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# The Quantum Leap and the Playbook

A novel substitute for the gaming experience by using multi-player tokens and multi-layer grids

*from* Jens T. Hinrichs

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**INTRODUCING**

# The QuantumGrid

- unifies the notation of moves using a coordinate system
- the corresponding PLAYBOOK therefore notes down simple linear equations and vector calculation that we know from school – don´t be afraid!
- the most diverse games and their tournament variants are transferred to invisible layers (folio), but visible layers (carton board) are recommended
- figures get more freedom of movement by applying an offside rule, we can completely dispense with beating (capturing) a figure referred to as active opt-in / defensive opt-out (temporarily)
- combined battlefields and battle scenarios are created by laying them on top of each other to replace the various game boards
- finally we apply and occupy the multi-player character and the multi-level mode on just one QuantumGrid – what kind of Player are you?
- we also want to use dices as a uniform game figure known as cute cube (qtQb) because several game characters can be accommodated on them – or a cute token (Qt) embossed on both sides
- if the grid would consist of individual dices, you could ‘delete' unoccupied columns and rows within the duration of the game – increases the tension and the pressure on each Player
- the QuantumGrid allows creating a new kind of game situation, restricting and expanding the movement of its figures – a little more step by step later!
- incidentally, it is the only Quantum Leap that can be experienced without a Computer Technology or Artificial Intelligence by simply training and sharpening our mind!

QuantumGrid v1 (Mah-Jong | Domino)

y > 0
x < 0

4-SMOL Scrabble

Halma-Layer

y

z

QuantumGrid (Crossword | T2Hue | Connect Four)

- x

x

2-Pac (Chess | Othello | Checkers)

Shogi-Layer

Mill-Layer

4-Player-Modus (Chess | Othello | Checkers)

Go-Layer

- z

- y

x > 0
y < 0

QuantumGrid v2 (Go | Mill)

QuantumGrid (Crossword | T2Hue | Connect Four)

y > 0
x < 0

y

z

- x

x

Mill-Layer

Go-Layer

- z

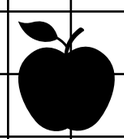
- y

x > 0
y < 0

QuantumGrid v3 (SMOL Crossword)

y > 0
x < 0

z



A1 P3 P3 L2 E1

- x

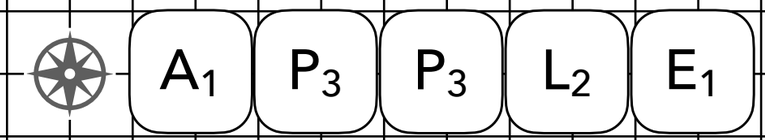
x

- z

- y

x > 0
y < 0

QuantumGrid v4 (SMOL Scrabble)

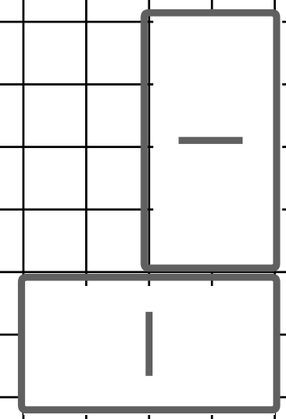


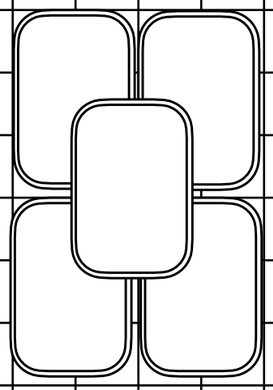
QuantumGrid v5 (Mah-Jong | Domino)

y > 0
x < 0

y

z





- x

x

- z

- y

x > 0
y < 0

QuantumGrid v6 (Mill | Knockout)

y > 0
x < 0

y

z

- x

x

- z

- y

x > 0
y < 0

QuantumGrid v7 (Connect Four)

y > 0
x < 0

z

- x

x

- z

x > 0
y < 0

QuantumGrid v8 (Gobang)

y > 0
x < 0

z

- x

x

- z

x > 0
y < 0

QuantumGrid v9 (Halma)

y > 0
x < 0

z

- x

x

- z

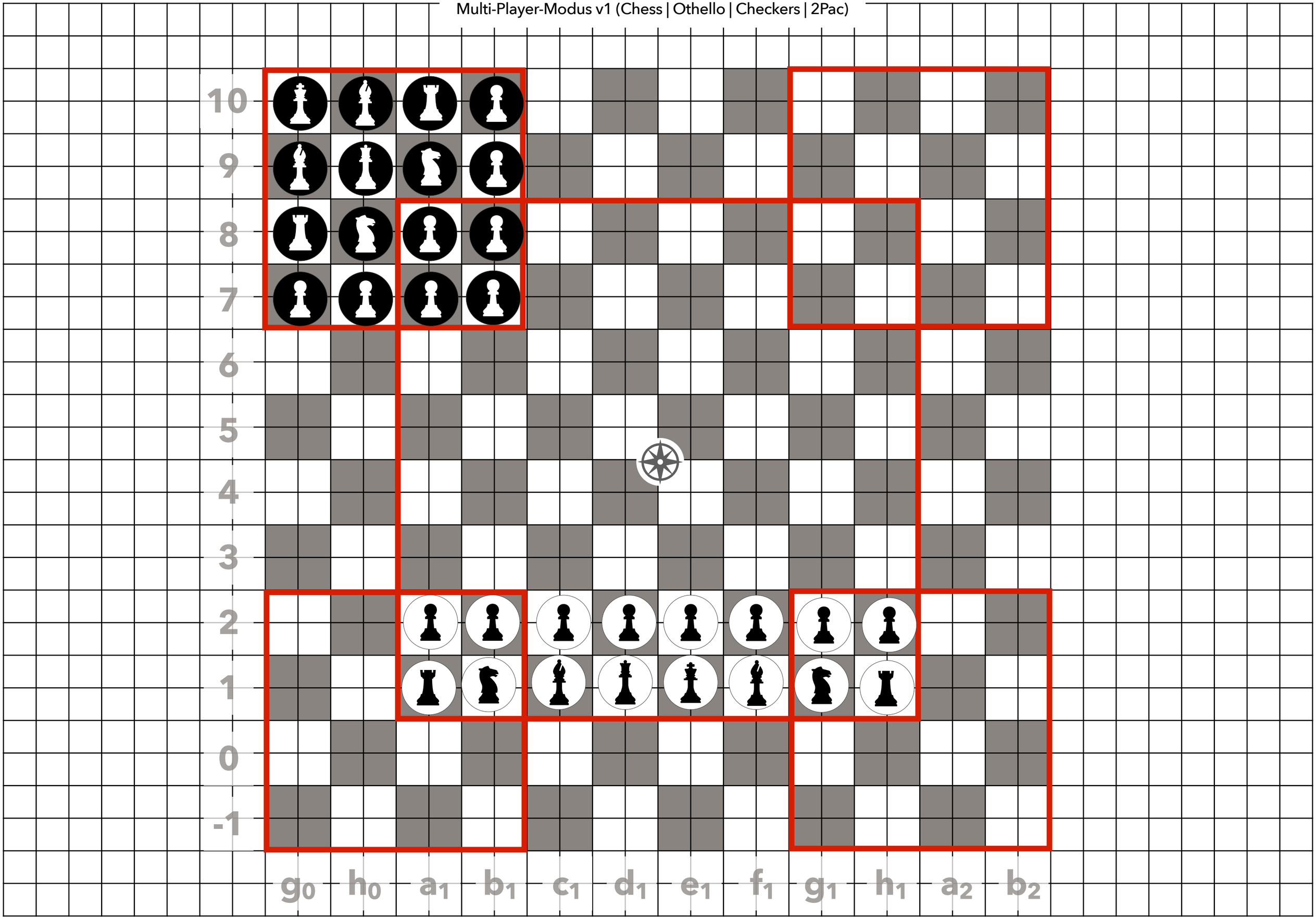
x > 0
y < 0

**INTRODUCING**

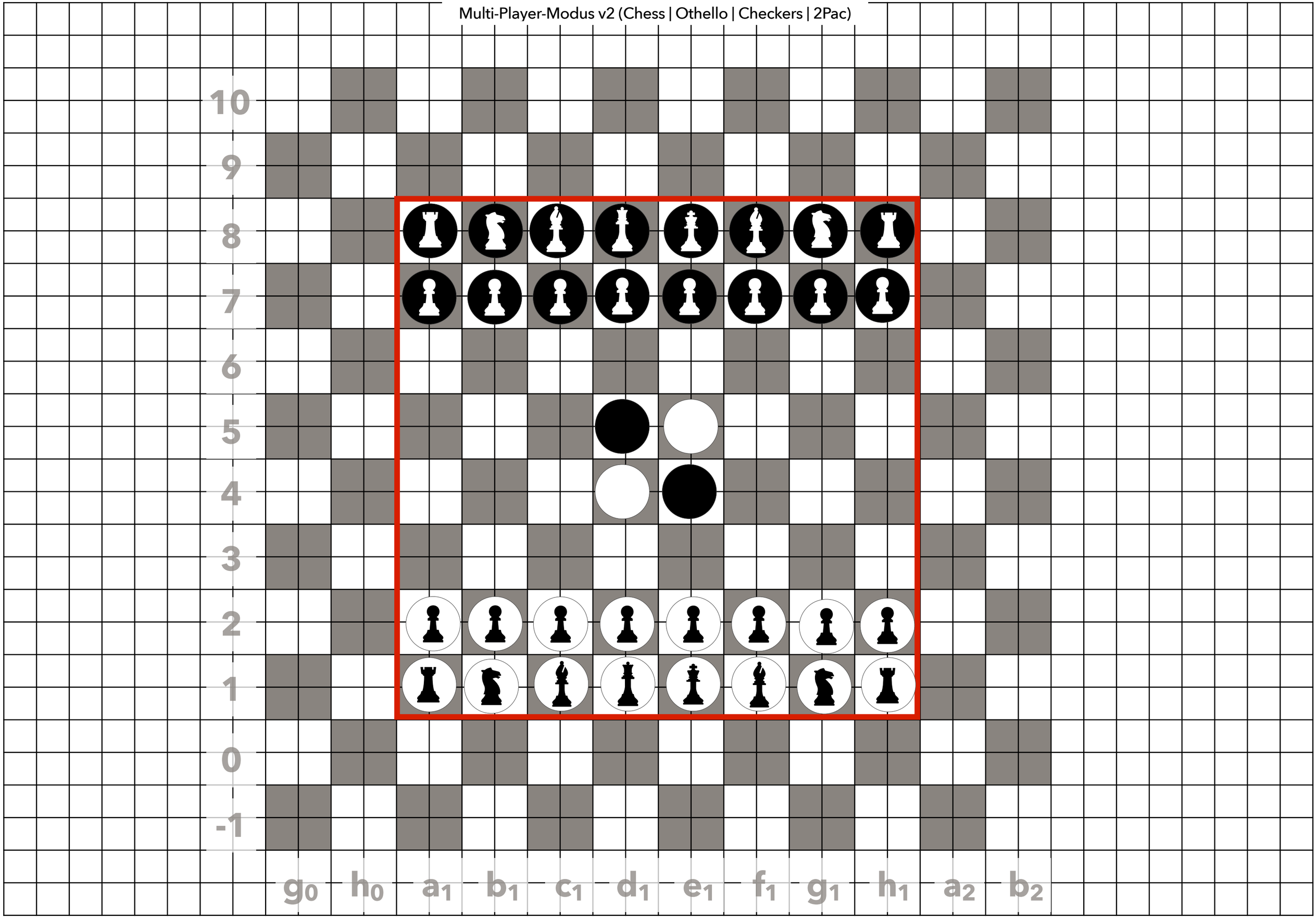
# The Playbook

- unifies the notation of allowed moves on league tournaments and game seasons
- allows the subsequent analysis using mathematical sequences and series or curve discussions
- the compass rose marks the middle / zero point of the coordinate system
- therefore notes down simple linear equations in minus and plus variables x, y, z each indexed with a number range of the game figure followed by a tupel with sign rule e.g. (αx, βy, -Δz)
- the Player's direction notes down as vertical, horizontal and diagonal vectors for his figure, so that you can visualize and sketch your experience steps and every moves you made
- the most diverse games and their typical game characters compete against each other on a common platform known as QuantumGrid
- allows the counterfeit and adoption of rules – one grid, more levels and better experience
- with the Playbook you always have your best results, opening strategies and defensive moves with you – analyze yourself and your game will get better!
- regardless of whether you are a player, coach or referee and / or absolute beginner, advanced player or professional – you won't want to put the Playbook aside anymore!
- defines heads-up between the counterparties and enables skills to be adopted from the defeated game figures - variants are presented in detail how to role over / change the dieces
- with a Playbook you can inherit or share your experiences, to and with your descendants and apprentices – but always keep it a secret from your opponents and during the game season!

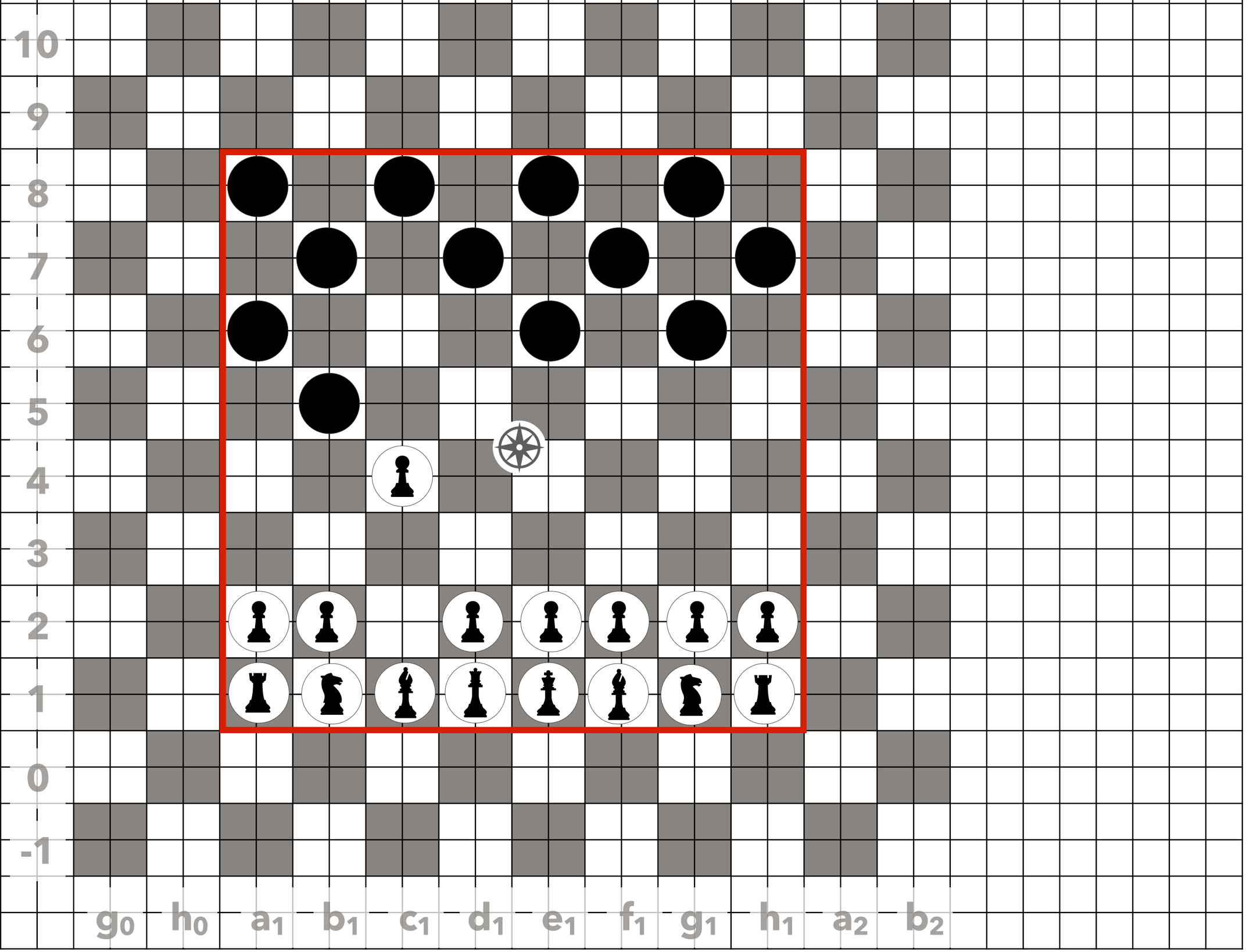
Multi-Player-Modus v1 (Chess | Othello | Checkers | 2Pac)



Multi-Player-Modus v2 (Chess | Othello | Checkers | 2Pac)



Multi-Player-Modus v3 (Chess | Othello | Checkers | 2Pac)



