----|
| 1 | 1 |
| 2 | 2 |
| 64 | 3 |
| 63 | 4 |
| 33 | 5 |
| 34 | 6 |
| 32 | 7 |
| 31 | 8 |
| 17 | 9 |
| 18 | 10 |
| 48 | 11 |
| 47 | 12 |
| 49 | 13 |
| 50 | 14 |
| 16 | 15 |
| 15 | 16 |
| 9 | 17 |
| 10 | 18 |
| 56 | 19 |
| 55 | 20 |
| 41 | 21 |
| 42 | 22 |
| 24 | 23 |
| 23 | 24 |
| 25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



- ⑤ FX[(9,10)(17,18)]
- ⑤ FX[(45,46)(53,54)]

Fu Xi





complementary

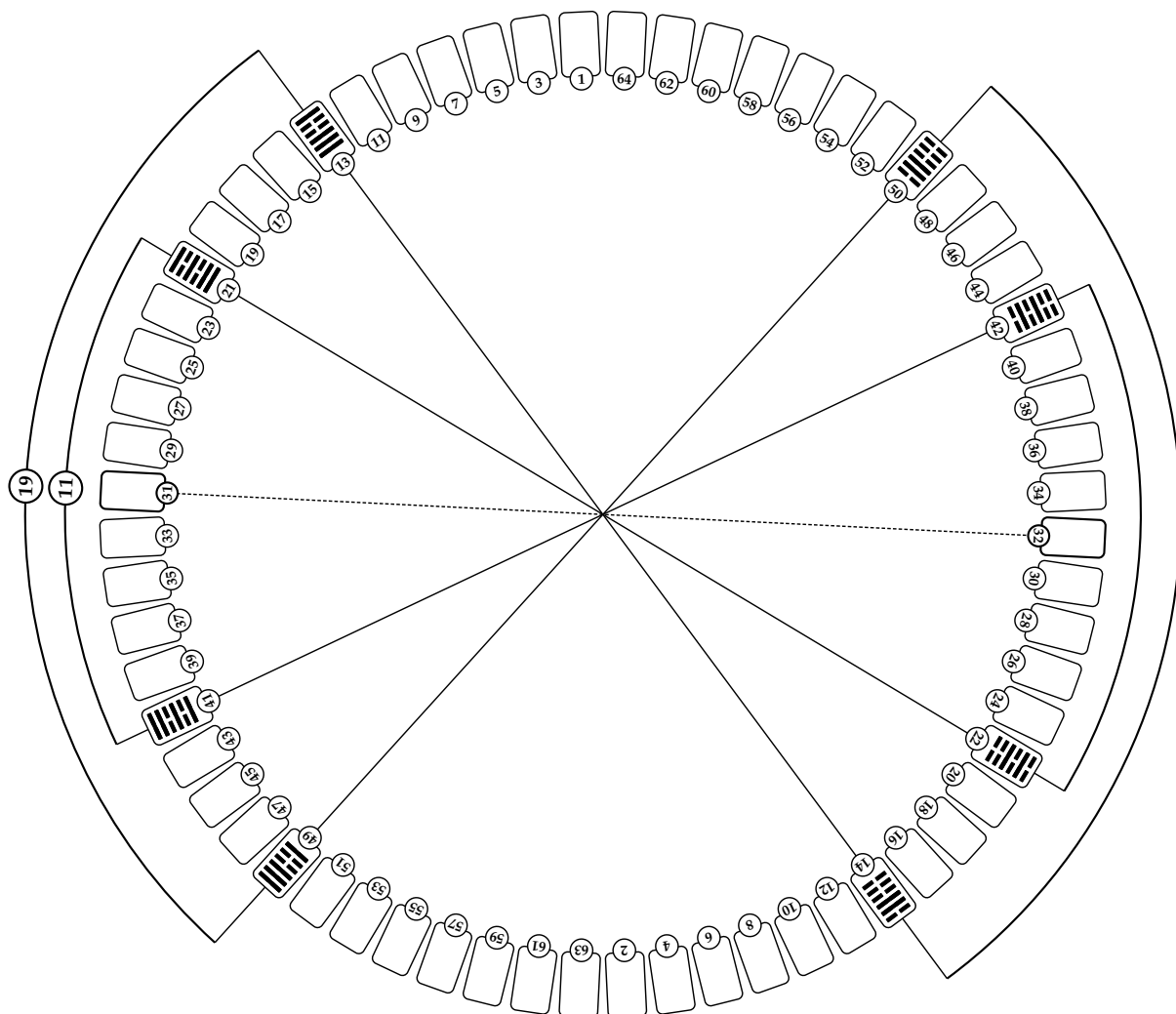
King Wen

14

4

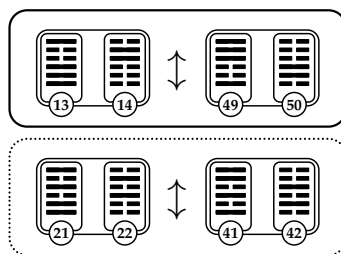
14 KW[(21,22)(47,48)]

4 KW[(9,10)(15,16)]



Axis of symmetry = (31,32)

line 1 = line 6



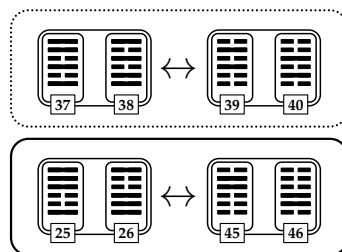
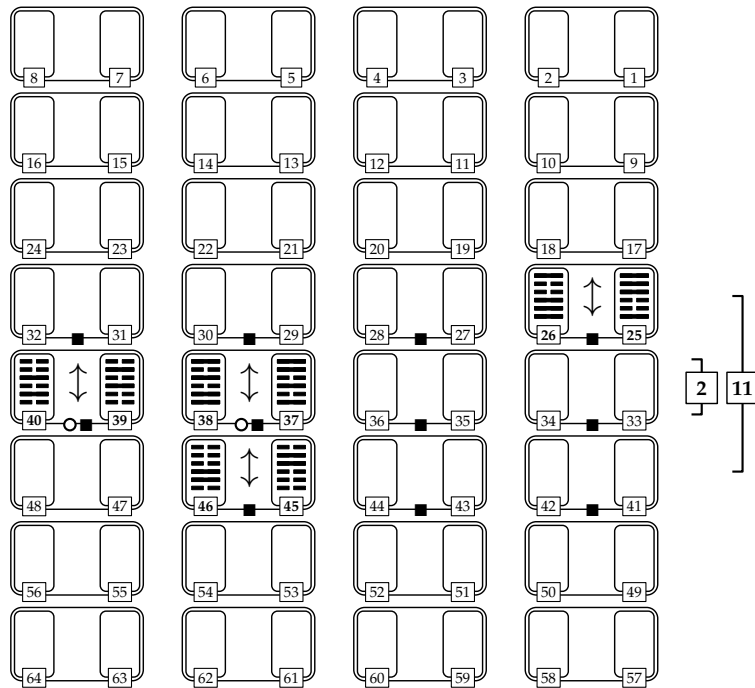
inverse pairs

①⑨ FX[(13,14)(49,50)]

①⑪ FX[(21,22)(41,42)]

*next: transpose to a **descending** spine*

Fu Xi

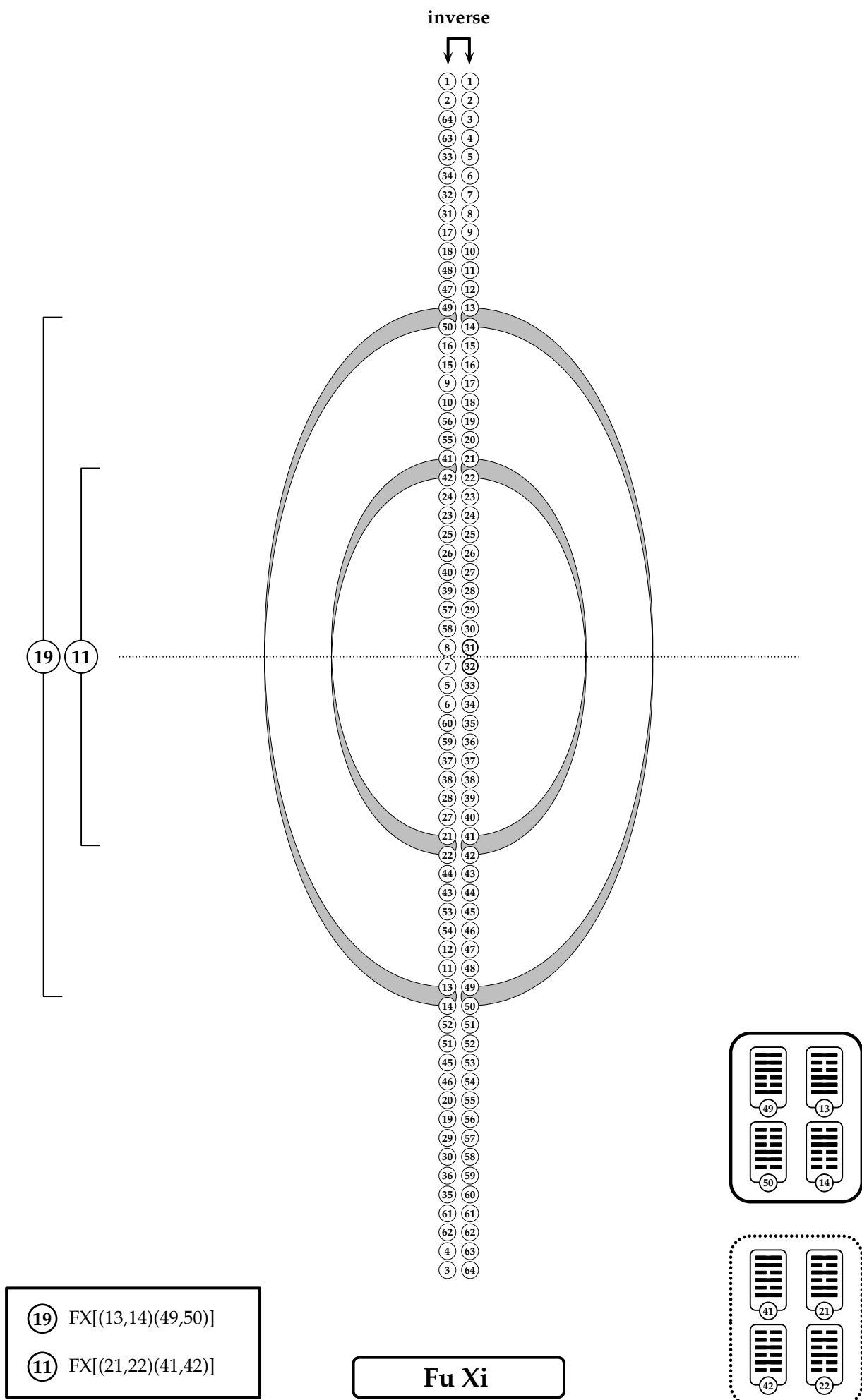


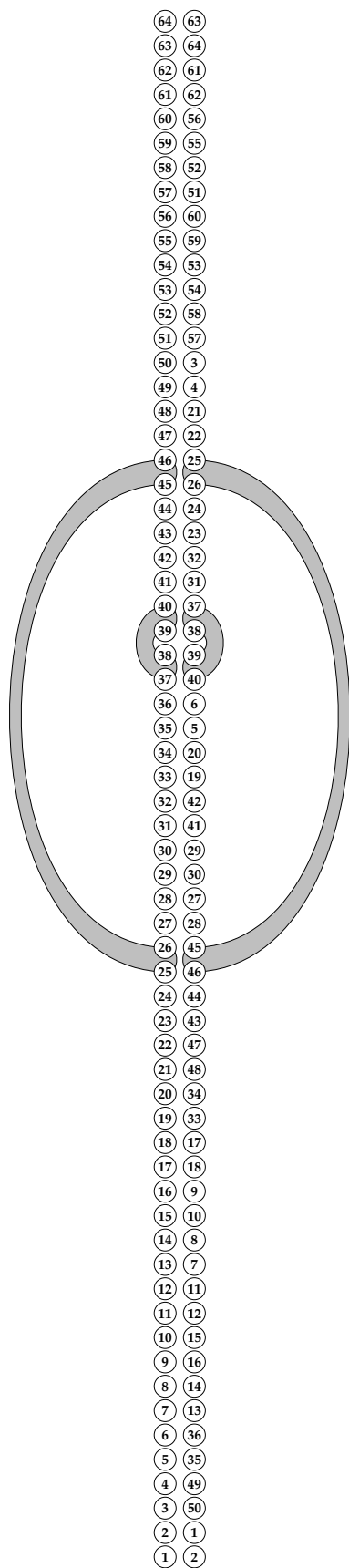
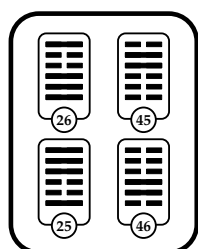
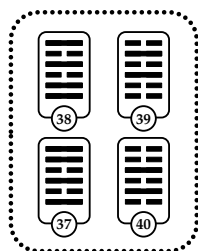
complementary pairs

next: transpose to an ascending spine

2	KW[(37,38)(39,40)]
11	KW[(25,26)(45,46)]

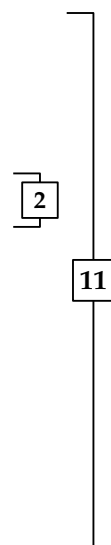
King Wen



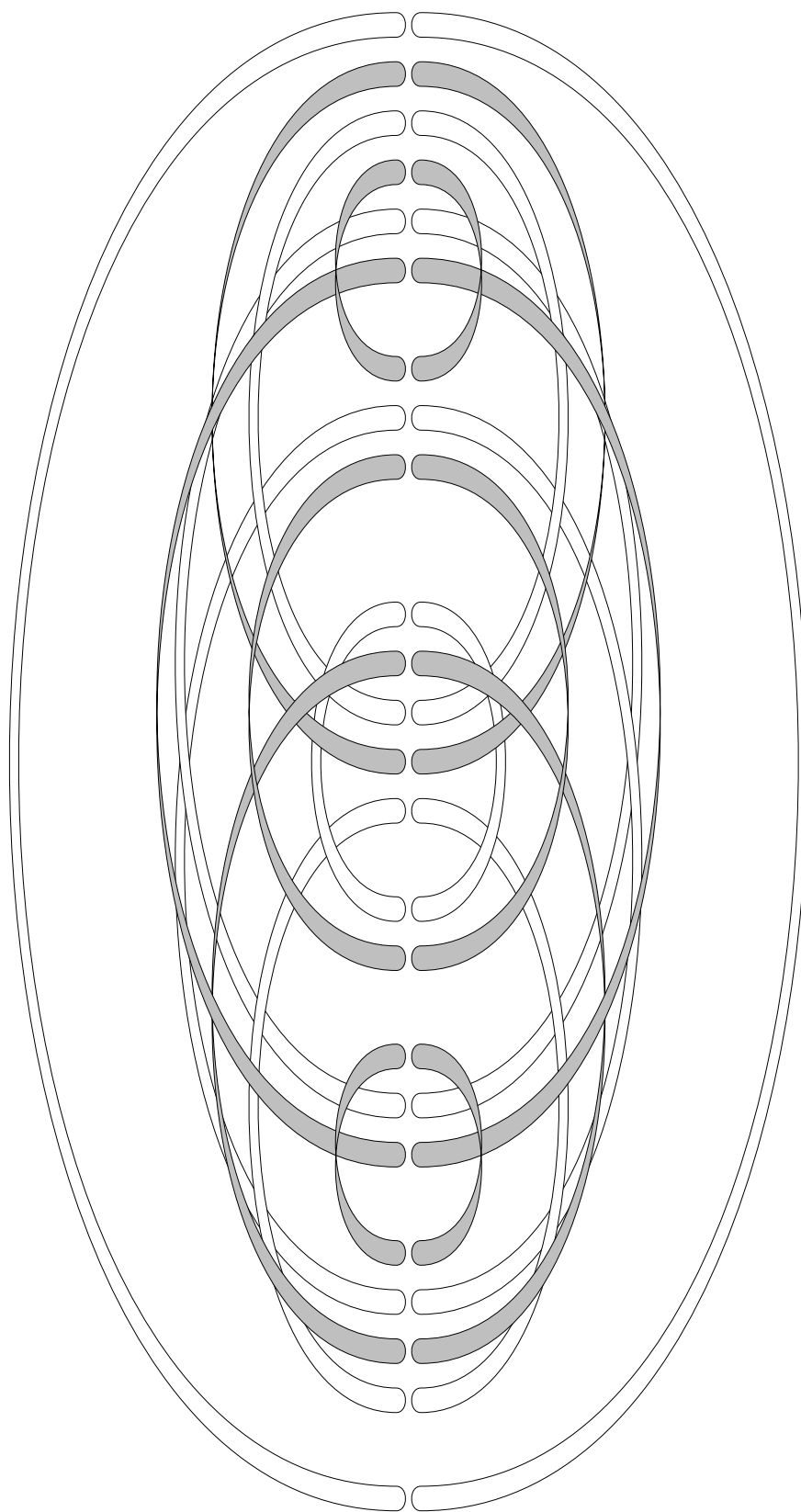


complementary

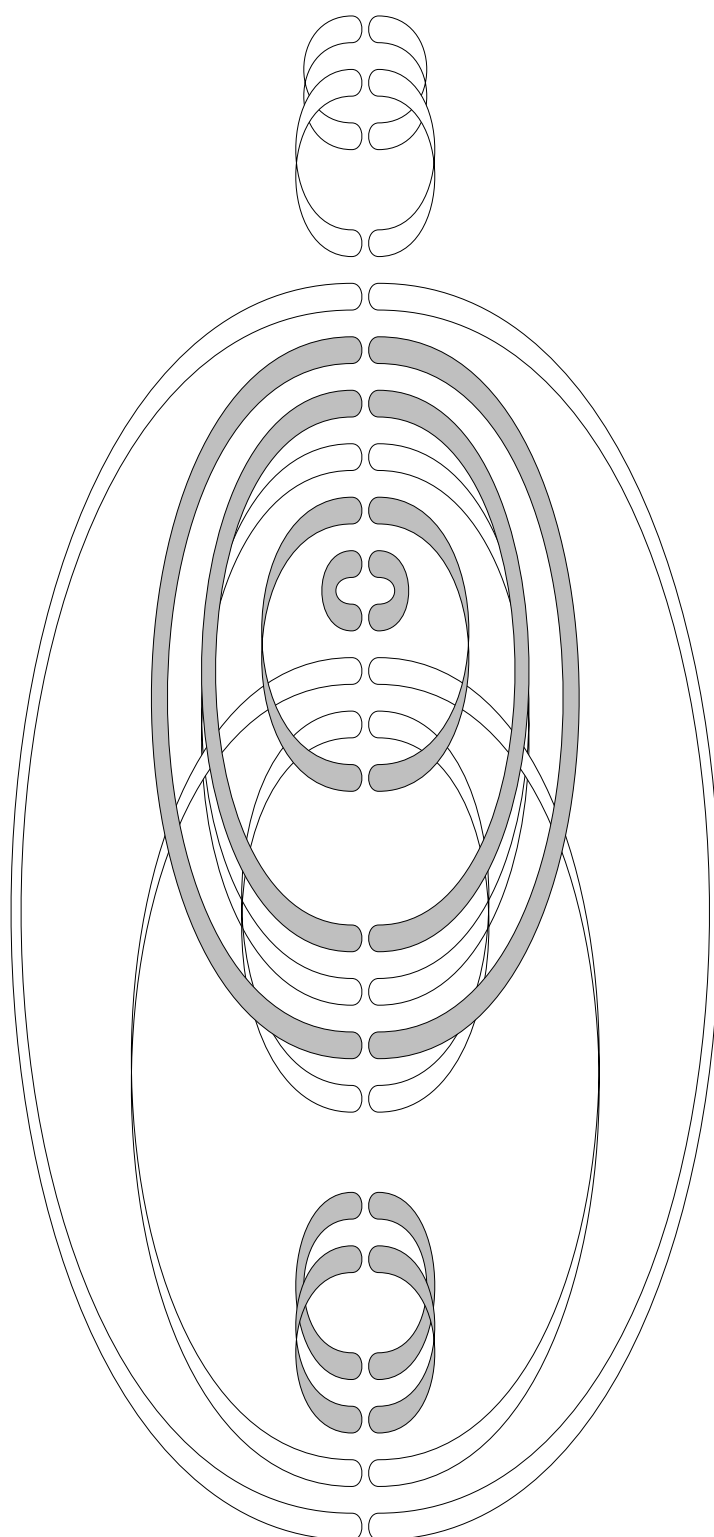
King Wen



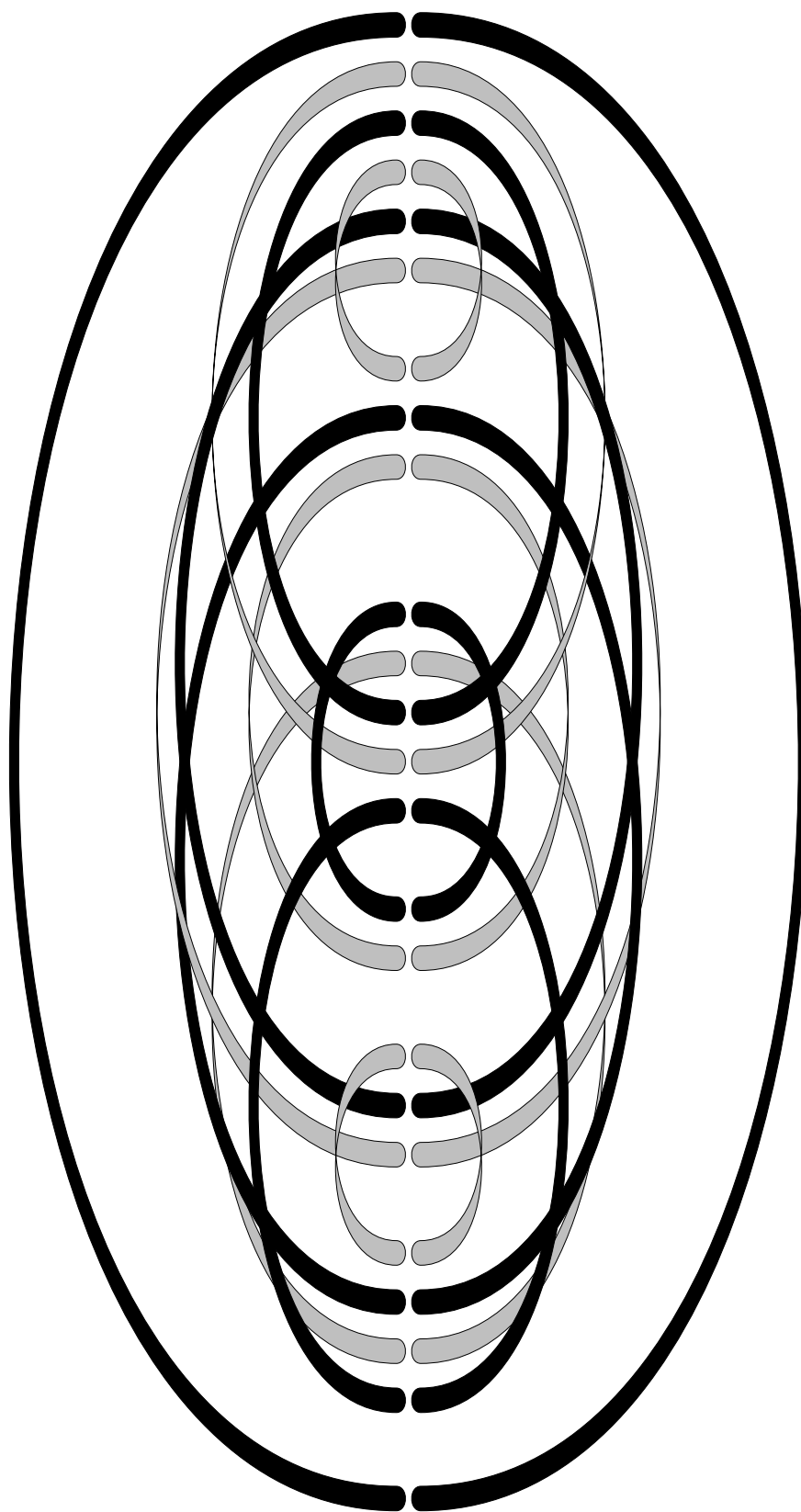
2	KW[(37,38)(39,40)]
11	KW[(25,26)(45,46)]



Fu Xi



King Wen

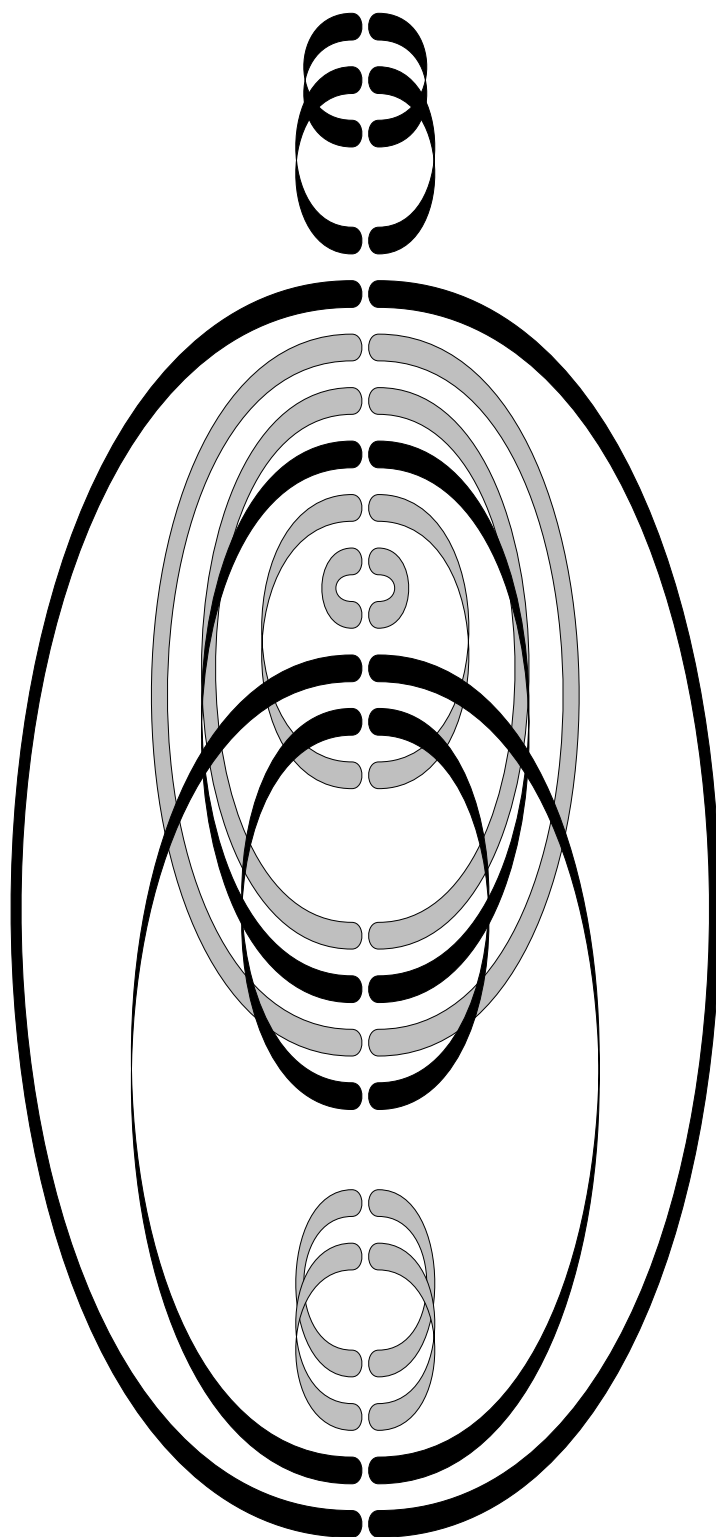


line 1 = line 6

12 meridians

line 1 $\neq$ line 6

Fu Xi

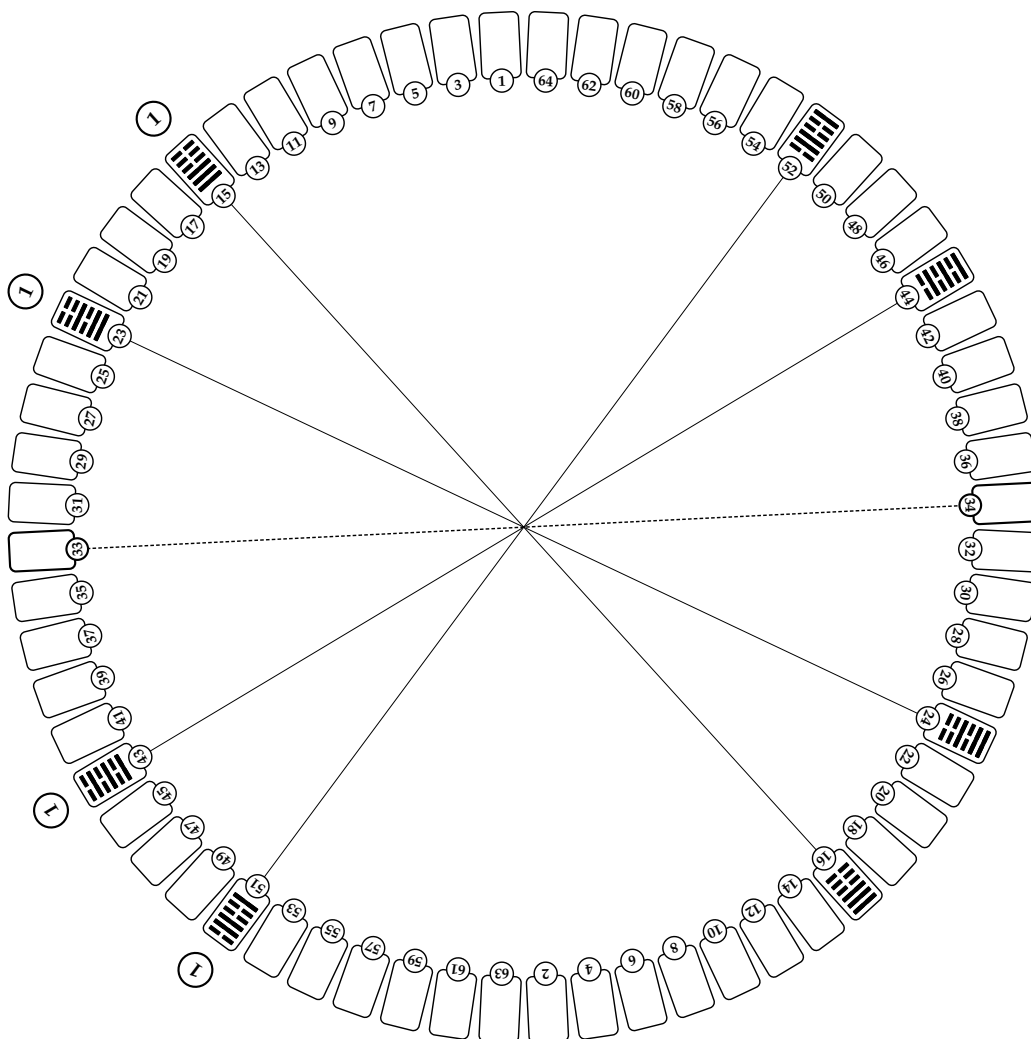


upright

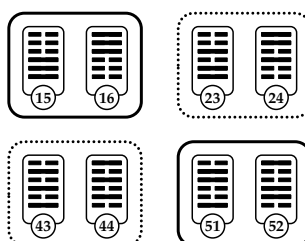
12 meridians

inverse

King Wen



Axis of symmetry = (33,34)



