Classifying Board Games

There are many ways to classify board games, along all sorts of dimensions, which is what this module is all about.
Classifying Board Games

Some of the ways we’re going to classify board games are...

- By Genre
- By Layout
- By Movement
- By Skill vs. Chance
- By Capture Modes
- By Piece Differentiation
- Miscellaneous
Some Basic Game Genres

Based on game historians H. J. R. Murray, David Parlett, and R. C. Bell.
Murray’s Classifications

One genre framework was proposed by H. J. R. Murray in 1952 in his excellent *History of Board Games Other Than Chess*. He identified the following five game categories:

- **Race** (*Ur, Senet, Hounds and Jackals*)
- **Alignment** (*Tic-Tac-Toe, Morris* games)
- **Hunt** (*Fox and Geese*)
- **War** (*Chess, war simulation games*)
- **Mancala** (gathering pieces)
David Parlett, a noted British game designer and historian, identified five basic genres of board game that mostly overlap Murray’s:

- Race
- Space *(akin to Murray’s alignment genre)*
- Chase *(akin to Murray’s hunt genre)*
- Displace *(no equivalent)*
- … and Theme *(no equivalent, no rhyme either)*
BASIC TERMS
Basic Terms

- The piece (formerly, man) is the fundamental object that is moved, positioned, captured, etc., on a game board.
  - There can be many kinds, as in Chess
  - Or only one kind, as in Chinese Checkers

- The field of action is the place in which all game play occurs. It’s not necessarily the entire game board; only that portion of the board on which actual play takes place.
Basic Terms

- **Objective** (or aim): what the player is trying to accomplish in order to win.

- **Three kinds of objectives:**
  - By winning a certain spatial position, like “home”
  - By obtaining a commanding arrangement of pieces by overwhelming the opponent
  - By commanding the board by occupying most of it

- **Placement.** Some games start with an empty board that players fill with pieces, as with *Go* and *Reversi/Othello*.
Basic Terms

Interaction describes how the playing pieces can attack and oppose one another. Includes:

- Capturing – permanent removal
- Ousting – sending back, maybe to the start
- Blockading or paralyzing – preventing forward movement
- Demoting – reducing the strength of an opposing piece
- Promoting – increasing the strength of one’s own piece, e.g. pawn promotion in Chess, kings in Checkers
- Converting – changing allegiance of an enemy piece to one’s own (found in Reversi/Othello)
Race Games

Not the zoom-zoom kind.

(Parlett’s Race genre is basically the same as Murray’s Race genre)
Race Games

As we have seen, a race game refers to any game which requires players to move pieces from a starting point to an ending point (the objective).

It does not mean racecar driving simulation games... that meaning was added much later.

The simplest, most linear games are usually race games, e.g., *Hounds and Jackals.*

Nearly all traditional race games involve a source of randomness.
Race Game Subtypes

Simple Race Games – players have only one piece each, so no thinking is involved (e.g. *Chutes and Ladders*), and therefore no strategy is possible.

Complex Race Games – players have several pieces each (2-4), so some slight skill and strategy are introduced (e.g. *Pachisi, Ludo*).
Race Game Subtypes

- **Multiplex** Race Games – players have a large number of pieces each (around 15), so considerably more skill is required *(Backgammon and Tables families of games).*

- **Strategic** Race Games – these use no dice or other source of random numbers, so all play requires strategy and calculation *(Hare & Tortoise).* Relatively rare.
Space Games

Not the kind with light sabers.

(Parlett’s *Space* genre is basically the same as Murray’s *Alignment* genre)
Space Games

- Nothing to do with spaceships and aliens.
- Parlett uses this term to mean more or less what Murray means by games of “alignment and configuration”, or what Bell means by “positional” games.
- All space games are played on two-dimensional boards with free-moving pieces.
- *Chinese Checkers* and *Go* are examples.
Space Game Subtypes

- **Alignment** – idea is to move pieces into a particular winning configuration (*Merels/Mill/Morris* games, *Tic-Tac-Toe*)
- **Connection** – idea is to form a line of pieces from one end of the board to the other (*Hex, Twixt*). Somewhat rare.
- **Traversal** – idea is to get pieces to the other side of the board (*Kono, Halma, Chinese Checkers*)
Space Game Subtypes

- **Attainment** – like traversal, but the idea is to be the first to get just one piece across (*Jungle Game*, *Quandary*, *Epaminondas*)

- **Configuration** – idea is to get all the pieces arranged into a particular pattern (*Solitaire*, *Agon*, *Shoulder to Shoulder*)
Space Game Subtypes

**Restriction** – idea is to be the first to block the other from being able to make any move. First player to be blocked loses (*Cows & Leopards*, sometimes).

**Occupation** – idea is to occupy the largest amount of territory (*Go*, and in a sense, *Monopoly*).
Chase Games

Not the kind at frat parties.

(Parlett’s Chase genre is basically the same as Murray’s Hunt genre)
Chase Games

- Similar to Murray’s Hunt Games, but covers more.

- Key idea is **asymmetry**: the two sides have very different powers and objectives.
  - Sometimes one side (the “smaller”) has only a handful of pieces; these are allowed to capture pieces from the “larger” opponent.
  - The larger opponent generally must surround, block, or drive off the smaller opponent, but is prohibited from directly capturing the smaller opponent’s pieces.
Chase Games

In other chase, or hunt, games...

