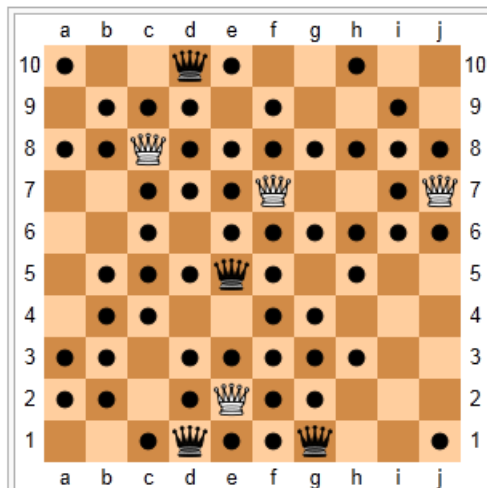
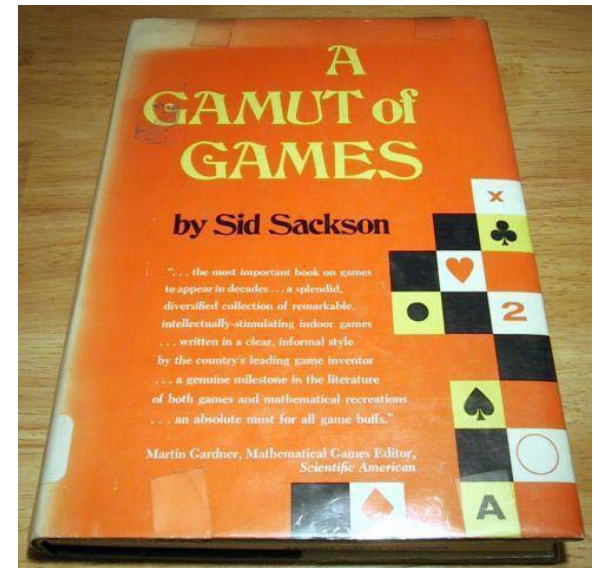


A Sampling of Chess and Chip Games

Todd W. Neller



A completed Amazons game. White has just moved f1-e2/f1. White now has 8 moves left, while Black has 31.



<http://cs.gettysburg.edu/~tneller/games/chessnchips.html>

Motivation

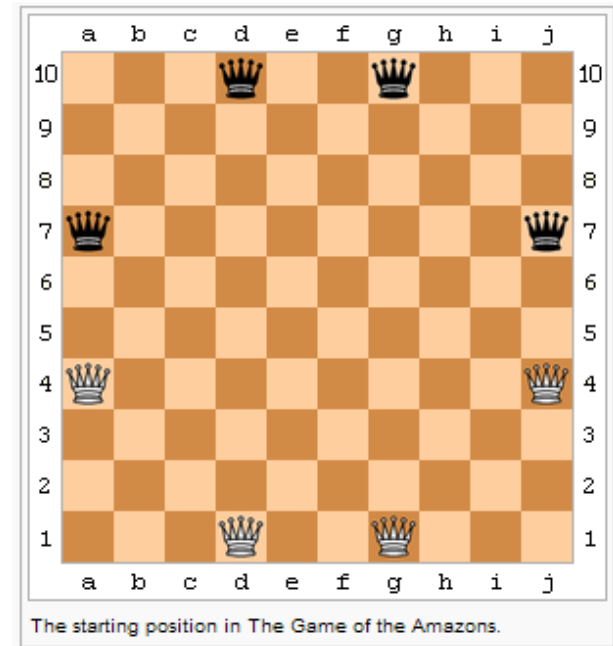
- “How could one get the most varied, quality gaming for the least cost?”
- My top 5 game equipment picks for fun and variety at low cost:
 - Pencil and paper
 - Playing cards
 - Dice
 - Chess set
 - Poker chips
- Chess set + poker chips = greatly expanded possibilities