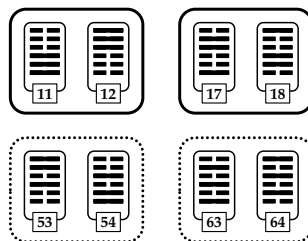
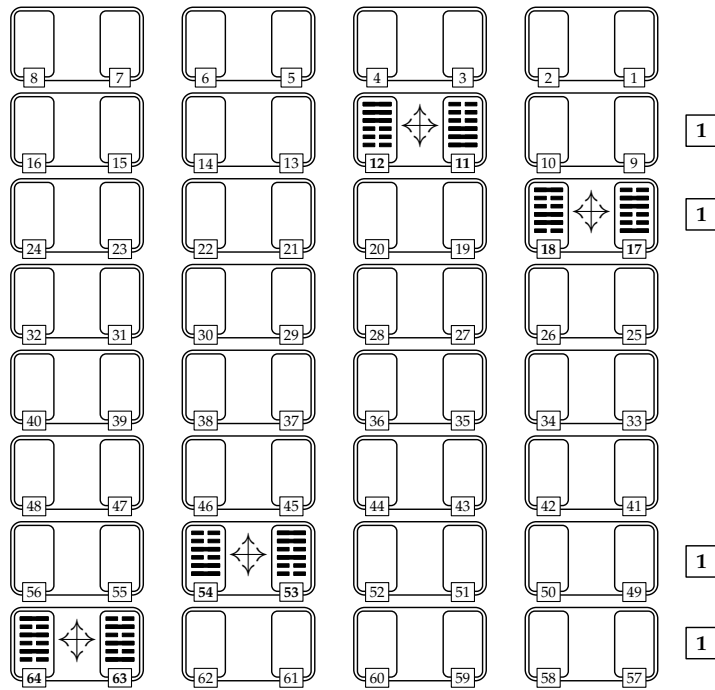
inverse and complementary

line 1 $\neq$ line 6

- | | |
|-------------|-------------|
| ① FX(15,16) | ① FX(23,24) |
| ① FX(43,44) | ① FX(51,52) |

next: transpose to a descending spine

Fu Xi



inverse and complementary

next: transpose to an ascending spine

1 KW(11,12) 1 KW(17,18)
1 KW(53,54) 1 KW(63,64)

King Wen

inverse



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

①

①

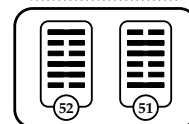
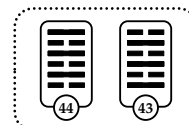
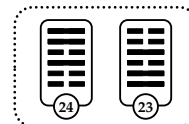
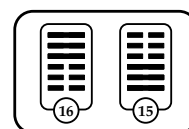
①

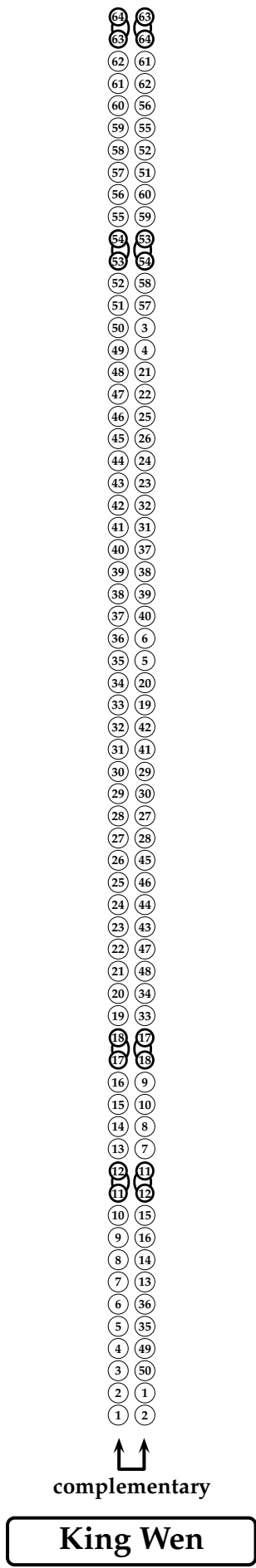
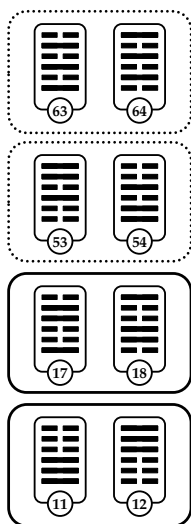
①

① FX(15,16) ① FX(23,24)

① FX(43,44) ① FX(51,52)

Fu Xi





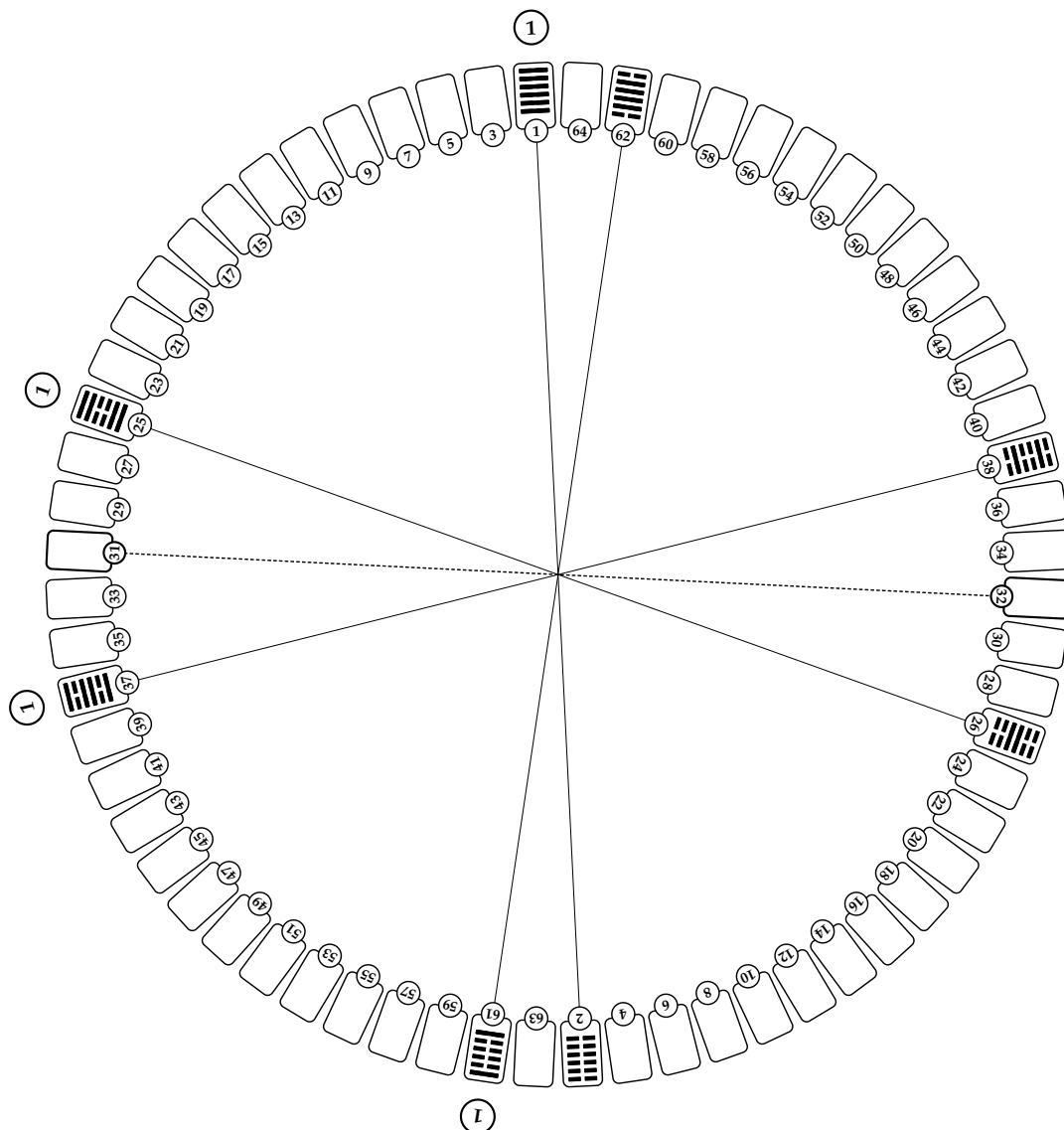
1 KW(11,12)	1 KW(17,18)
1 KW(53,54)	1 KW(63,64)

1

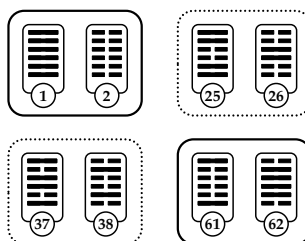
1

1

1



Axis of symmetry = (31,32)



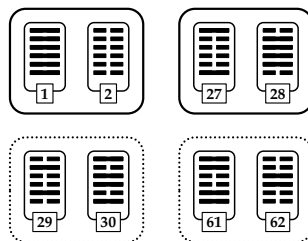
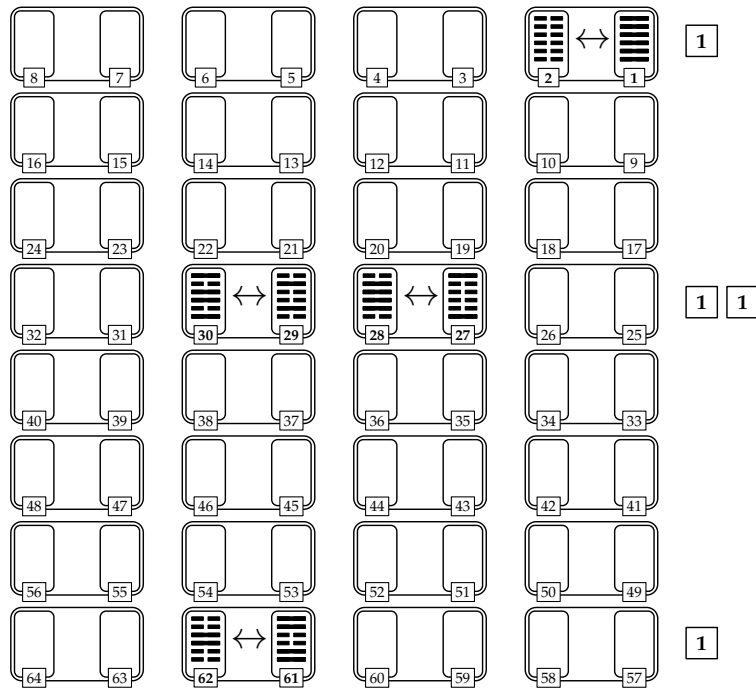
complementary

line 1 = line 6

- | | |
|-------------|-------------|
| ① FX(1,2) | ① FX(25,26) |
| ① FX(37,38) | ① FX(61,62) |

*next: transpose to a **descending** spine*

Fu Xi



complementary

next: transpose to an *ascending spine*

1 KW(1,2) 1 KW(27,28)
1 KW(29,30) 1 KW(61,62)

King Wen

inverse



①



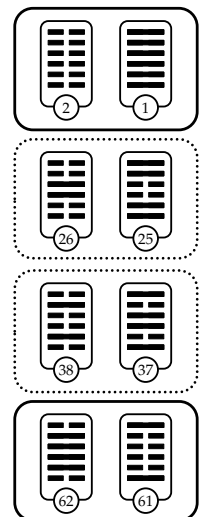
①

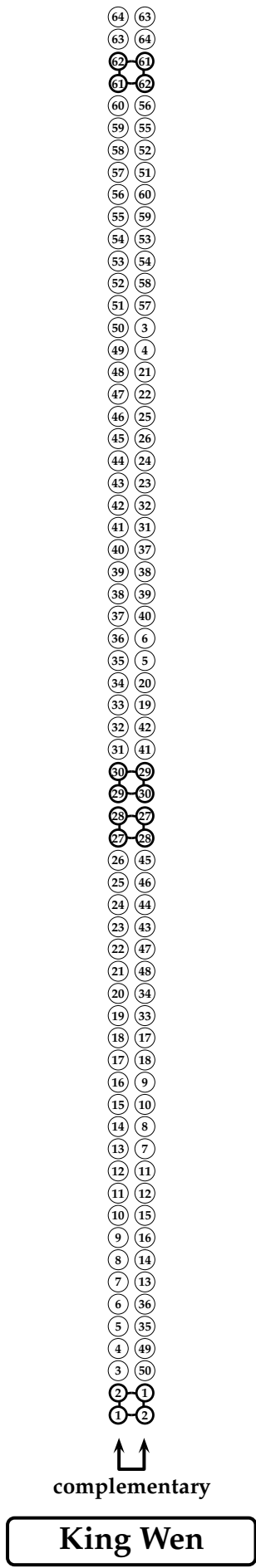
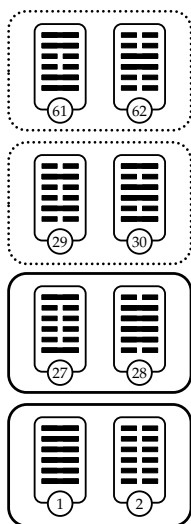
①

①

- | | |
|-------------|-------------|
| ① FX(1,2) | ① FX(25,26) |
| ① FX(37,38) | ① FX(61,62) |

Fu Xi





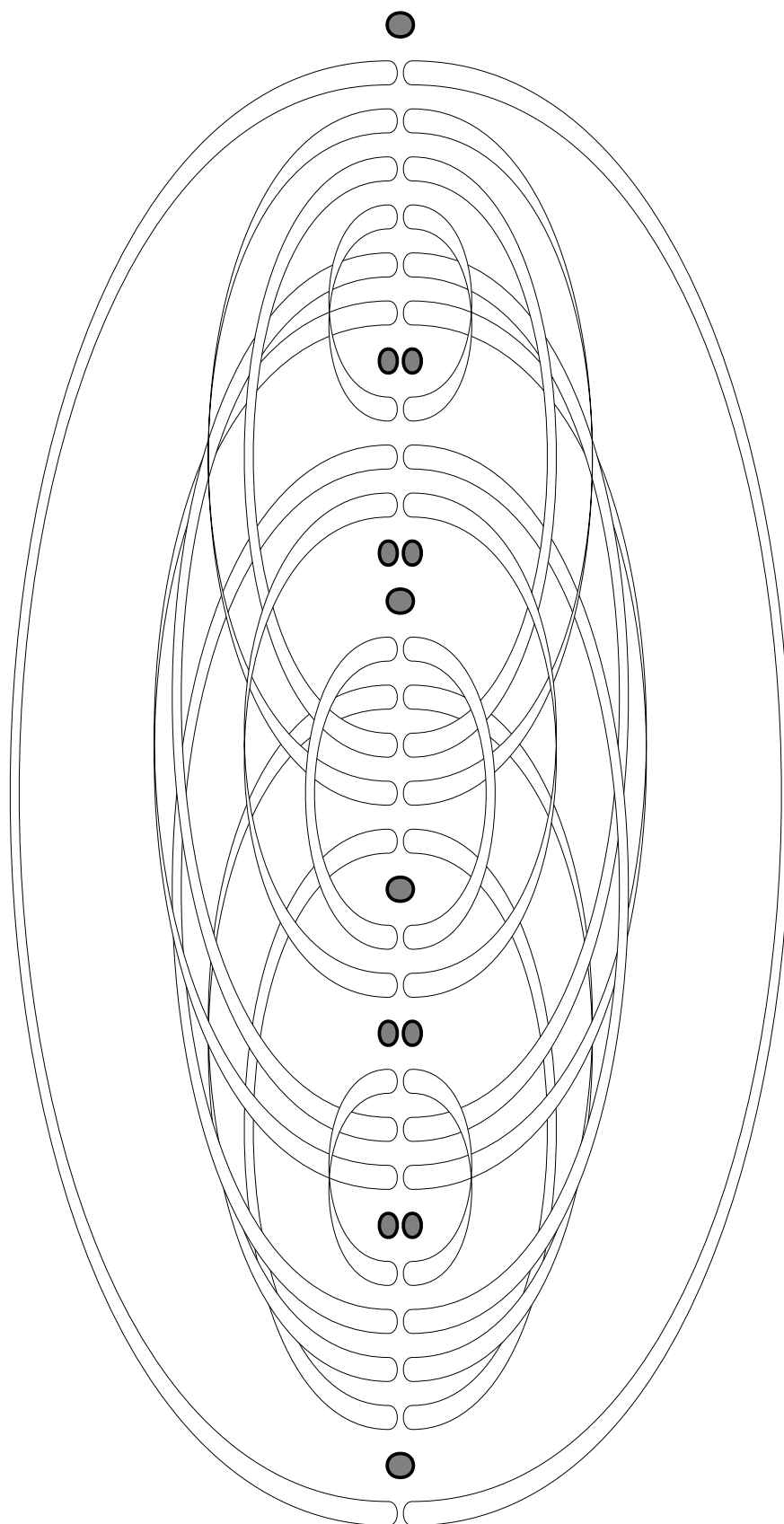
1 KW(1,2)	1 KW(27,28)
1 KW(29,30)	1 KW(61,62)

1

1

1

1

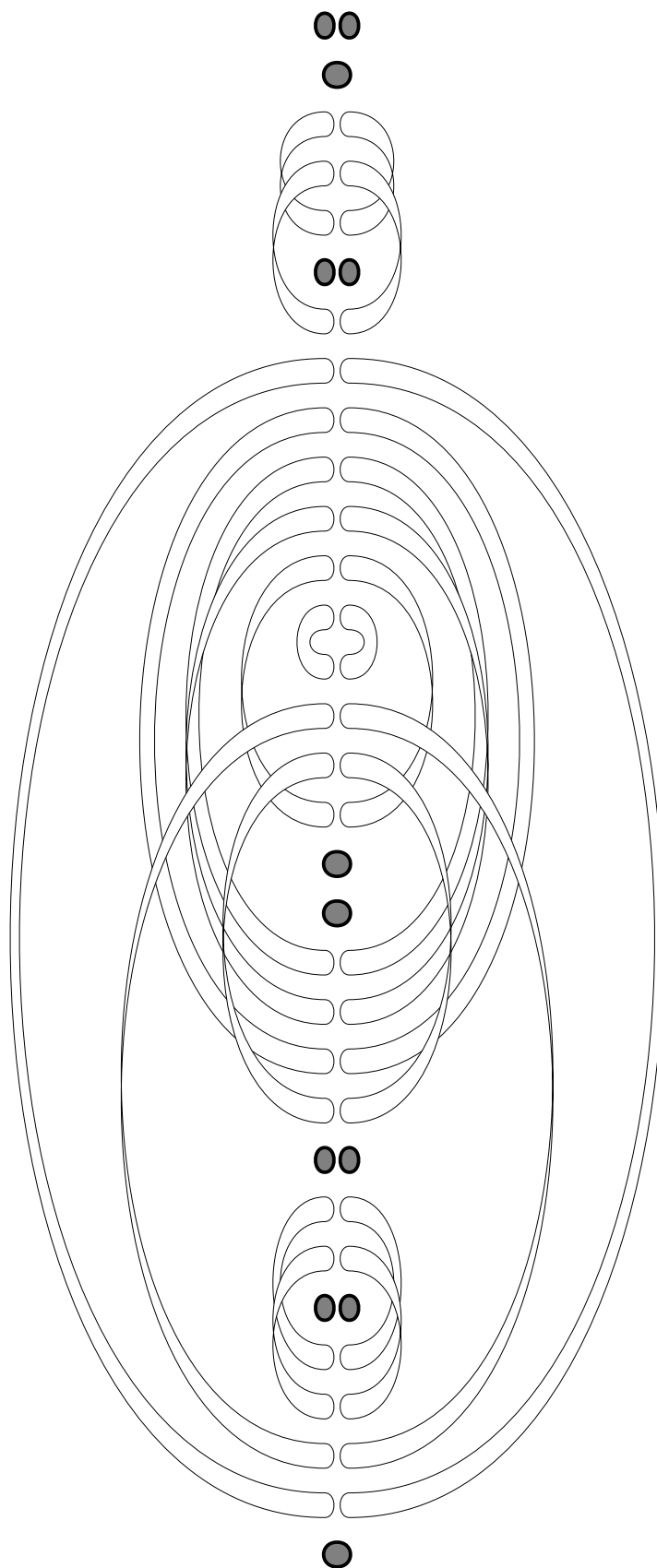


● line 1 = line 6

8 vessels

●● line 1 ≠ line 6

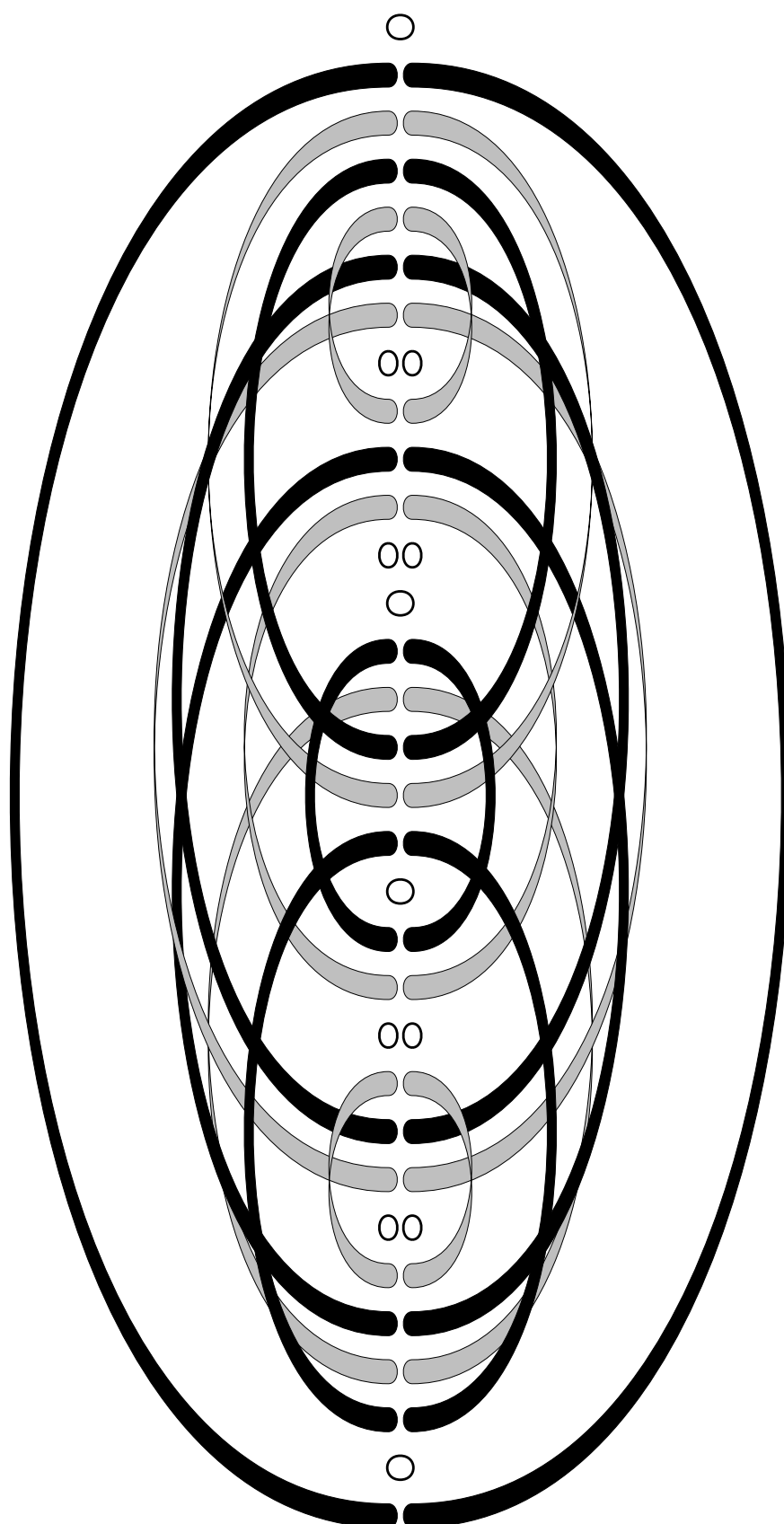
Fu Xi



●● line 1 $\neq$ line 6

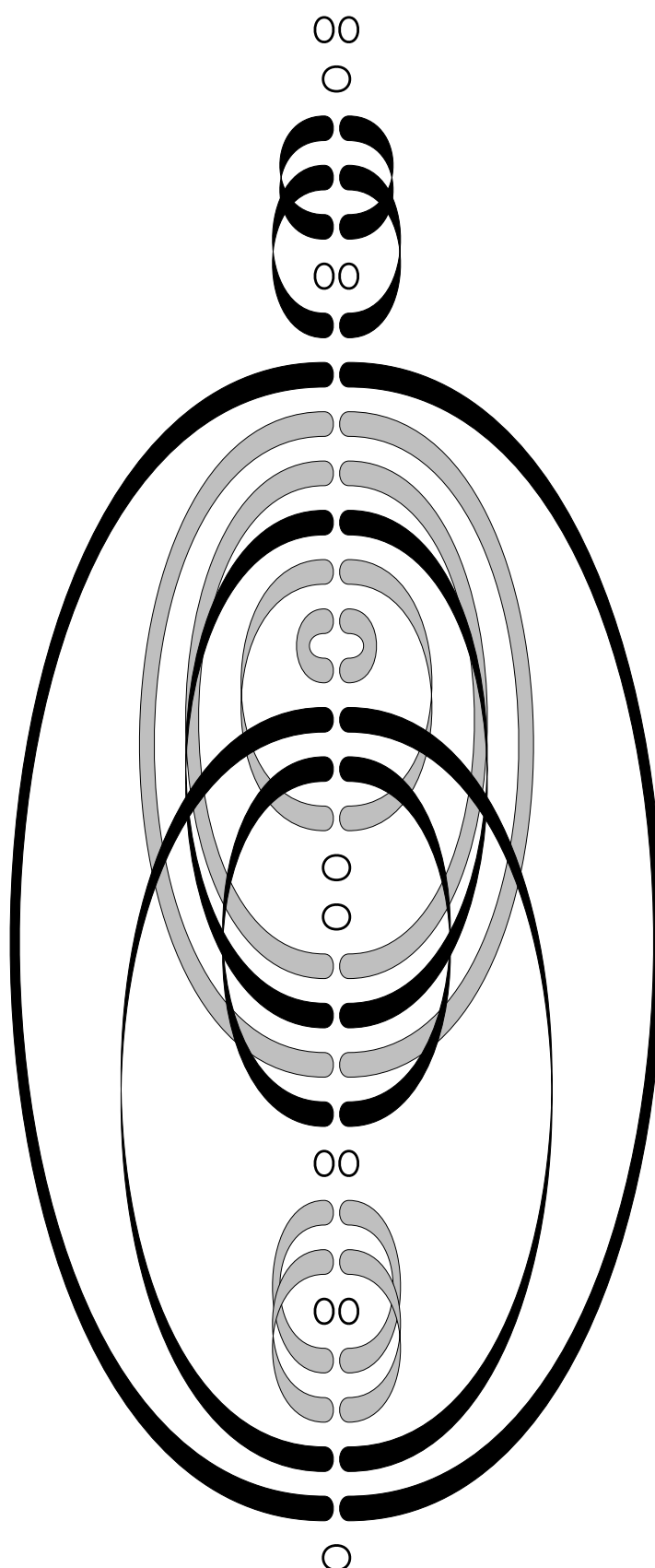
● line 1 = line 6

King Wen



[Origin]