# 4-PLAYER-MODUS: LINEUP AND FIRST MOVES OF BLACK IN CHESS

**TO MAKE IT EASIER 4US TO GET STARTED, WE USE THE MOST POPULAR NOTATION THAT HAS BEEN VALID TO DATE**

| NO. | $p_1$ | $p_2$ | $p_3$ | $p_4$ | $p_5$ | $p_6$ | $p_7$ | $p_8$ | $r_1$ | $j_1$ | $b_1$ | $q_1$ | $k_1$ | $b_2$ | $j_2$ | $r_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | $g_0 7$ | $h_0 7$ | $a_1 7$ | $b_1 7$ | $b_1 8$ | $b_1 9$ | $b_1 10$ | $a_1 8$ | $g_0 8$ | $h_0 8$ | $g_0 9$ | $h_0 9$ | $g_0 10$ | $h_0 10$ | $a_1 9$ | $a_1 10$ |
| 1 | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | |
| <50 | | | | | | | | | | | | | | | | |

$\cap$ = figure beats (intersection) $\cup$ = figure takes on properties (union) n = value of figure i = frequency of appearance of figure

$p_i^n$ = pawn $r_i^n$ = rook (tower) $j_i^n$ = jumper (knight) $b_i^n$ = bishop (runner) $q_i^n$ = queen $k_i^n$ = king

# 2-PLAYER-MODUS: LINEUP AND FIRST MOVES OF WHITE IN 2PAC (CHESS | OTHELLO)

**TO MAKE IT EASIER 4US TO GET STARTED, WE USE THE MOST POPULAR NOTATION THAT HAS BEEN VALID TO DATE**

| NO. | $p_1$ | $p_2$ | $p_3$ | $p_4$ | $p_5$ | $p_6$ | $p_7$ | $p_8$ | $r_1$ | $j_1$ | $b_1$ | $q_1$ | $k_1$ | $b_2$ | $j_2$ | $r_2$ | $o_1$ | $o_2$ | $o_i$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | $a_12$ | $b_12$ | $c_12$ | $d_12$ | $e_12$ | $f_12$ | $g_12$ | $h_12$ | $a_11$ | $b_11$ | $c_11$ | $d_11$ | $e_11$ | $f_11$ | $g_11$ | $h_11$ | $d_14$ | $e_15$ | - |
| **1** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | $c_15 \cap d_15$ |
| **2** | | | | | | | | | | | | | | | | | | | |
| **3** | | | | | | | | | | | | | | | | | | | |
| **4** | | | | | | | | | | | | | | | | | | | |
| **5** | | | | | | | | | | | | | | | | | | | |
| **6** | | | | | | | | | | | | | | | | | | | |
| **7** | | | | | | | | | | | | | | | | | | | |
| **8** | | | | | | | | | | | | | | | | | | | |
| **9** | | | | | | | | | | | | | | | | | | | |
| **10** | | | | | | | | | | | | | | | | | | | |
| **11** | | | | | | | | | | | | | | | | | | | |
| **12** | | | | | | | | | | | | | | | | | | | |
| **13** | | | | | | | | | | | | | | | | | | | |
| **14** | | | | | | | | | | | | | | | | | | | |
| **15** | | | | | | | | | | | | | | | | | | | |
| **16** | | | | | | | | | | | | | | | | | | | |
| **17** | | | | | | | | | | | | | | | | | | | |
| **<50** | | | | | | | | | | | | | | | | | | | |

$\cap$ = figure beats (intersection) $\cup$ = figure takes on properties (union) n = value of figure i = frequency of appearance of figure
$p_i^n$ = pawn $r_i^n$ = rook (tower) $j_i^n$ = jumper (knight) $b_i^n$ = bishop (runner) $q_i^n$ = queen $k_i^n$ = king $o_i^n$ = othello

# 2-PLAYER-MODUS: LINEUP AND FIRST MOVES IN CHESS VS. CHECKERS

**TO MAKE IT EASIER 4US TO GET STARTED, WE USE THE MOST POPULAR NOTATION THAT HAS BEEN VALID TO DATE**

| NO. | $c_1$ | $c_2$ | $c_3$ | $c_4$ | $c_5$ | $c_6$ | $c_7$ | $c_8$ | $c_9$ | $c_{10}$ | $c_{11}$ | $c_{12}$ | $p_3$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | $a_1$8 | $c_1$8 | $e_1$8 | $g_1$8 | $b_1$7 | $d_1$7 | $f_1$7 | $h_1$7 | $a_1$6 | $c_1$6 | $e_1$6 | $g_1$6 | $c_1$2 |
| 1 | - | - | - | - | - | - | - | - | - | - | - | - | $c_1$4 |
| 2 | - | - | - | - | - | - | - | - | - | $b_1$5 | - | - | - |
| 3 | | | | | | | | | | x | | | $c_1$4 ∩$b_1$5 |
| 4 | | | | | | | | | | x | | | |
| 5 | | | | | | | | | | x | | | |
| 6 | | | | | | | | | | x | | | |
| 7 | | | | | | | | | | x | | | |
| 8 | | | | | | | | | | x | | | |
| 9 | | | | | | | | | | x | | | |
| 10 | | | | | | | | | | x | | | |
| 11 | | | | | | | | | | x | | | |
| 12 | | | | | | | | | | x | | | |
| 13 | | | | | | | | | | x | | | |
| 14 | | | | | | | | | | x | | | |
| 15 | | | | | | | | | | x | | | |
| 16 | | | | | | | | | | x | | | |
| 17 | | | | | | | | | | x | | | |
| <50 | | | | | | | | | | x | | | |

∩ = figure beats (intersection) ∪ = figure takes on properties (union) n = value of figure i = frequency of appearance of figure

$p_i^n$ = pawn $c_i^n$ = checkers x = is beaten

**INTRODUCING**

# The Gamechanger

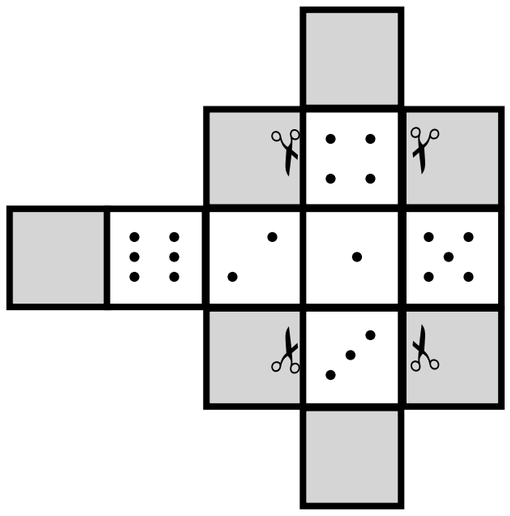
- changes the way we play, the moves and the way we use them
- figures can be used to beat opponents and to take over their abilities to play
- for the casino variants, we use Quantum Tokens (Qt) which are printed or embossed on both sides; the edge is to be provided with a unique signature of the casino and a branded QR-Code
- for the home games and tournaments, we use Quantum Cubes (Qb) which are printed or embossed on up to 6 sides in opposite directions; a sixth side has a sponsorship logo or a branded QR-Code
- the material should consist of reusable or recycled raw materials: ~~credit cards; recycled paper,~~ wood or glass; wooden panels; Broomsticks; Puzzles; ~~traffic signs;~~ discarded packaging boxes; bottle caps; buttons; ~~pressed plastic pellets or scraps of fabric~~
- literally takes traditional ways of playing, strategical and tactical thinking to the next level
- equivalent constellations of the Quantum Cubes (Qb):
    - 1+6 replaced with black and white Chess figures, 2+5 replaced with Chess figures in Yellow and Green (4-Player-Modus), 3–4 replaced with black and white circle (Checkers, Go, Mill, Othello)
    - 1+6 replaced with Latin Alphabet and colored Alphabet (T2Hue), 2+5 replaced with alternative Alphabets (NewMorse, VisualBraille), 3+4 replaced with numbers 1–26 and special characters (= ambiguous sign and ≡ trivalent sign, direction arrows, sample of picture puzzles); Alphabets has its subscript value of the letter (Scrabble)

## CONTINUATION

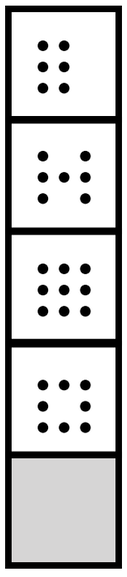
- 1+6 replaced with black and white Chess figures, 2+5 replaced with Chess Pawn figures in Black and White (for upgrading and devaluing character skills), 3–4 replaced with black and white circle – Checkers (12 fig. each), Go (up to: 180 white, 181 black), Mill (12 fig. each), Othello (64 fig. in total);
    - assuming a maximum number of Go-dices, the flexibility of upgrading and devaluing Chess characters could be expanded while reducing the intersection points (64<361) on the QuantumGrid
- we could just as well label or emboss the Quantum Cubes (Qb) with Shogi, Domino, Mathematical Operators, VisualBraille Numbers 0 to 9 (⠿ ⠂ ⠒ ⠖ ⠶ ⠷ ⠾ ⠿), Mah-Jongg
    - assuming an alternative number of figures, we simply put two square plates on top of each other in order to be able to depict the countered figures, after all, 4 different figures fit on two plates; twice the depth of a plate should then correspond to the length of a Qb
- Shogi already known upgrading and devaluing character skills
- in addition to the game rules, Go also knows rules that teach respect and rules of conduct, rather than those of winning

## THE QUANTUM CUBE (Qb)

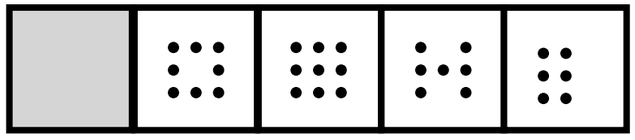
- the standard dimensions of a Quantum Cube (Qb I) with all side edges is 16 x 16 x 16 mm
- the Qb can also be enclosed by a four-part Quantum Tape (Qt II, e.g. Qt I: Quantum Token) or Quantum Bracelet (Qb II), not sticky, but its format are increased by a total of 2 mm each
- this makes it easier to exchange characters;
- appearance of the Qb I & II can be changed during the game (upgrading and devaluing)
- just have to pay attention to the countered figures (1+6, 2+5, 3+4, 0+9, 7+8) that are related in the gaming mode or QuantumGrid
- so the frequency of the characters is determined by the multiple player mode or the size of the choosen QuantumGrid – for this reason it is also more economical to use a Quantum Cube (Qb)



Quantum Cube
16 x 16 x16 mm



Extension I (vertical)
18 x 18 x 18 mm



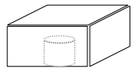
Extension II (horizontal)
20 x 20 x 20 mm

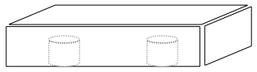
## THE QUANTUM TOKEN (Qt) – 1 OF 4

- the standard diameter of a Quantum Token (Qt) is 20 mm with a thickness of all 1 mm
- the Qt can also be in two parts (2 x 10 mm = 20 mm), so diameter and thickness for each figure has maximum dimensions of the Quantum Cube to use them both more flexible, e.g. exchanging, upgrading and devaluing characters during a game
- each back-end are colored black and white (Checkers, Othello and Go) or in other colors to achieve a 4-Player-Modus
- each front-side are embossed or printed with silhouettes (multi-player Chess)
- just have to pay attention to the countered figures that are related in the gaming mode or QuantumGrid
- also the frequency of the characters is determined by the multiple player mode or the choosen QuantumGrid – for this reason it is also more economical to use a Quantum Cube (Qb)
- using a squared token (Scrabble, T2Hue) or rectangle token (Shogi, Mah-Jongg and Domino) put their specific contours and calligraphy on it instead
- fonts with a unicode connection already contain such characters – don't buy a gameboard or figure set, design them yourself
- the back-sides must have a recess of 5 mm, but not be drilled through (±5mm), so that they can be fixed and flexibly plugged together with a wooden nail of 10 mm length and 5 mm diameter
- if we now had equivalent recesses of 5 mm on the QuantumGrid, the game situation could be frozen and easily hung on a wall, from which the game could also be played directly

# THE QUANTUM TOKEN (Qt) – 2 OF 4

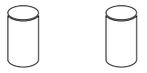
front-side





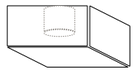
each drill of
5 mm depth

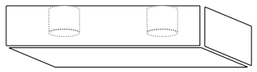
one time
wooden nails
10 x 5 mm



two times
wooden nails
10 x 5 mm each

drill of
5 mm depth





back-side

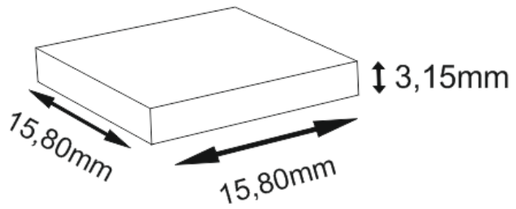
Quantum Token I (Casino, circled)
2 x (diameter 20 x height 10 mm)

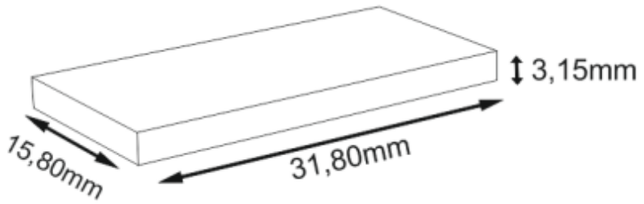
Quantum Token II (Jeton, squared)
2 x (edge length 20 x height 10 mm)

Quantum Token III (Calligraphy)
2 x (edge length 40 x height 10 mm)

# THE QUANTUM TOKEN (Qt) – 3 OF 4

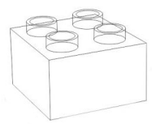
2x Lego tile,
smooth surface
for rounded stickers
(4-Player-Modus)

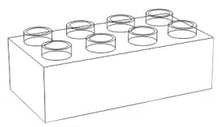



2x Lego tile,
smooth surface
for squared stickers
(Domino, Mah-Jong)

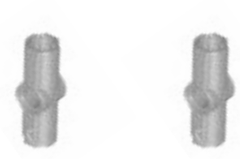
front-side





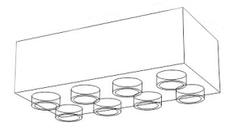
drill is given

one time
Lego connectors
grey

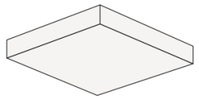


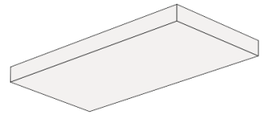
two times
Lego connectors
grey

drill is given



back-side





Quantum Token IV
(2x2 Lego, squared)

Quantum Token V
(2x4 Lego rectangled)

# THE QUANTUM TOKEN (Qt) – 4 OF 4

white Pawn

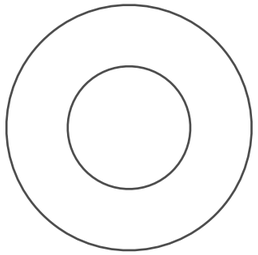
frontside black

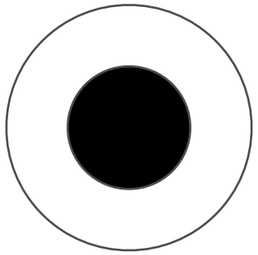
black Pawn

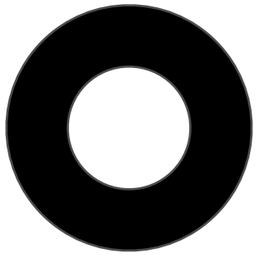
inside, top

drill of
5 mm depth

outside Ring, white color





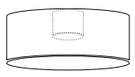


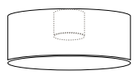
outside Ring, black color

one time
wooden nails
10 x 5 mm

one time
wooden nails
10 x 5 mm

drill of
5 mm depth





inside, bottom

black Squire Pawn

backside white

white Squire

Quantum Token VI

(Ring with inner Jeton, circled)

2 x (diameter 20 x height x mm)

# TYPE OF GAMECHANGER

**WHICH PLAYER ARE YOU?**

| | 2-PLAYER | 4-PLAYER | TYPE OF QUANTUM GRID |
|---|---|---|---|
| QUANTUM CUBE | Checkers (12 each), Chess (16 each), Othello (total 64) | Checkers (12 each), Chess (16 each), Othello (total 144) | 2-Player: 8 x 8 (1-8, $a_1$ - $h_1$), 4-Player: 12 x 12 (-1 - 10, $g_0$ - $b_2$) |
| QUANTUM TAPE I, VERTICAL | Othello (total 64, 32 each) | Othello (total 144, 36 each) | 2-Player: 8 x 8 (1-8, $a_1$ - $h_1$), 4-Player: 12 x 12 (-1 - 10, $g_0$ - $b_2$) |
| QUANTUM TAPE II, HORIZONTAL | Cards (Jack, Queen, King, Ace) | Cards (Jack, Queen, King, Ace) | none |
| QUANTUM TOKEN I (CASINO, CIRCLED) | Othello (total 64) | - | 2-Player: 8 x 8 (1-8, $a_1$ - $h_1$) |
| QUANTUM TOKEN II (JETON, SQUARED) | SMOL Alphabet numbered from 1 to 26, but take the frequency distribution like in Scrabble whereby onehalf each black and white while backside not labeled (total 156) | SMOL Alphabet numbered from 1 to 26, but take the frequency distribution like in Scrabble whereby onehalf each black and white that allows turn around from one colour to another (total 156) | QuantumGrid v3 (Crossword + orientation marks) QuantumGrid v4 (Scrabble + evaluation marks) |
| QUANTUM TOKEN III (CALLIGRAPHY) | Domino, Mahjong | Domino, Mahjong | QuantumGrid v5 (Mahjong \| Domino) |
| QUANTUM TILE (UNICODE, PRIVATE USE AREA) | SMOL | SMOL | QuantumGrid v3 to v5 |
| QUANTUM TOKEN IV - VI | - | - | QuantumGrid for n-Players: Checkmate (≤10x10) Checkathon (≥12x12) Checkorrerey (<37x37) |