A Sampling of Chess and Chip Games

- Amazons
 - invented in 1988 by Walter Zamkaskas of Argentina
 - “El Juego de las Amazonas” is a trademark of Ediciones de Mente.
- Ataxx
 - Invented by Dave Crummack and Craig Galley in 1988 and was originally called Infection
 - First appeared as a Leland arcade game in 1990
 - Believed to be in the public domain
- Lines of Action
 - Invented by Claude Soucie
 - First publicized in Sid Sackson's book *A Gamut of Games* (1969)
 - A focus of AI competition in the annual Computer Olympiads

Amazons

- Object: To be the last player with a legal move.
- Board: square grid (10x10 standard, but smaller works)
- Pieces:
 - 4 Amazons each in light/dark colors (e.g. Chess pawns)
 - Markers to mark “arrows” on grid (e.g. Poker chips)
- Initial setup: (see figure)
- The light color plays first.

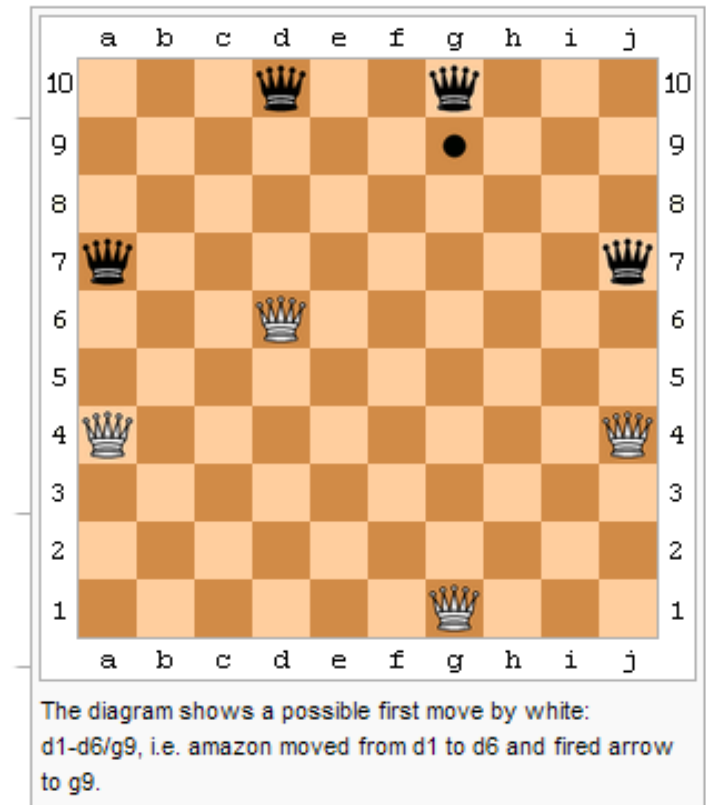


Source: Wikipedia

On a chess board, pieces can be placed at a3, c1, f1, h3 and a6, c8, f8, h6.