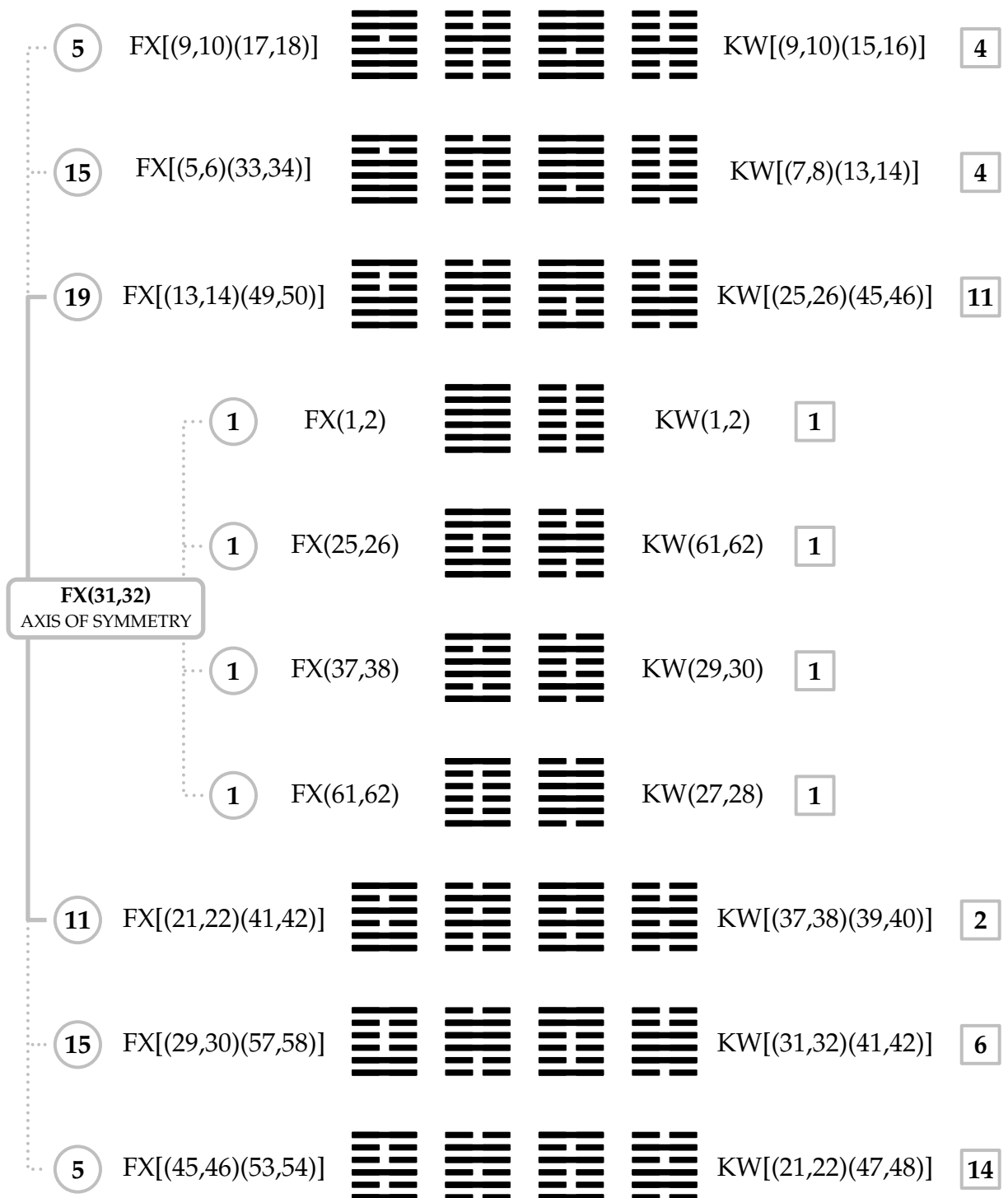
Fu Xi



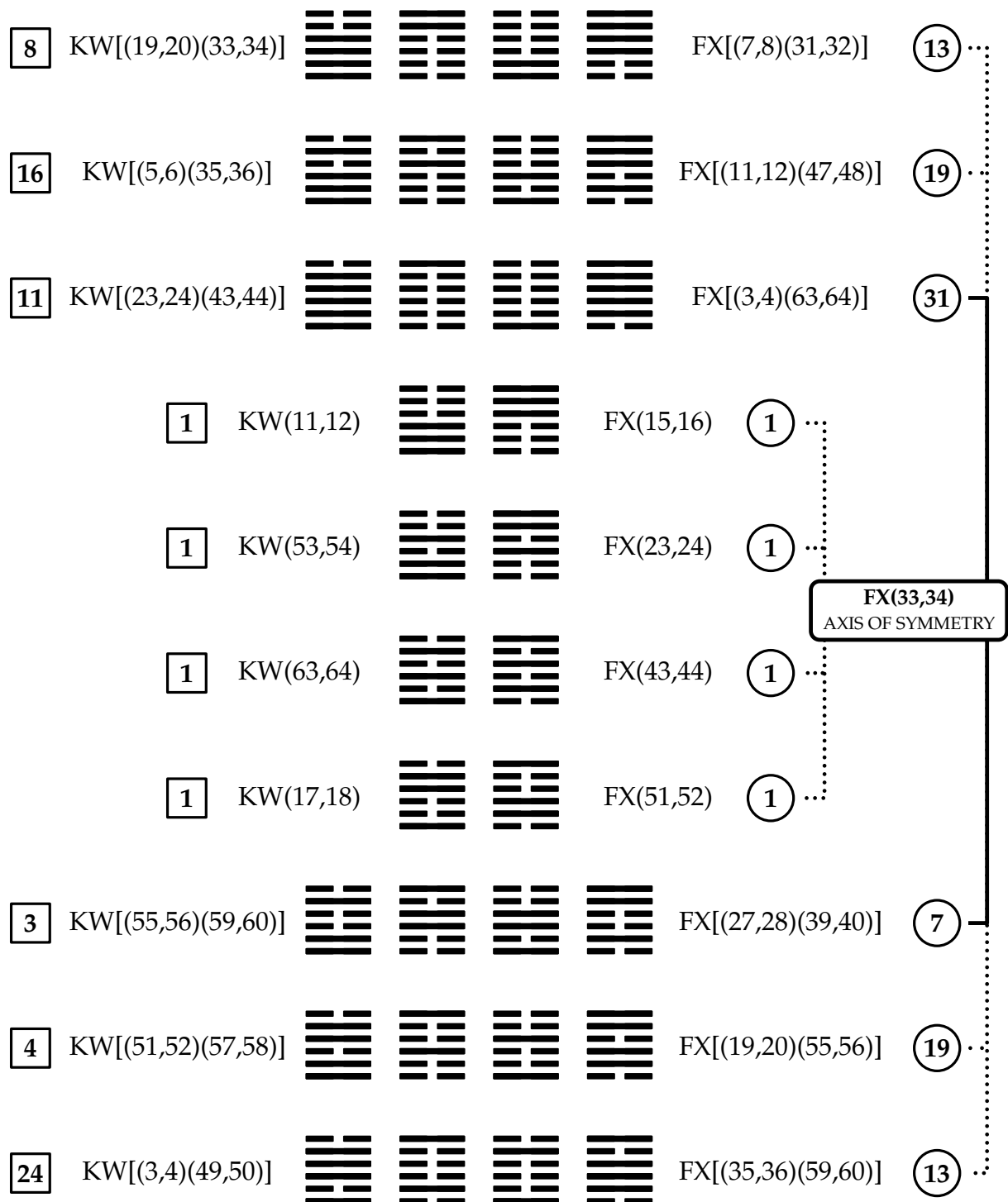
Daoist body map

[12 meridians and 8 vessels]

King Wen



line 1 = line 6



line 1 $\neq$ line 6

5	FX[(9,10)(17,18)] sum = 54					KW[(9,10)(15,16)] sum = 50	4
15	FX[(5,6)(33,34)] sum = 78					KW[(7,8)(13,14)] sum = 42	4
19	FX[(13,14)(49,50)] sum = 126					KW[(25,26)(45,46)] sum = 142	11
1	FX(1,2) sum = 3					KW(1,2) sum = 3	1
1	FX(25,26) sum = 51					KW(61,62) sum = 123	1
1	FX(37,38) sum = 75					KW(29,30) sum = 59	1
1	FX(61,62) sum = 123					KW(27,28) sum = 55	1
11	FX[(21,22)(41,42)] sum = 126					KW[(37,38)(39,40)] sum = 154	2
15	FX[(29,30)(57,58)] sum = 174					KW[(31,32)(41,42)] sum = 146	6
5	FX[(45,46)(53,54)] sum = 198					KW[(21,22)(47,48)] sum = 138	14

line 1 = line 6

8	KW[(19,20)(33,34)] sum = 106					FX[(7,8)(31,32)] sum = 78	13 ...
16	KW[(5,6)(35,36)] sum = 82					FX[(11,12)(47,48)] sum = 118	19 ...
11	KW[(23,24)(43,44)] sum = 134					FX[(3,4)(63,64)] sum = 134	31 ...
1	KW(11,12) sum = 23					FX(15,16) sum = 31	1 ...
1	KW(53,54) sum = 107					FX(23,24) sum = 47	1 ...
1	KW(63,64) sum = 127					FX(43,44) sum = 87	1 ...
1	KW(17,18) sum = 35					FX(51,52) sum = 103	1 ...
3	KW[(55,56)(59,60)] sum = 230					FX[(27,28)(39,40)] sum = 134	7 ...
4	KW[(51,52)(57,58)] sum = 218					FX[(19,20)(55,56)] sum = 150	19 ...
24	KW[(3,4)(49,50)] sum = 106					FX[(35,36)(59,60)] sum = 190	13 ...

line 1 $\neq$ line 6

5	54					KW[(9,10)(15,16)] sum = 50	4
15	78					KW[(7,8)(13,14)] sum = 42	4
19	126					KW[(25,26)(45,46)] sum = 142	11
1	3					KW(1,2) sum = 3	1
1	51					KW(61,62) sum = 123	1
1	75					KW(29,30) sum = 59	1
1	123					KW(27,28) sum = 55	1
11	126					KW[(37,38)(39,40)] sum = 154	2
15	174					KW[(31,32)(41,42)] sum = 146	6
5	198					KW[(21,22)(47,48)] sum = 138	14

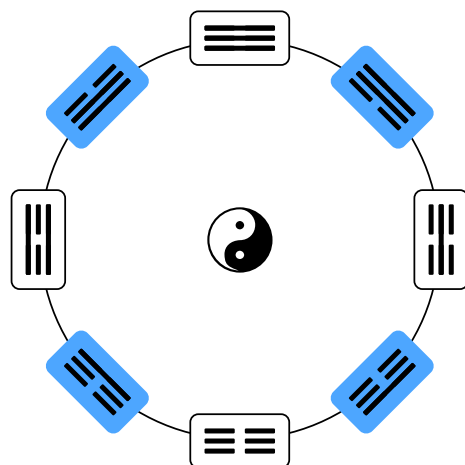
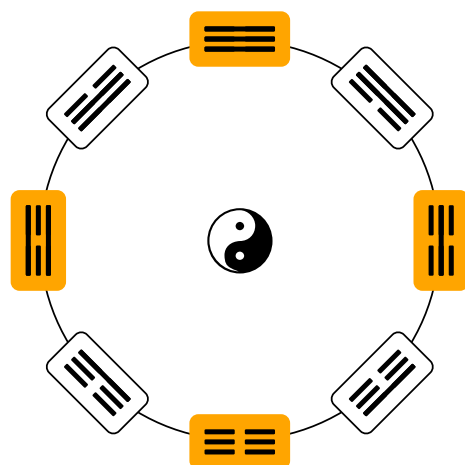
FX

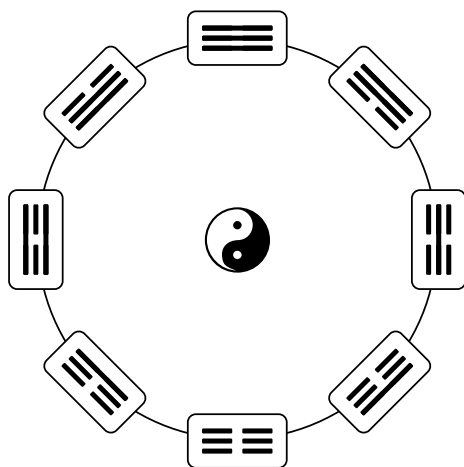
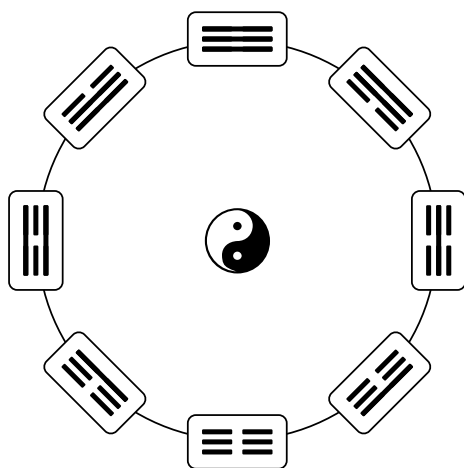
8	KW[(19,20)(33,34)] sum = 106					78	13 ...
16	KW[(5,6)(35,36)] sum = 82					118	19 ...
11	KW[(23,24)(43,44)] sum = 134					134	31 ...
1	KW(11,12) sum = 23					31	1 ...
1	KW(53,54) sum = 107					47	1 ...
1	KW(63,64) sum = 127					87	1 ...
1	KW(17,18) sum = 35					103	1 ...
3	KW[(55,56)(59,60)] sum = 230					134	7 ...
4	KW[(51,52)(57,58)] sum = 218					150	19 ...
24	KW[(3,4)(49,50)] sum = 106					190	13 ...

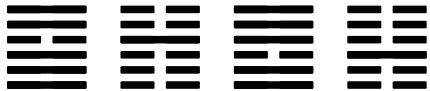
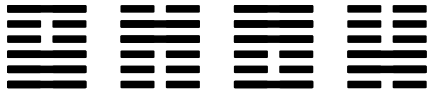
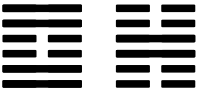
FX

5	54					50	4
15	78					42	4
19	126					142	11
1	3					3	1
1	51					123	1
1	75					59	1
1	123					55	1
11	126					154	2
15	174					146	6
5	198					138	14
	FX					KW	

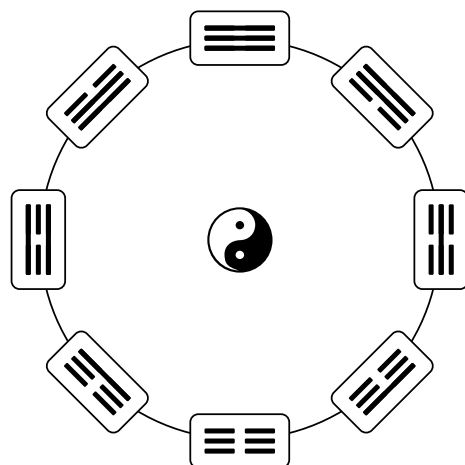
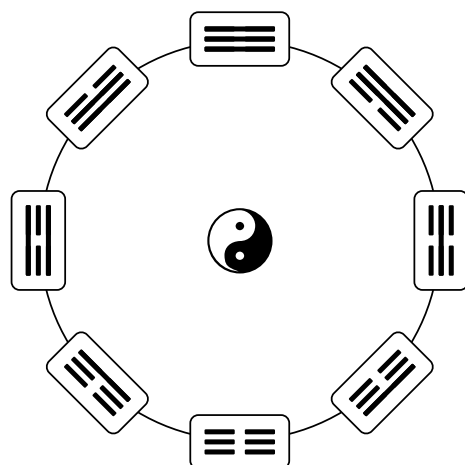
8	106					78	13
16	82					118	19
11	134					134	31
1	23					31	1
1	107					47	1
1	127					87	1
1	35					103	1
3	230					134	7
4	218					150	19
24	106					190	13
KW						FX	

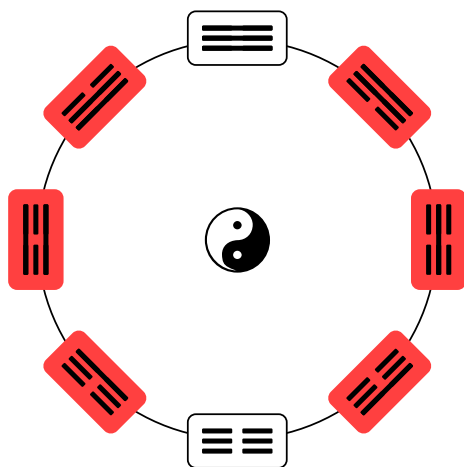
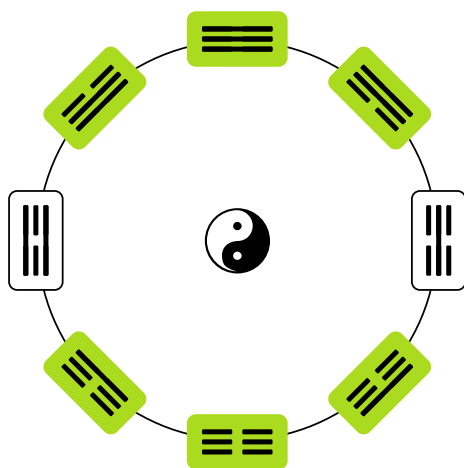


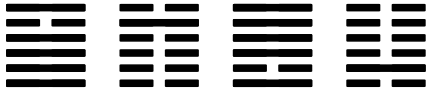
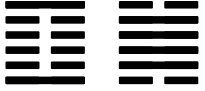


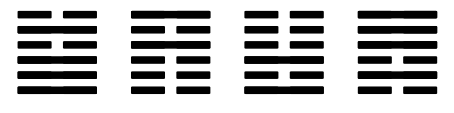
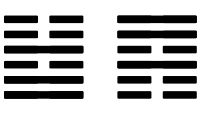
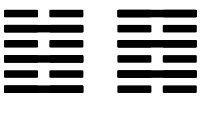
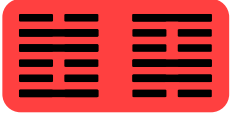
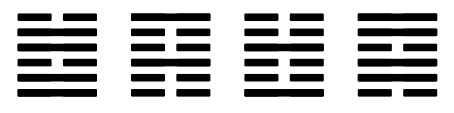
5	54		50	4
15	78		42	4
19	126		142	11
1	3		3	1
1	51		123	1
1	75		59	1
1	123		55	1
11	126		154	2
15	174		146	6
5	198		138	14
	FX		KW	

8	106					78	13
16	82					118	19
11	134					134	31
1	23					31	1
1	107					47	1
1	127					87	1
1	35					103	1
3	230					134	7
4	218					150	19
24	106					190	13
KW						FX	



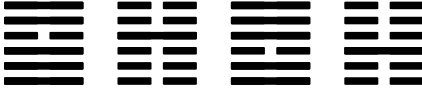
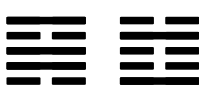


5	54		50	4
15	78		42	4
19	126		142	11
1	3		3	1
1	51		123	1
1	75		59	1
1	123		55	1
11	126		154	2
15	174		146	6
5	198		138	14
	FX		KW	

8	106		78	13
16	82		118	19
11	134		134	31
1	23		31	1
1	107		47	1
1	127		87	1
1	35		103	1
3	230		134	7
4	218		150	19
24	106		190	13

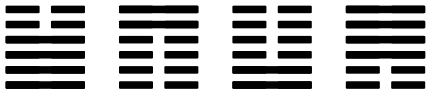
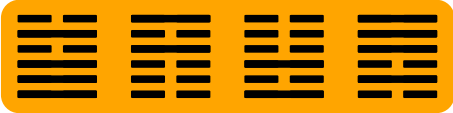
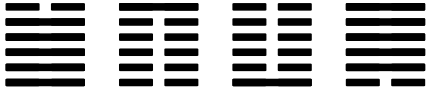
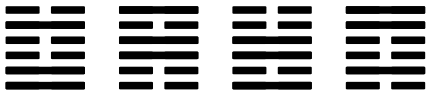
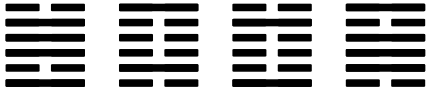
KW

FX

54		50
78		42
126		142
3		3
51		123
75		59
123		55
126		154
174		146
198		138

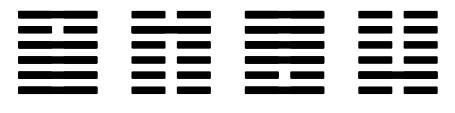
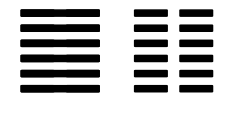
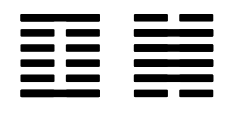
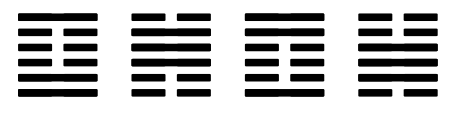
FX

KW

106		78
82		118
134		134
23		31
107		47
127		87
35		103
230		134
218		150
106		190

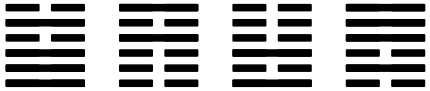
KW

FX

54		50
78		42
126		142
3		3
51		123
75		59
123		55
126		154
174		146
198		138

FX

KW

106		78
82		118
134		134
23		31
107		47
127		87
35		103
230		134
218		150
106		190

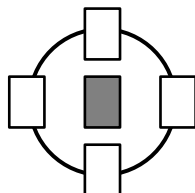
KW

FX

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

$$\text{FX}(780) = \text{KW}(780)$$

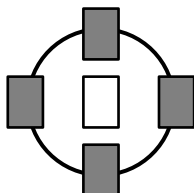
$$\frac{780}{780} = 1$$



54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

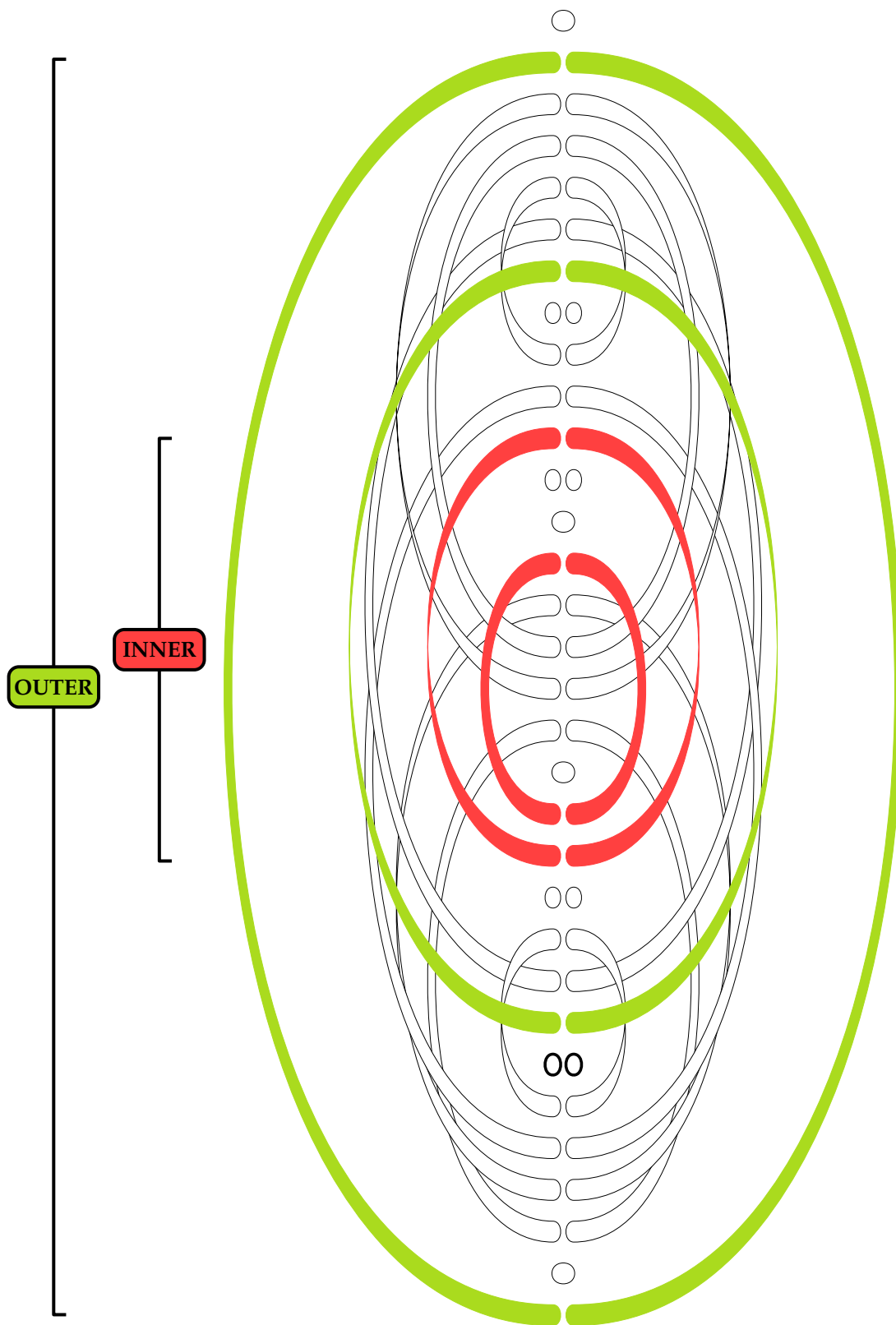
$$\text{FX}(1300) = \text{KW}(1300)$$

$$\frac{1300}{1300} = 1$$



54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

INNER OUTER



Fu Xi

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

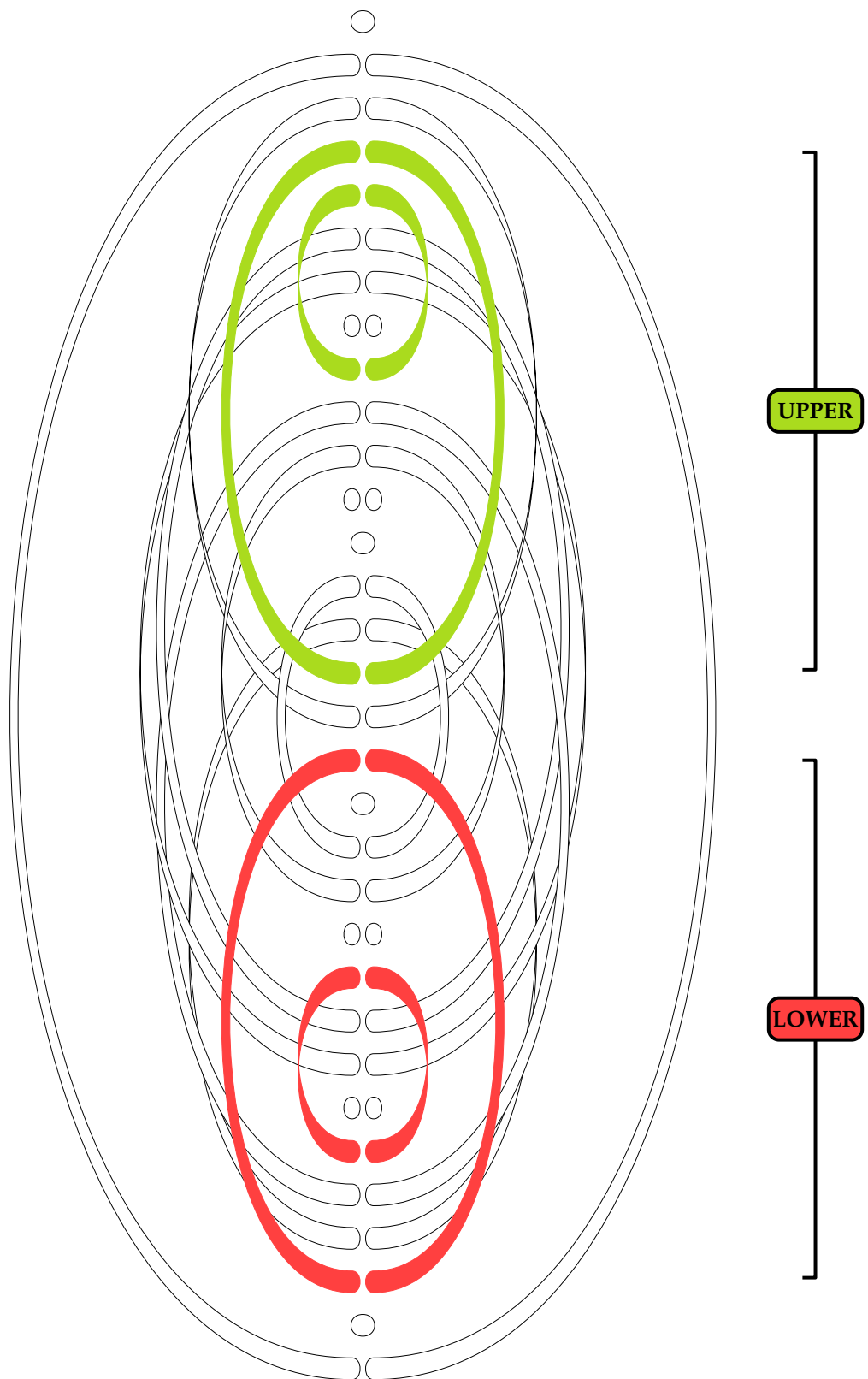
FX

KW

KW

FX

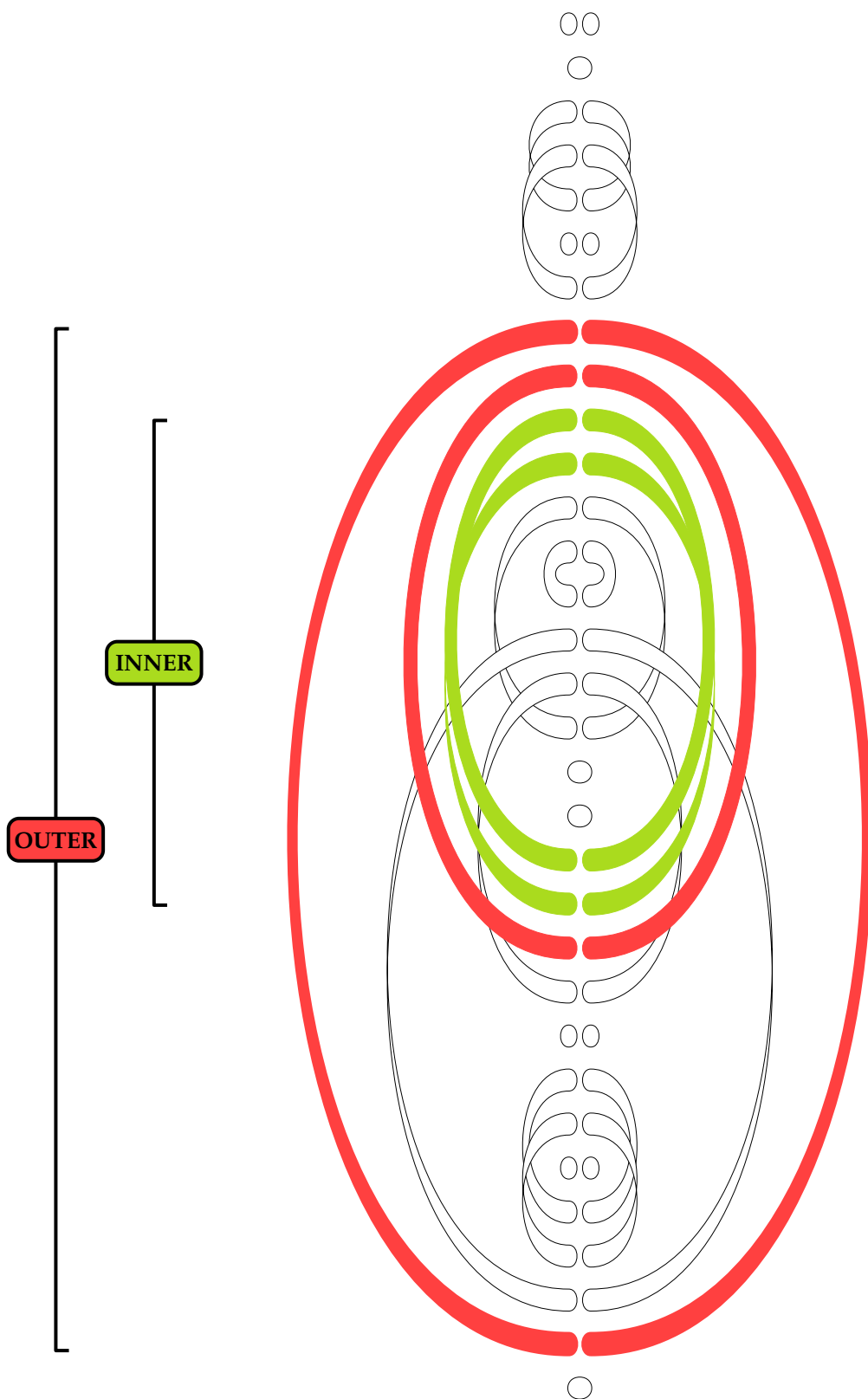
UPPER LOWER



Fu Xi

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

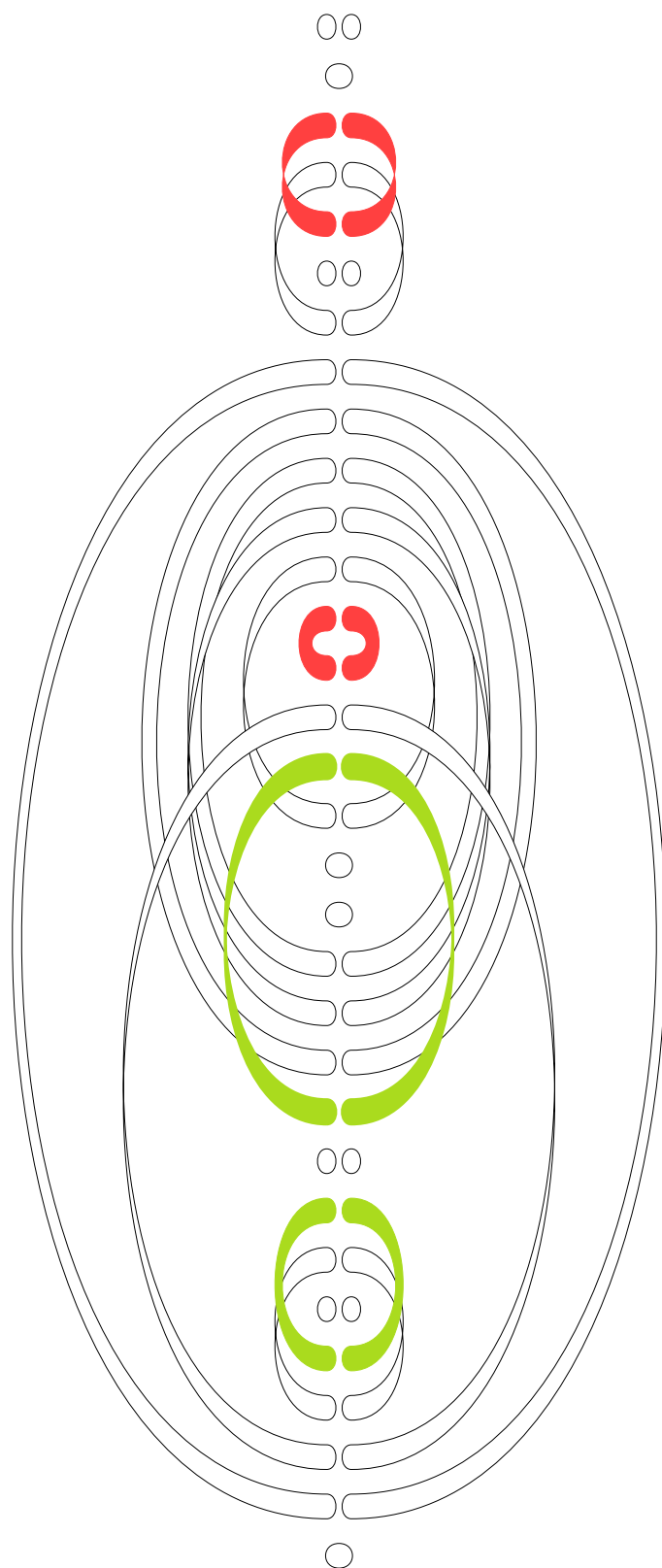
INNER OUTER



King Wen

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

UPPER LOWER



UPPER

LOWER

King Wen

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

INNER INNER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

UPPER UPPER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

OUTER OUTER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

LOWER LOWER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX
INNER OUTER UPPER LOWER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX
INNER OUTER UPPER LOWER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