**POSITIONAL, APPLYING AND CONSTELLATION**

# 2Pac: Chess & Othello

- traditional layer (invisible) is not a must, white still make opening move
- Level 1: start with Othello moves and fill the grid then counting
- Level 2: continue with Chess, beat the opposing Othello figures and set opposing King in chess
- depending on the agreed rules:
  - when starting with an empty QuantumGrid, appointing the King last or if possible so that King cannot be turned over (Line-up 1)
  - or use Line-up 2, put Chess figures, then Othello in the middle (white: D4, E5 black: E4, D5)
  - play Othello first, then continuing with Chess
- you'll see Chess and Othello can be played together in (from) two different ways (Line-ups)
- you can also do a mixed double tournament:
  - a Best of Three (Five), i.e. play two individual tournaments – Chess and Othello each separately
  - then let the 3rd (5th) final set decide in double tournament – Level 1 and Level 2 with a team of two with best Chess-Othello-Player each
- plot the moves in the Playbook in algebraic-numeric format: -1 to 10 for y-axis; $a_0$ to $b_2$ for x-axis

- see a possible **Scenario 1** that began with Line-up 2
- do the following moves, the result looks the same:

white, $c_1$5 beats black $d_1$5;

black $c_1$6 beats white $d_1$5;

white $d_1$6 beats black $d_1$5;

black $e_1$6 beats white $d_1$6 and white $e_1$5;

white $f_1$3 beats black $e_1$4;

black $c_1$4 beats white $d_1$5 and white $c_1$5;

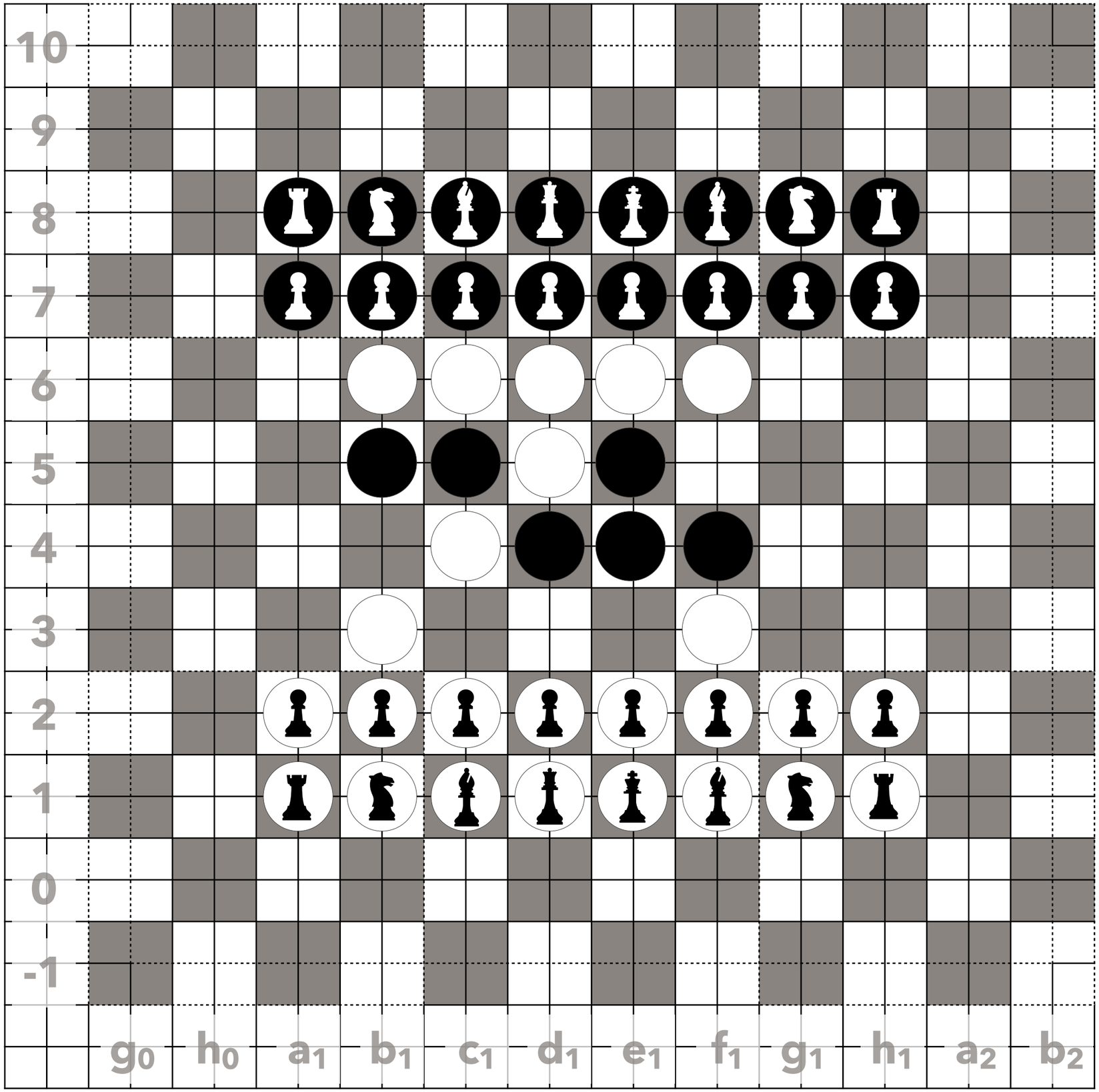
white $b_1$6 beats black $c_1$5;

black $f_1$4 beats white $d_1$4 and white $e_1$4;

white $f_1$6 beats black $c_1$6, black $d_1$6 and black $e_1$6;

black $b_1$5 beats white $c_1$5;

white $b_1$3 beats black $c_1$4 and black $d_1$5;



- continuing moves / 1 of 2:

  black $d_1$3 beats white $c_1$4;

  white $g_1$3 beats black $f_1$4 and black $e_1$5;

  black $f_1$5 beats white $e_1$5 and white $d_1$5;

  white $b_1$4 beats black ($c_1$4, $d_1$4, $e_1$4), black $c_1$5 and black $b_1$5;

  black $a_1$5 beats white $b_1$5, and white $c_1$5;

  white $g_1$6 beats black $f_1$5;

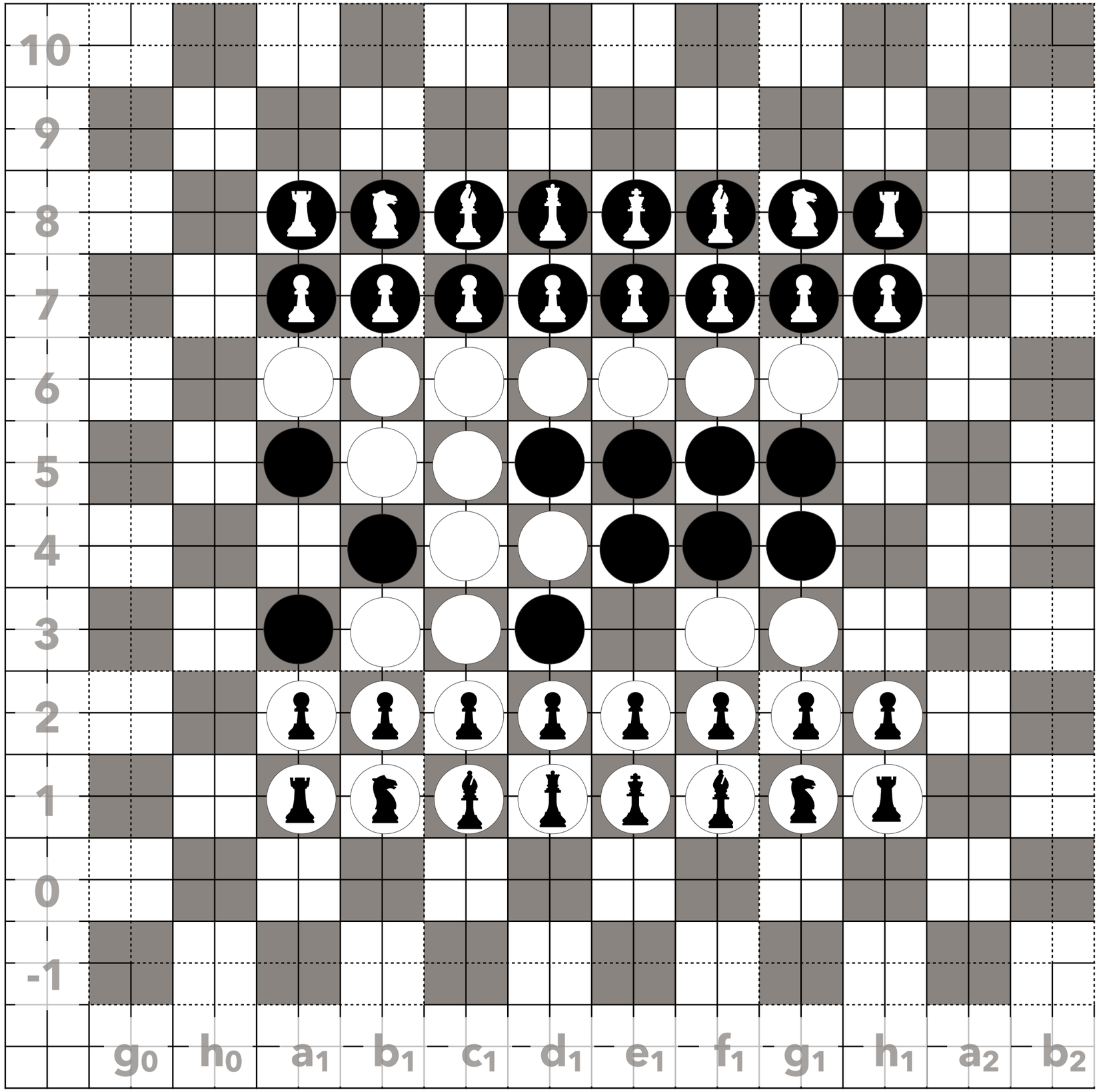
  black $a_1$3 beats white $b_1$4;

  white $a_1$6 beats black $b_1$5;

  black $g_1$4 beats white ($f_1$4, $e_1$4, $d_1$4 and $c_1$4);

  white $c_1$3 beats black ($c_1$4, $c_1$5) and black ($d_1$4, $e_1$5);

  black $g_1$5 beats white $f_1$5 and white $e_1$5;



- continuing moves / 2 of 2:

  white $h_1$5 beats black ($g_1$5, $f_1$5, $e_1$5, and $d_1$5) and black $g_1$4;

  black $h_1$6 beats white $g_1$5;

  white $a_1$4 beats black $a_1$5 and black $b_1$4;

  black $h_1$4 beats white $h_1$5 and white $g_1$4;

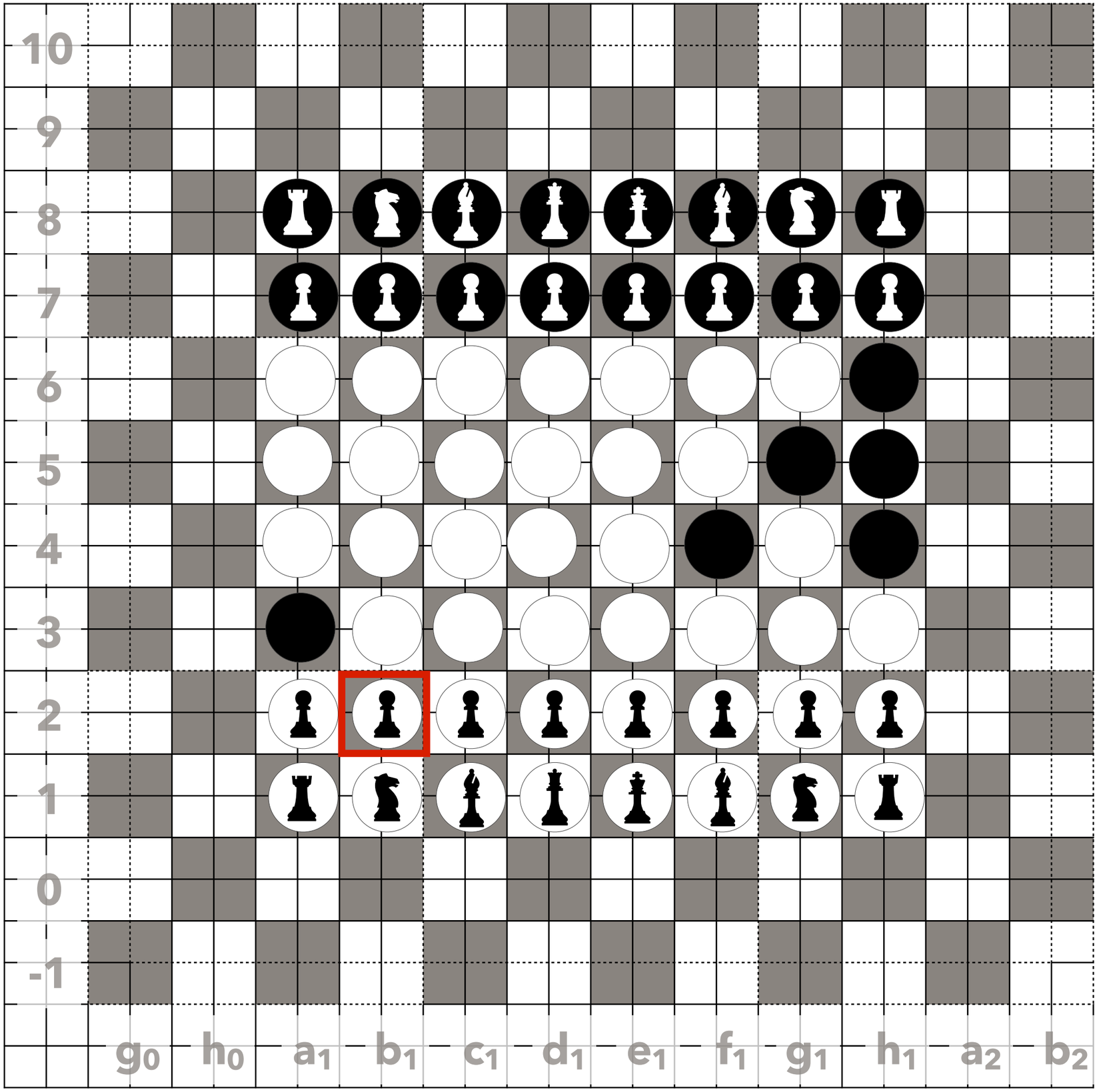
  white $h_1$3 beats black $g_1$4;

  Othello black has no other option than to hand over the move to white;

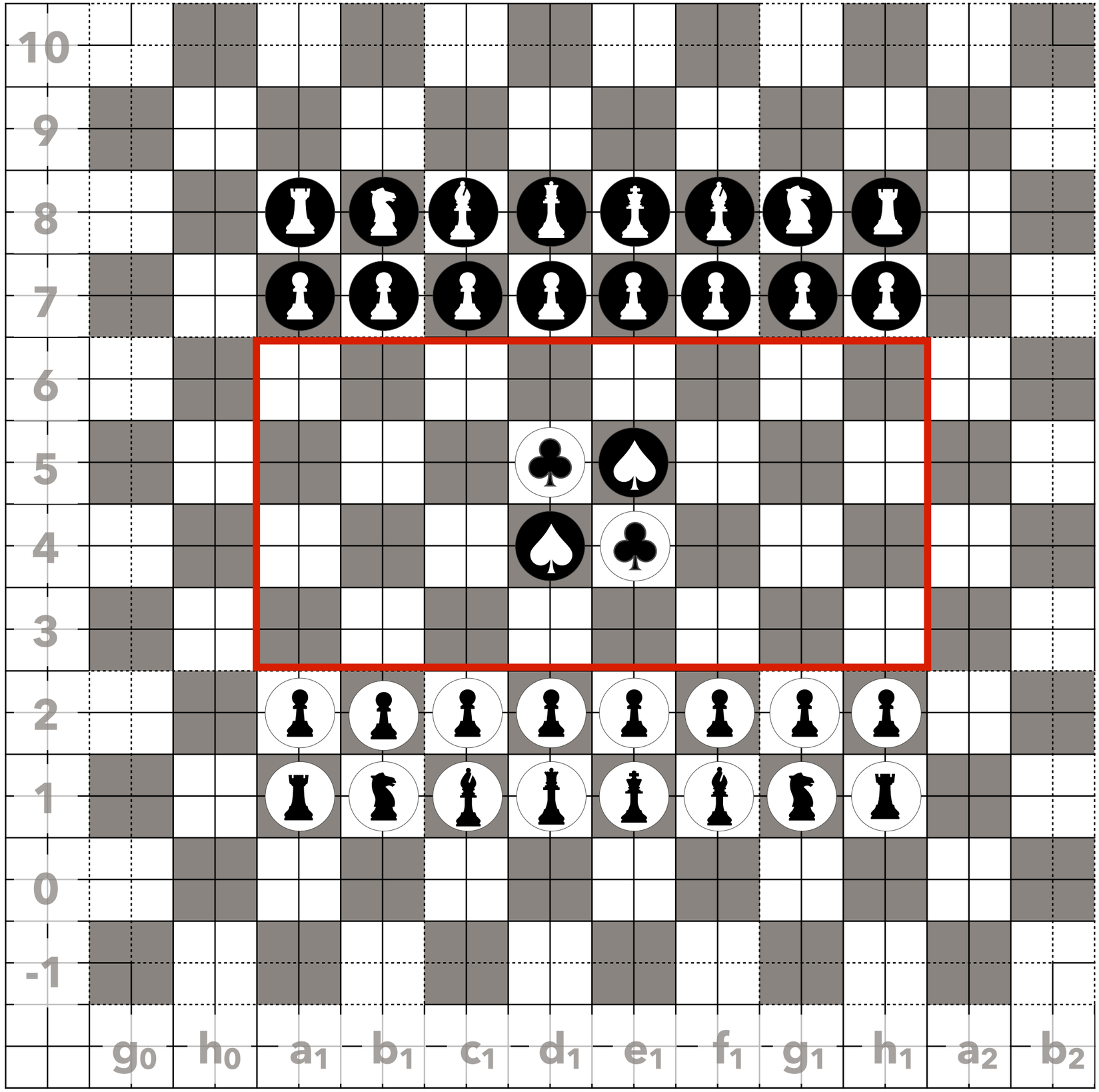
  white $e_1$3 beats black $d_1$3 and black $e_1$4 – Othello white wins Level 1 with 26 : 6

