

CHESS · VARIANT 134 OF 153

Spherical Chess

**8×8 (played on flat board, spherical
topology)**

BOARD

2

PLAYERS

SPHERICAL CHESS

Spherical Chess is a family of chess variants adapted to spherical topology — a surface with no edges, where all directions eventually curve back to their origin. Multiple independent inventors have designed spherical chess between 1950 and 2014. The variants share a common framework but differ in how the Bishop and Knight handle the polar singularities.

THE BOARD AND TOPOLOGY

Spherical Chess is played on a standard **8×8 board**, but the board is conceived as a sphere:

Horizontal wrap (as in Cylindrical Chess): Ranks loop back into themselves. The a-file connects to the h-file — a Rook moving right off the h-file reappears on the a-file at the same rank.

Polar wrap: The board does not wrap vertically in a simple torus manner. Instead, files are treated as **lines of longitude** that meet at the poles (rank 1 and rank 8). When a piece crosses a pole:

- A Rook moving forward off rank 8 continues from **rank 8 on the file four files away** (e.g., Ra3-a1-e1-e4)
- The shift is always exactly **4 files** (half the board width)

This means:

- There are no edge squares — every rank wraps
- There are no corner squares — the poles are where all files converge
- Pieces near the poles have reduced move counts (fewer unique destination squares)

PIECE MOVEMENT NEAR THE POLES

Rook: Crosses the pole by continuing 4 files away on the same rank, then continues moving away from the pole.
Example: Ra3 → a2 → a1 (pole crossed) → e1 → e2 → e3...

Bishop (most versions): Crosses the pole and continues on **the same diagonal colour** (colourbound). Moving diagonally into the pole, it exits directly across, then reverses its diag direction. The exact rule differs by version:

VERSION	TRANSPOLAR BISHOP RULE
Grayber/Miller (1950s/1965)	Complex zig-zag; not colourbound
Yapsan (1971)	Crosses directly across pole (same file shifted 4); colourbound; reverses direction
Nadvorney (1975)	Shifts 3 files (not 4), changes colour; complex path
Boholy/Welman/Chao (1987–2008)	Same as Yapsan; colourbound

The **majority of versions** (Yapsan, Boholy, Global Chess, Chess on the Dot) use the Yapsan-style colourbound Bishop: crosses the pole directly 4 files away, reverses diagonal direction, stays on the same colour.

Knight: In most versions (Yapsan, Nadvorney, Global Chess, Chao), the Knight has exactly **8 possible moves from any position** on the board, including those near the poles, by applying the L-shaped leap with polar adjustment.

King and Queen: Move as derived from Rook and Bishop above. King near a pole has 6 possible moves (not 8).

Pawn: Moves as in Cylindrical Chess — forward only, no trans-polar movement until promotion.

CASTLING

In the Yapsan, Nadvorney, and Chao versions, two extra castling options are available: the King may castle with a Rook by approaching it from **either side** (not just the standard approach). The usual castling conditions must still be met.

KEY VERSIONS

YEAR	INVENTOR	KEY FEATURE
1950s	H. D. Grayber	First documented; complex non-colourbound Bishop
1965	Don Miller	Knight near pole gains extra move (8 moves)
1971	Peter Yapsan	Colourbound Bishop; 8-move Knight; extra castling
1975	Leo Nadvorney	Bishop changes colour at pole; 8-move Knight
1987	János Boholy	Pole is a neutral passing space; 6-move Knight near pole
1989	Welman & Welman	Global Chess; 8-move Knight (orig.); later reduced
2008	Joshua Chao	Chess on the Dot; Yapsan-style; forbids stationary moves

RULES

- ♦ Standard FIDE starting position
- ♦ Standard FIDE rules apply, except as modified by spherical topology
- ♦ No stationary moves (pieces may not make a complete loop and return to their starting square) — in most versions
- ♦ Win: Checkmate

ATTRIBUTION

Spherical Chess is a family of chess variants invented independently multiple times between 1950 and 2014. Surveyed by Fergus Duniho. Source: chessvariants.com/boardrules.dir/spherical.html (last modified July 29, 2021).