INNER OUTER UPPER LOWER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

INNER OUTER UPPER LOWER

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX
GROUP #1			

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX
GROUP #2			

$$\textcircled{\#1} + \textcircled{\#3} = \textcircled{\#2} + \textcircled{\#4}$$

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX

KW

KW

FX

GROUP #3

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX

KW

KW

FX

GROUP #4

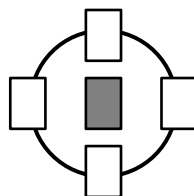
$$\textcircled{\#1} + \textcircled{\#3} = 2600 = \textcircled{\#2} + \textcircled{\#4}$$

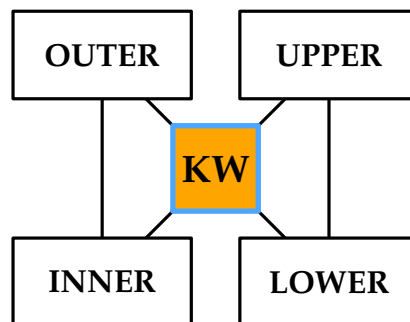
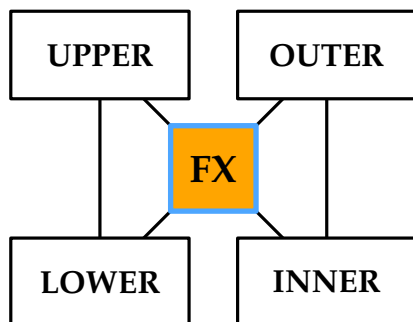
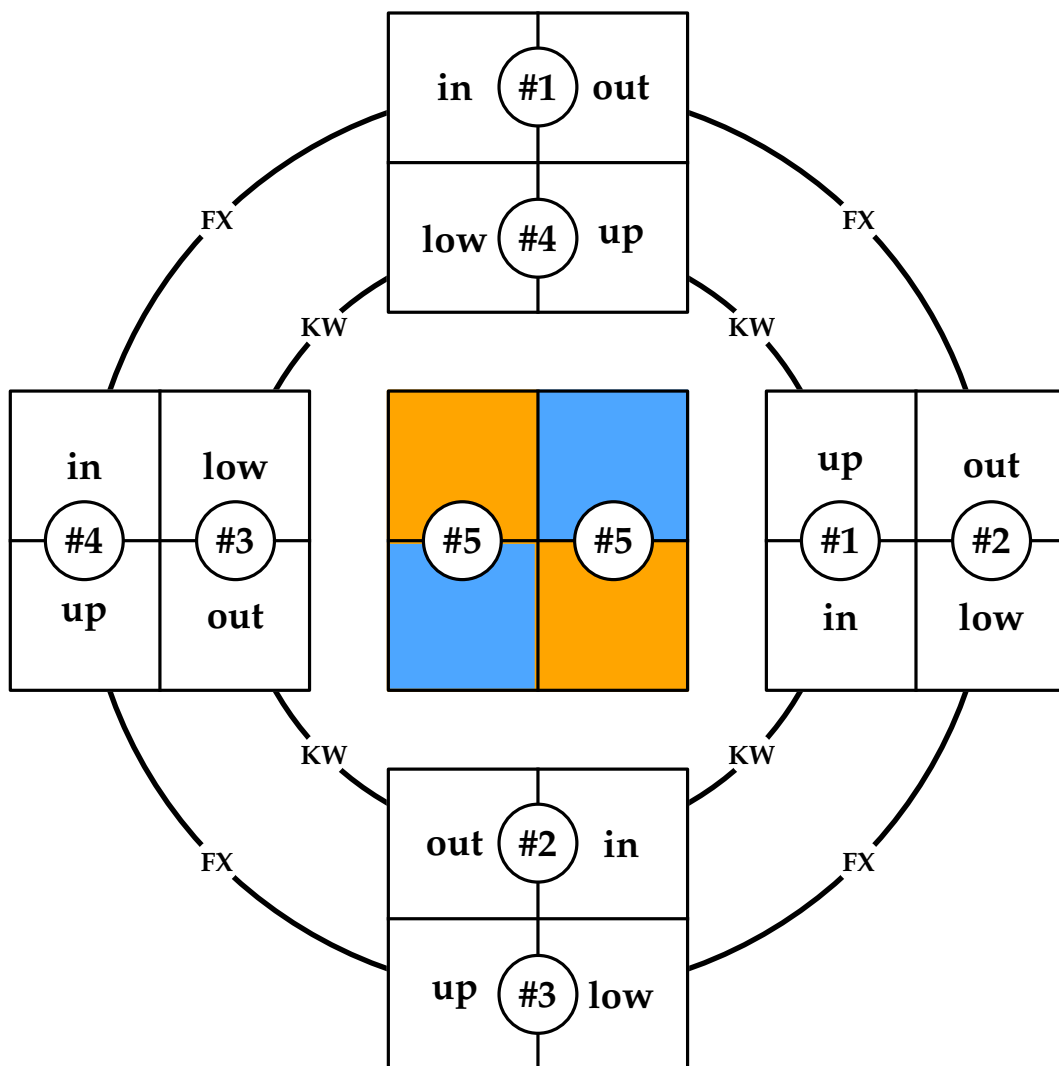
54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

GROUP #5

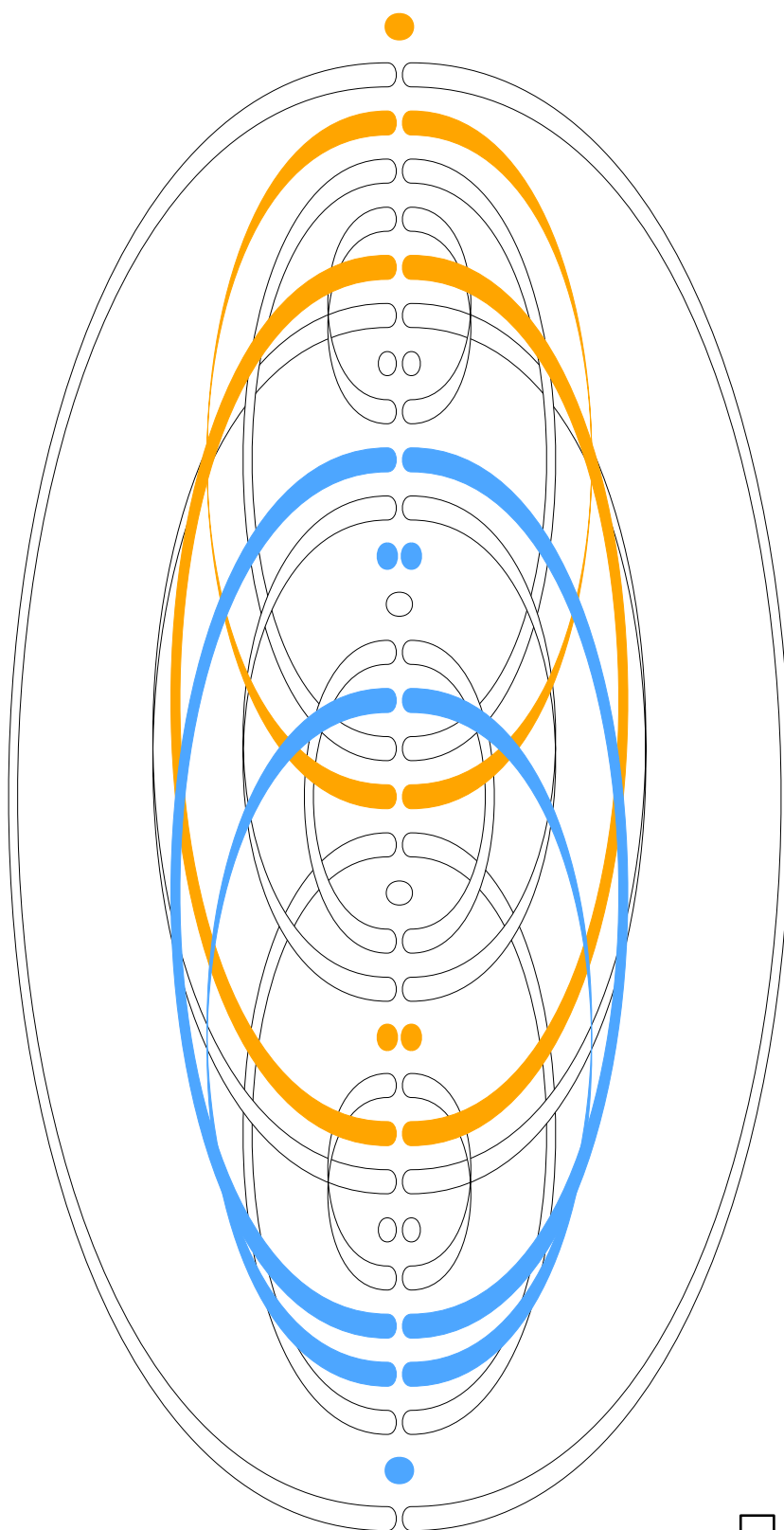
FX(780) = KW(780)

780 / 780 = 1



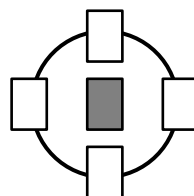


780

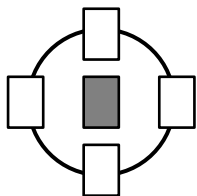
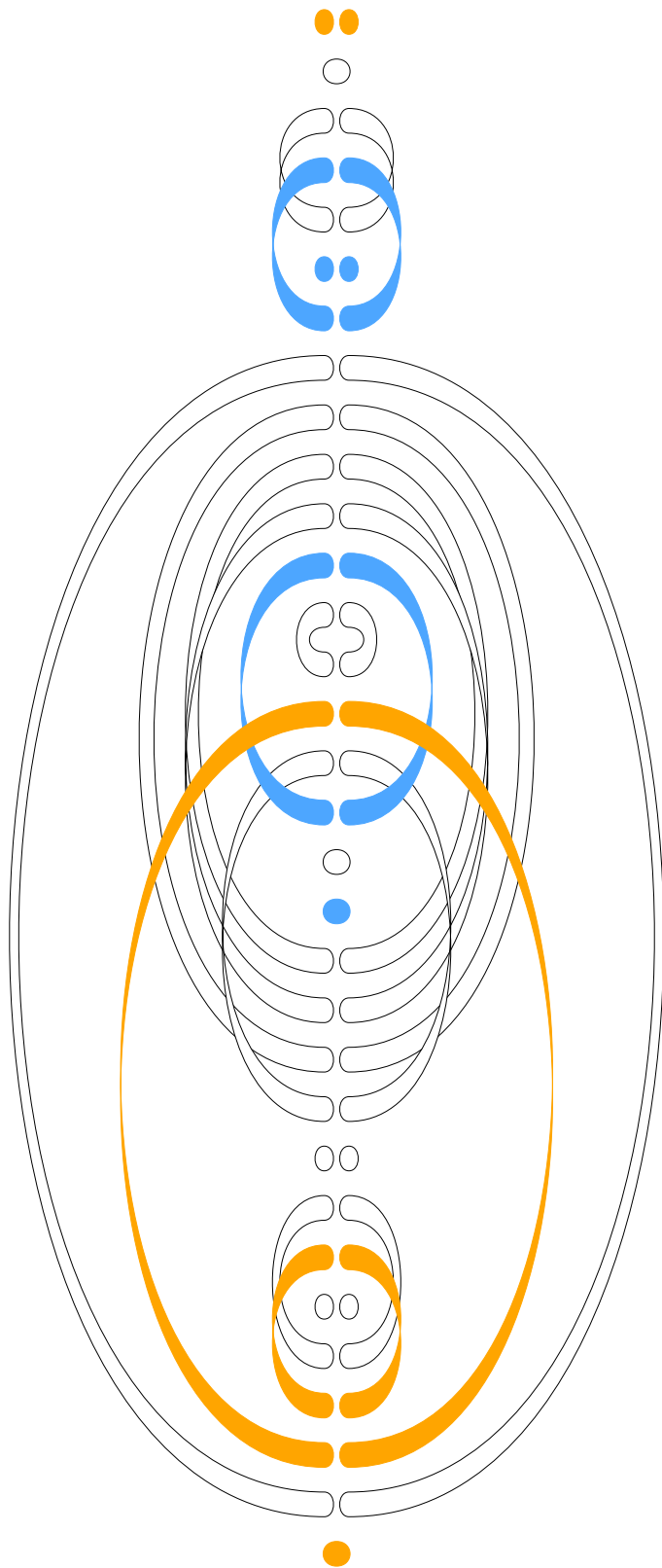


#5

Fu Xi



780



King Wen

#5

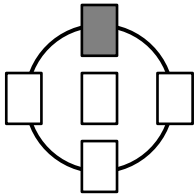
54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

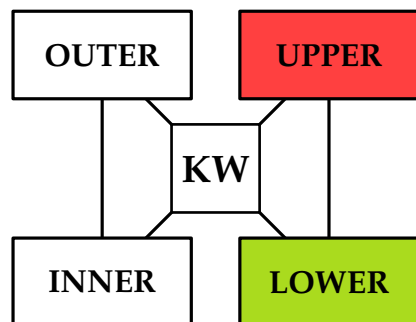
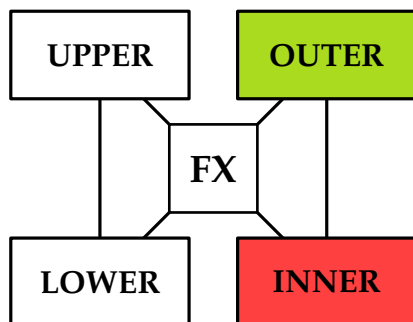
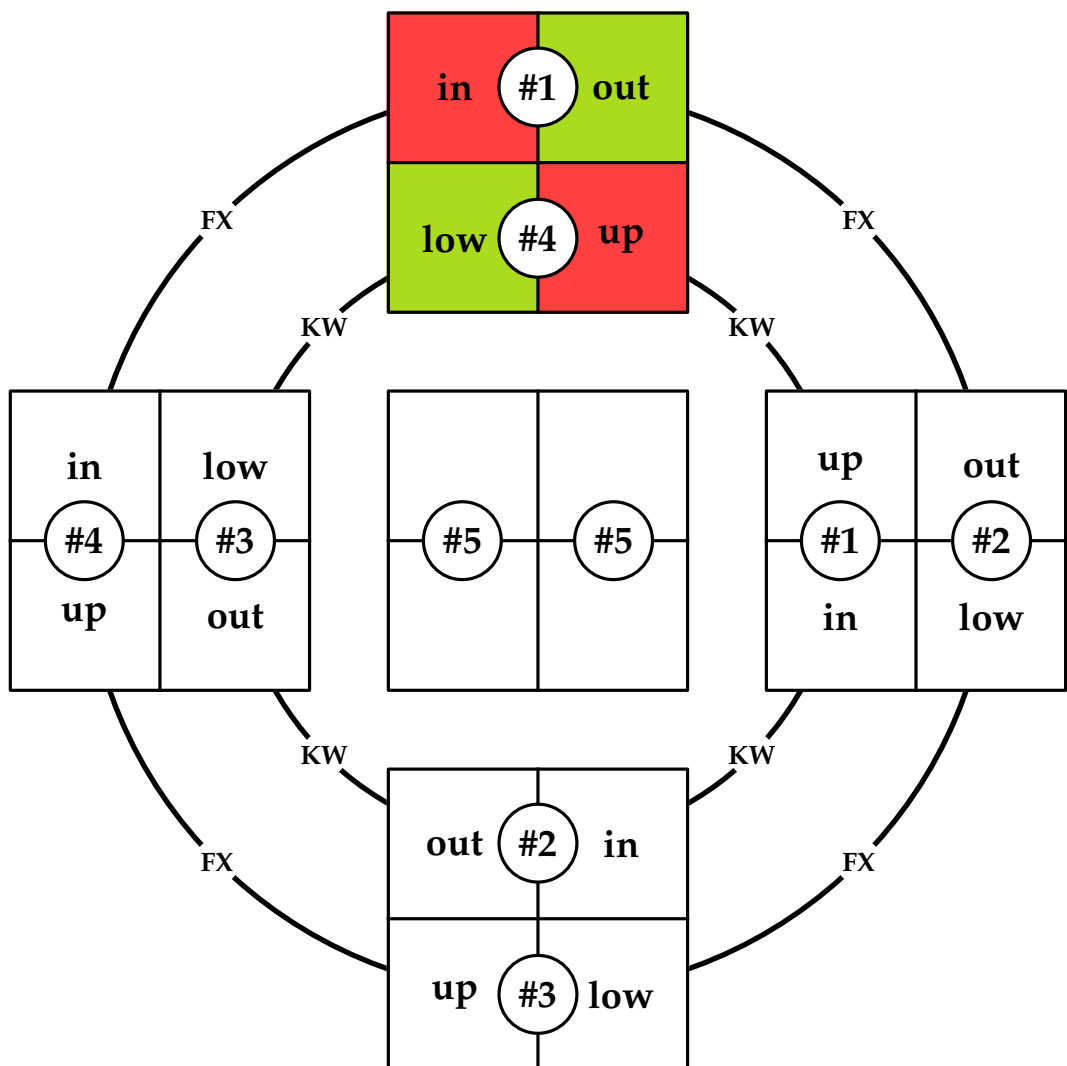
FX KW KW FX

$$\text{FX} \textcircled{\#1} + \text{KW} \textcircled{\#4}$$

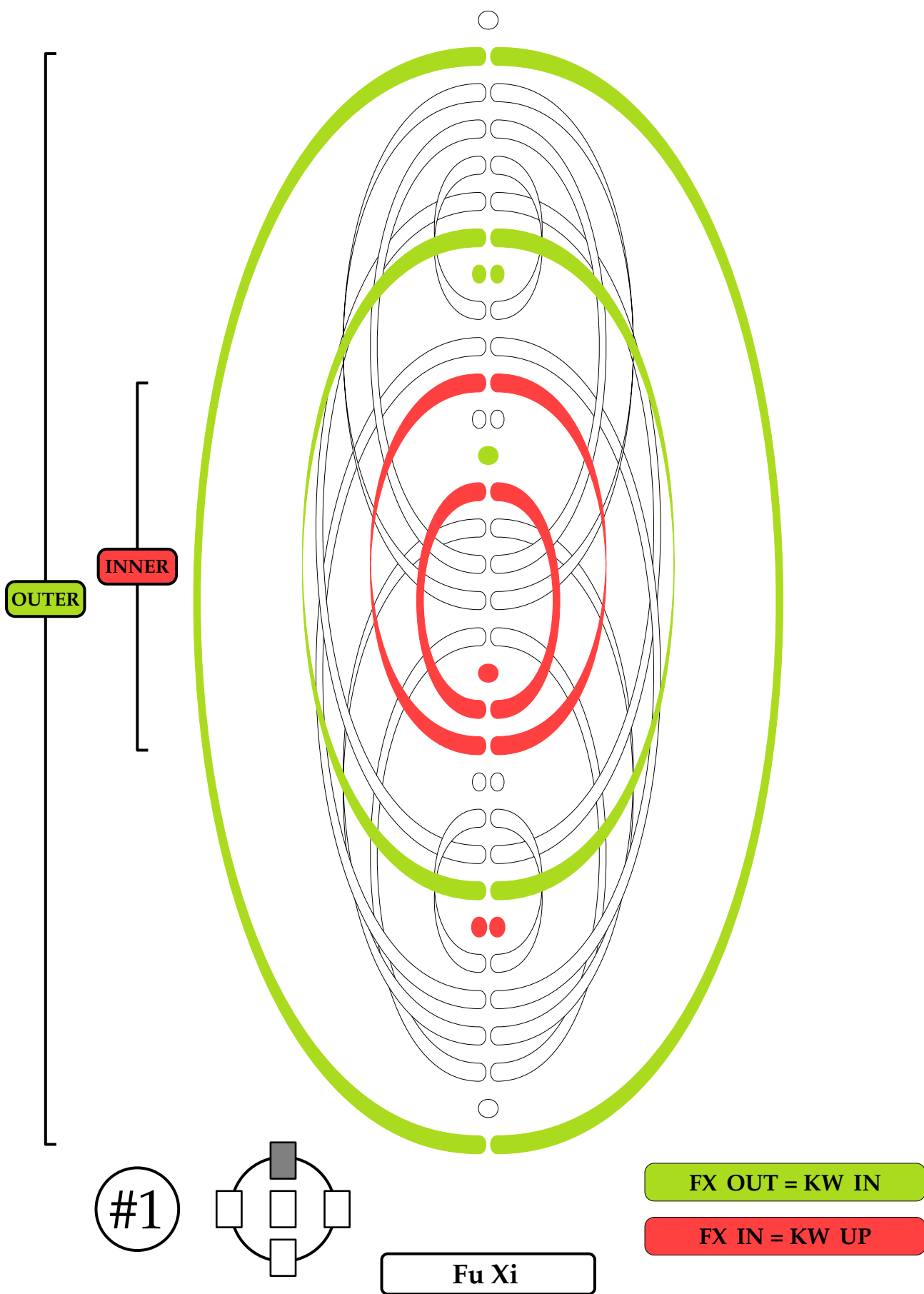
$$\text{FX}(780) = \text{KW}(780)$$

$$\frac{780}{780} = 1$$

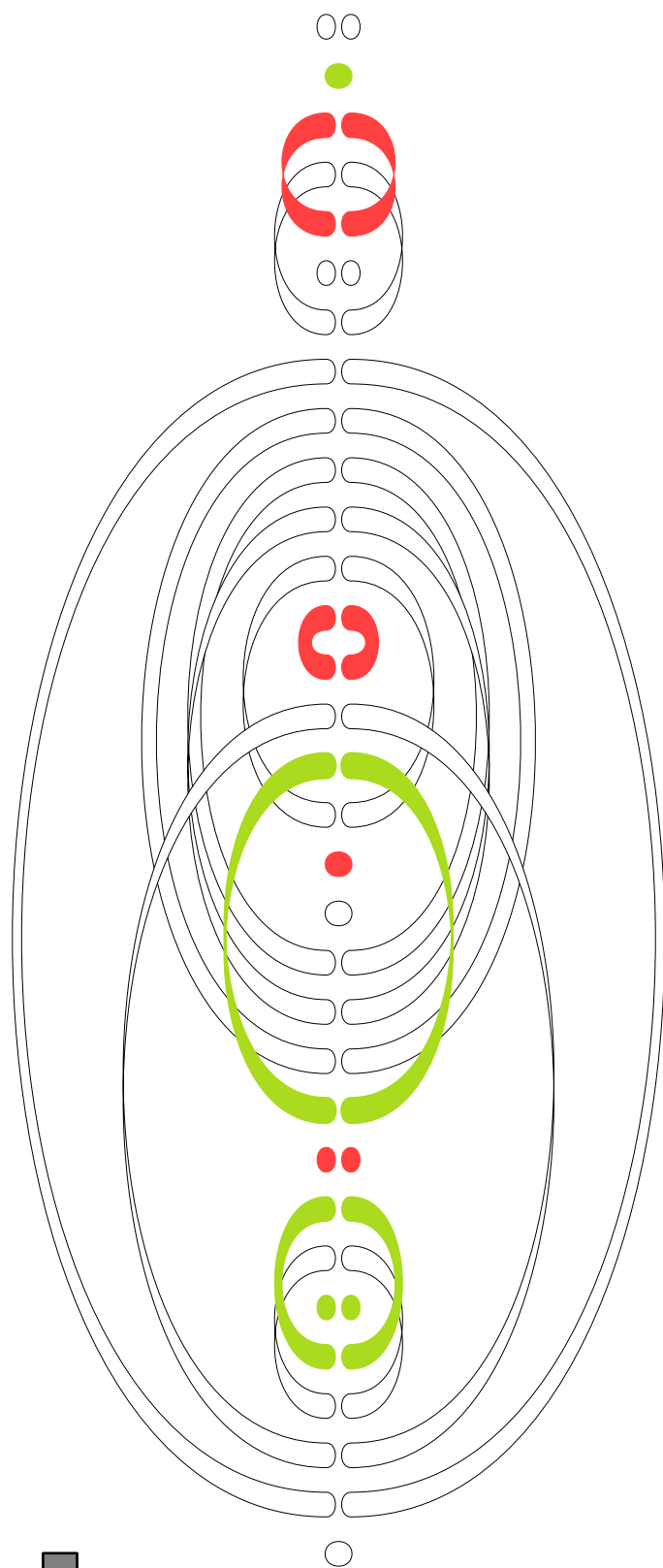




780



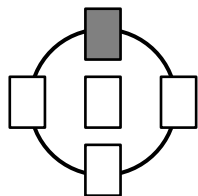
780



UPPER

LOWER

#4



King Wen

FX UP = KW LOW

FX IN = KW UP

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

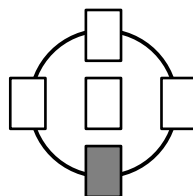
$$\text{FX} \textcircled{\#3} + \text{KW} \textcircled{\#2}$$