- continuing Level 2 in Chess:

  white has only one option to make opening move – Pawn $b_1$2 beat Othello black $a_1$3



- but what if suddenly …
  - Othello tokens has Pawns (back) and Squires (front) – black spades / white cross 16 each, 32 total
  - Othello Squires would be devalued/upgraded in Level 1 until the grid is filled
  - then in Level 2 (Chess) standard move of a Squire is a move one forward or one sideways, but only hit diagonally (like a Pawn);
  - Play on the last line: Pawns exchanged for a defeated Chess figure; Squires can only be transform in Knights; Knights into Bishop; Bishop into Emperor (King),
  - instead vs after Rochade: left Tower into Princess (great), right Tower into Prince (small)



- experiencing possible **Scenario 2** that began with Line-up 2
- do the following moves (different to Scenario 1), the result are the following:

Squire white $c_1$4 turns Squire bk $d_1$4 to white Pawn;

Squire bk $e_1$3 turns Squire white $e_1$4 to black Pawn;

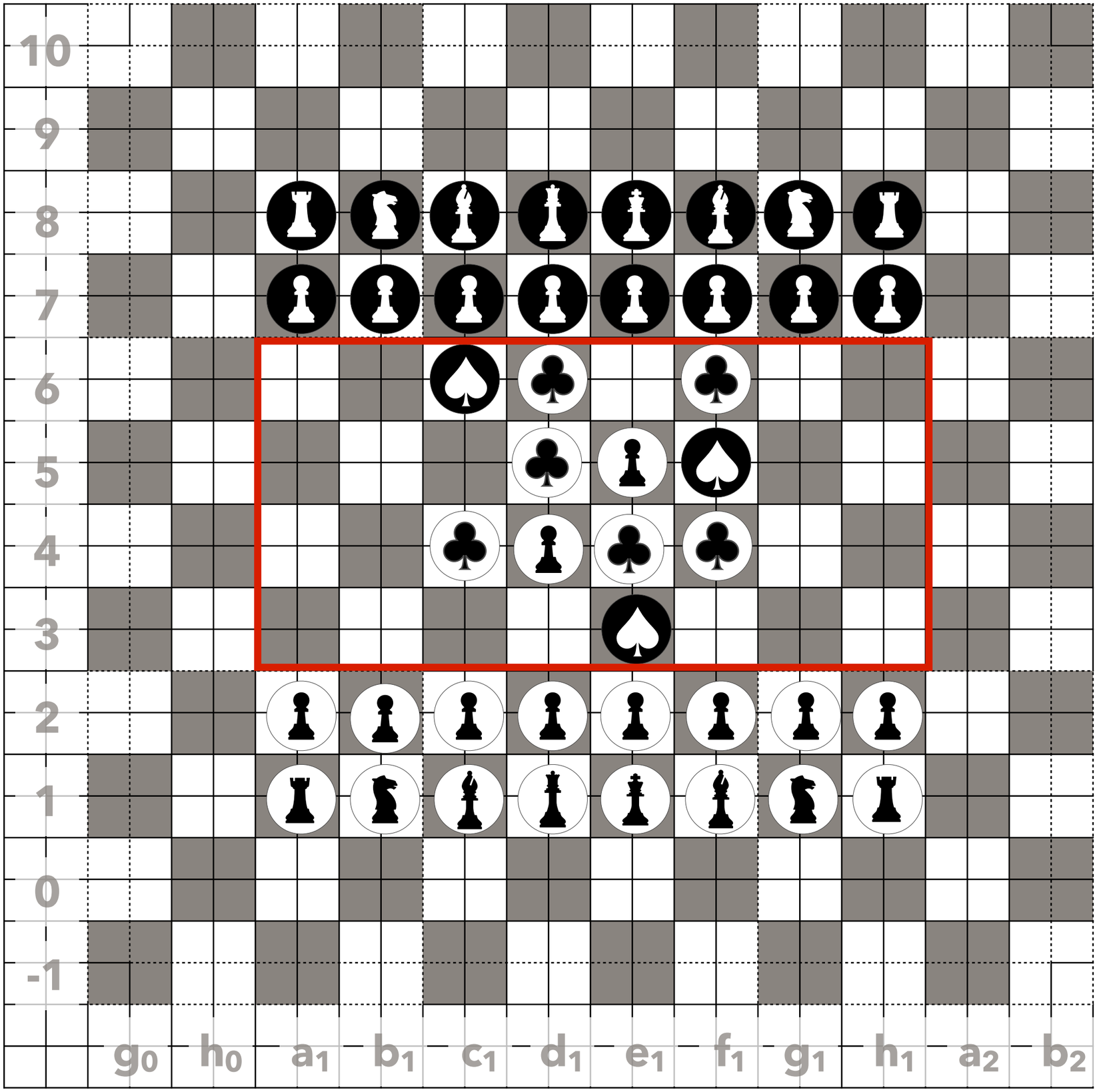
Squire white $f_1$6 turns Squire bk $e_1$5 to white Pawn;

Squire bk $c_1$6 turns Squire white $d_1$5 to black Pawn;

Squire white $f_1$4 turns black Pawn $e_1$4 to Squire white;

Squire bk $f_1$5 turns white Pawn $e_1$5 to Squire black;

Squire white $d_1$6 turns Squire bk $e_1$5 to white Pawn and black Pawn $d_1$5 to Squire white



- continuing the moves from changed Scenario / 1 of 4:

  Squire bk $f_1$3 turns Squire white $f_1$4 to black Pawn and turns Squires white ($e_1$4, $d_1$5) to black Pawns;

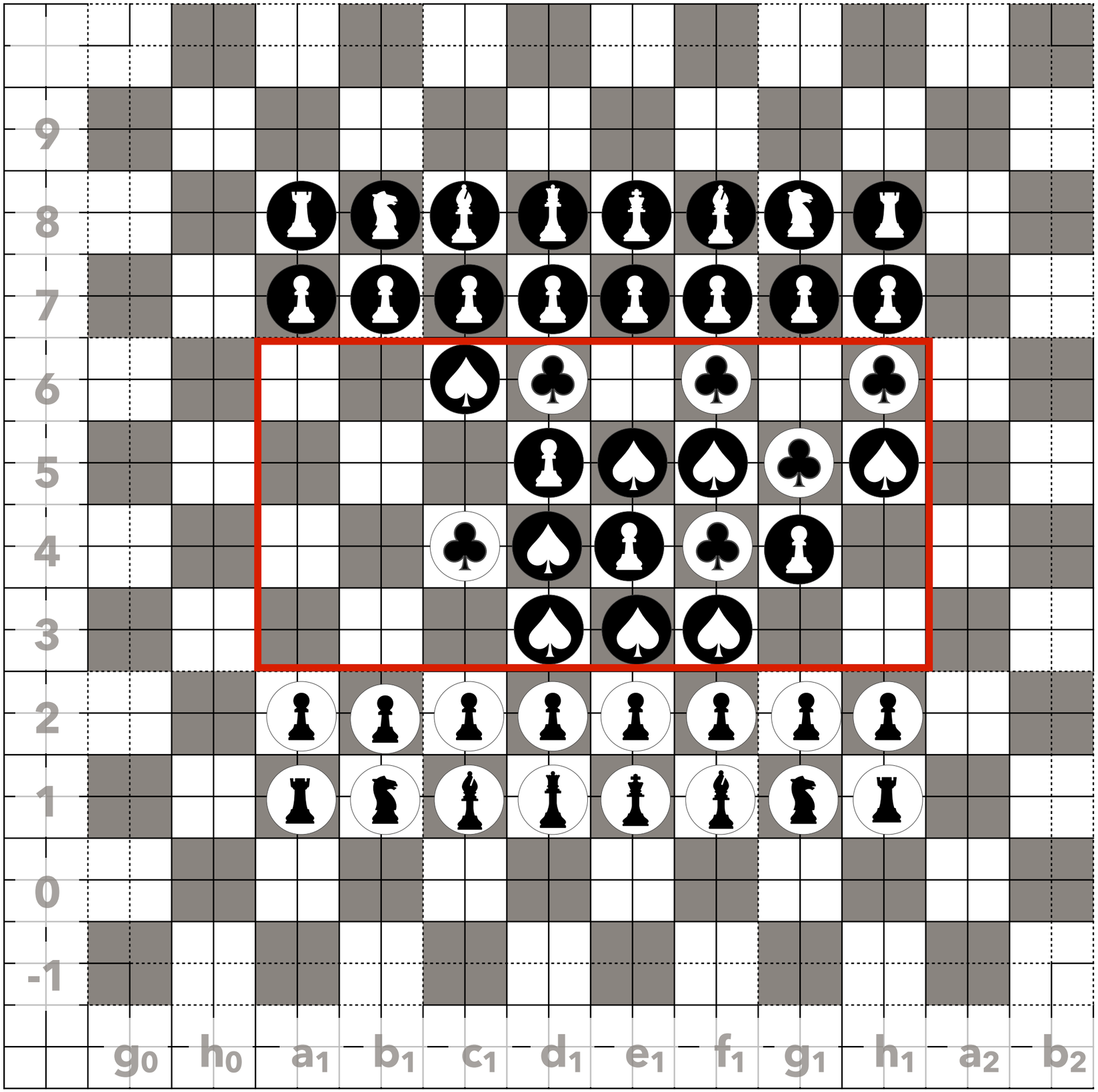
  Squire white $g_1$4 turns black Pawns ($f_1$4, $e_1$4) to Squire white;

  Squire bk $d_1$3 turns white Pawn $d_1$4 to Squire bk and Squire white $e_1$4 to black Pawn;

  Squire white $g_1$5 turns Squire bk $f_1$5 to white Pawn;

  Squire bk $h_1$5 turns Squire white $g_1$5 to black Pawn and white Pawns ($f_1$5, $e_1$5) to Squires bk and Squire white $g_1$4 to black Pawn;

  Squire white $h_1$6 turns black Pawn $g_1$5 to Squire white;



- continuing the moves from changed Scenario / 2 of 4:

  Squire bk $b_1 5$ turns Squire white $c_1 4$ to black Pawn;

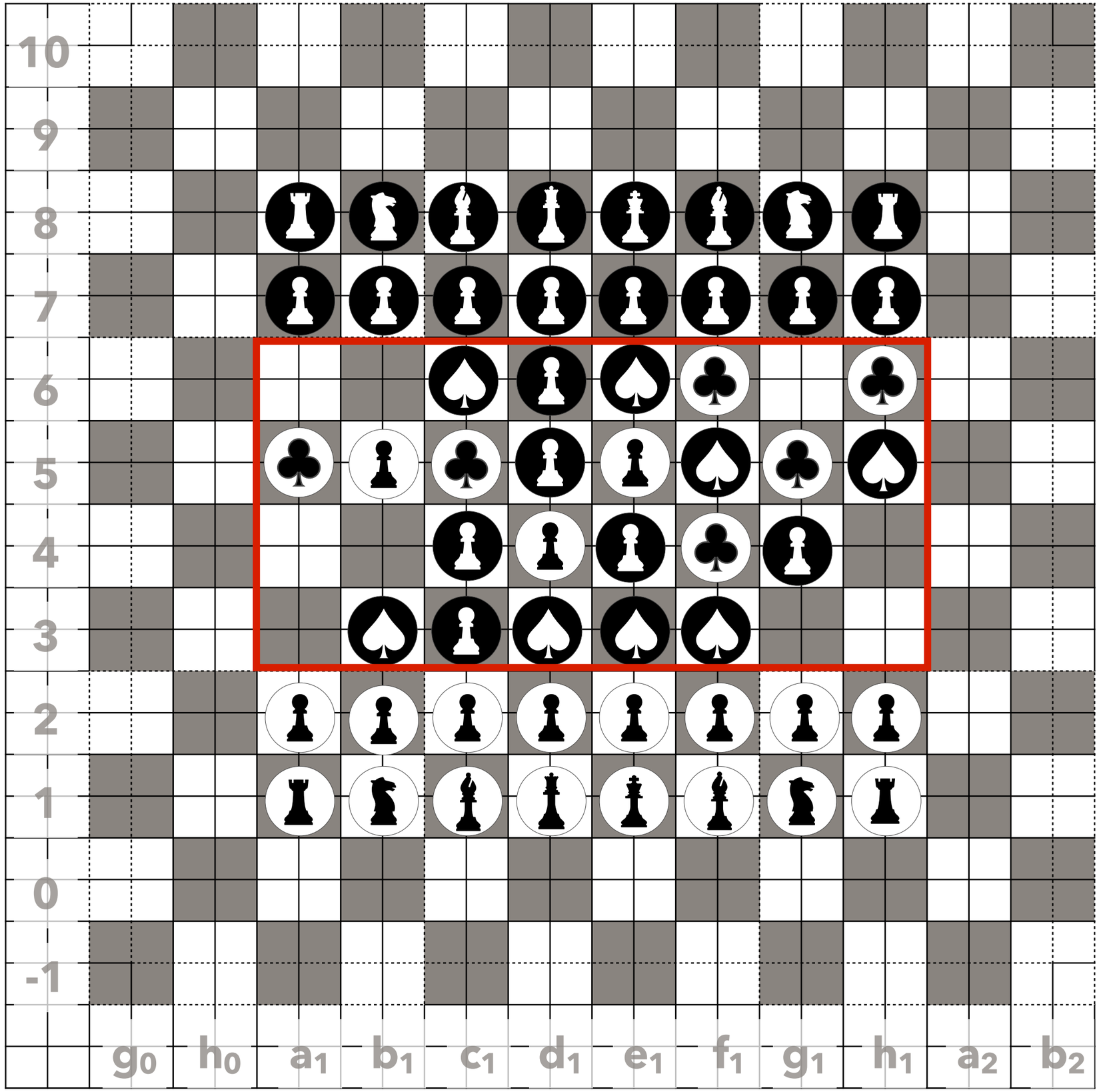
  Squire white $c_1 5$ turns black Pawn $d_1 5$ to Squire white and Squires bk ($e_1 5$, $f_1 5$) to white Pawns;

  Squire bk $e_1 6$ turns Squire white $d_1 6$ to black Pawn, Squire white $d_1 5$ to black Pawn, white Pawn $e_1 5$ to Squire bk and white Pawn $f_1 5$ to Squire bk;

  Squire white $c_1 3$ turns black Pawn $c_1 4$ to Squire white and Squires bk ($d_1 4$, $e_1 5$) to white Pawns;

  Squire black $b_1 3$ turns Squires white ($c_1 3$, $c_1 4$) to black Pawns;

  Squire white $a_1 5$ turns Squire bk $b_1 5$ to white Pawn



- continuing the moves from changed Scenario / 3 of 4:

  Squire bk $g_1$6 turns Squires white ($f_1$6, $g_1$5) to black Pawns;

  Squire white $b_1$4 turns black Pawn $c_1$4 to Squire white;