Amazons: Move

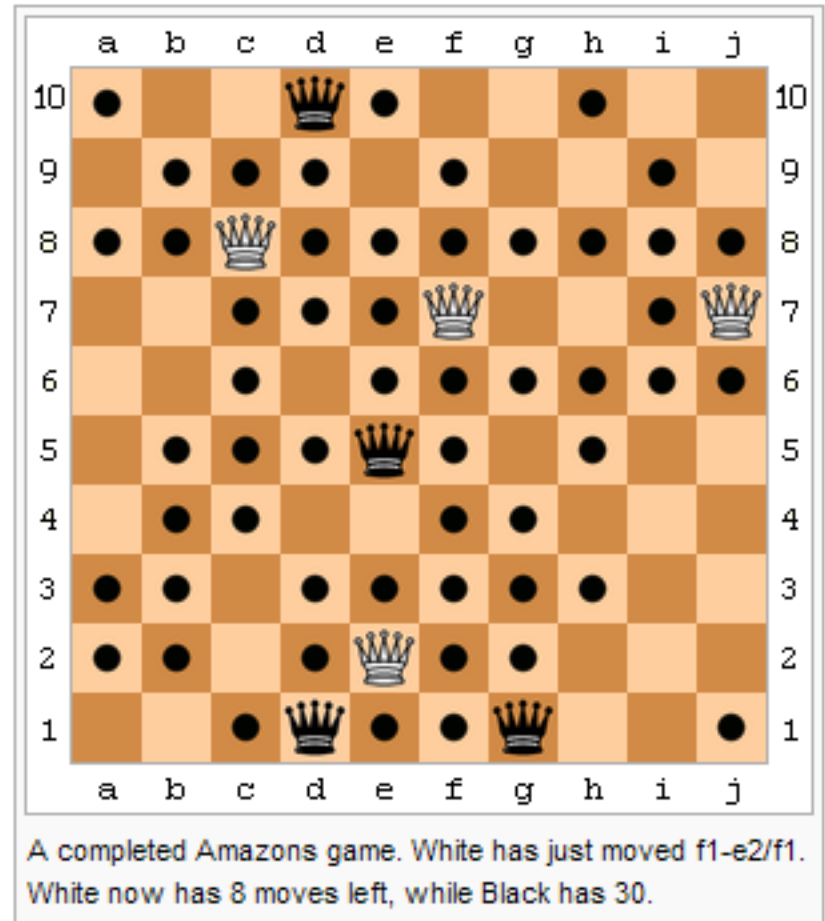
- A move consists of two parts:
 - An **Amazon** of one's color makes a non-capturing queen move.
 - The moved Amazon then shoots an **arrow** a non-capturing queen move away from the Amazon's new space.
- Amazons and arrows block spaces. Amazons do not capture. Pieces may not move on or beyond blocked spaces.



Source: Wikipedia

Amazons: Game End

- Play sometimes ends by mutual consent when all Amazons are separated and the number of remaining legal moves is easily counted.



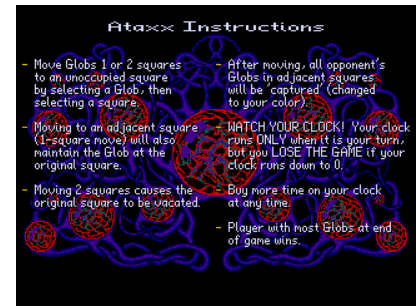
Ataxx

- Object: to have the most squares with your color at game end.
- Board: 7x7 square grid
 - Variations: some squares may be blocked, hex grid, grid size
- Pieces: 2 contrasting color poker chips per grid square, stacked as in Reversi/Othello.
- Initial setup: Usually two light-color-on-top stacks in two corners, and two dark-color-on-top stacks in the other two corners.
- Light goes first.



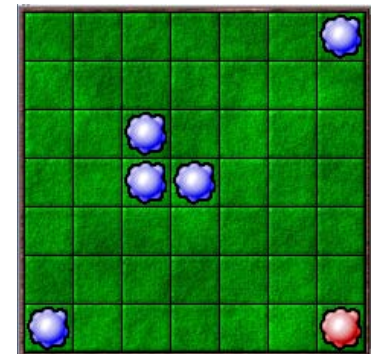
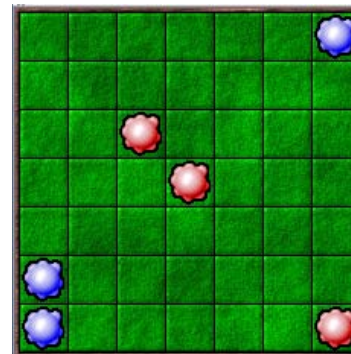
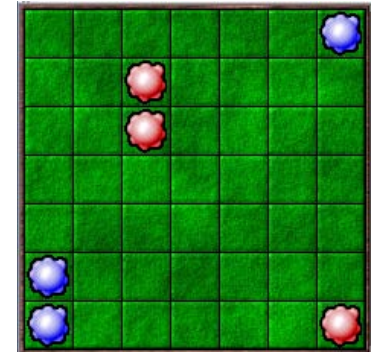
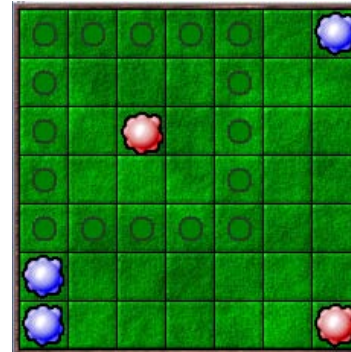