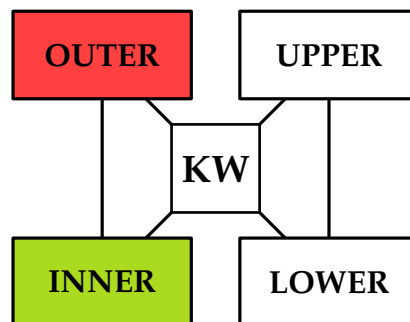
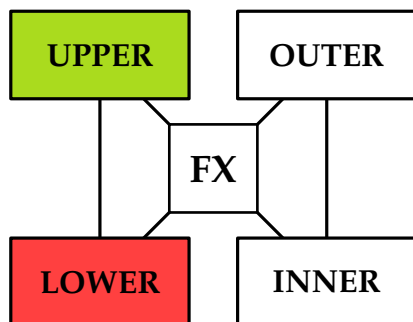
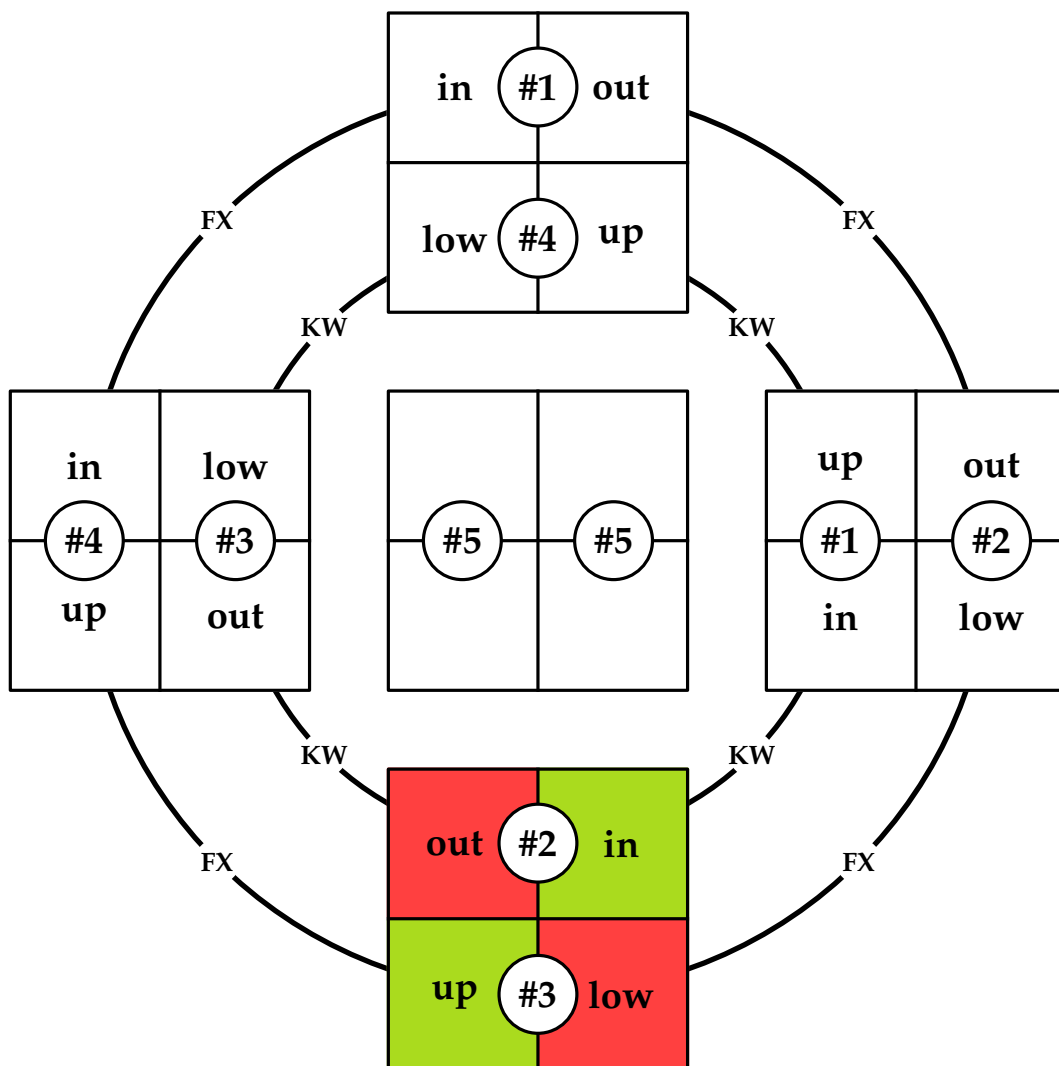
$$\text{FX}(520) = \text{KW}(520)$$

$$\frac{520}{520} = 1$$

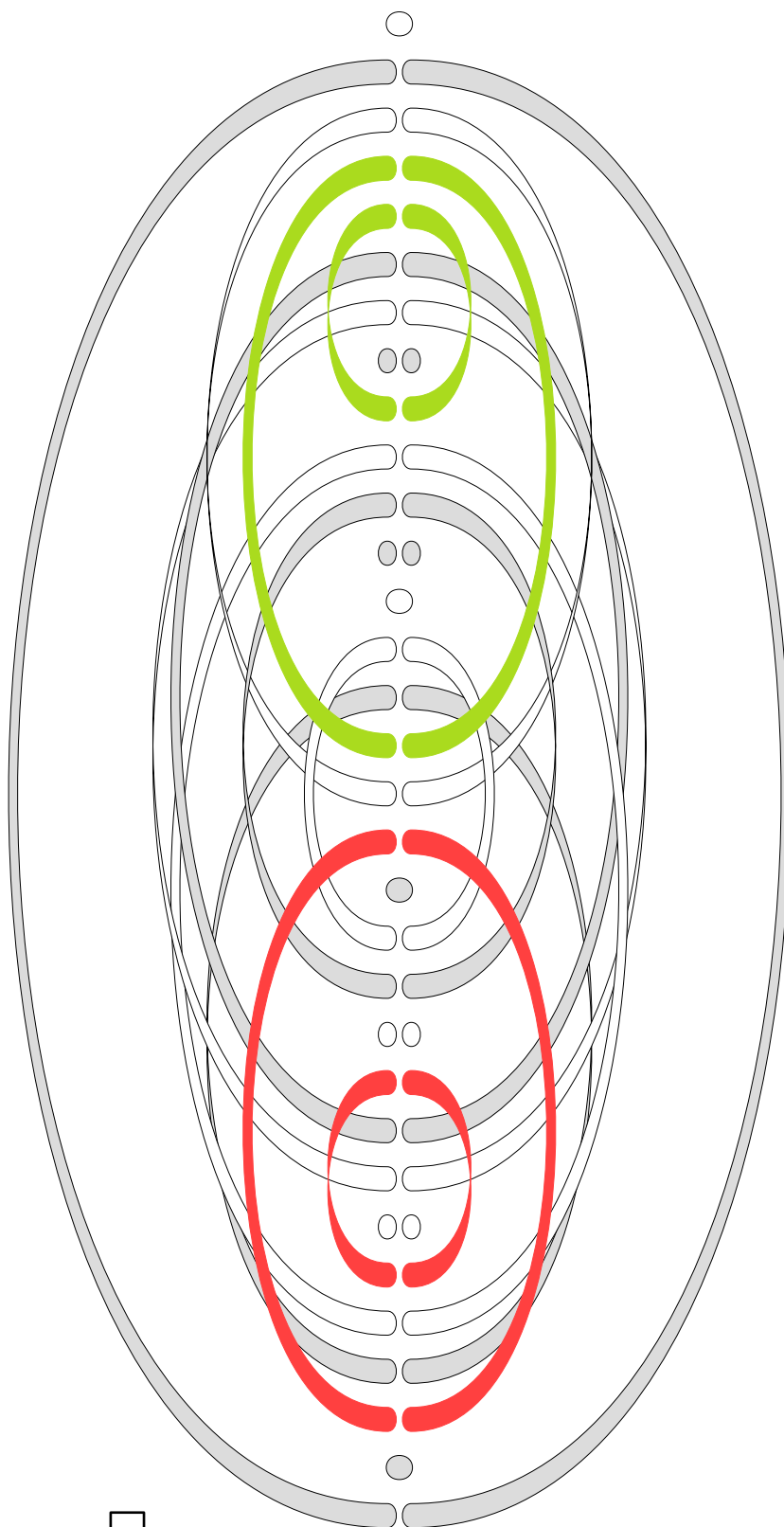
$$\frac{828}{(198+78)} = \frac{828}{276} = 3 = \frac{828}{276} = \frac{828}{(142+134)}$$

$$\frac{732}{(190+54)} = \frac{732}{244} = 3 = \frac{732}{244} = \frac{732}{(138+106)}$$





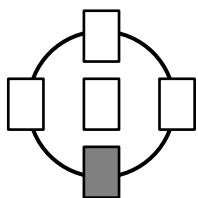
520



UPPER

LOWER

#3

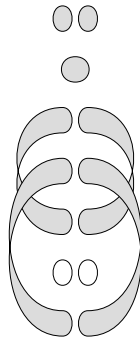


Fu Xi

FX UP = KW LOW

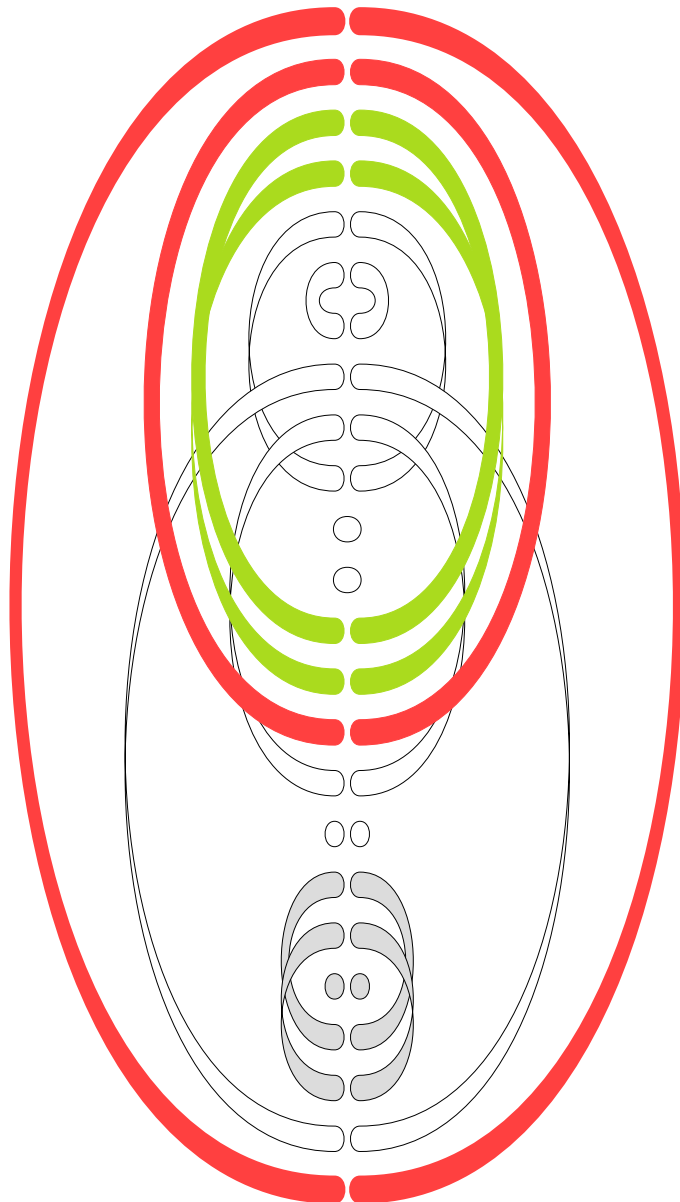
FX LOW = KW OUT

520

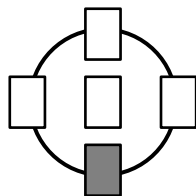


INNER

OUTER



#2



King Wen

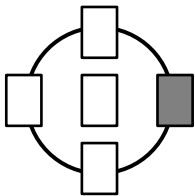
FX OUT = KW IN

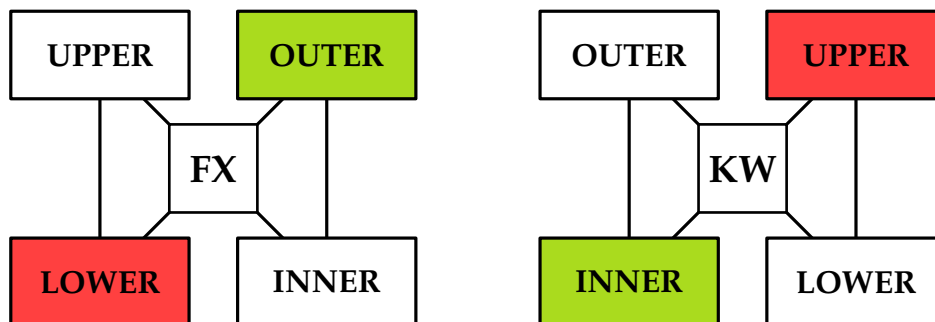
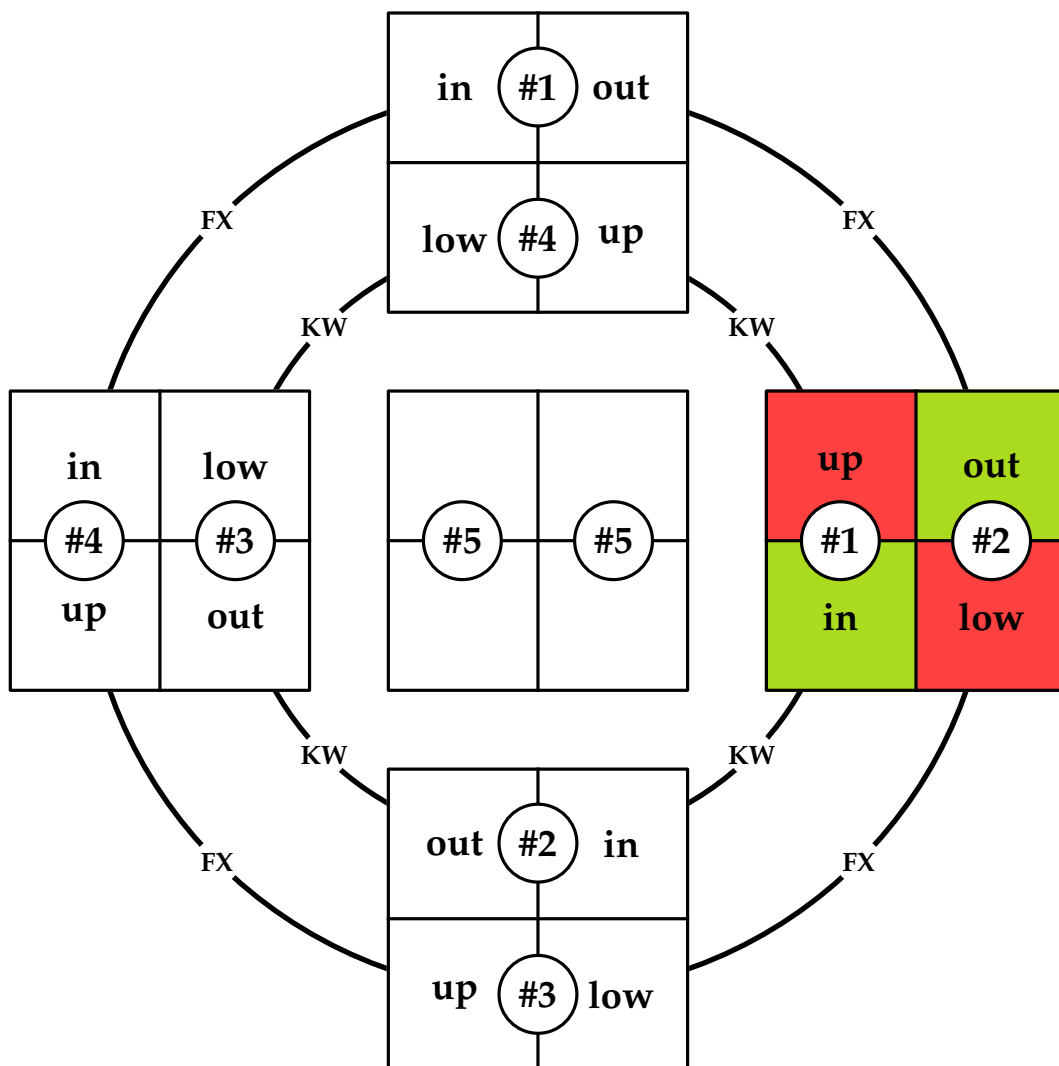
FX LOW = KW OUT

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

$$\text{FX} \textcircled{\#2} + \text{KW} \textcircled{\#1}$$

FX(648) KW(660)



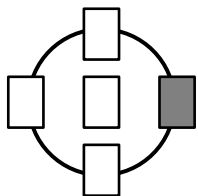


648

OUTER

LOWER

#2

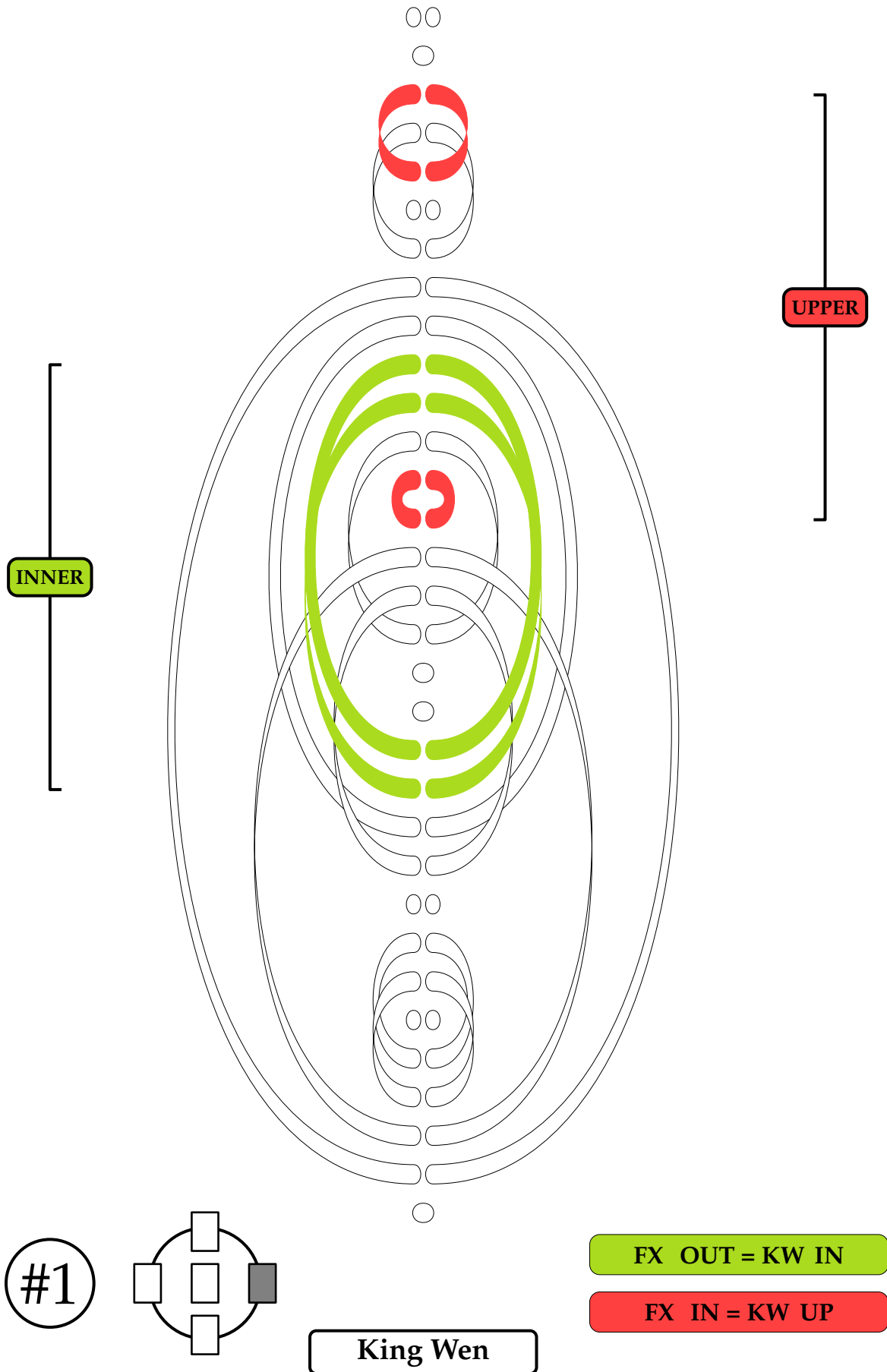


Fu Xi

FX OUT = KW IN

FX LOW = KW OUT

660



54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

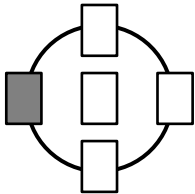
FX

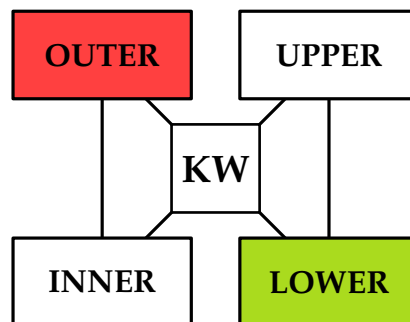
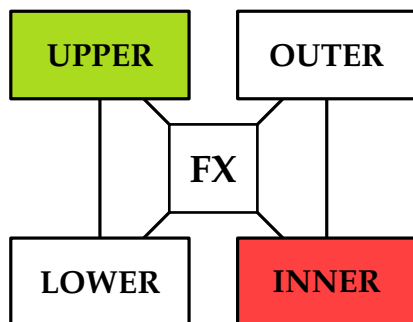
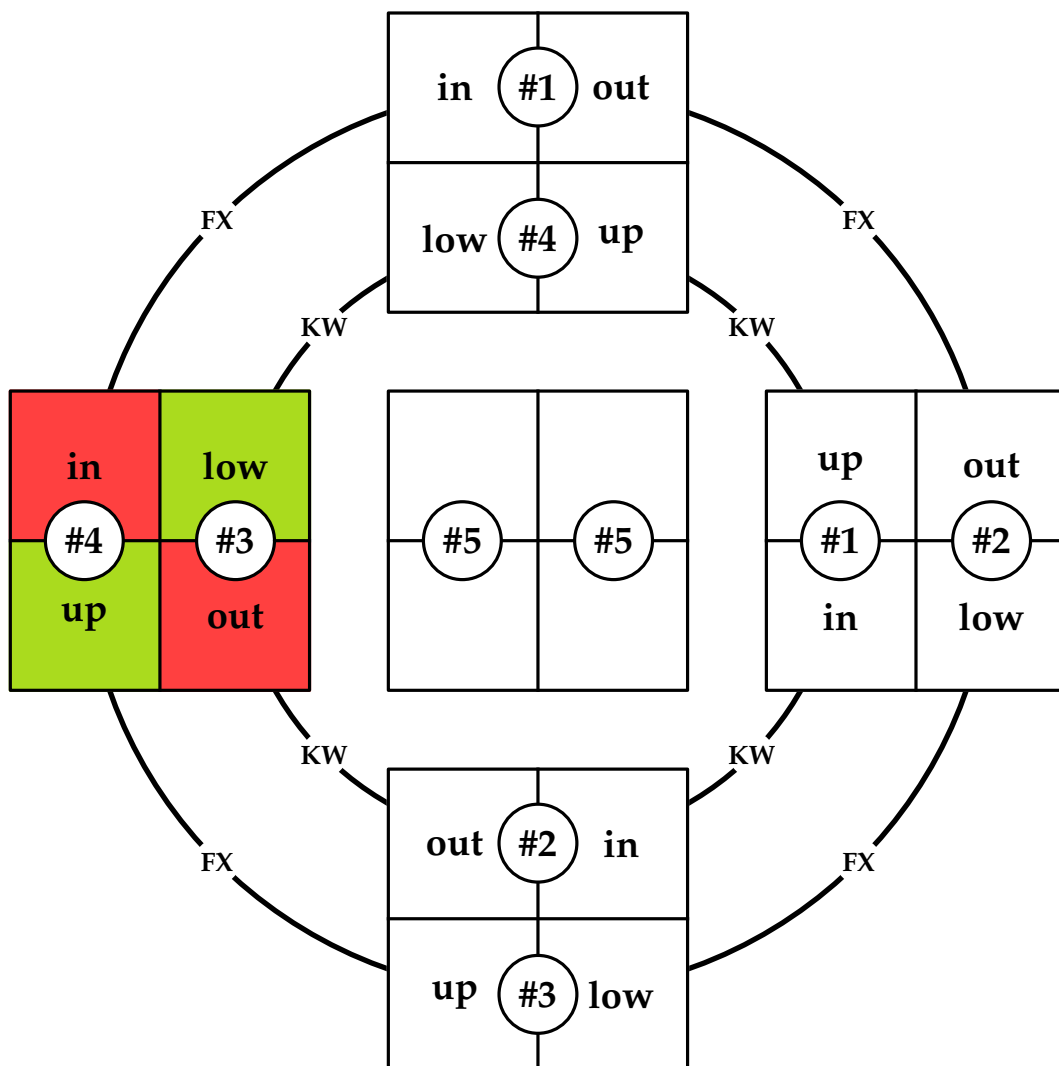
#4

+
KW

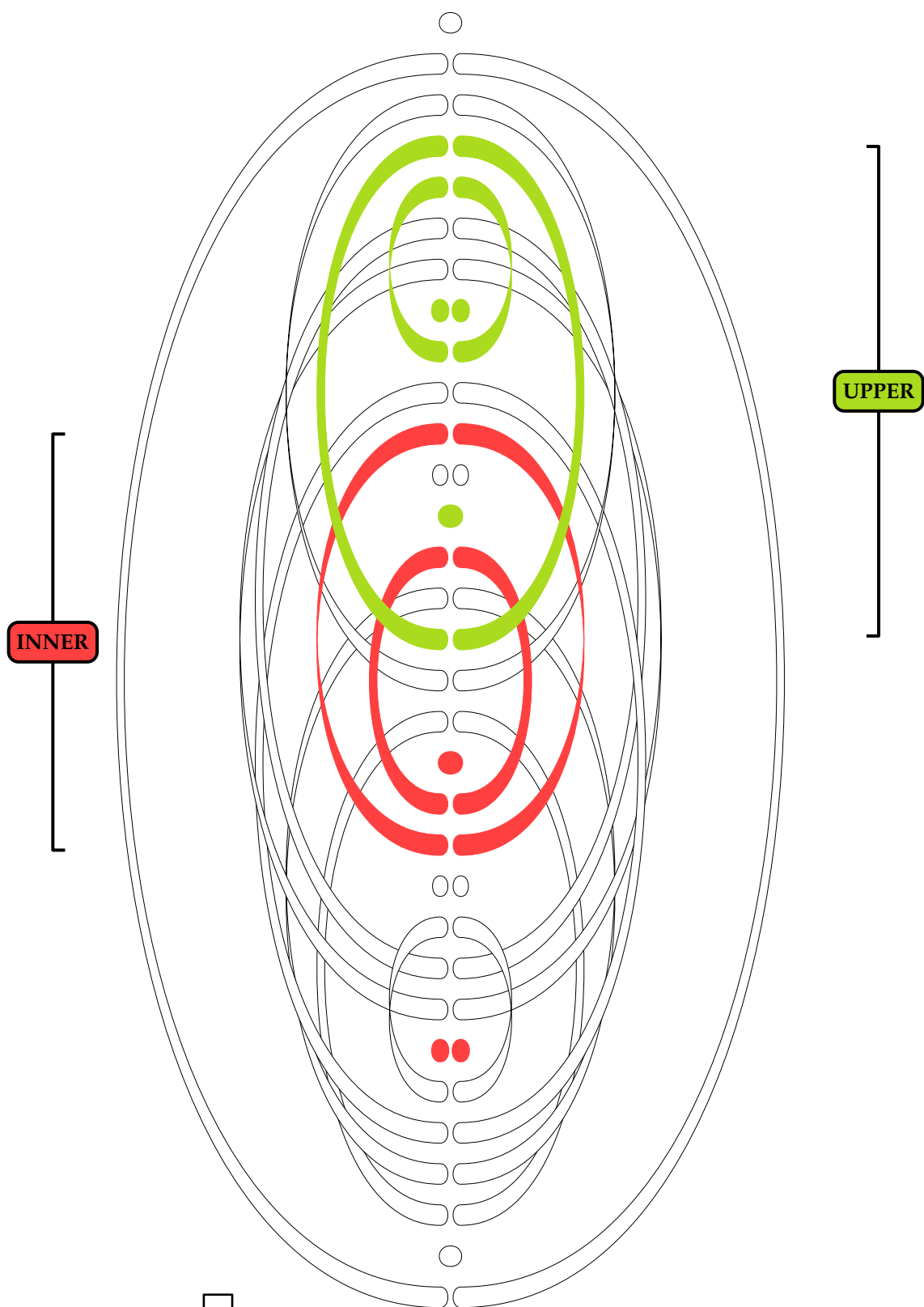
#3

FX(652)
KW(640)

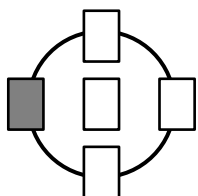




652



#4



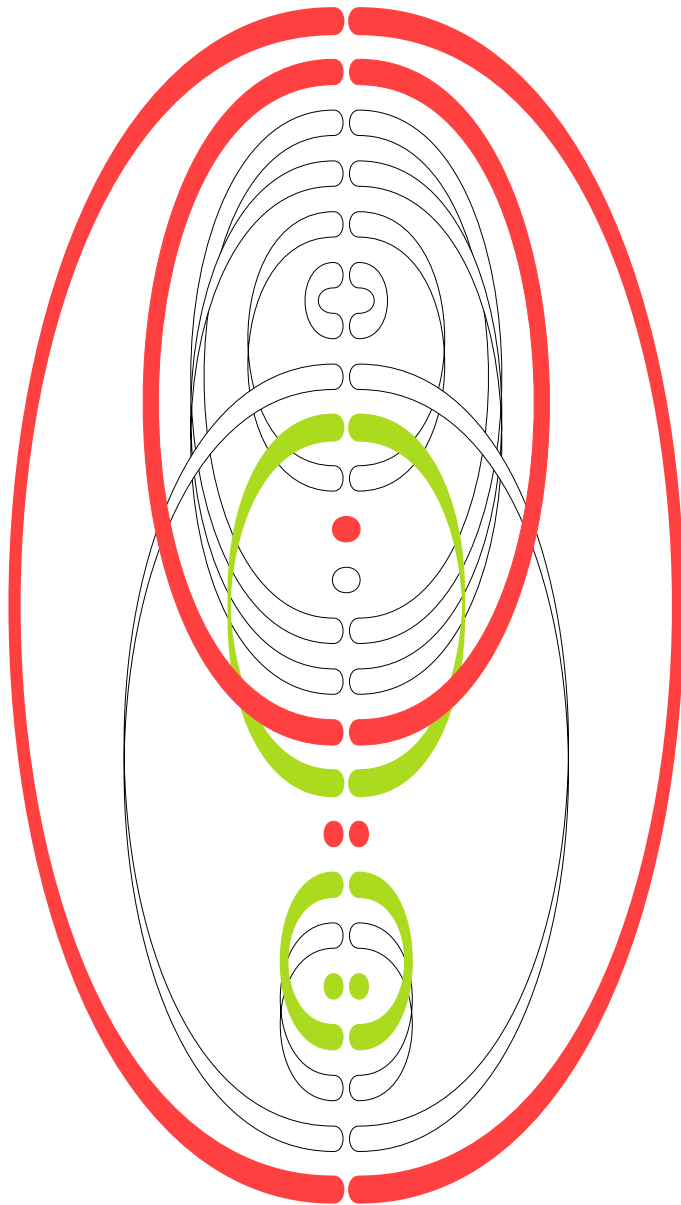
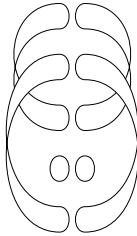
Fu Xi

FX UP = KW LOW

FX IN = KW UP

640

00

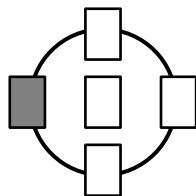


OUTER

LOWER

00

#3



King Wen

FX UP = KW LOW

FX LOW = KW OUT

54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

FX (#1) KW (#4)

FX(780) = KW(780)

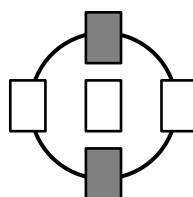
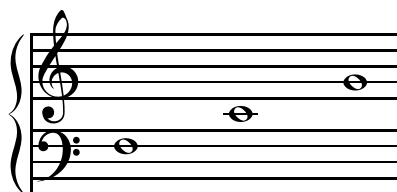
$$\frac{780}{780} = 1$$