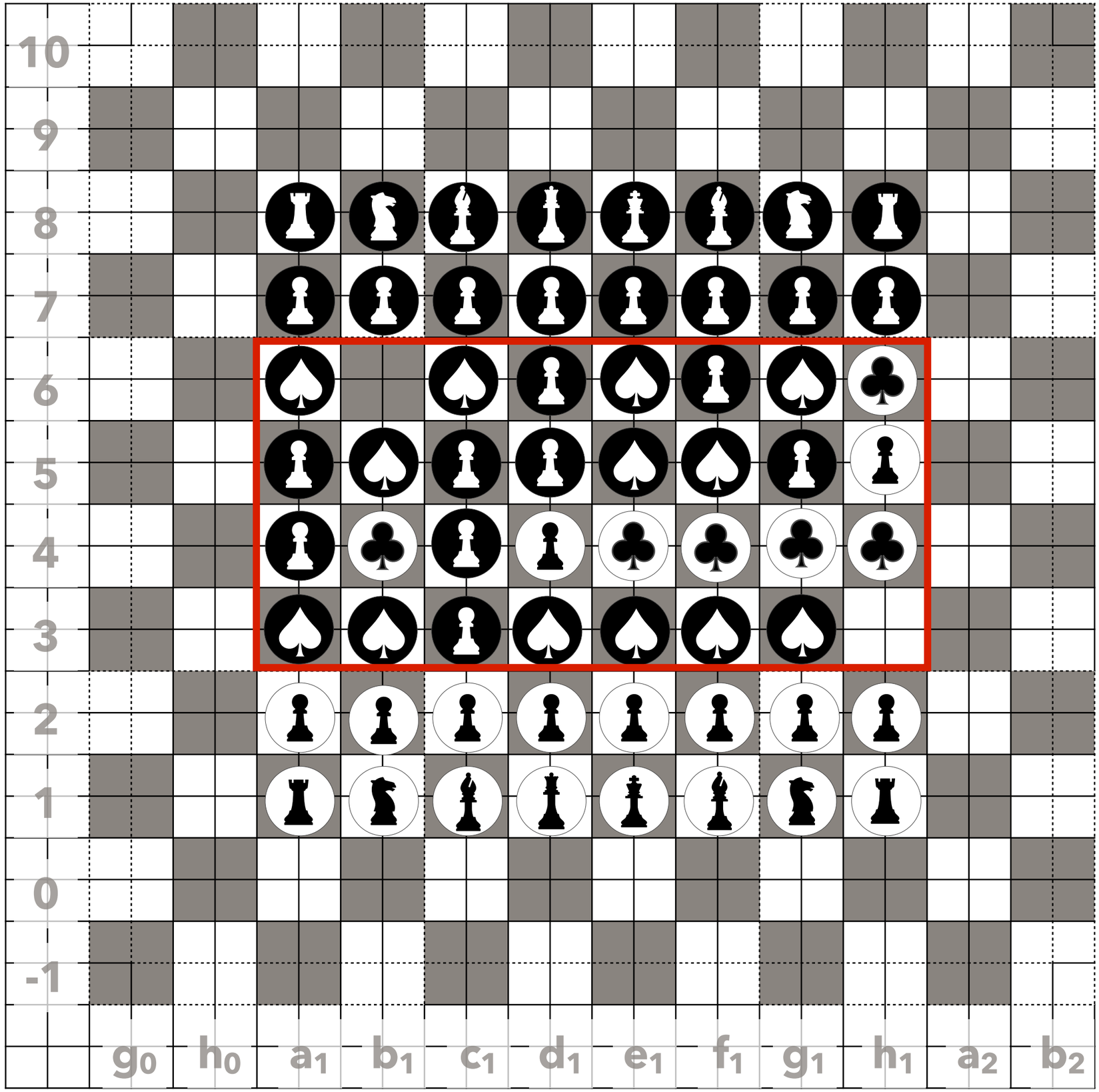
  Squire bk $a_1$3 turns Squires white ($b_1$4, $c_1$5) to black Pawns;

  Squire white $a_1$4 turns black Pawn $b_1$4 to Squire white;

  Squire bk $g_1$3 turns Squire white $f_1$4 to bk Pawn, white Pawn $e_1$5 to Squire bk;

  Squire white $h_1$4 turns Squire bk $h_1$5 to white Pawn and bk Pawns ($g_1$4, $f_1$4, $e_1$4) to Squires white;

  Squire bk $a_1$6 turns Squires white ($a_1$5, $a_1$4) to bk Pawns, white Pawn $b_1$5 to Squire bk and Squire white $c_1$4 to black Pawn



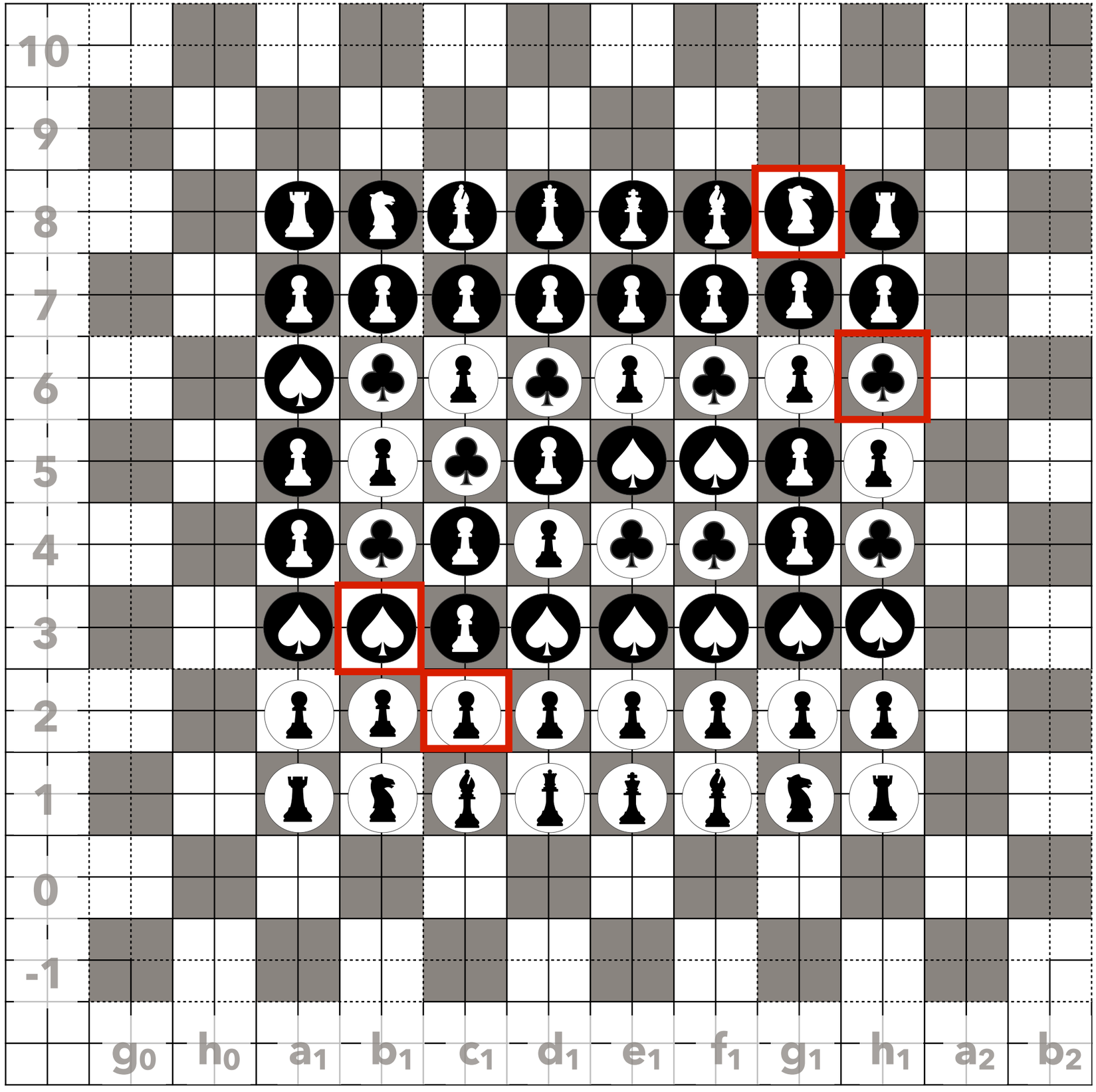
- continuing the moves from changed Scenario / 4 of 4:

  Squire white $b_1$6 turns Squire black $b_1$5 to white Pawn, black Pawn $c_1$5 to Squire white, Squires black ($c_1$6, $e_1$6, $g_1$6) to white Pawns and black Pawns ($d_1$6, $f_1$6) to Squires white;

  Squire black $h_1$3 turns Squire white $g_1$4 to black Pawn – Othello black wins Level 1 with 17:16

- continuing Level 2 in Chess

  - opening moves from line 2 and 7 first to activate Othello players as Chess players
  - black makes opening move with black Knight $g_1$8 and beat white Squire $h_1$6;
  - then white Pawn $c_1$2 beats black Squire $b_1$3;
  - proceed according to the rules on Page 31



## CONSIDERATION OF THE 2-PLAYER-MODUS

- we call the game in Scenario 2 OVERRUN
- we choose labeled Othello tokens (Squires) in Clubs (Cross), Spades (Pik), Hearts and Diamonds (Caro), because we can use them to develop a 4-Player-Modus on a QuantumCube or QuantumTape
- how does the game of Othello develop if
  - the Chess line-up (Pawns) were included from the beginning (opening move)
  - we only set Othello tokens without an obligation to beat the opponent – start beating in Chess-Modus until the QuantumGrid is filled
- how does the game of Chess & Othello develop if we make the first move with Chess figure and the Othello tokens to block the freedom of movement (CAPTURING) – similar to Japanese Shogi
- how does the game of Chess develop if we exchange Pawns with Squires (Level 2), then only Pawns would be beaten against Pawns on the Othello tokens (Level 1)
- if we apply a time factor that increases the risk or pressure on the Players, then all considerations could be part of a time-limited MISSION – the conditions change every ten minutes
- if we use a QuantumToken, each individual figure could be PIGGYBACKED – everyone can ride on a Horse (Knight), everyone can protect a King – , a Squire could help his Knight out of CAPTIVITY, a Bishop could collect his lost sheep (Pawn) and so on
- if we use a QuantumToken, each individual figure could be assigned as a TROOP of multiple figure, e.g. a Pawn vertical cover a Bishop, a Knight and a Squire at the same time whereby only the top figure (e.g. Pawn) is beaten and then the bottom one is captured until the HIJACKER leaves the top position – the troop moves with the skills that the figures are equipped with

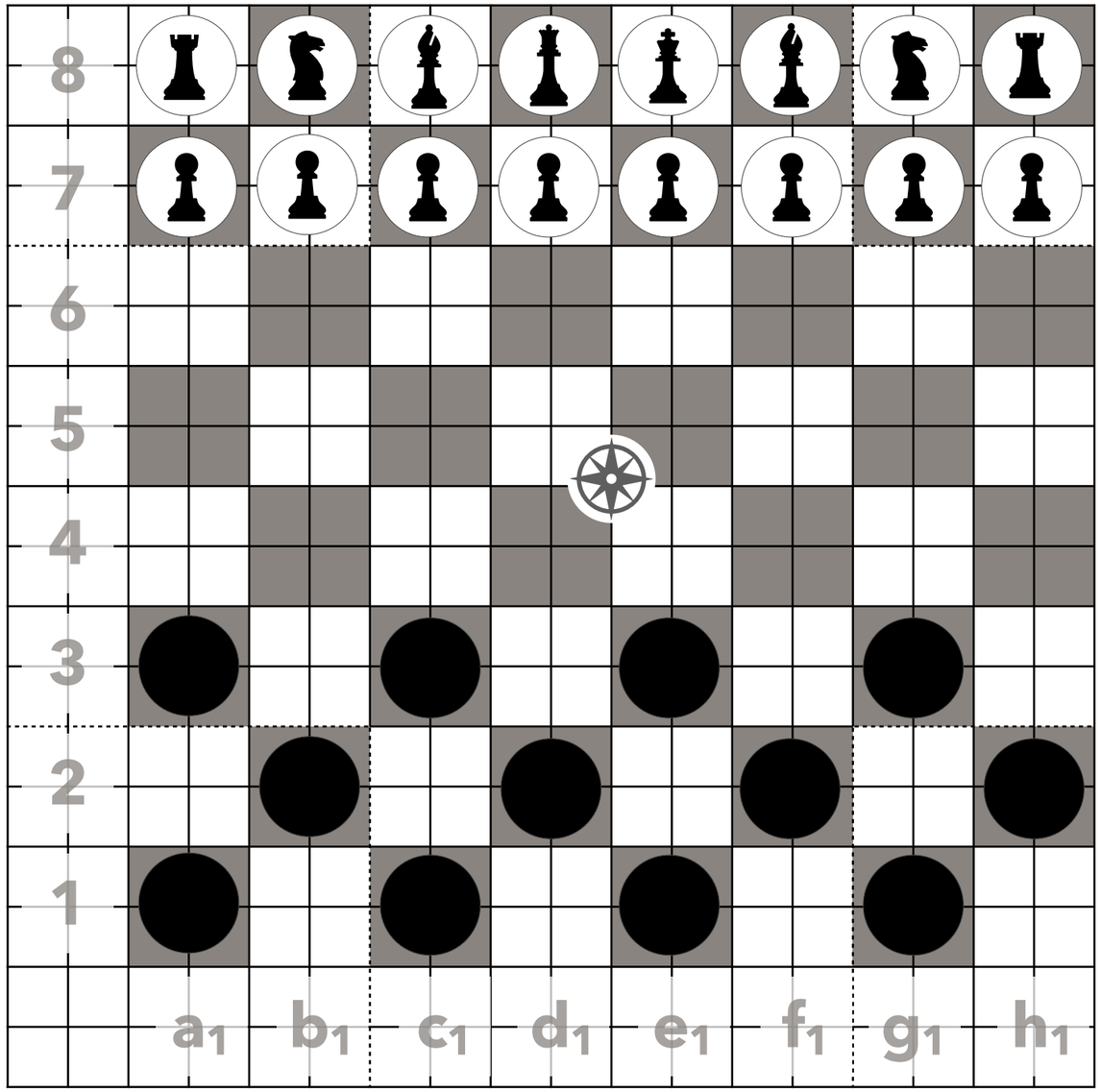
## CONSIDERATION OF THE 2-PLAYER-MODUS

- what would happen if we used the modus operandi of playing cards (black: clubs, spades; red: hearts, diamond):
  - King for King, Dame for Queen, 2x Jack for Bishop (Runner), 2x As for Knight (Horse), 2x Joker – with respective card color – for Rookie (Tower), Numbers 2 to 9 for Pawns (blank backside), 3 times a pair of QuantumTokens consisting of 2:10, 3:10, 4:10, 5:10, 6:10; 7:10, 8:10 and 9:10 (frontside:backside) for each Othello Pawns:Squire;
    - depending on the rules: each Othello with white Pawns frontsides and black Pawns backsides when the lineup of Pawns (number 2 to 9) is to be replaced by Squires (Ten)
    - the Pawn with the 2 can only be exchanged or grouped, so it is the weakest
    - Card tokens move like Chess tokens, but only beat, capture or troop according to their ranking (A-K-D-J-10-9-8-7-6-5-4-3-2)
      - Poker evaluation (e.g. Royal Flush, Flush, Street, Wheel)  can be used as a MISSION when cards of the same suit (set) form a closed vertical or horizontal SINGLE LINE OF ATTACK or if the rating is achieved by PIGGYPACKING known as DOUBLE LINE OF ATTACK
  - put white rounded stickers with red Hearts or Diamonds (Caro) on colored (black) QuantumTokens II (Jeton, squared)
  - put white rounded stickers with black Clubs (Cross) or Spades on colored (white) QuantumTokens II (Jeton, squared)
  - to expand the 4-Player-Mode you need an equivalent number of QuantumTokens II depending on the QuantumGrid (2Pac: 8x8, Shogi: 10x10, 4-Player-Mode: 12x12) that can be used
- we can do a lot more with Chess and Othello than we are aware of, am I right?