Ataxx: Move



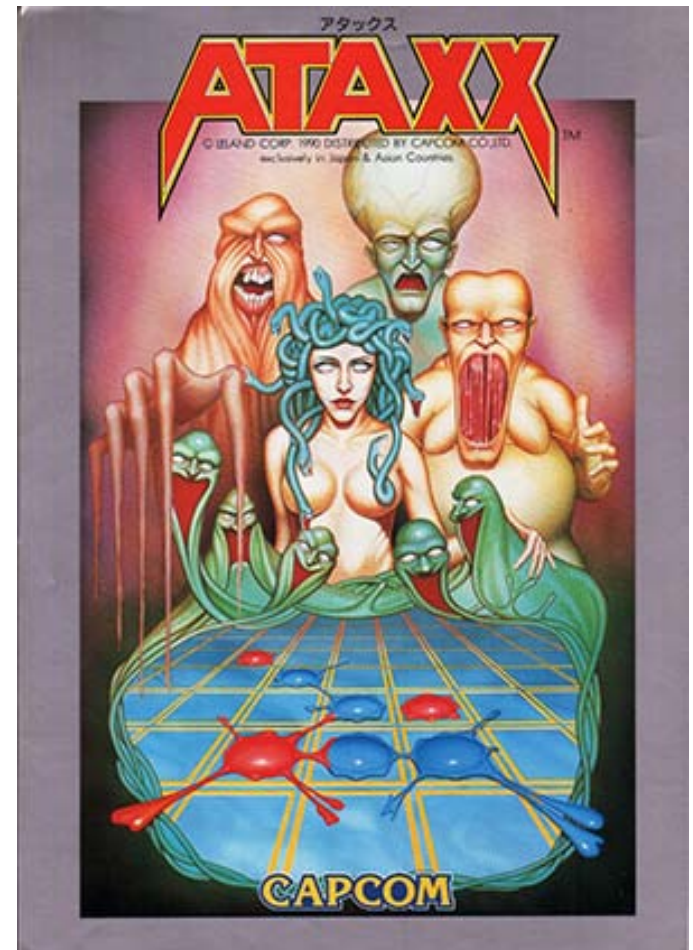
- Two types of actions:
 - Move a piece to an empty square 2 away. (by single orthogonal/diagonal steps)
 - Grow a new piece into a square 1 away.

- All opponent pieces adjacent to the destination square are flipped and become your pieces.