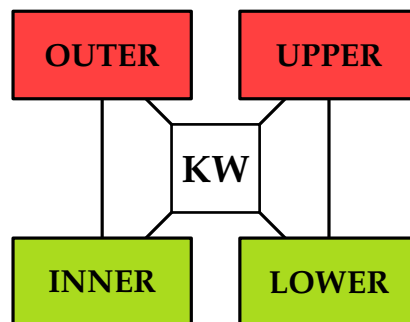
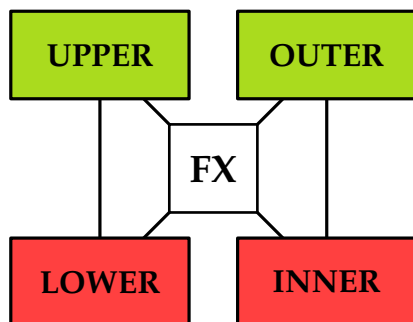
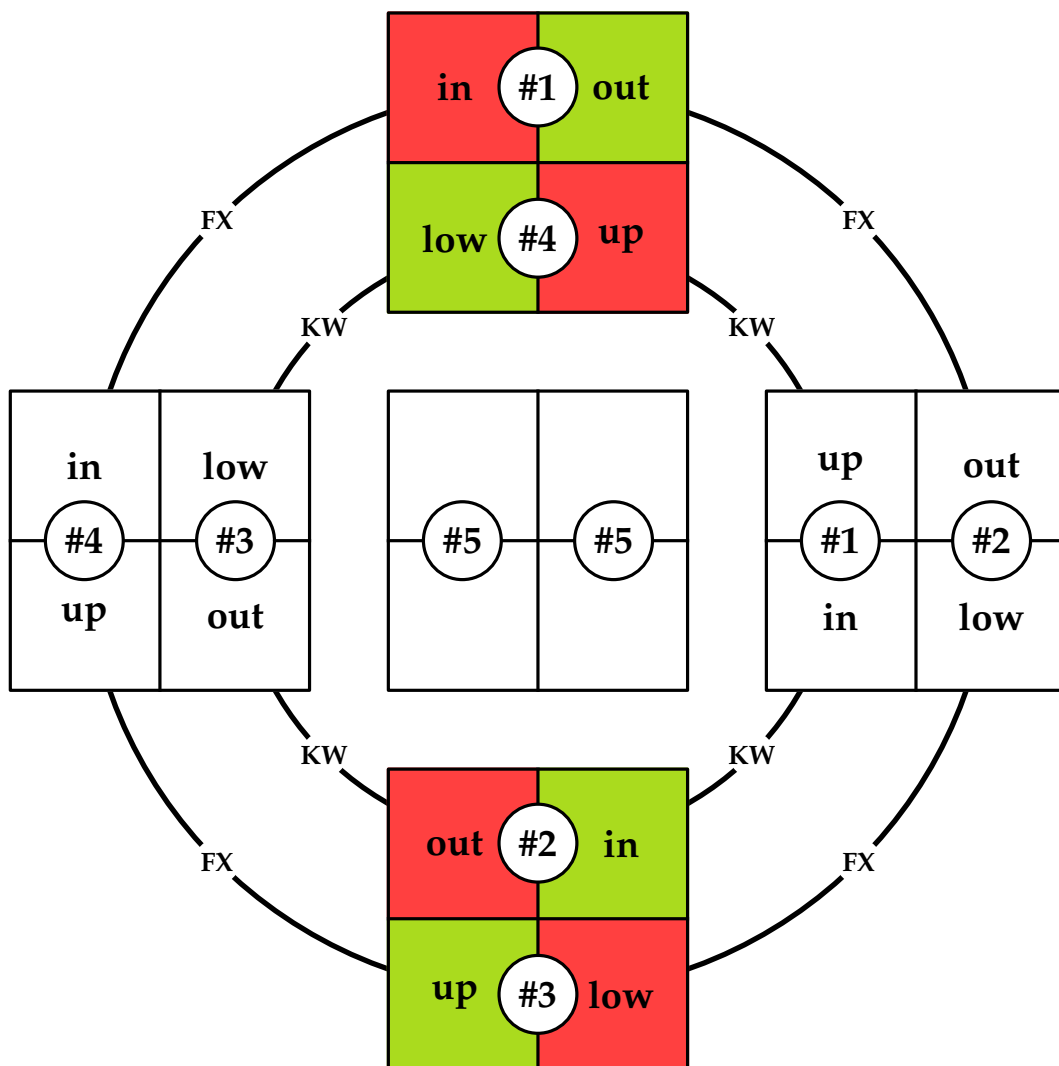
FX (#3) KW (#2)

FX(520) = KW(520)

$$\frac{520}{520} = 1$$

$$\frac{780}{520} = \frac{3}{2}$$





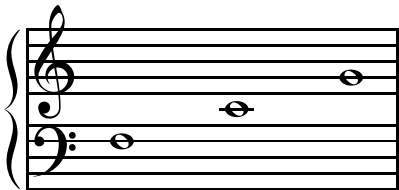
54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX KW KW FX

FX (#1) KW (#4)
FX(780) KW(780)
└──────────┘

FX (#5) KW (#5)
FX(780) KW(780)
└──────────┘

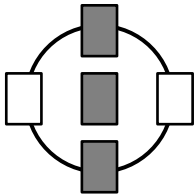
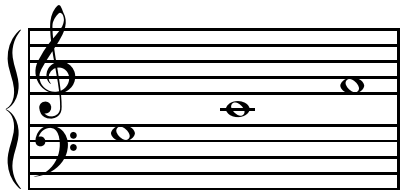
FX (#3) KW (#2)
FX(520) KW(520)
└──────────┘

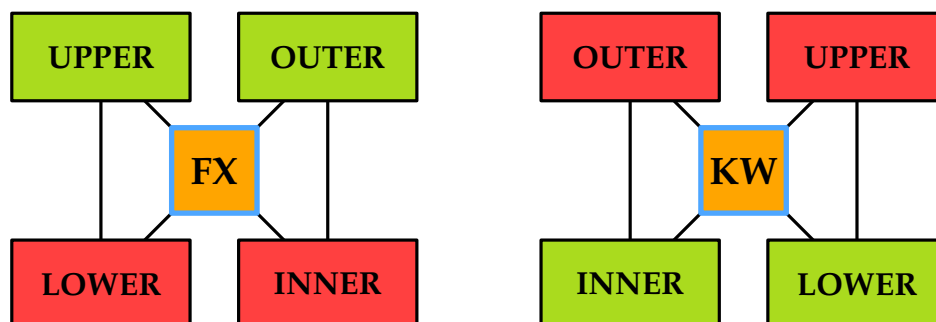
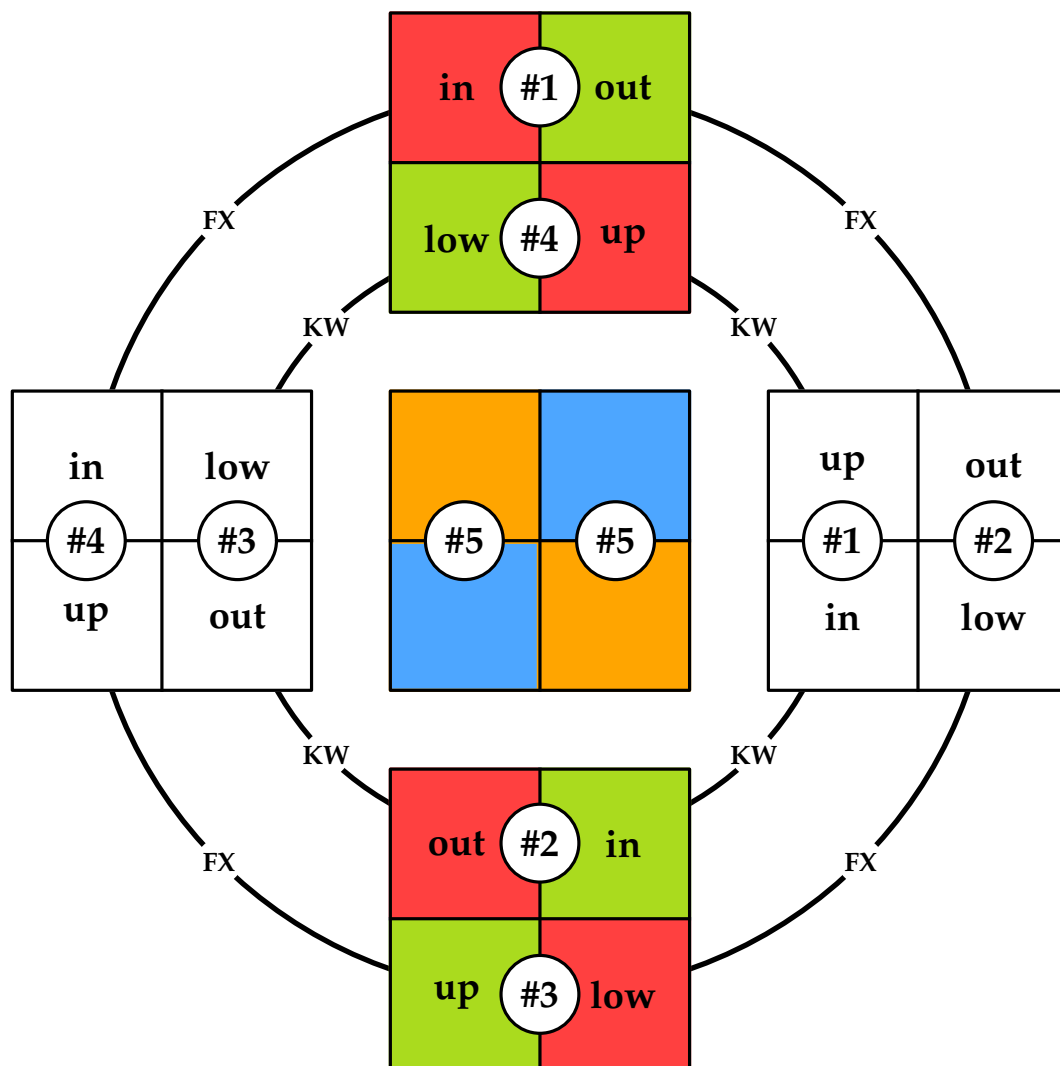


$$\frac{780}{780} = 1$$

$$\frac{780}{780} = 1$$

$$\frac{520}{520} = 1$$





54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

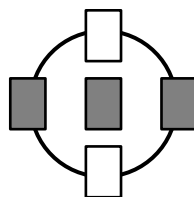
FX KW KW FX

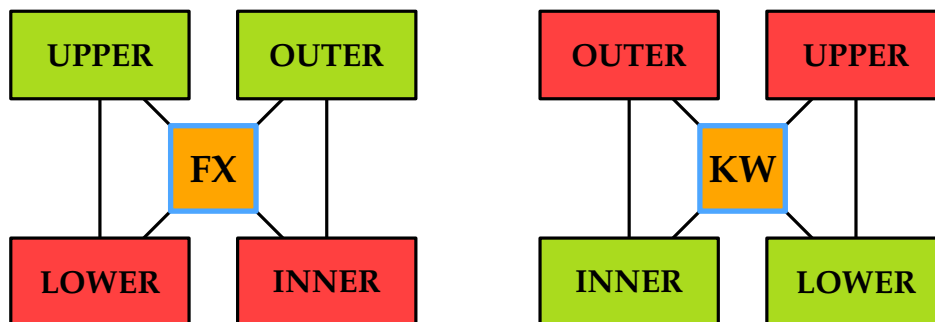
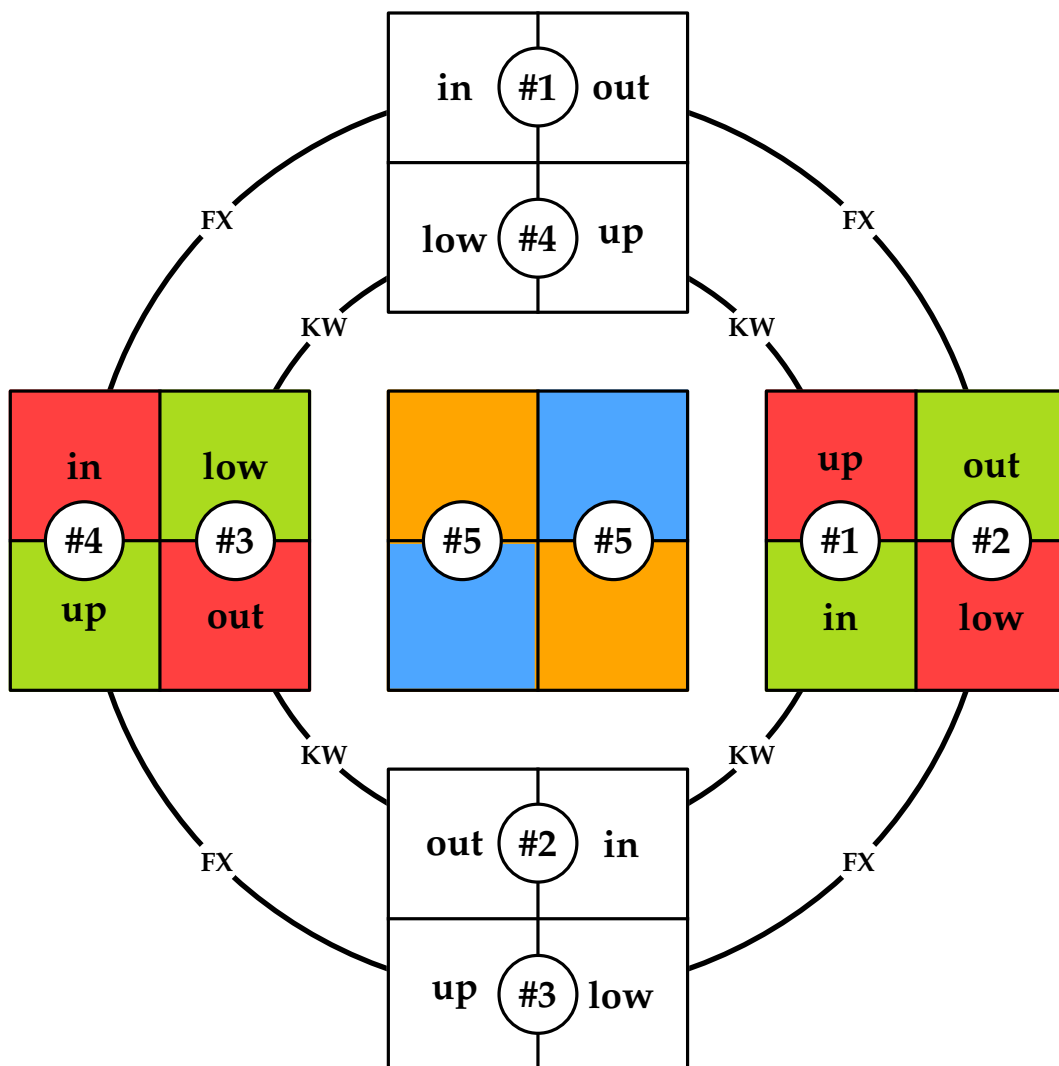
$$\begin{array}{cccccc}
 \text{KW} \text{ (}\#3\text{)} & \text{FX} \text{ (}\#5\text{)} & \text{KW} \text{ (}\#5\text{)} & \text{FX} \text{ (}\#4\text{)} & \text{KW} \text{ (}\#1\text{)} & \text{FX} \text{ (}\#2\text{)} \\
 \text{KW}(640) & \text{FX}(780) & \text{KW}(780) & \text{FX}(652) & \text{KW}(660) & \text{FX}(648) \\
 \hline
 & 2200 & & & 1960 &
 \end{array}$$

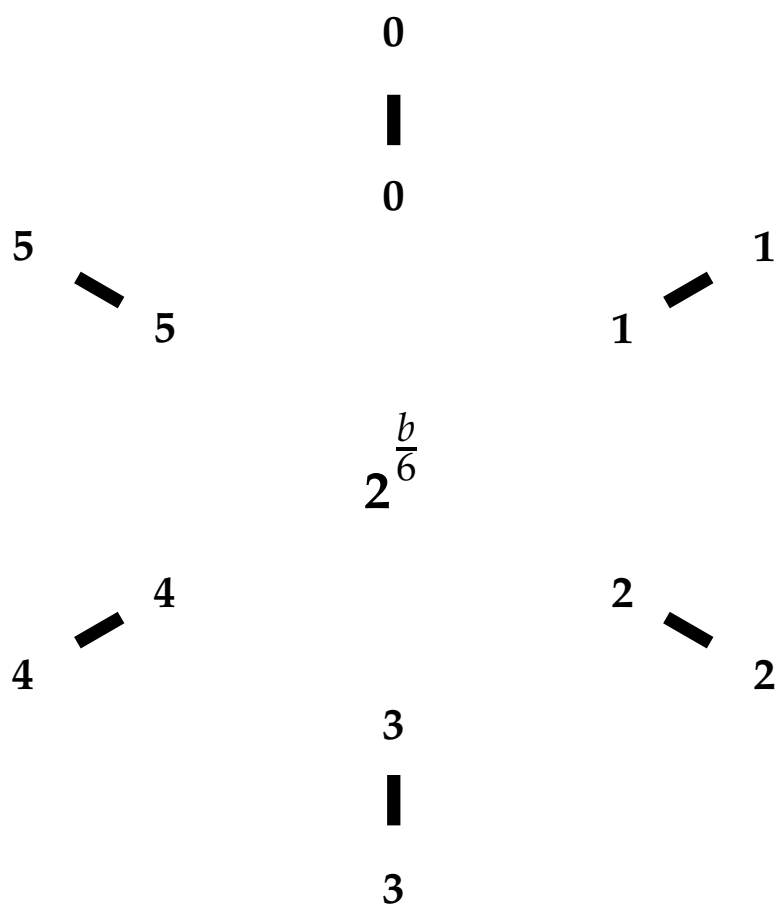
$$\frac{2200}{1960} = \frac{55}{49} \approx 2^{\frac{1}{6}}$$

$$\begin{array}{cccccc}
 \text{FX} \text{ (}\#4\text{)} & \text{FX} \text{ (}\#5\text{)} & \text{KW} \text{ (}\#5\text{)} & \text{KW} \text{ (}\#3\text{)} & \text{KW} \text{ (}\#1\text{)} & \text{FX} \text{ (}\#2\text{)} \\
 \text{FX}(652) & \text{FX}(780) & \text{KW}(780) & \text{FX}(640) & \text{KW}(660) & \text{FX}(648) \\
 \hline
 & 2212 & & & 1948 &
 \end{array}$$

$$\frac{2212}{1948} = \frac{553}{487} \approx 2^{\frac{11}{60}}$$



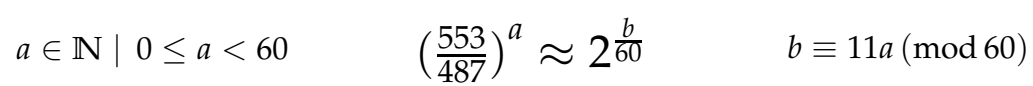




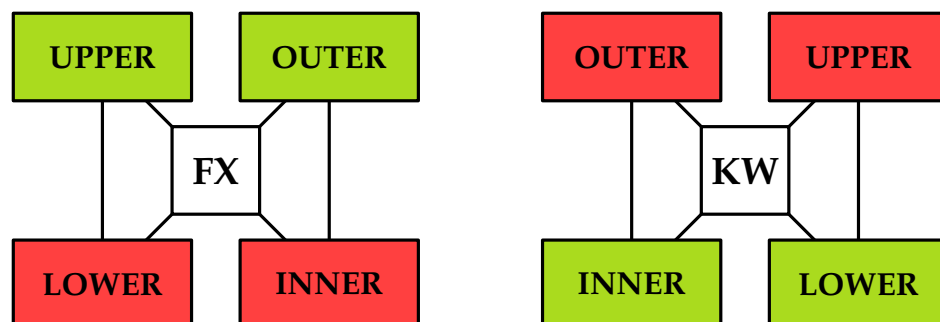
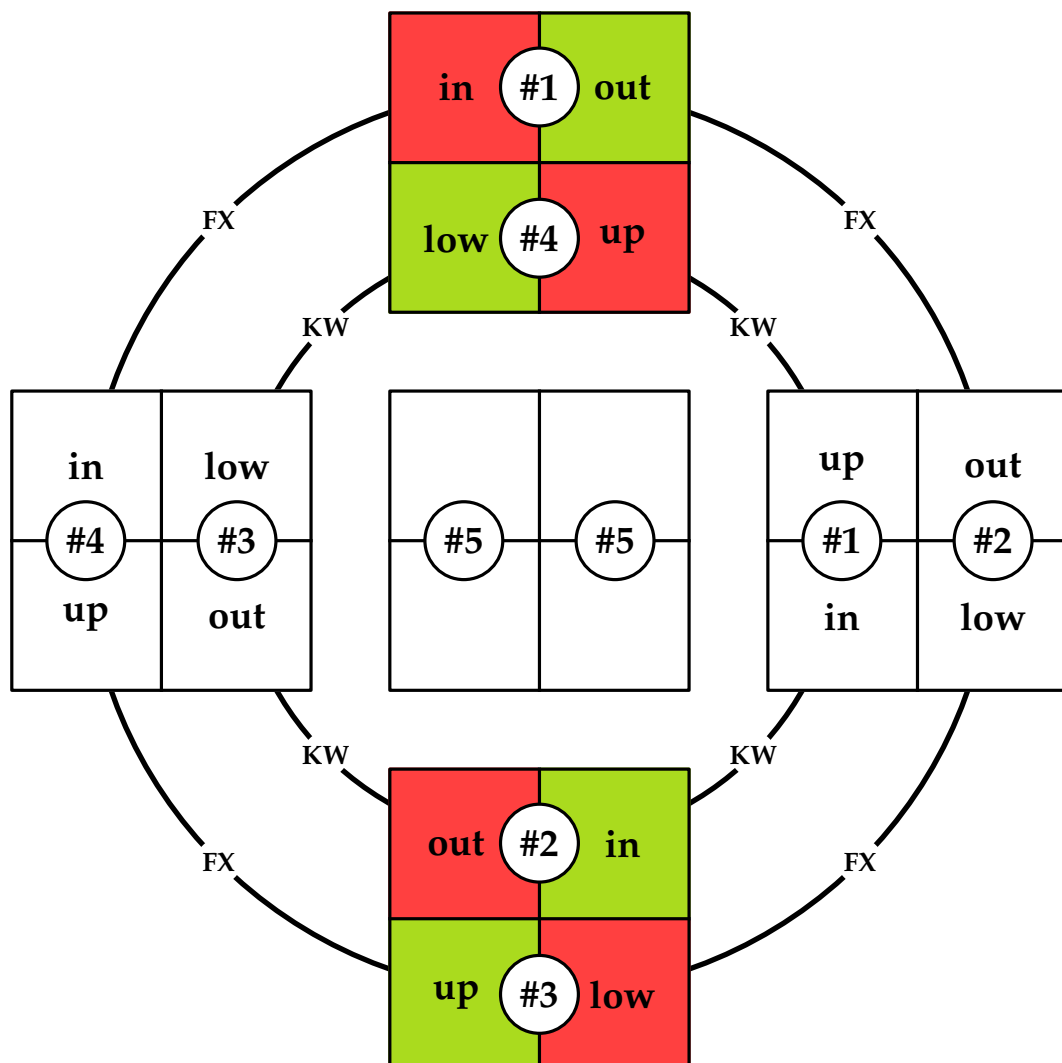
$$a \in \mathbb{N} \mid 0 \leq a < 6 \qquad \left(\frac{55}{49}\right)^a \approx 2^{\frac{b}{6}} \qquad b = a$$

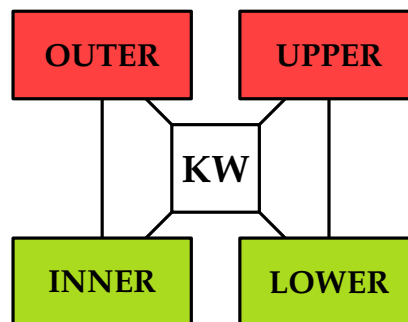
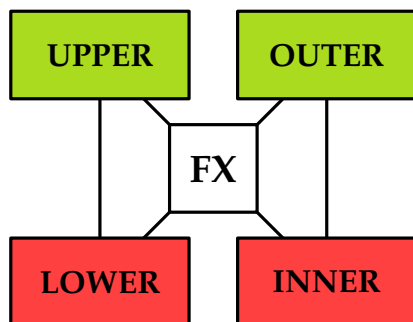
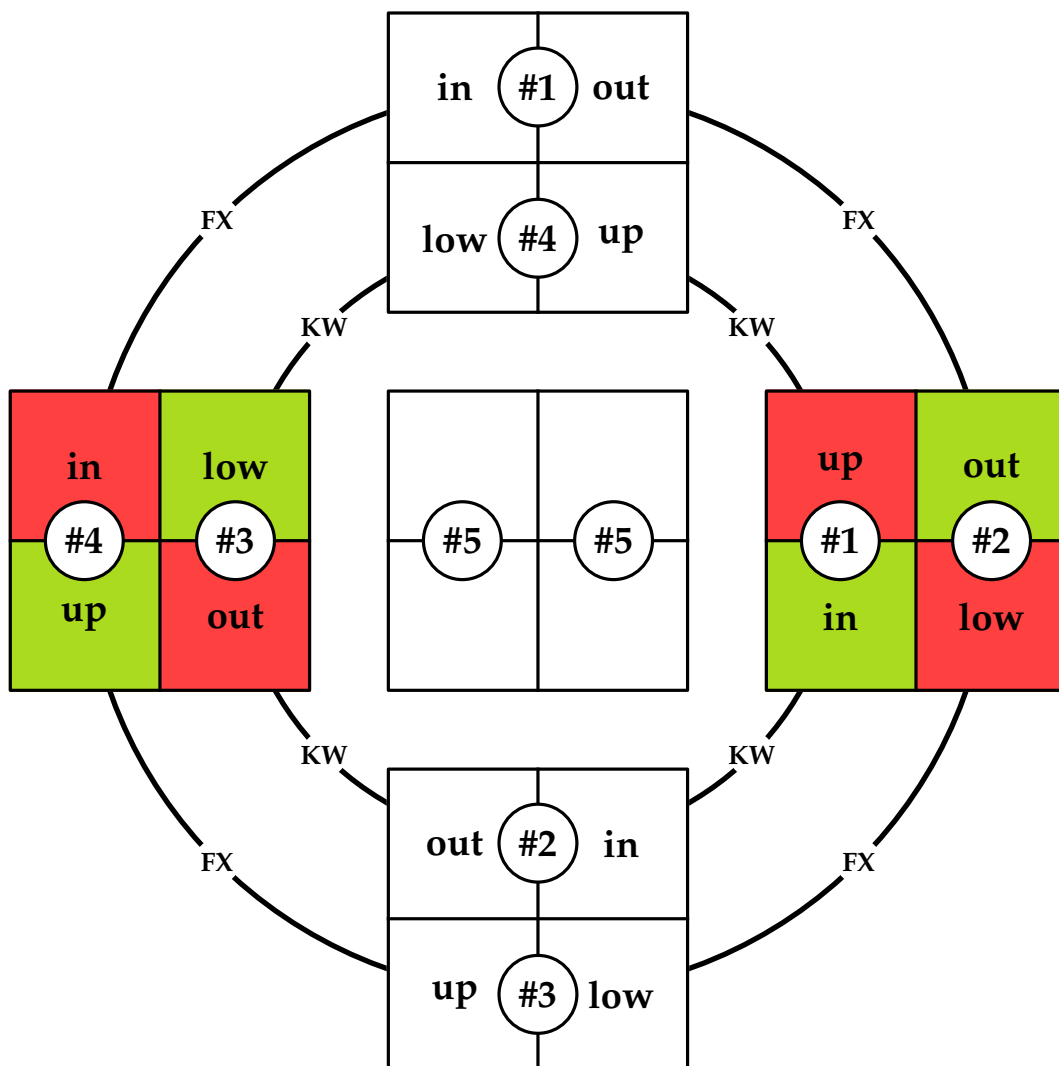
6 tone equal temperament

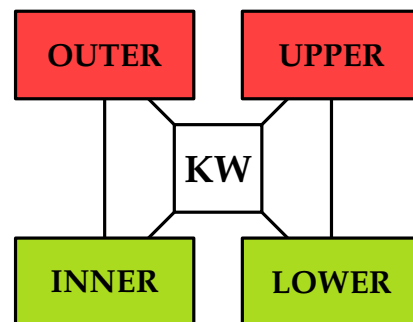
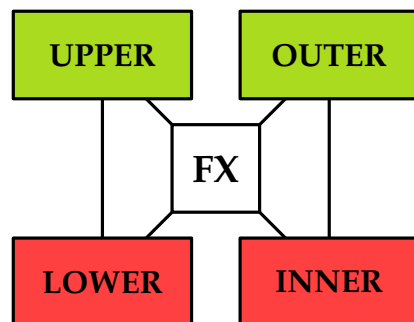
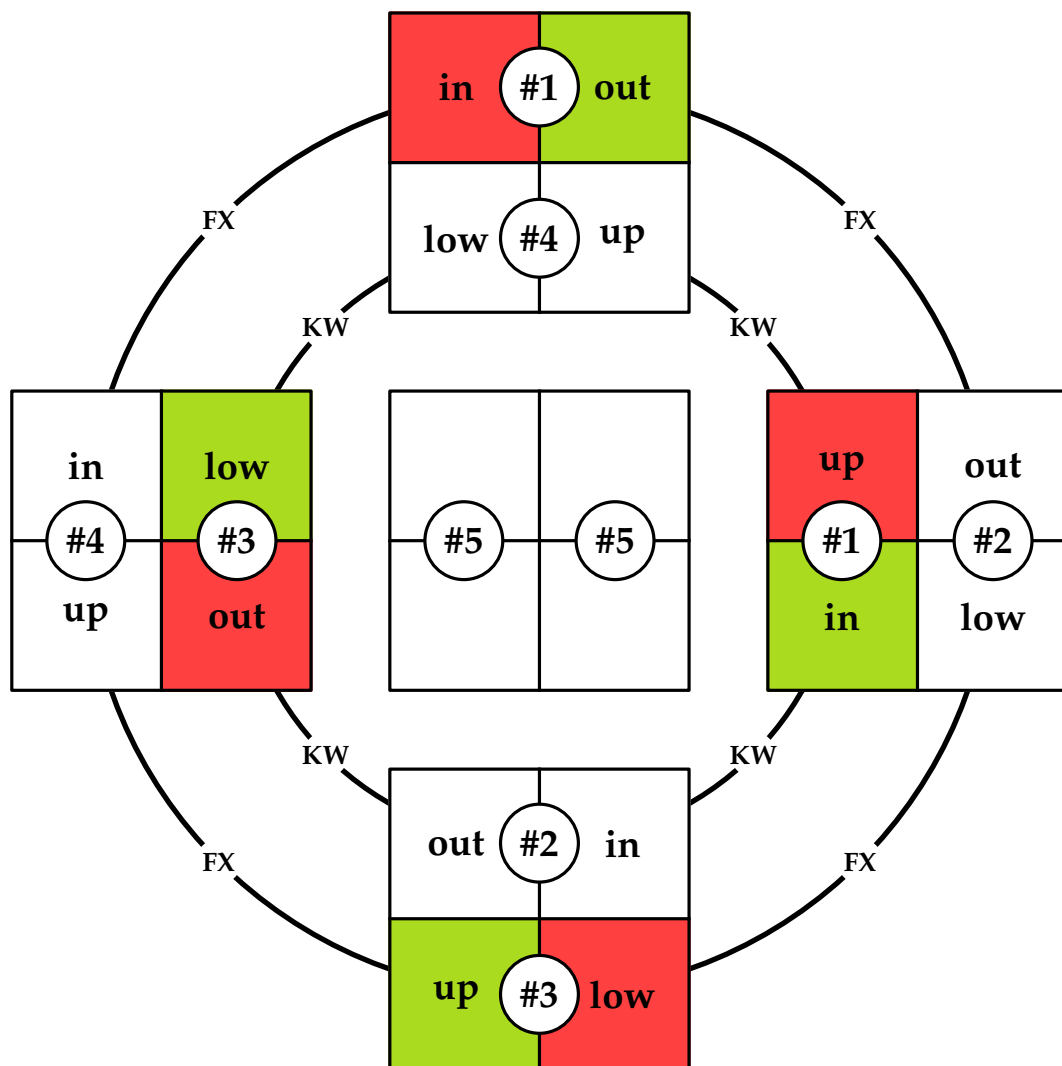
$$\frac{2200}{1960} = \frac{55}{49} \approx 2^{\frac{1}{6}}$$