**DEVELOPING FIGURE PLAY ON DIFFERENT GRID VARIANTS**

# 2-Player: Chess vs Checkers

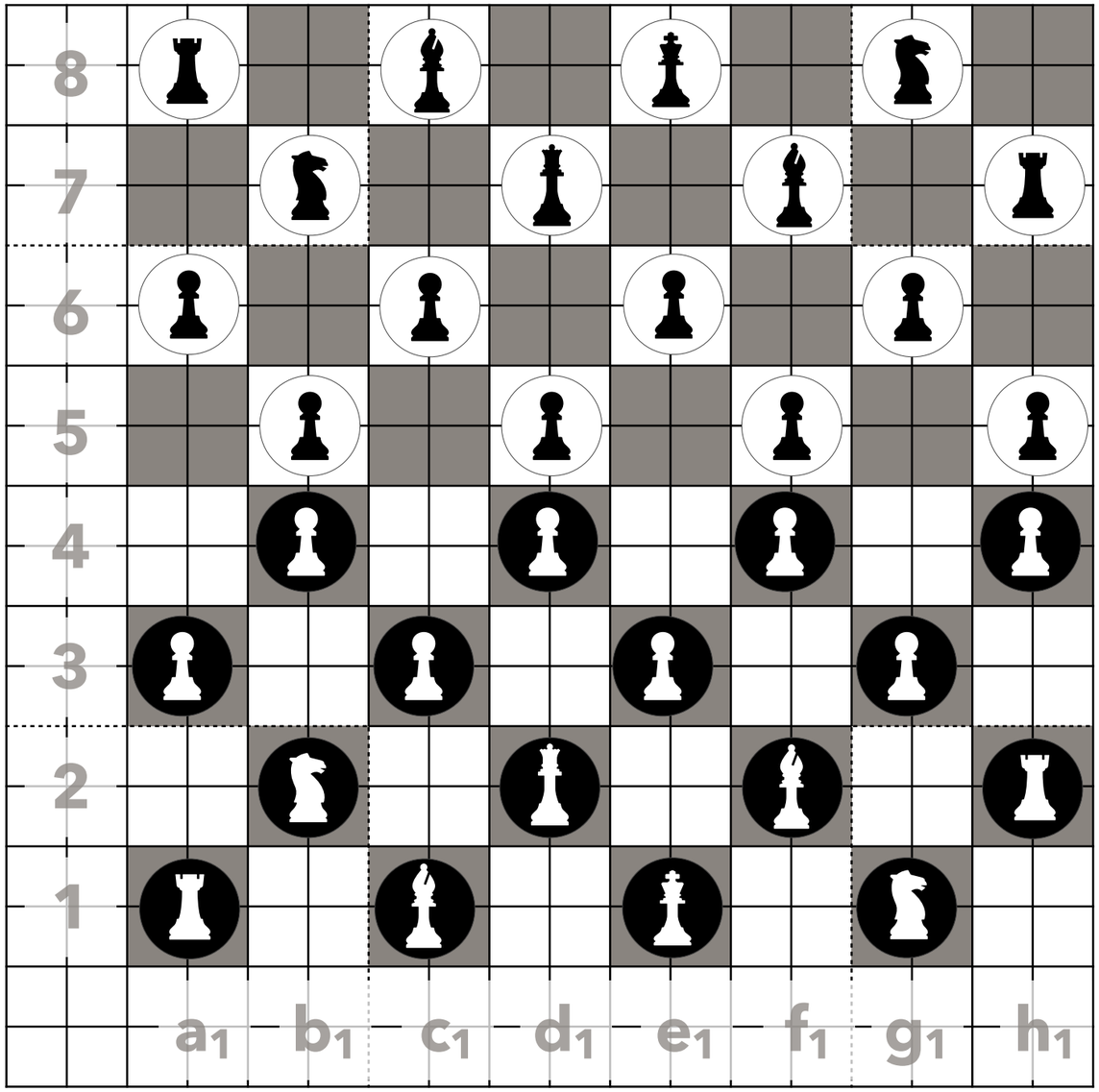
- traditional layer (invisible) is not a must
- white Chess makes opening move
- black applies Checkers rules; move one diagonal and beat forward multiple times
- achieve a black Checkers Queen (Dame) at line $8a_1$ up to $8h_1$ , then jump over white Chess player wider than one squared field
- black is Checkmate or loses if the last black token (placeholder for black King) threatens to fall with the next move from white Chess
- white Chess has an advantage of 16:12 tokens, but don't think it's easy to win
- experiment with Line-up and moves:
  - use same amount of black tokens or
  - white Chess move like Checkers, but beat like Chess
- maybe put Line-up on an 8x8 grid, but make move back and forth around on a 10x10 grid (y: 0 to 9; x: $h_0$ to $a_2$)



**DEVELOPING FIGURE PLAY ON DIFFERENT GRID VARIANTS**

# 2-Player: Chess & Checkers

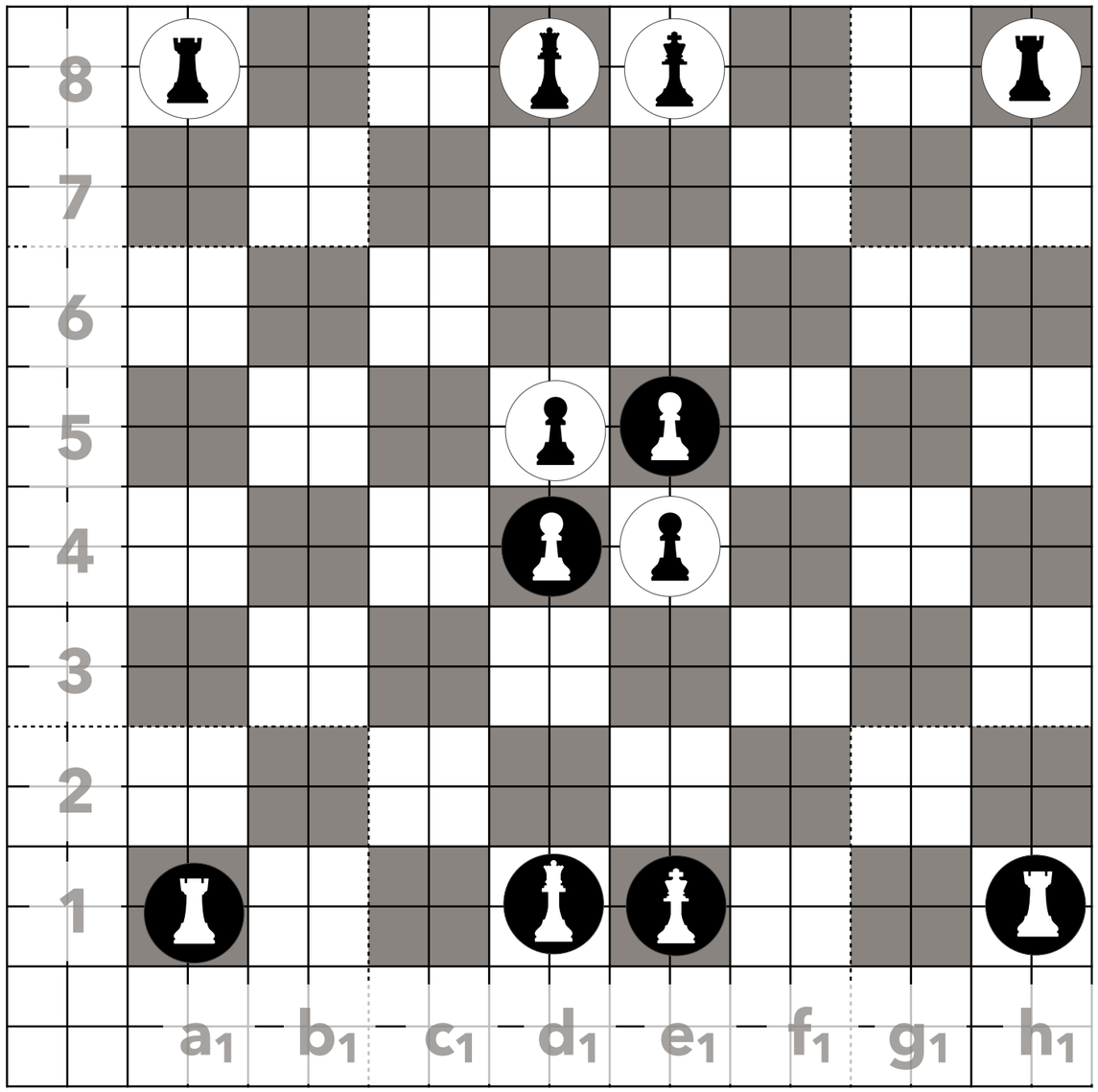
- traditional layer (invisible) is not a must
- both applies Chess rules, but beat like Checkers – back and forth, expect Pawns
- achieve a Checkers Queen (Dame) at opposite field end with each figure, expect of King and Queen
- each Player seek Checkmate or lose if the King token threatens to fall with the next move from the opponent (Checkmate by Checkers)
- none of the players outnumber the other, only the big rochade is possible
- experiment with Line-up and moves:
  - no field is blocked, use CAPTURING
  - own Players can build troops (PIGGYBACKED), just one of the members can be beaten – the troop is not eliminated, only partially in ascending rank, e.g. in a troop of Pawn and Knight, the Pawn is beaten
- maybe put Line-up on an 8x8 grid, but make move back and forth around on a 10x10 grid (y: 0 to 9; x: $h_0$ to $a_2$)



**DEVELOPING FIGURE PLAY ON DIFFERENT GRID VARIANTS**

# 2-Player: Chess & Othello

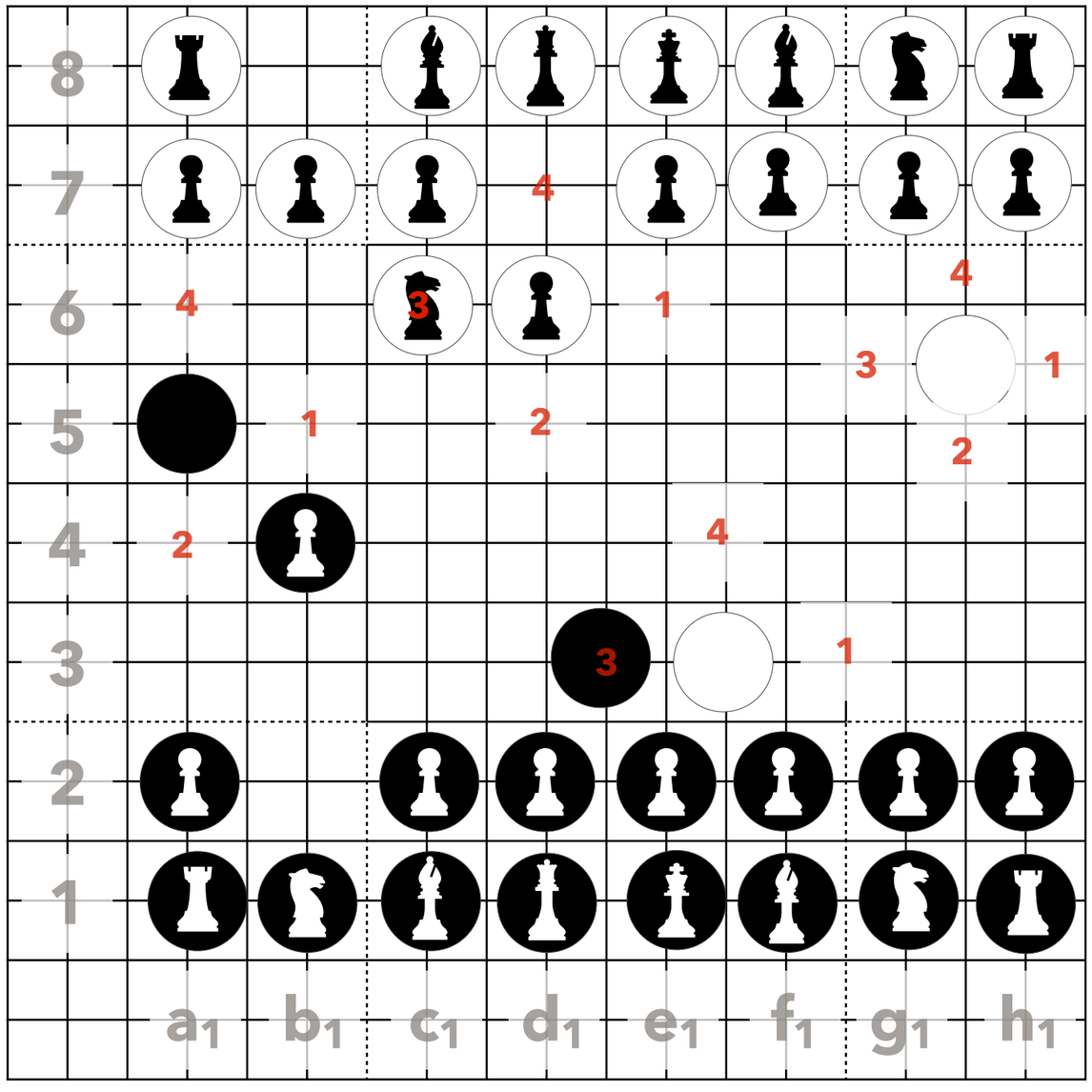
- traditional layer (invisible) is not a must
- Othello figures replaced with Pawns in each proportion (15:15)
- only Rookies (Towers, King and Queen) are placed on the Starting Grid
- Pawns moves like Othello figures until grid is filled (Level 1)
- during Level 1 big and small Rochade is possible, white and black are set alternately
  - when using it, hurry to move the King into a corner; to avoid the game being decided at Level 1
  - don't lose Queen before Level 2 starts
- if a Chess figure – Knight or Bishop – beats an Othello figure, it leaves the grid; all can start with CAPTURE and PIGGYBACKED
- if a Othello figure beats a Chess figure, expect Pawns, it flips over and changes color; which leads to an advantage in Level 2
- maybe put Line-up on an 10x10 grid, or use double amount of each figure – including Prince and Princess (y: 0 to 9 ; x: $h_0$ to $a_2$)



**DEVELOPING FIGURE PLAY ON DIFFERENT GRID VARIANTS**

# 2-Player: Chess & Go

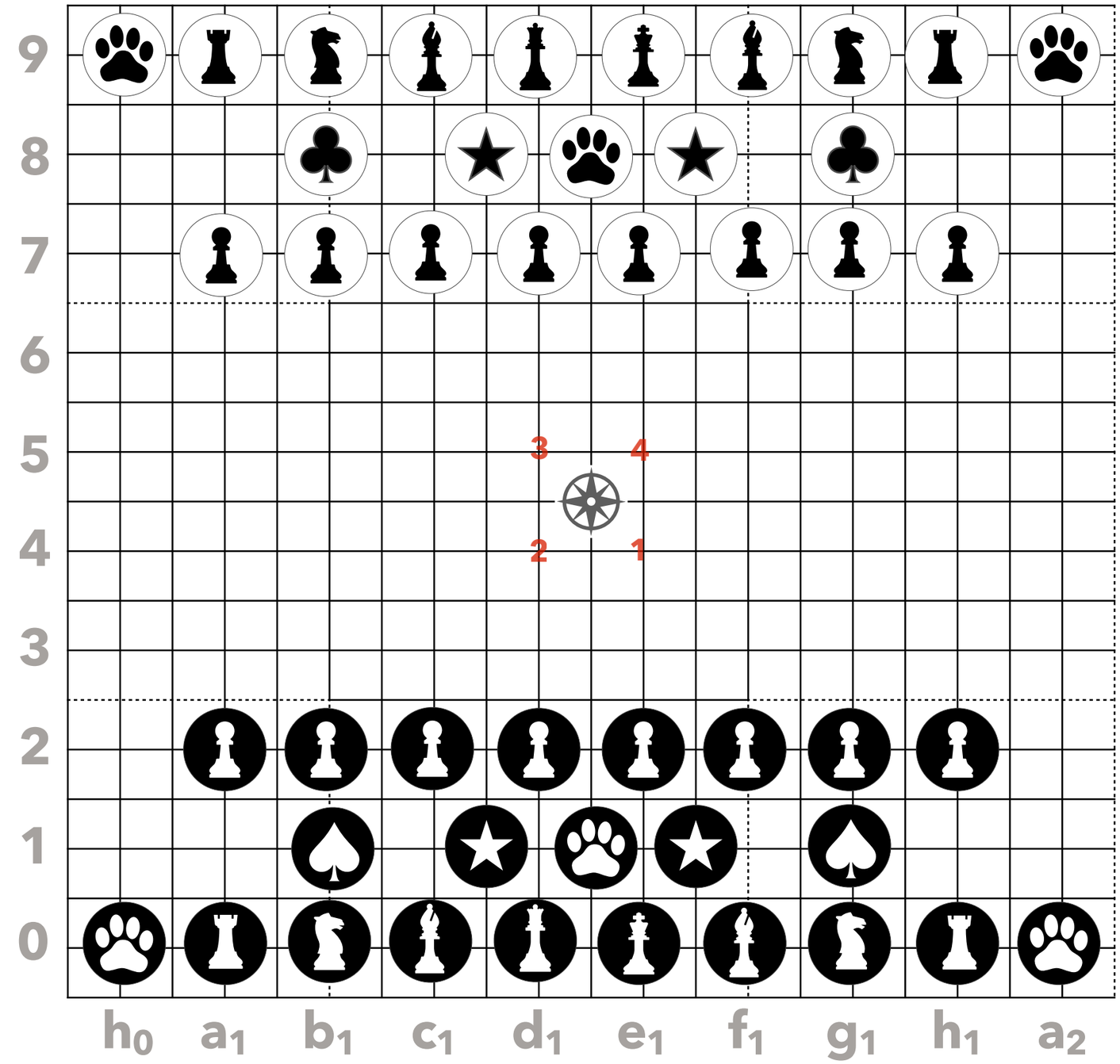
- use a QuantumGrid with Chess notation
- Chess figures (16 each) moves full-steps
  y: 1 to 8 ; x: $a_1$ to $h_1$
- Go tokens (from 16 up to 64 each) moves half-steps along the connecting lines; amount depend on its grid (up to 181 each)
- both Rochades are possible
- Go and Chess tokens are set alternately
  - reduce LIBERTIES (1,2,3,4) of Chess figures with Go – shown in red marks
  - Chess fig. have to BYPASS the barrier or BEAT (c6 to b4) the opponent by CAPTURING (c6 to a5) or by closing last (fourth) Liberty field
- Chess fig. leaves the grid by Go beat; Go CAPTURED if Chess fig. jumps on top
- maybe put Line-up on a wider Go grid, or adjust amount of figure – including Prince and Princess (y: 0 to 9 ; x: $h_0$ to $a_2$)
- experiment with combined figure behaviour: up- and downgrading, replacing figures, flip-over between Black and White



