

Maryann Westfall
LCC 6215 Game Design as a Cultural Practice
Restrictive Practices in Space Games
September 3, 2002

In a previous in-class report on The Oxford History of Board Games¹, a genealogy of board games was illustrated. This illustration indicates that there are four types of play in board games:

- race — first player or team to reach the goal wins
- space — first player or team to complete a particular alignment or configuration wins
- chase — many-to-one capture theme
- displace — many-to-many capture theme

DEFINING SPACE GAMES

In space games, the first player or team to complete a particular alignment or configuration wins. The path is two-dimensional, allowing for movement backwards and sometimes sideways. Moves are not dice-bound, and there is usually a many-to-many relationship between opponents. Alignments or configurations are:

- align — in a line
- connect — a line connecting two sides or specific points
- traverse — all pieces must cross to the other side of the board
- attain — one piece must cross to the other side
- configuration — complex alignment of shape or area instead of line
- restriction — placement that denies opponent opportunity to move
- occupation — configuration or placement with the most of one side

The field of action is typically areal, and movement is free (i.e. bound only in quantity to number on the dice, not to a specifically numbered space or in a specific direction). Placement of pieces is symmetrical (in terms of quantity of each opponent). The primary method of interaction is blockade in which pieces are used to block opponent's movement while attaining the configuration. Secondary methods of interaction are capturing and ousting.

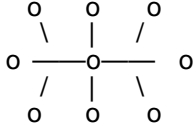
There are two types of space games: those that focus on placement and those that focus on movement. In placement games, the board begins empty and players take turns placing pieces (and sometimes also removing them) until one player cannot make a placement without breaking a rule of restriction. Movement games are typified by a board with an initial array set up. Players take turns moving until one cannot move without breaking a rule of restriction.

Both types of games are also called nim games because the method by which to win can be derived mathematically; a player must be able to calculate and anticipate all possible moves. In Matchsticks, play begins with 13 matchsticks on a surface:



Each player takes turns removing one, two or three matchsticks at a time. The player removing the last matchsticks is the loser (or winner depending on predefined agreement).

In Mu-torere, an eight-sided star has a play spot on each of its tips and one in the center.



Each player sets up four pieces next to each other on any outer points. Players then take turns moving one piece at a time into one of the vacant spots until one player cannot make a move. Tic-tac-toe is a well-known simple space game in which players take turns marking Xs or Os on a 9-square grid until a row diagonally, vertically or horizontally is made of one type of mark.



All of these games have mathematically derived outcomes such that if a player has sufficient memory, the correct number of moves can be calculated to win.

L-GAME

The L-Game was invented by two mathematicians trying to put Chess on a computer. Each player has one L-shaped piece (three units long by two units wide; like the tetromino L-shaped piece below) and there are two neutral pieces (one-by-One unit square). The pieces are played on 16-square grid, and simply requires alternate moves of the player's piece on the grid, and optionally moving the neutral piece afterward. The player may also flip his piece if desired, before placement. This type of game requires spatial perception of math, and an understanding of sequential movement. The first player that cannot make a legal move loses. A critic of the game, D. H. Fremlin, discovers that 29 out of the thousand+ possible positions of the second player's moves results in wins. Therefore, someone with a keen memory can play and win easily.

The practice of placing restrictions on these types of games is necessary so as to limit the amount of winning moves that one can memorize. Adding particular playing pieces acts as a form of restriction which exponentially increases the number of options at each decision point, resulting in space games of movement that are more difficult to memorize, and challenge spatial perception more fully.

Example:

Playing piece shapes of popular X-ominos are illustrated below.

Dominoes XX

Trominoes XXX XX
 X

Tetrominoes XXXX XXX XX X
 X XX XX
 X

Pentominoes XXXXX XXXX XXXX XXX XXX X
 X X XX X X XXX
 X

 X XX X X X X
 XXX XXX XXX XXX X XX
 X X XXX XX

VARIATIONS

In addition to adding more playing pieces, variations are added to make these simple math games more challenging, and for the sake of interest:

1. Differing board sizes.
2. Limiting or increasing types of illegal moves (as in Cuisenaire rods, in which rods of varying lengths must be played in specific order)
3. Differing initial arrays.
4. Adding popular themes.
5. Adding more pieces, as in hexominoes (32 basic shapes)

ANALYSIS OF TETRIS

In terms of restrictive practices, Tetris is a computer-based game of tetrominoes with three restrictions that make the game challenging:

1. Pieces are constrained positionally in that they move from top (of the screen) to bottom.
2. Time-constrained (pieces are presented by the computer, and not at the discretion of the player).
3. Infinite number of pieces can be introduced for infinite play.

HOW THE MEDIUM CHANGES THE PLAY

In moving from board to computer form, the following characteristics of space games can be altered:

game structure — in board games, there is limited potential for increasing the challenge with the same player because all game elements are fixed (playing field, number and type of playing pieces, rules of engagement). In computer-based games, the challenge continually changes through the ability of the computer medium to introduce increasing levels of difficulty. Game elements can be “adapative” — playing fields can vary, number of playing pieces can be increased, speed of movement can be increased, maximum time in which to respond can be decreased.

game play — because of the potential for infinite play, the element of time is often introduced to maintain interest; the time required to decide and execute a move must be limited (often much more compressed) in order to make it meaningful in the computer environment.

game experience — probably the most impacted area of game play is the socialization. Because of the critical time restraints often imposed by computer-based games, multi-player games are often played with the game as subject of the socialization. Players must be focused on the play continually. In board-based games, much of the socialization occurs between the players — the game serves as a unifying element of the interactions, but may not necessarily be the subject of the of the interactions. There is typically more leisure time to digress from the task at hand.

¹ The Oxford History of Board Games, Parlett, David, (Oxford University Press, 1999).