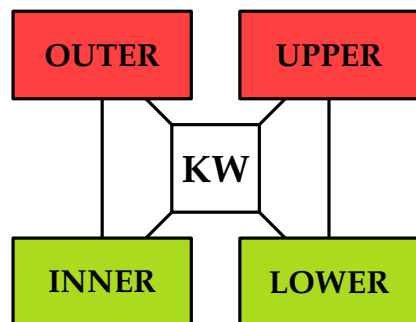
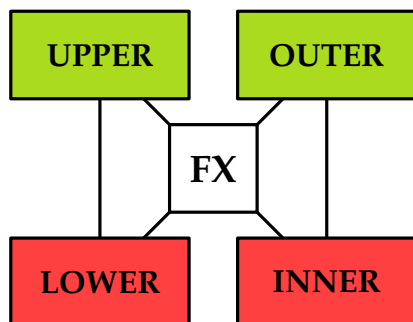
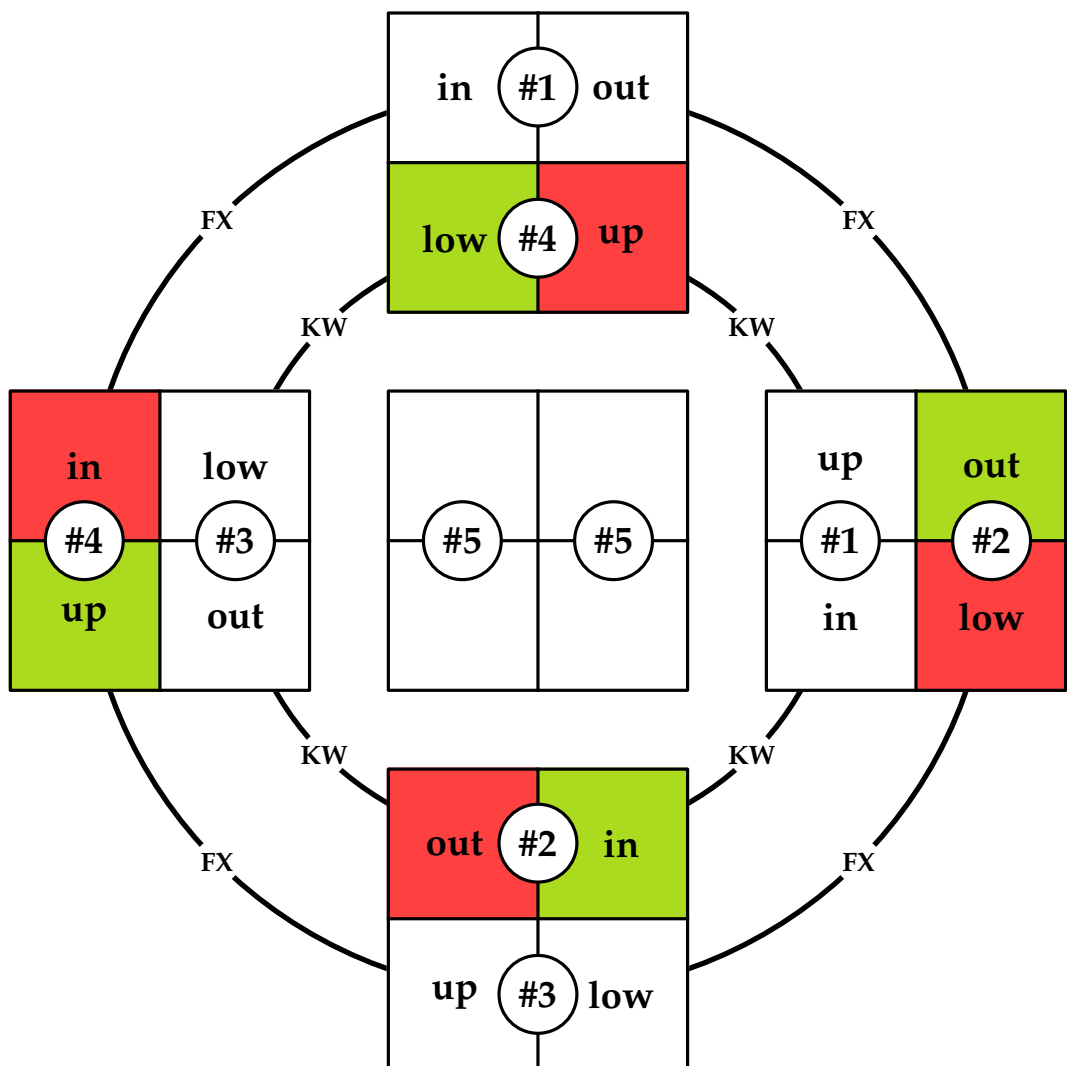


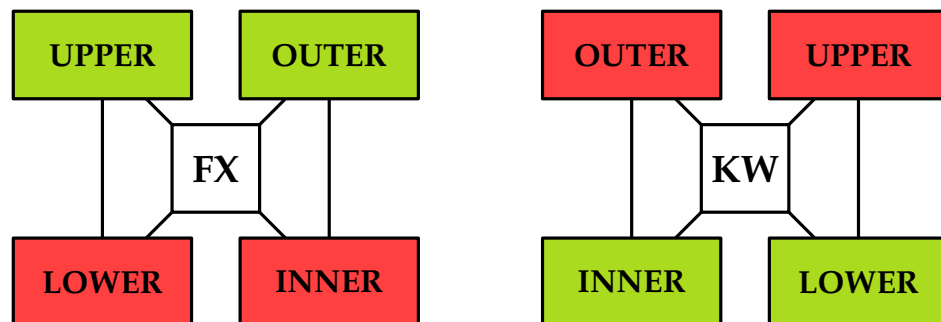
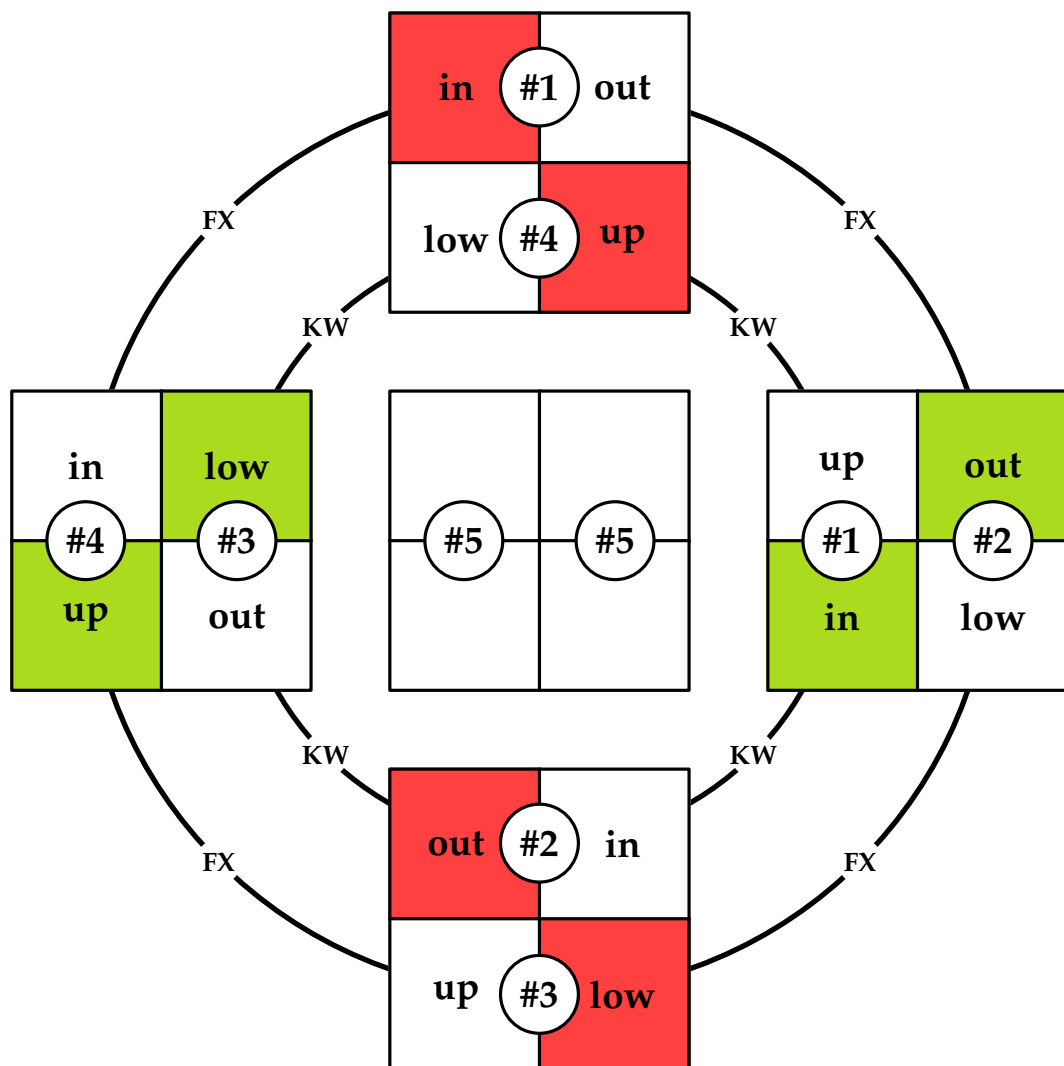
120

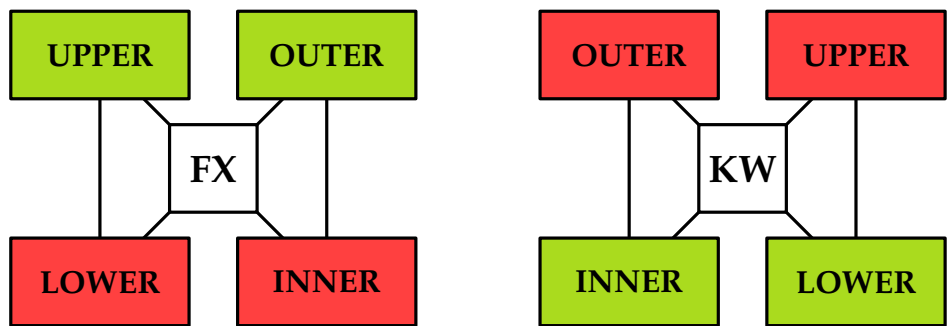
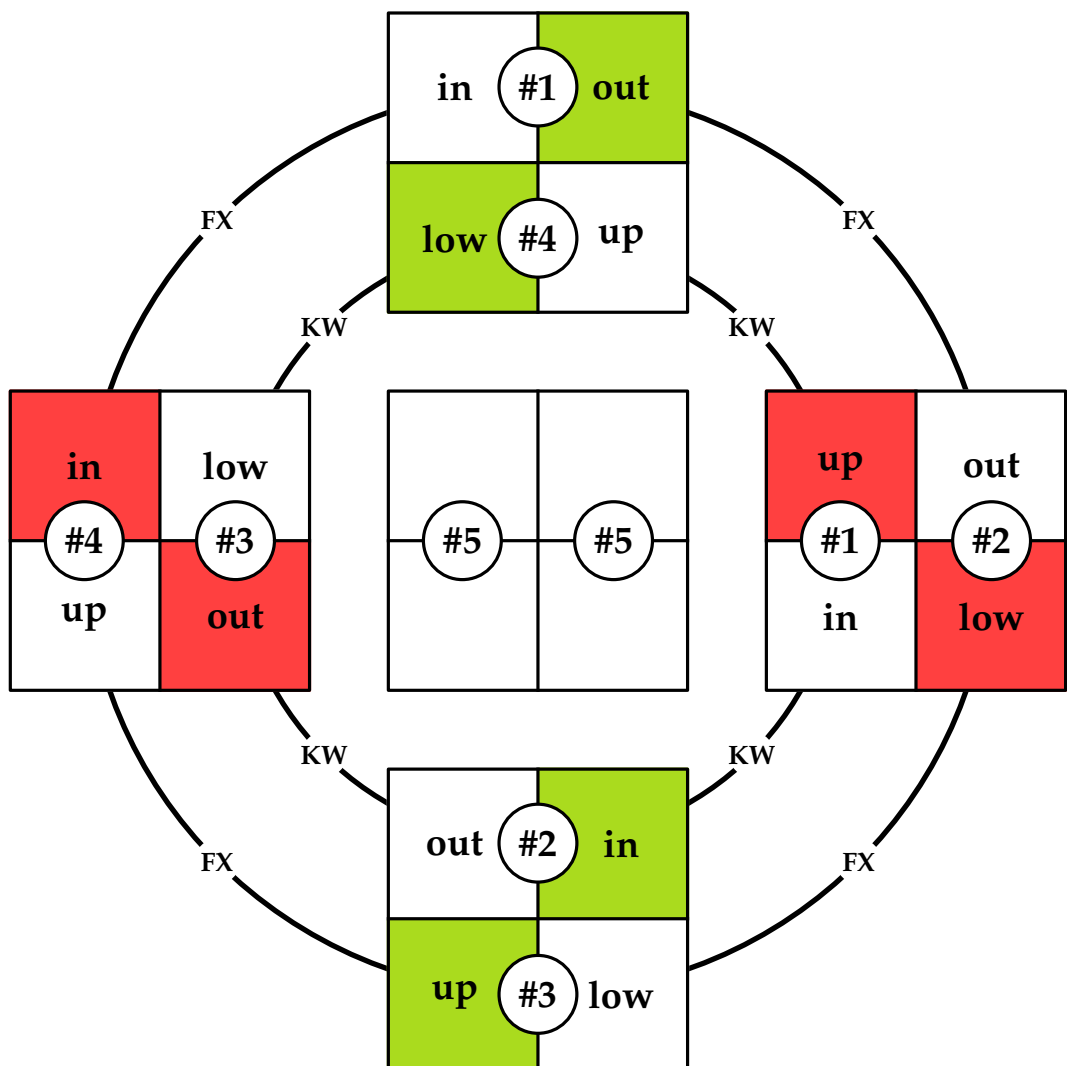


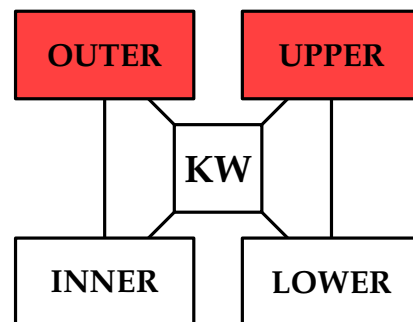
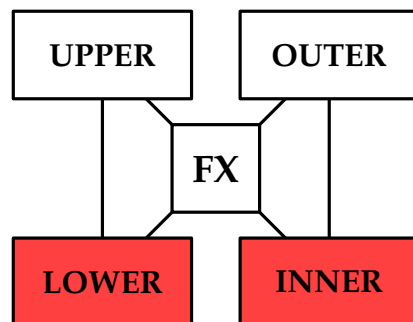
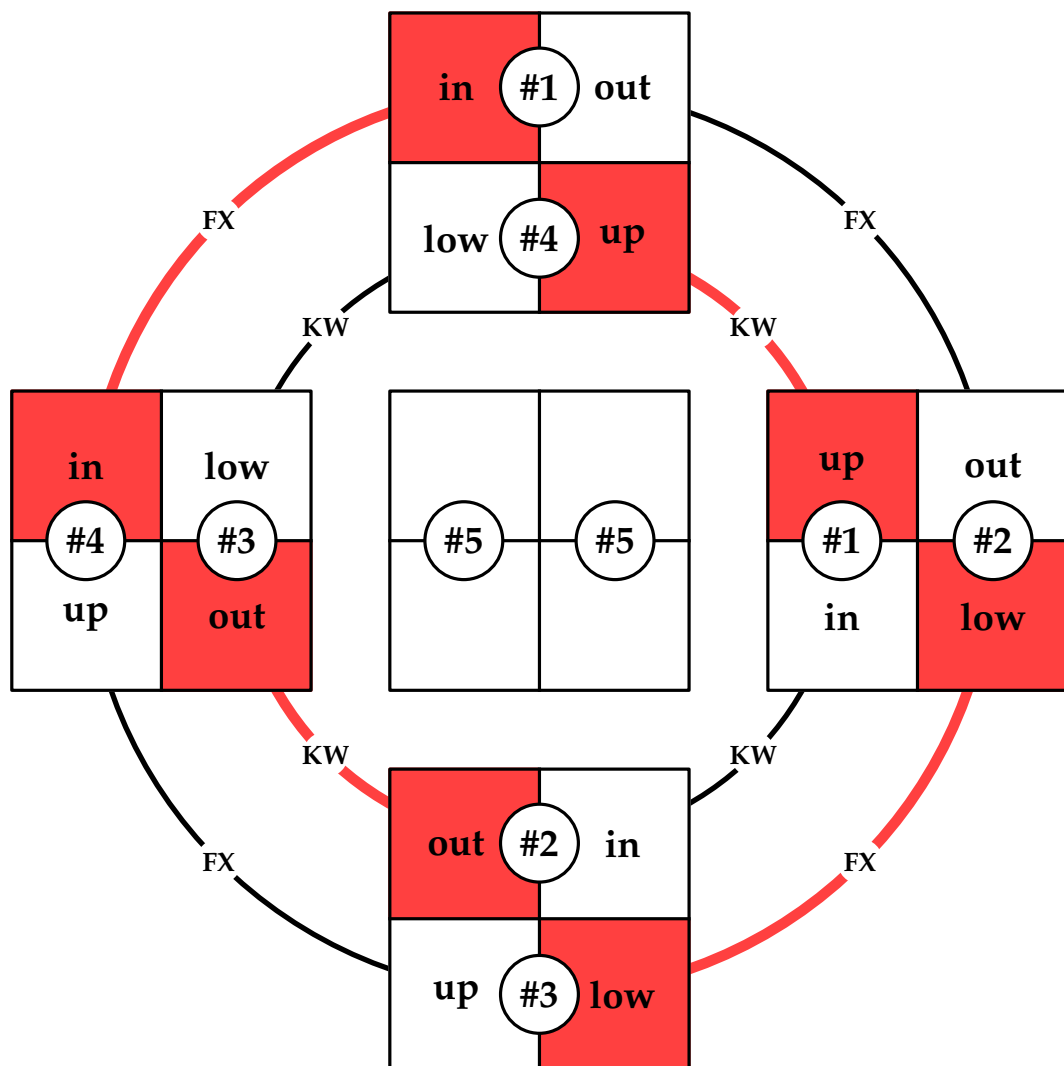


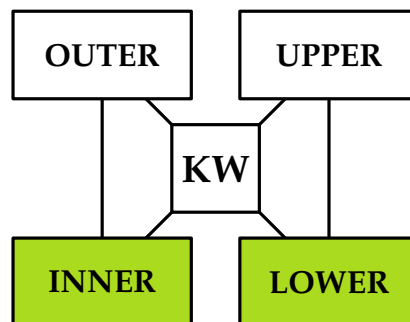
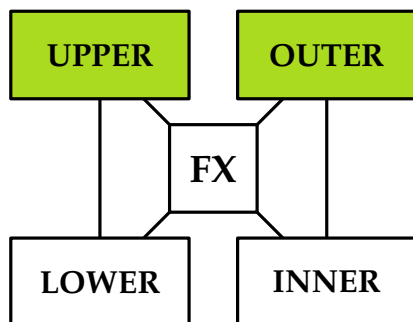
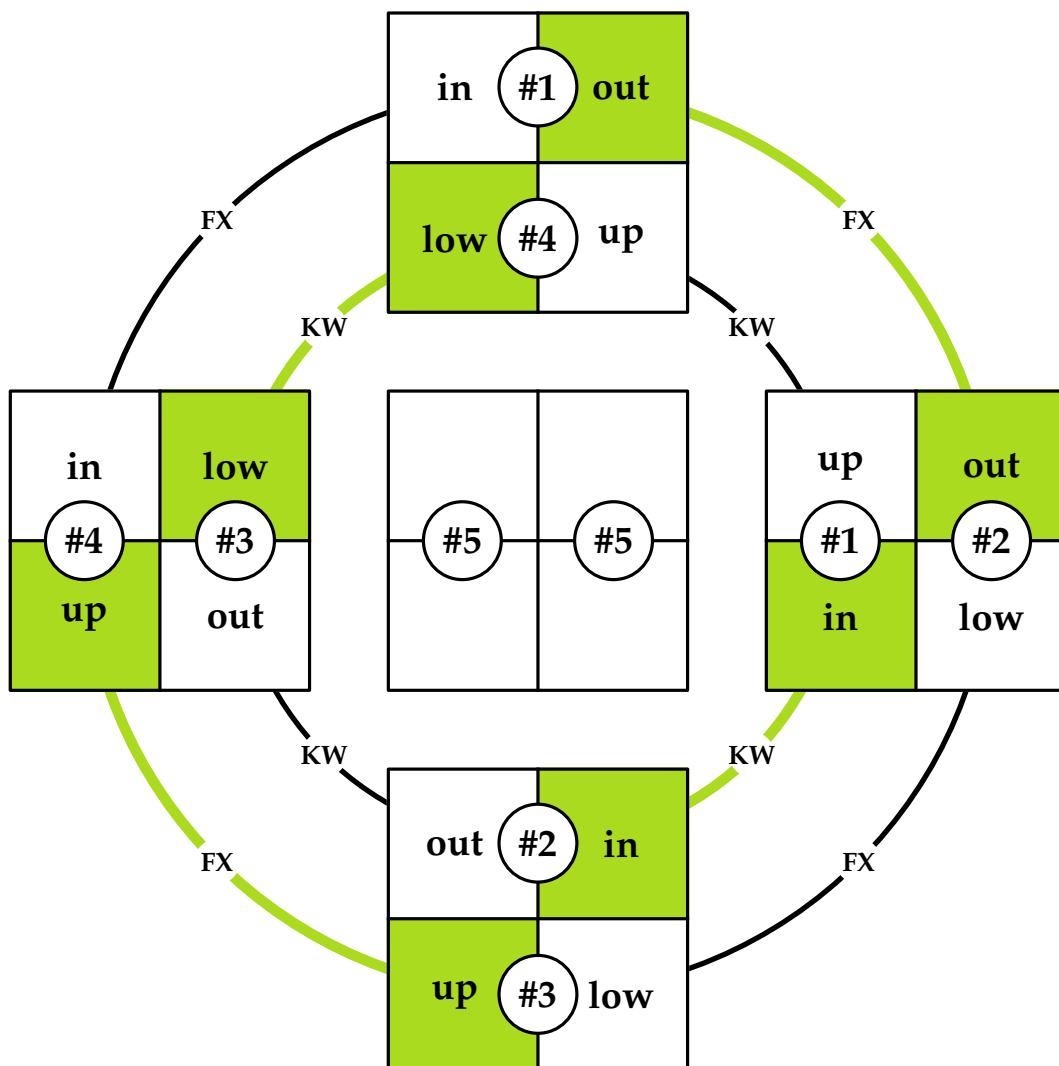


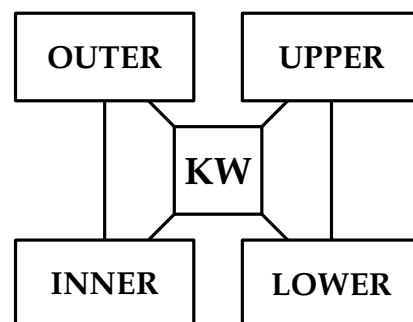
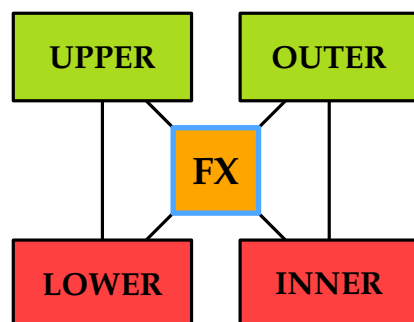
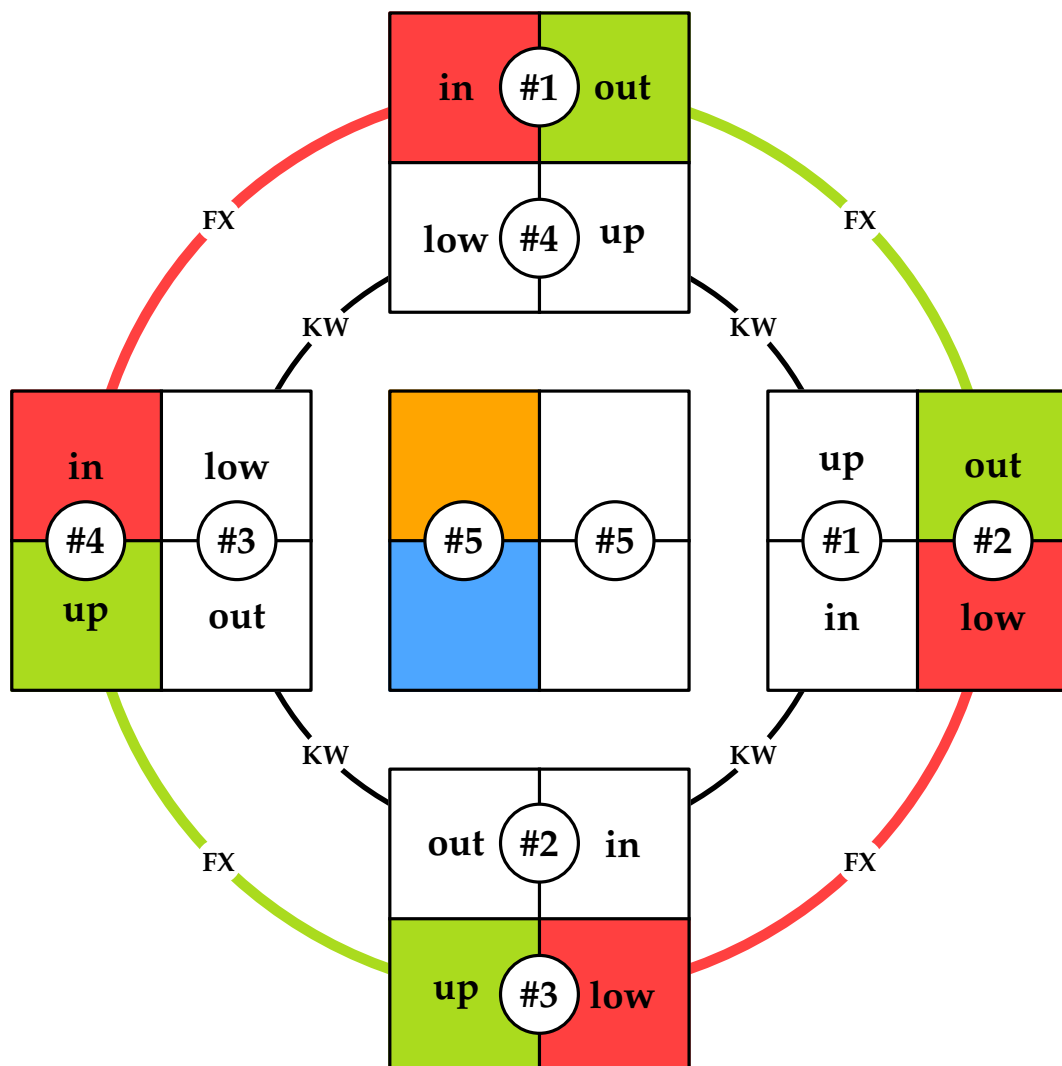