**DEVELOPING FIGURE PLAY ON DIFFERENT GRID VARIANTS**

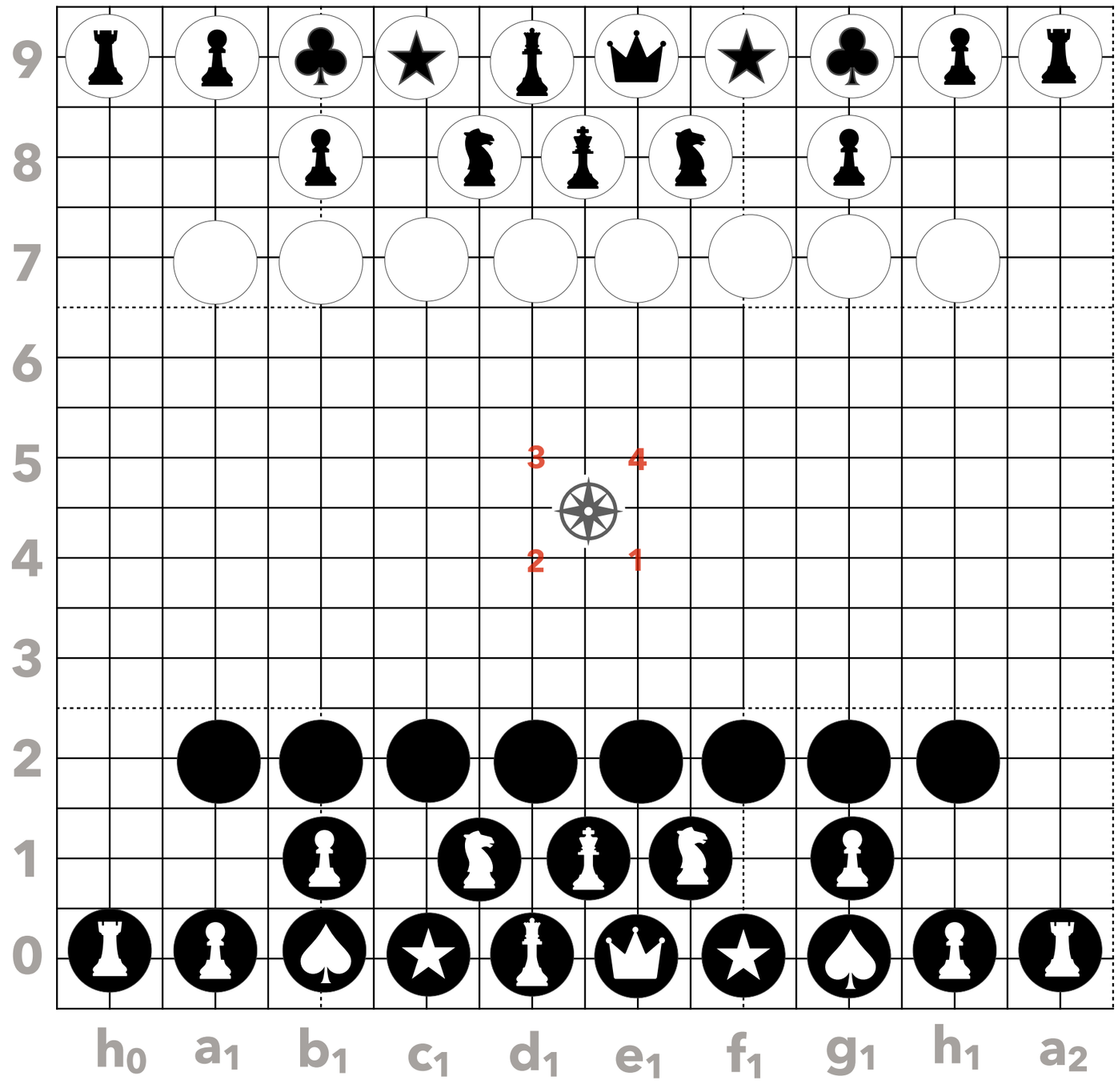
# 2-Player: Match of Thrones

- *Chess* figure have lower fig. on its back; expect Pawn UPGRADING to *Checkers*
- Rochades, multiple Queens are possible; Pawns make opening move alternately to the Othello mid
- Chess and Othello are set alternately; no Line-up for Checkers, AWAKE whilst playing
- Chess fig. can move over own fig. or PIGGYBACKED others; if it jumps on top, opponent is CAPTURED
- what if Chess opponent is beaten,
  - it is DOWNGRADED and move back to Line-up
  - or otherwise it´s beated on Line-up (never has make a move)
  - and if Line-up is blocked it is PIGGYBACKED or CAPTURED



# CONTINUATION

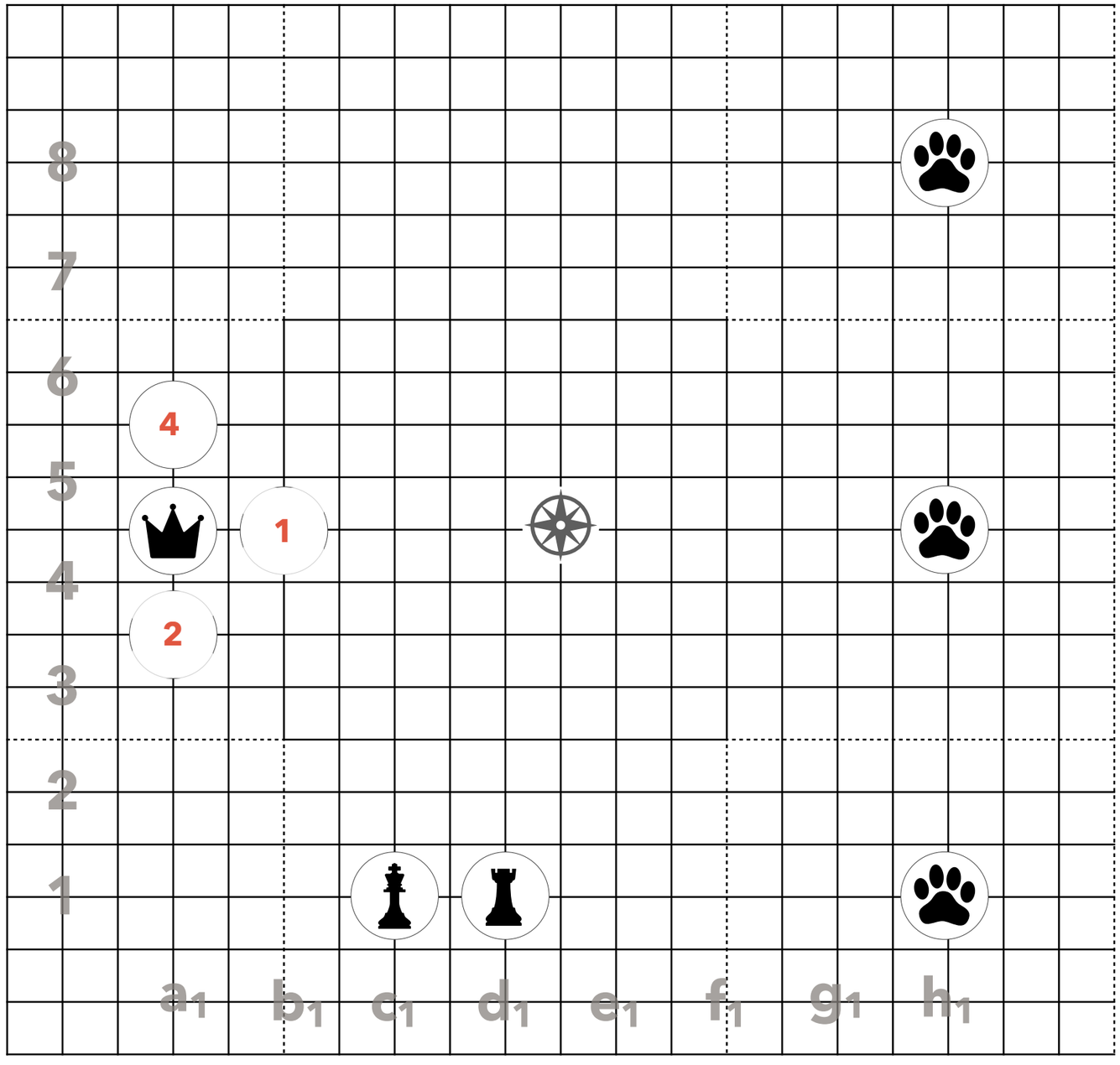
- showing backside of Player tokens according to the rules:
  - Pawns become Checkers when beating with Othello moves after opening move to the mid
  - Rookies downgraded to Pawns, Bishop (Runner) … to Captains
  - Knights … to Squires; Captains to Knights; Squires to Pawns
  - left + right Dragon … to Rookie; forward Dragon … to King;
  - King convert to Throne; 4-Player: King (Queen) can occupy Throne (CAPTURE), then building an ALLIANCE
- if downgraded Pawn reaches last row, it´s upgraded (reconverted), 4 possibilities each (2x Squires, 2x Rookies)
- skip of a Knight can trigger a DOWNGRADE
- experiment with Line-up (Shogi), roleplay behaviour (Go) and moves:
- maybe Checkers fig. don´t beat, they cause downgrading and upgrading; maybe use backside of each figure as alternately Line-up (REVERSE PLAY)



DEVELOPING FIGURE PLAY ON DIFFERENT GRID VARIANTS

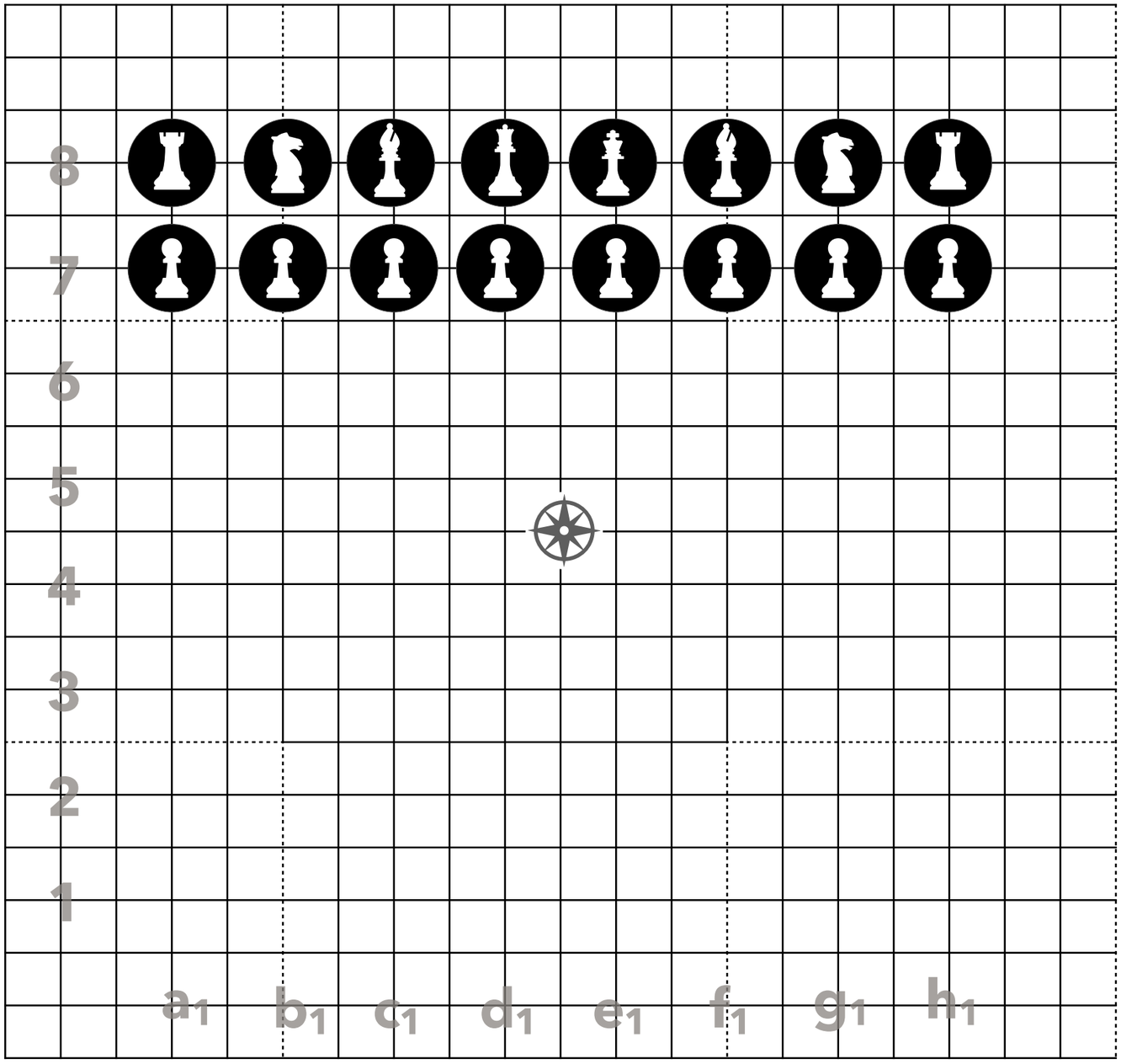
# 2-Player: Schedule of the Match

- use first QuantumGrid as playing field to match a MISSION and another as the control field to protocol the moves
- just imagine you're going to seek a mission instead of playing ´sink ships´
- each player has 64 attempts: a unknown mission is detected, if one part is touched; if all parts of the mission were found, the ´ black op´ failed; destroy all missions to win the match
- one or more hidden constellations are conceivable: PIGGYBACKED (Troop), ROCHADE, DRAGON (MILL) TRAP, LIBERTY FIELDS (defuse GO TRAP), UP- AND DOWNGRADING (only several successive hits reveal the mission) must not overlap – expect CHECKMATE (hide the Throne or King)
- the notation helps to find the opponent's mission: name the OPS (operating strategies), identify (unmask) the modus



## CONTINUATION

- according to the rules:
  - hide up to five missions on a wider QuantumGrid (Match of Thrones), give them space to increase number of attemps
  - the opponent only announces the current notation of the target field, but not the entire move of the figure (unmasked the figure), protocol the oppenent´s move in the PLAYBOOK (costum playlist) to check which field is currently blocked
  - distribute the ships and fill them with figures (reconnaissance force, fleet maneuvers); missions can overlap
  - play ´blind´ with constructed game situations (frozen line-up) that you have taken from a textbook (opening game, middle game, endgame, tournament) or THE PLAYBOOK (replay modus, figure play)
- practice predictive game: you´ll see, in contrast to ´sinking a ship´, you do not locate the hits (targets) only, but however the movements (vectors)
- use QuantumGrid below as control field, maybe use another (passive) set of figures known as SHADOW CABINET for visualization



**POSITIONAL, APPLYING AND CONSTELLATION**

# 4-Player-Chess

- traditional layer (invisible) is not a must
- white makes first move, but color assignment must be drawn, e.g. by rolling a dice
- Pawn becomes more valuable: opening move vertically or horizontally up to two fields, then dodge horizontally or vertically one field at a time; continues to strike diagonally
- Pawn can thus win back figures on two opposite sides (12x12) or three opposite sides (14x14);
- depending on the agreed rules:
  - choosen tokens (Qt) and cubes (Qb) allows Pawn flip over to show the figure on the back or adopt Shogi rules for upgrading and devaluing character skills (RISE)
- depending on the agreed rules:
  - as soon as a player is set in chess … the situation (HEADS-UP) must be resolved – the clockwise order is interrupted;
  - or the next player can benefit from another chess (COLLABORATION) – the order continues clockwise; the person affected must be able to free himself from both (three) situations with next move (PRISONER'S DILEMMA)
  - or the next player can profit from checkmate (INFILTRATION)  the game ends for the affected player – the figures remain on the grid, they can only passively trigger chess or checkmate again, whereby they inhibit the movement of all other players; then order alternate clockwise

## CONTINUATION

- all considerations for expanding the character sets (e.g. Squires, Card Suits) and the MISSIONS (pickypacking, line of attack, capturing) and the timed game (time delay), their rules and levels can be applied to the 4-Player-Mode
- likewise, the peculiarities of 2Pac – Chess & Othello vs Checkers – can be applied as soon as a four-colored QuantumCube is used
- here, too, SQUIRE is a move one forward or one sideways, but only hit diagonally (like a Pawn)
- however, I introduce another Chess token – the CAPTAIN (instead of Marshal or General);
    - the CAPTAIN move two forward/sideways, but hit vertically or horizontally like a Rookie or Bishop (Runner)
- other movements are also conceivable for both figures – Squires and Captains – , forwards and sideways, but only diagonal retreat or exactly the other opposite way;
- maybe one day we will introduce the Golden Army (instead of Pawns), three Dragons, like in the popular Game of Thrones, where we do not have to eliminate the King, but rather CONQUER the iron throne, then the mission was to OCCUPYING the opponent
    - 2-Player-Modus: the throne replaces the King; Dragons move and beat like Checkers Queen (or build vertical and horizontal MILL TRAP), can jump over own figures, can make half-moves, Dragons cannot beat one another except beat by a MILL TRAP or captured by a MILL TRAP then beat by others; the opposite Ice King move like a Queen, the throne replaces the Queen
    - where the goal is to CAPTURE the figures of the eliminated conqueror (KING'S SUCCESSION) without leaving the grid and use them together against the remaining enemy; this also allows the remaining enemy the opportunity to capture (LIBERATION)