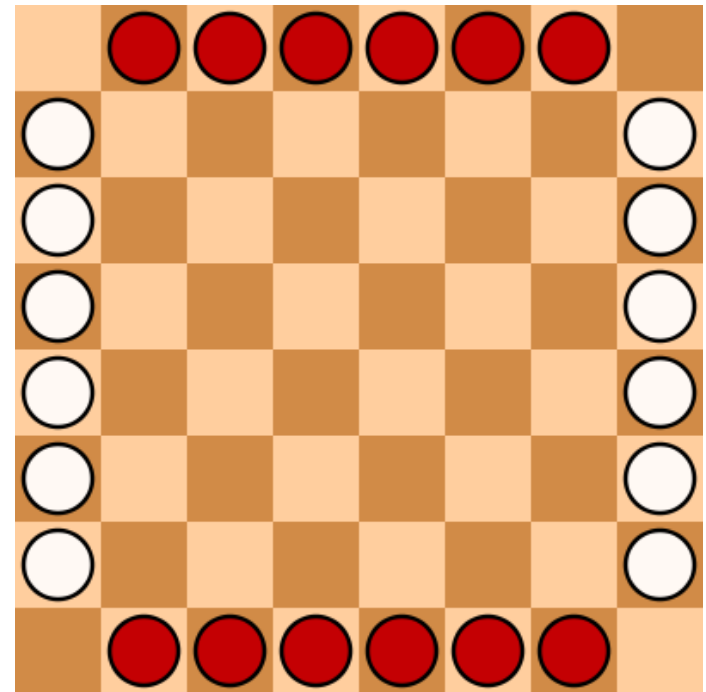
Ataxx: Game End

- The game ends when neither player can move (two consecutive passes).
 - Alternatives: “...when the board is full”, “... when a player has no more pieces”.
- Then, the player with the most pieces wins.
- Draws may occur on boards with an even number of squares.



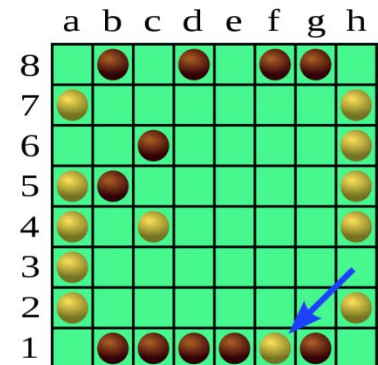
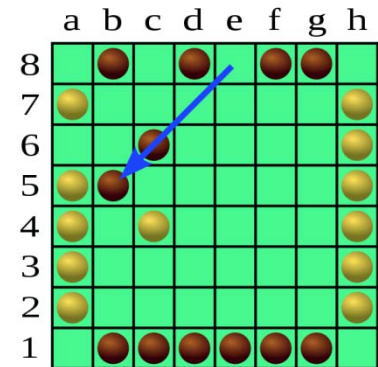
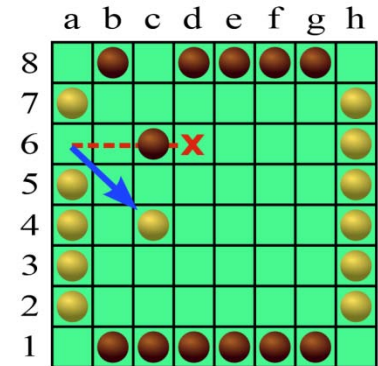
Lines of Action

- Object: To be the first player to connect all of their pieces.
- Board: 8 x 8 square grid
- Pieces: 12 chips in each of two contrasting colors
- Initial setup: (see figure)
- The dark color plays first.

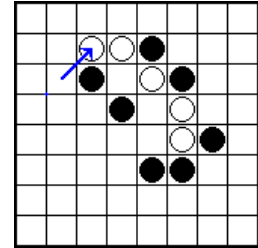


Lines of Action: Move

- Chips move orthogonally/diagonally
- A chip moves *exactly* as many spaces as there are chips of either color along the line of movement. This includes the chip itself.
- A player's chip may not jump over opponent's chip(s), but may capture one by landing on it.
- A player's chip may jump over that player's chip(s), but may not self-capture.



Lines of Action: Game End



- The game ends when there is a single, completely connected group of one player's pieces.
 - Connections are made by orthogonal/diagonal adjacency.
- Special case: **simultaneous connection** – a capture move both completely connects the player's group and removes the only disconnected piece of the opponent.
- Is this a draw?
 - NO. According to the game inventor Claude Soucie and Sid Sackson in his 2nd ed. of *A Gamut of Games*, the player making the simultaneous connection wins.
 - YES. According to Sid Sackson's 1st ed. of *A Gamut of Games* and most present-day tournament rules, this is a draw.

Conclusion

- These are but a few game possibilities when one combines a Chess set with Poker chips.
- What interesting Chess and Chip games might you invent?
- More Chess and Chip games at <http://cs.gettysburg.edu/~tneller/games/chessnchips.html>
- Enjoy!
- Sources: *A Gamut of Games* by Sid Sackson, Wikipedia, Google images