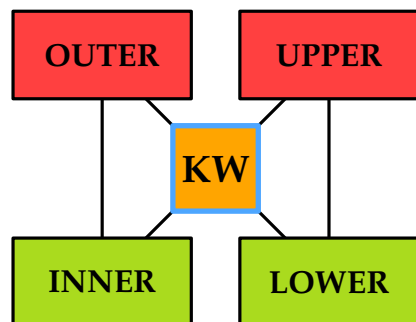
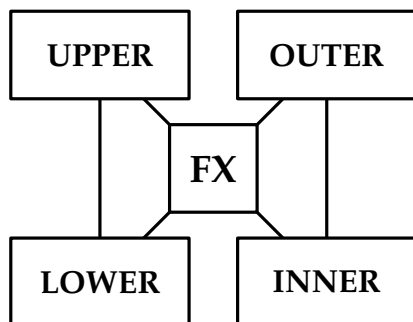
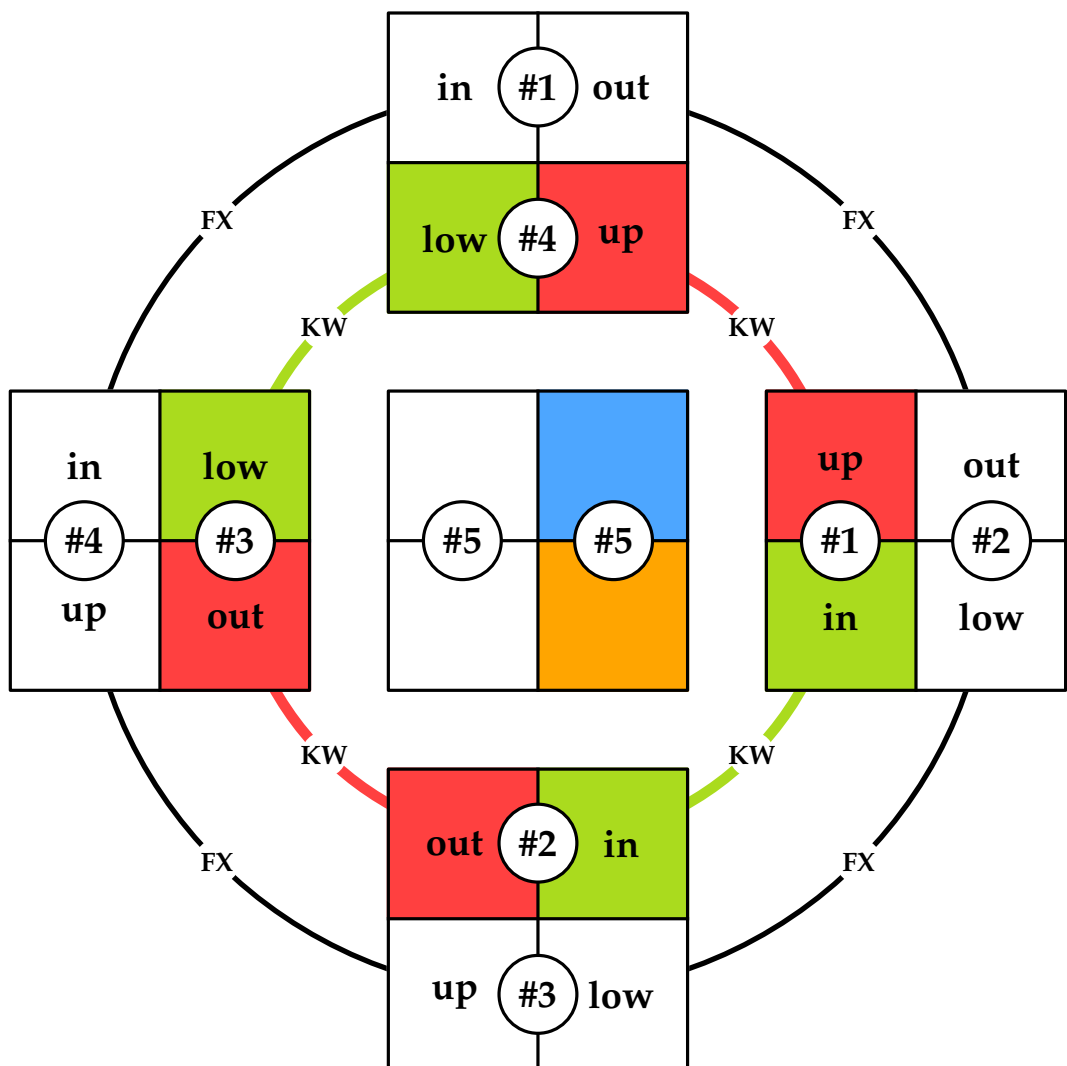


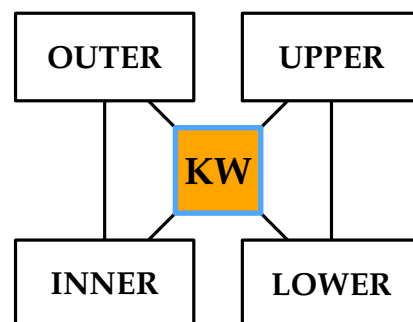
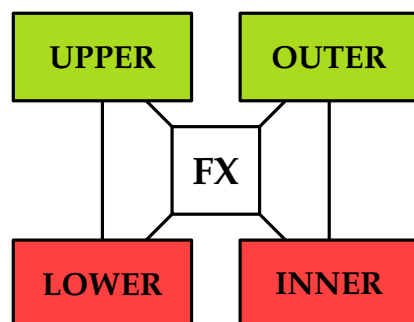
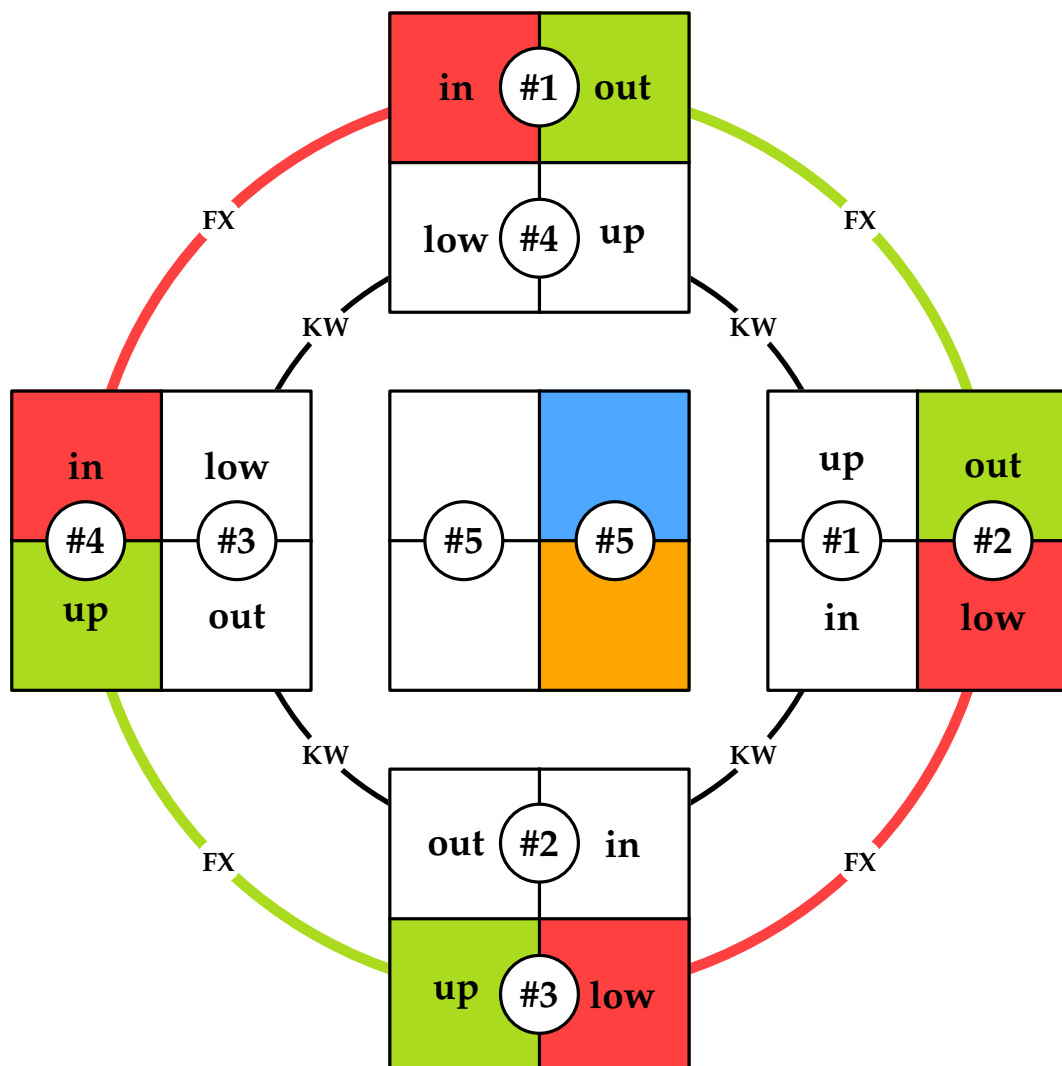


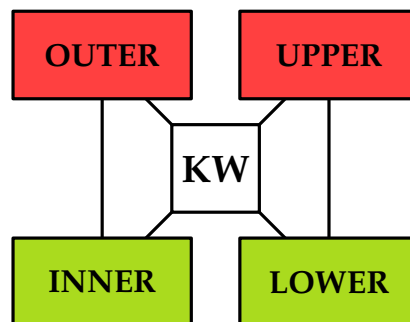
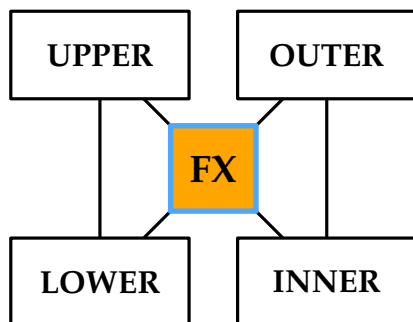
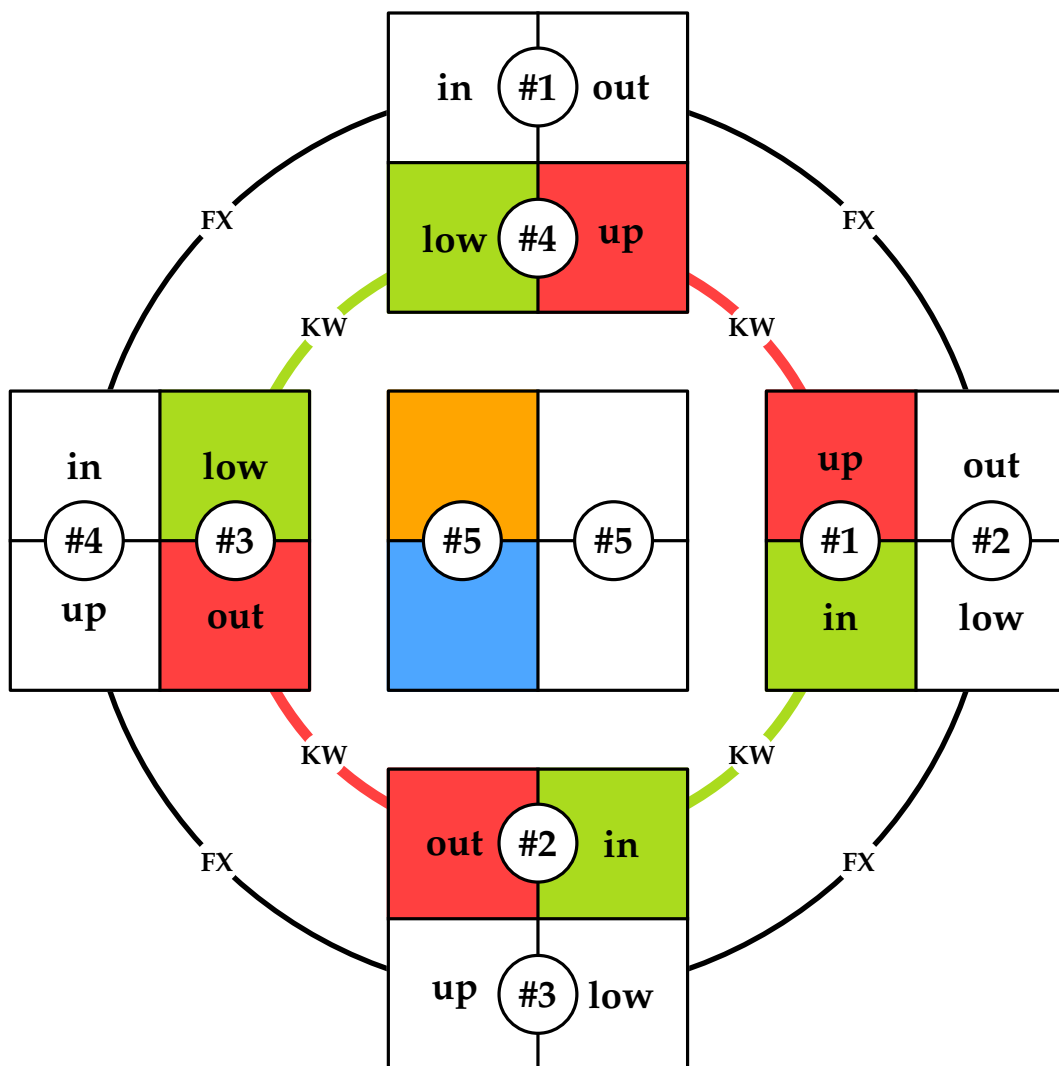








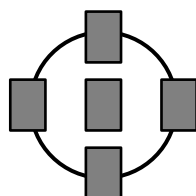




54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

FX(1300) KW(780)

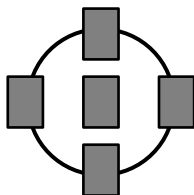
$$1300 + 780 = 2080$$



54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

FX(780) KW(1300)

$$780 + 1300 = 2080$$



54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

FX

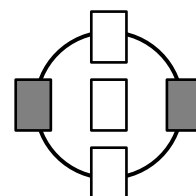
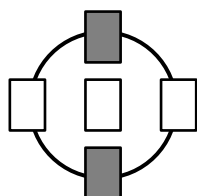
KW

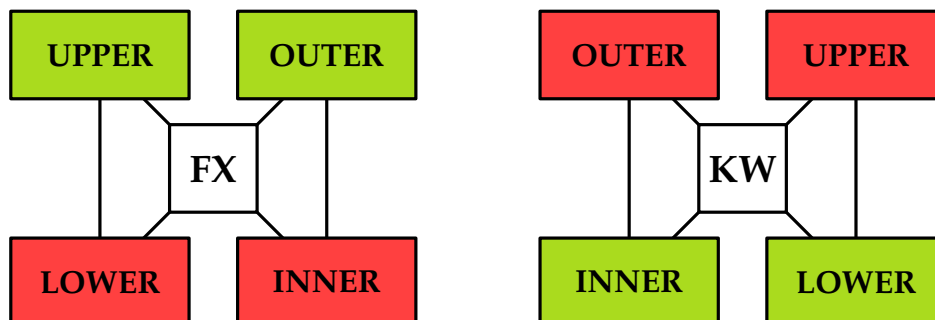
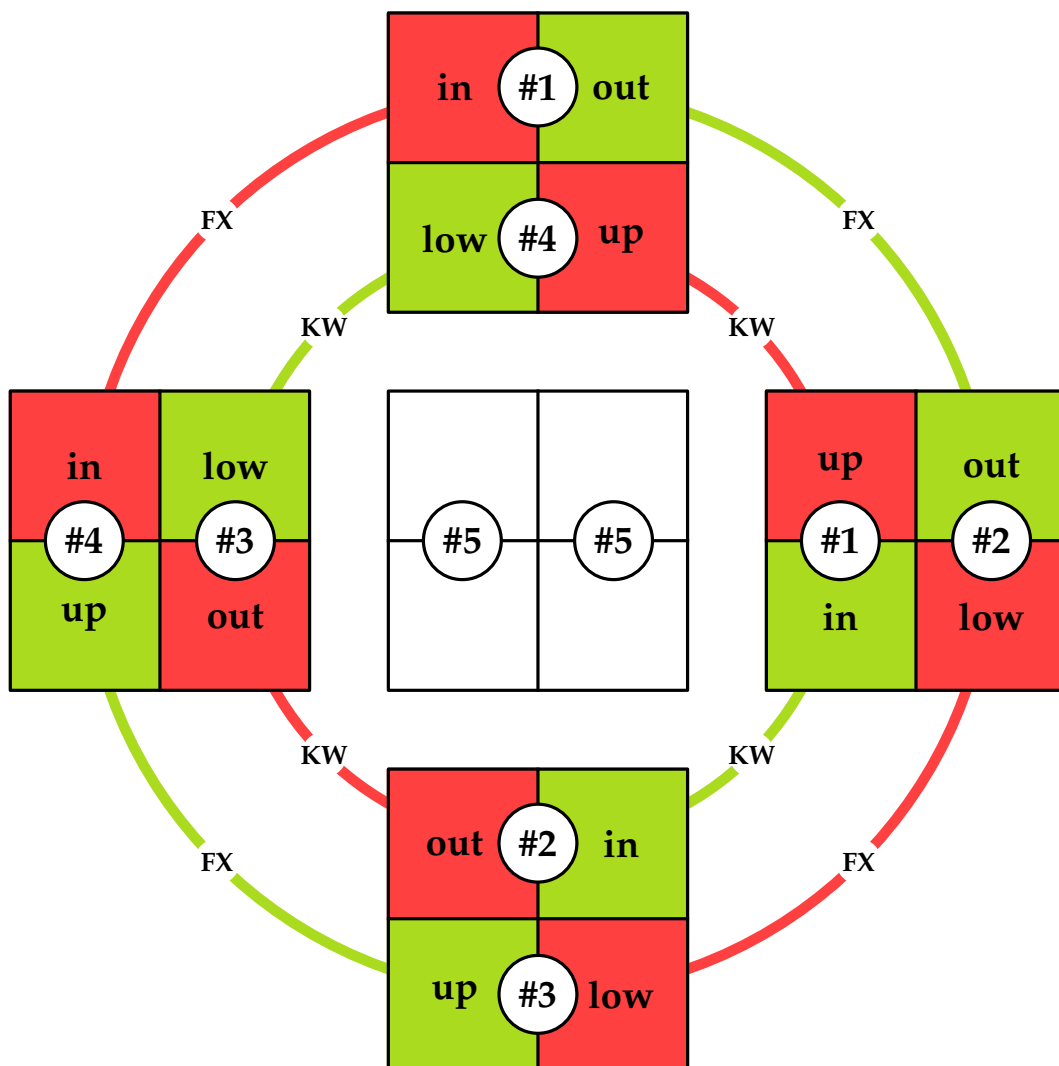
KW

FX

$$\text{FX}(1300) = \text{KW}(1300)$$

$$\frac{1300}{1300} = 1 = \frac{1300}{1300}$$

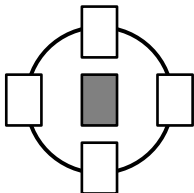


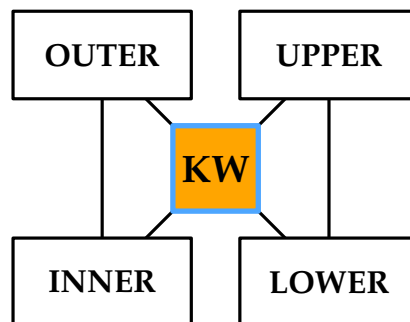
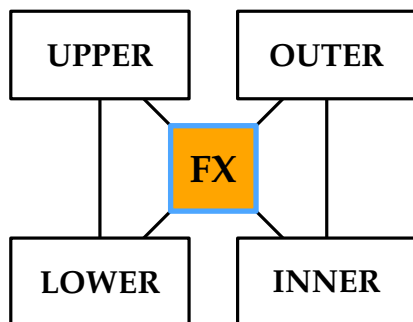
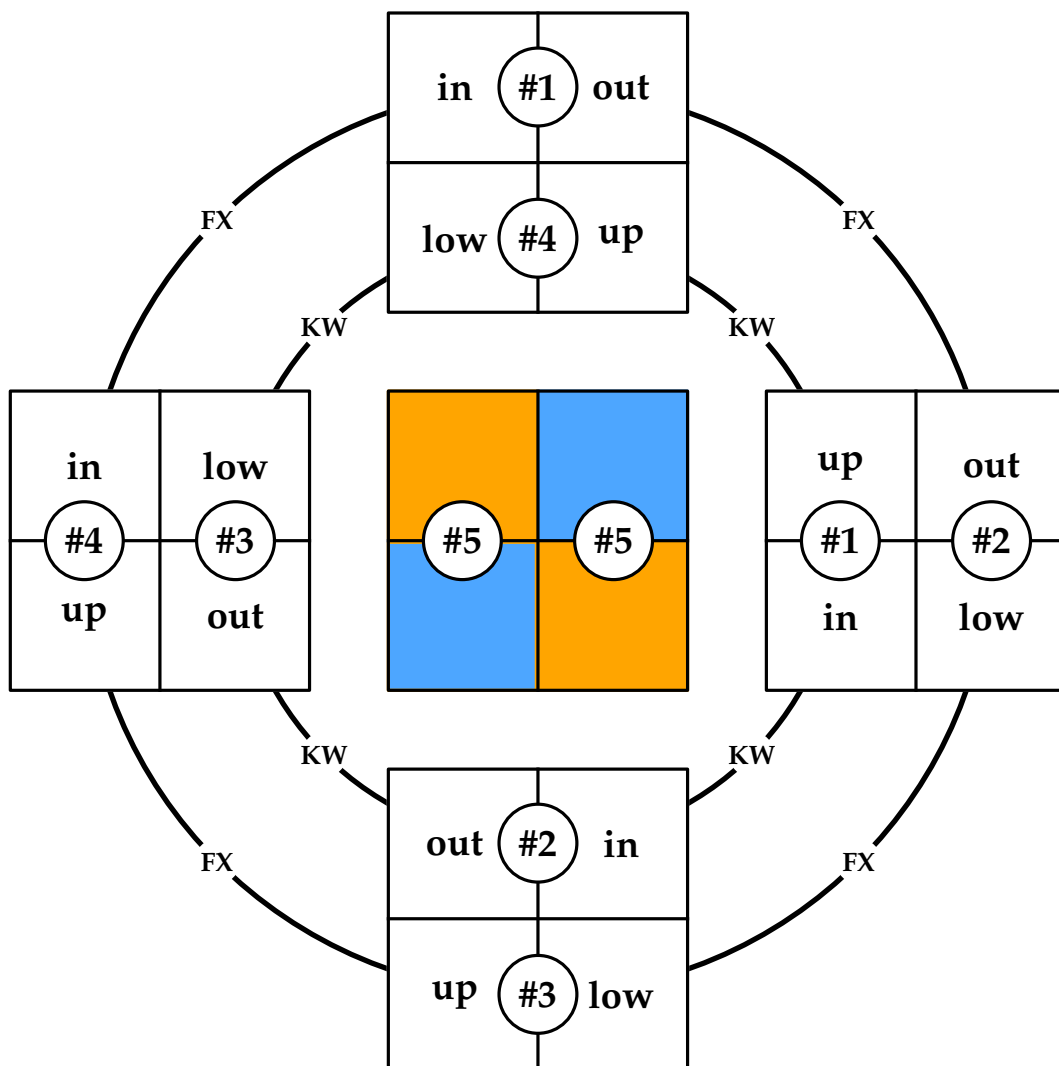


54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190
FX	KW	KW	FX

$$\text{FX}(780) = \text{KW}(780)$$

$$\frac{780}{780} = 1$$





54	50	106	78
78	42	82	118
126	142	134	134
3	3	23	31
51	123	107	47
75	59	127	87
123	55	35	103
126	154	230	134
174	146	218	150
198	138	106	190

540

1020

FX

624

KW

936

KW

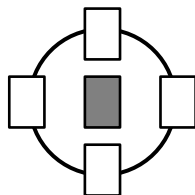
FX

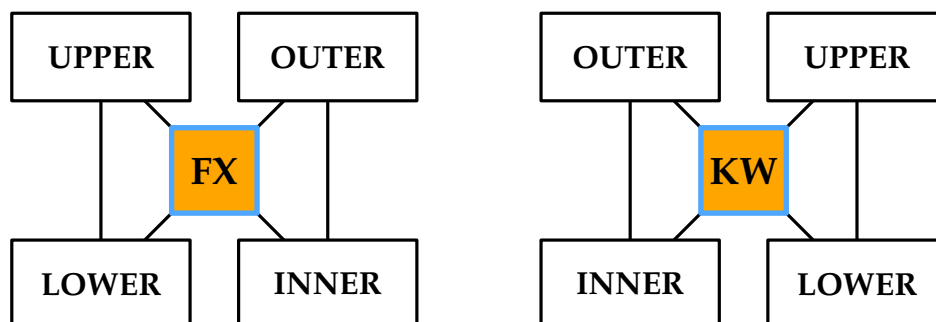
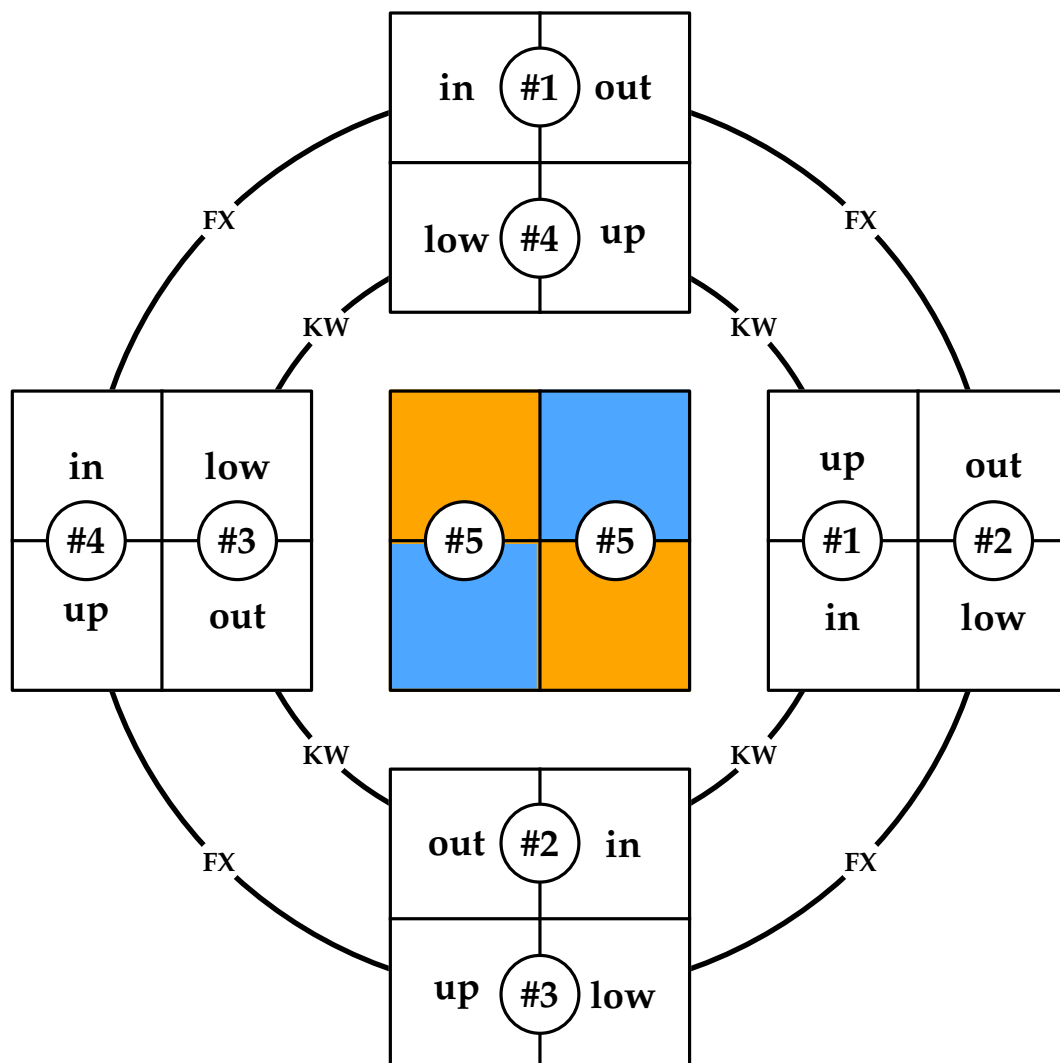
$$\text{FX}(780) = \text{KW}(780)$$

$$\frac{780}{780} = 1$$

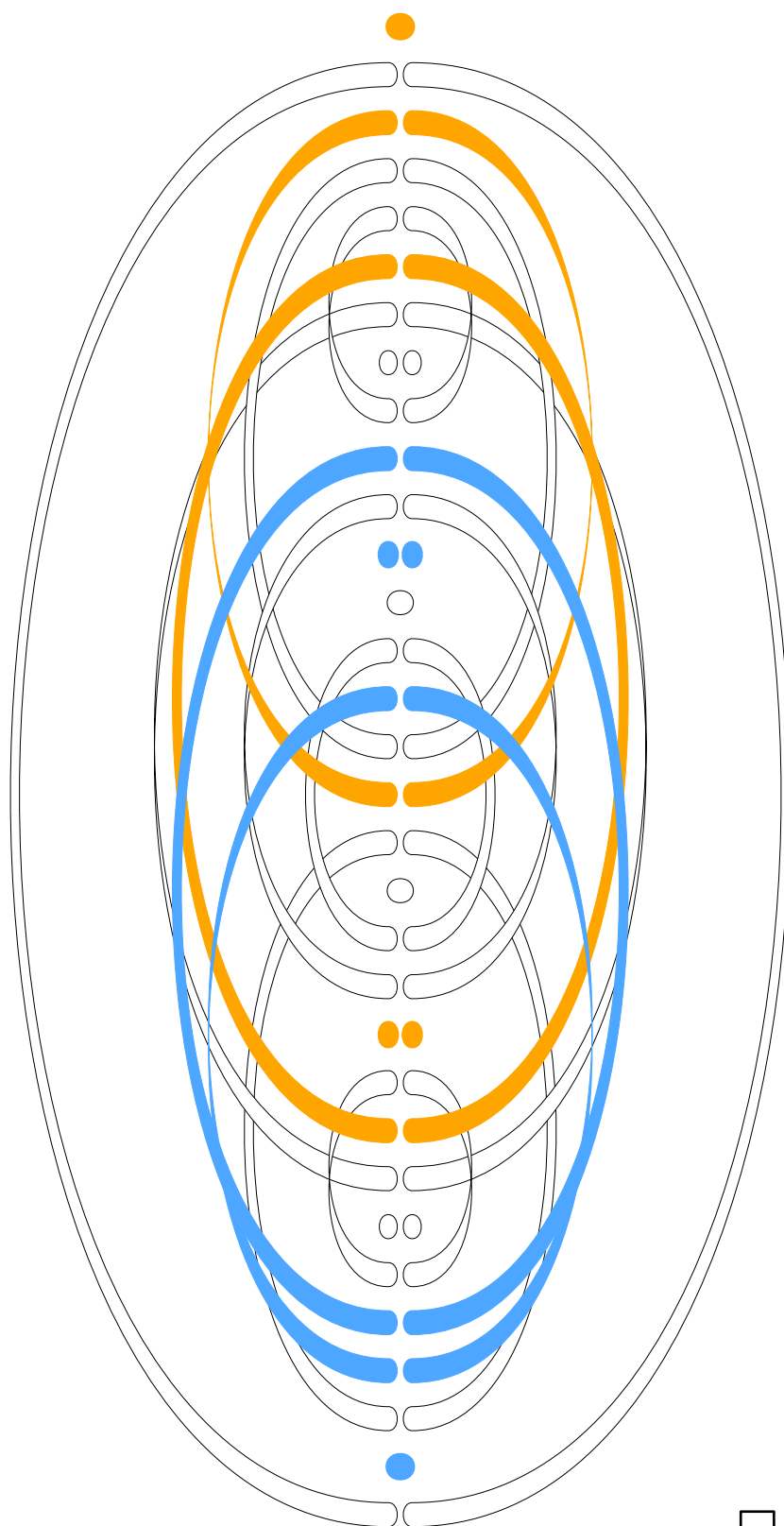
$$\frac{936}{624} = \frac{3}{2} \approx 2^{7/12}$$

$$\frac{1020}{540} = \frac{17}{9} \approx 2^{11/12}$$



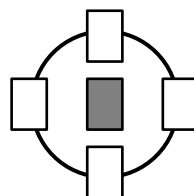


780



#5

Fu Xi



780