QuantumGrid Chess v1 (4-Player-Modus)

y > 0
x < 0

y

z

10
9
8
7
6
5
4
3
2
1
0
-1

- x

x

- z

x > 0
y < 0

$g_0$ $h_0$ $a_1$ $b_1$ $c_1$ $d_1$ y $e_1$ $f_1$ $g_1$ $h_1$ $a_2$ $b_2$

QuantumGrid Chess v1 (4-Player-Modus)

y > 0
x < 0

z

11
10
9
8
7
6
5
4
3
2
1
0
-1
-2

- x

x

- z

x > 0
y < 0

QuantumGrid Chess v2 (4-Player-Modus)

y > 0
x < 0

z

11
10
9
8
7
6
5
4
3
2
1
0
-1
-2

- x

x

- z

x > 0
y < 0

QuantumGrid Chess v3 (4-Player-Modus)

## CONSIDERATION OF THE 4-PLAYER-MODUS

- using a the QuantumGrid allows to standardized the notation in different ways:
  - 1st the usual and internationally used chess notation (y:=1 to 8; x:= a to h) is extended by a scale with indexed notation: for a 14 x 14 grid in 4-Player-Mode we need the following labeled scale: y:= –2 to +11 and x:= $f_0$, $g_0$, $h_0$, $a_1$, $b_1$, $c_1$, $d_1$, $e_1$, $f_1$, $g_1$, $h_1$, $a_2$, $b_2$, $c_2$
    - all scenarios ever made can be transferred to the new notation and a neural engine (KI)
    - because we only expand fields from the center outwards, zero point moves to the center
  - 2nd the numeric-algebraic notation in 3D (vertical: -y, y; horizontal: -x, x; diagonal: -z, z) and 3D using Quantum in the coordinate system: I := y>0, x>0; II:=y<0, x>0; III:= y<0, x<0 and IV:=y>0, x<0
    - please do not confuse the order of the Quantum with the LIBERTIES of the game Go
- 3rd the graphical-vector notation with number pairs (in the plane: x, y) or number triples (in space: x, y, z), we combine the best of both worlds: put scale from –2 to +11 in front of $f_0$ to $c_2$ then the triple in parenthesis (x, y, z)
  - in a 2D variant the variable z is used differently to mark what is happening (CAPTURED, BEAT, PIGGYBACKED, FLIP-OVER), in these cases z can also be a notation preceded by a mathematical and logical operator (∧ and; ∨ or; ∈ element of for a mission; < downgrade, > upgrade; ¬ negation sign; use×multiplication for a beat, use :: proportion for pairing)
  - then we only need a column heading for the type of figure that I would recommend:
    - $k_{1,2}$ (2 Knights, h=Horses), $u_{1,2}$ (2 Unicorns, c=Centaurus, m=minotaurus), $s_{1,2}$ (2 Squires), $p_{1,\,n}$ (n=8 Pawns, f=Farmer);
    - $b_{1,2}$ (2 Bishops), $h_{1,2}$ (2 head of religion, spiritual) – maybe instead of Bishop

## CONTINUATION

- $c_{1,2}$ (2 Captains, Chiefs), $d_{1,n}$ (n=3 Dragons), $r_{1,2}$ (2 Rookies, c=Castle), $t_1$ (n=max Thrones),
- $q_{1,2}$ (1:=Queen, 2:=Princess), $p_{0,9}$ (0:=King, 9:=Prince), $p_nq_n$ (occupied Dynasty),
- $a_{1,2}$ (2 Ambassadors), $f_{1,n}$ (n=5 fleet parts), $m_{j,k}$ (j, k:=type of mission, maneuvers)
- these notation depends on grid size and playrole behaviour: $b_n$ (Black figures n amount: Othello, Go, Checkers, Mill etc.) – known as preceded Alpha; $w_n$ (White figures n amount: Othello, Go, Checkers, Mill etc.) – known as preceded Beta; $o_{1,n}$ and $o_{2,n}$ (Othello White and Black with n amount); $\alpha c_{3,n}$ and $\beta c_{3,n}$ (Checkers with n amount and preceded greek letter/color placeholder)
- then note every moves and every stroke in the PLAYBOOK; the Line-up (or specific scenario) is always taken from the column heading and the opening moves from the first line, whereby the made moves are also indexed: for index i, j note i:= 0 to 2 and j: 1 to maximum amount of moves
- the general vector notation v and AB is replaced with the type of the figure and its occupied field, then put direction arrows above if you like: $\rightleftharpoons$ to the right up; $\rightleftharpoons$ to the right down; $\leftrightharpoons$ to the left up; $\leftrightharpoons$ to the left down (not a must-have), metaname for vector notation on a 4-Player QuantumGrid 14x14 look like this:

colorvar[α, β].tokenname[lat.].subscript[const m:=i,j,k (n-amount] = fieldnum.fieldvar[letter, subscript] (x,y,z) subscript [n-moves]

⇩

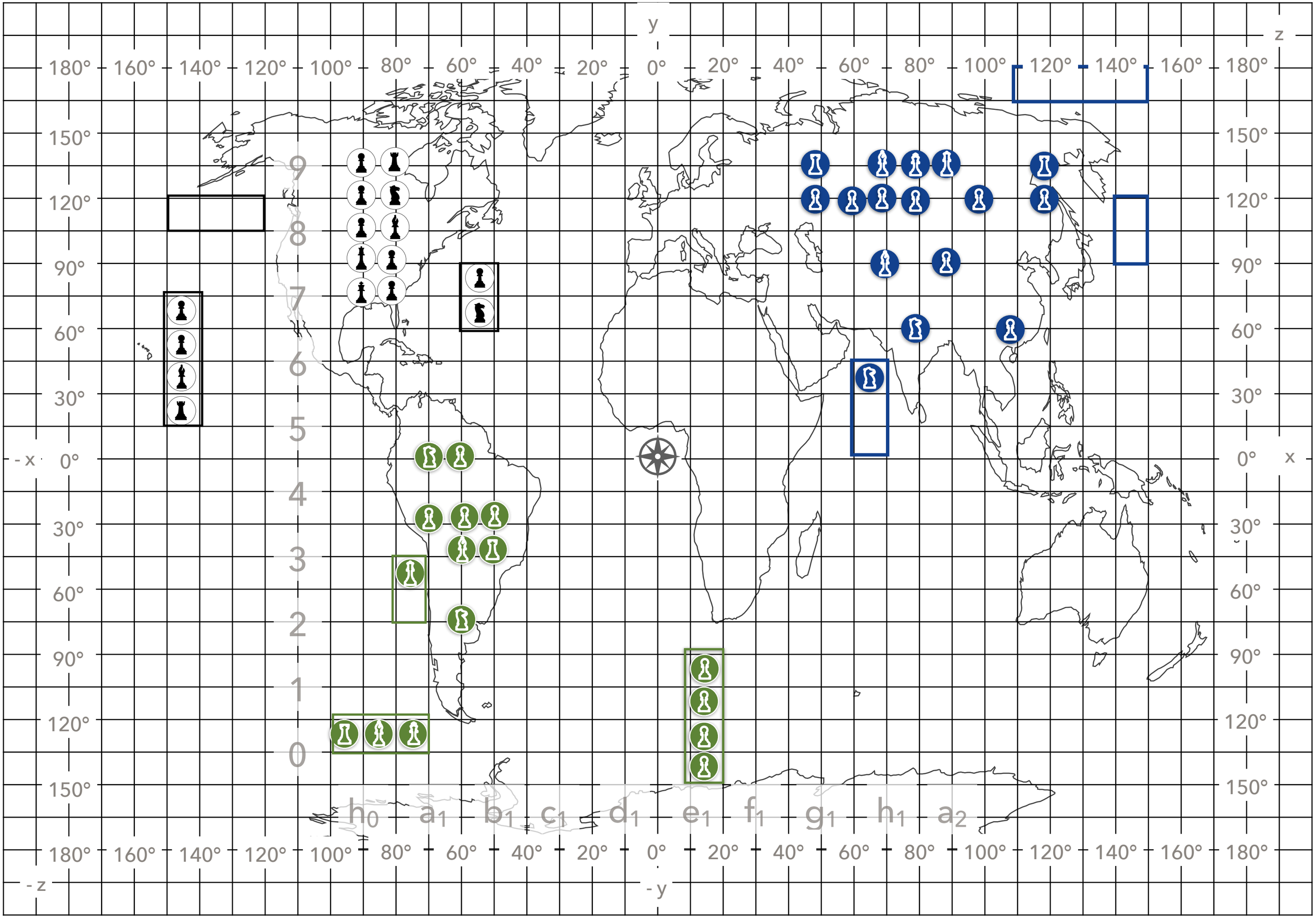
| | |
|---|---|
| $\alpha q_1 = -2d_1\,(-1, -13, 0)_n$ | Line-up of White Queen |
| $\beta p_4 = 10d_1\,(-1, 11, 0)_1$ | Opening move from 4th Black Pawn |
| $\alpha q_1 \wedge \beta p_4 = 10d_1\,(-1, 11, -1)_n$ | Pawn is CAPTURED by Queen on n move |

## HOW TO USE A MULTI-LAYER-MODUS IN DIFFERENT WAYS

- treat each invented game variant as a LEVEL with its own increased scenario of difficulty
  - also increase the tension and the pressure on the player with a time limit - the ability of the characters increases or even that of the opponent
  - in the Othello mode the opponents could overflow, in the Checkers mode they are upgraded and devalued, in Go mode they are captured or blocked – different game LEVELS are possible
- use longitude and latitude to designate the coordinates, as Go work with connecting lines,
  - so 0° latitude is y-axis and the 0° longitude is x-axis; the notation for z in space can then be a high and low number scale – use for missions, fleets and others
  - we could easily apply the QuantumGrid to the entire world map – known as PLANET CHECKMATE; (CHECKATHON) each part of continent and other landscapes has its own Line-up; Line-up can be a combination of SCHEDULES and MISSIONS (especially piggybacked, troops) choosed from the PLAYBOOK – so from a tried (trained) and proven (tested) game variant; playing onto a QUANTUMGRID UNIVERSE (CHECKORRERY) allows to play with much more than four Player
- load ships with figures, plan mission and conquer continents; use ocean for SCHEDULE OF THE MATCH; use planes and submarines because with z we have height and depth meters to differenciate the notation
- each grid square can be seen as a playing field; decide in which direction you play – 2x half moves (two figures each, along crosslines) or 1x full move (one figure each along fields), which fleets you enter (hit) or hijack (capture)
  - fleets, ships, planes or submarines always move with the skills of the figure characters they are loaded with, so different maneuvers are played - in which you either have to avoid collisions and direct confrontations; confrontations have to be played out heads-up - similar to chess situations; maybe you jump onto pipes, railways and use them for quick and escape moves
  - the notation is written as a tuple $(figure_{a,b,c})$ $(row1:= x_{1,2,3}\ row2:= y_{1,2,3}\ row3:=z_{1,2,3})_n$ ; the indexing of the move (stroke) being the same, you see the preceded field notation can be omitted

## HOW TO USE A MULTI-LAYER-MODUS IN DIFFERENT WAYS

- experiment with the Line-up that has unfixed positioning – put figures one after the other, as soon as each figure has taken its first position (Line-up), the first moves are started (white makes opening move); the Mill game starts like this
- when using 64 fields in Chess, Checker modus, each fields consists of 4 Go fields in, so both types of figures use one grid and move along connecting lines; a Chess figure can be blocked with a Go stone – also Chess, Checkers and Go can change figure capabilities and moving behaviour; also Mill game and Halma using connecting lines
  - a centered Halma modus can be used alternately to build a bridge for jumping or pipe for making faster moves in each constallation; also own Checkers can use multiple times
- when using 100 fields in Shogi and Othello (or Connect Four) modus, each figure also behaves along connecting lines; the typical division into black and white is only used for orientation and is no longer necessary
- the zero point is in the center of the coordinate system (3D), the vector is called v: = (±x, ±y,±z) = (0,0,0), for the notation according to longitude and latitude, the vektor is called v:= (x, y, z); z marks move in space (high and depth) signs are necessary for direction, as half of the 360 degree divisions are distributed across the cardinal points, zero point is 0° north, 0° east
  - we can easily play with a 37 x 37 grid made of connecting lines, we are no longer limited to a square design or gameboard or to pure alpha-numeric notation
  - when using a circle instead of globus or rectangle, we can use the notation on a Dart board
- the notation in 2D can even be used on Snookers (Golf); the notation for each individual ball must then be preceded by an angle variable for the impact of the queue (clubs); in Snooker, however, the ball takes up one or more vectors with one stroke; the contact (hit, fault) and the converted color (repeated line-up of colored balls) must then be marked (highlighted) with logical or mathematical operators
- applied rules can be different from continent to continent, or from planet to planet; also the space and the oceans can have own rules


y
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- x
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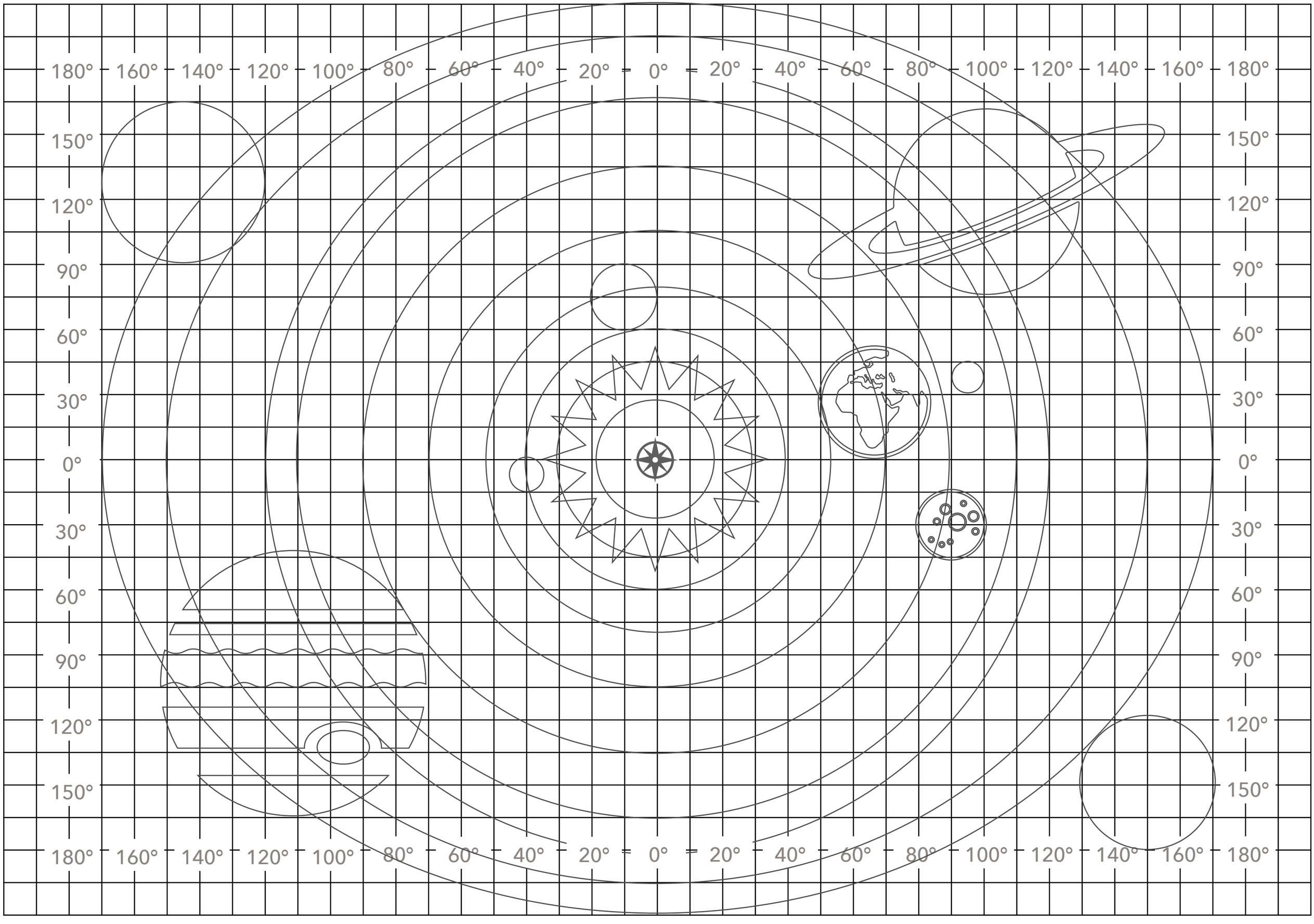
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