- The hunted outnumber the hunters, but are a lot weaker.
- But they can gang up on the hunter, which is one way of balancing the game.

*Fox and Geese* is an example of this sort of game. If the geese gang up on the fox so as to immobilize the fox, the fox loses.

*Cows and Leopards* has a similar mechanic.

Pac-Man flips between the two.
Asymmetry is fairly unusual in board games, but well designed ones can be excellent. Asymmetry is also characteristic of “war games”, that is, games that actually attempt to model real combat situations.

- The two sides are generally not equal, because the armies/navies they model were not equal.
- To make it seem fairer, asymmetrical sets of “Victory Conditions” are defined for each side.
Asymmetry & War Games

The mostly-defunct Avalon-Hill company (now part of Hasbro) was the best at creating these classic – and difficult – war games.

Panzerblitz, for example, was about tank warfare on the steppes of Russia between the Nazis and the Russians:

- The tank divisions of Nazi Germany were among the best ever, but the Russians had the home-turf advantage, not to mention having a lot more materiel (of lower quality) to throw at the Nazis.
To **balance** a game is to adjust the rules, piece strengths, or other parameters of the game so as to make both sides as nearly equal as possible.

One easy (and cheap) way to balance an unbalanced game is simply to have the players alternate sides with each new game.

- This keeps one player from being permanently disadvantaged.
- But mostly only works with relatively short games that are played for many rounds.
Balancing & Asymmetry

Some games are unavoidably unbalanced, notably games that feature asymmetric designs.

- Here, it is still often good policy to “tune” parameters to help even things up.
- In war games, where there can be decided imbalance, one can instead provide a set of “victory conditions”, as in “Player B ‘wins’ if he loses ‘only’ 80% of his forces.”
Displace Games

There is no cute comment to insert here 😊

(Parlett’s *Displace* genre mostly overlaps Murray’s *War* genre)
Displace Games

- A better category in which to put most war games.
- Involves capturing or destroying more of the enemy’s pieces that the enemy does of yours.
- Here, there can be some subtle distinctions.
Displace Games

- Purely abstract games of displacement include *Go*: the object is to occupy the most territory, which means having to capture many of the enemy’s stones along the way.
- “Popular” war games, like *Stratego* and *Risk*, are displace games with simple game play.
- Serious war games, like those from Avalon-Hill, entail substantial complexity and, often, historical accuracy as well.
War Games

Murray uses the term “war game” to describe a vast number of games in which the primary object is to eliminate as many of the opponent’s pieces as possible.

The problem with this term is that it covers both abstract games (*Chess*), plus the much more modern thematic games based on actual military history (*Panzerblitz*), and now war-themed video games (*Call of Duty*, etc.).
Displace Games

We will use the term “displace games” to refer to these abstract games, even if they are also war games.

We will save the term “war games” for those more modern versions, which, by themselves, form a large class of computer games, notably RTS (Real Time Strategy) games.
Mancala Games

(Parlett does not have an equivalent to Murray’s Mancala genre.)
Mancala Games

Murray had a classification called Mancala Games, which are gathering games in which the objective is to collect more pieces/tokens/stones than the opponent.
Mancala Games

Traditionally, *Mancala* is played on a thick piece of wood in which bowl-like depressions are carved to hold the stones.

Stones do not belong to either player until they are captured. Until then, they are unowned and simply there for players to capture toward their score.
Theme Games

(Murray does not have an equivalent to Parlett’s Theme genre.)
Theme Games

This is a final category for games that revolve around some central theme that is also the main reason for the game. *Lord of the Rings*, sports franchise games, and so forth are examples.

Most of these are tied in with proprietary titles in other media.

- This is sometimes called *transmedia*. 
Proprietary Games

Another way to classify games is by whether they are proprietary or not.

Obviously, a proprietary game is one that is still under copyright and published under license.

Licensing is big business!
Proprietary Games

- *Ants in the Pants* is out again as *Ants in the (Square) Pants*, featuring Sponge Bob.

- The Simpsons are now featured in a version of the Milton-Bradley classic *Game of Life*.
  ... and *Clue*, too.

- *Monopoly* is out under many cross-licensed names, even *Whovillopoly*, featuring the Grinch.
Classifying by Layout

The second major scheme
Another Classification

David Parlett proposed classifying games based on the nature of the game board layout itself:

- **Linear**: all the squares are in a row.
- **Areal**: the squares are assembled into a larger 2D pattern.
- **Reticular**: the squares have complex interrelationships beyond merely adjacent.
Linear Layout

*Hounds and Jackals* is a perfect example. The game can have twists and turns, but if pieces can only move along a line, it’s linear. Piece movement can be linear, but still permit jumps ahead and behind in various ways. Often considered to be among the most “primitive” of game layouts. A variation: looping back on itself for continuous trips through the loop. A perfect example of this is *Monopoly.*
Linear $\rightarrow$ Areal Layout

- *Senet* is a good example.
- Here the linear layout has been folded onto itself to form a more rectangular pattern.
- Yet, even though the board is folded in this way, nothing in the rules (as far as we know) provided for moving in 2D fashion, jumping the rows.
- *Senet* is 3x10; it could just as easily been 6x5 or 5x6.
It is tempting to think that folding a linear game layout into a more compact arrangement was the way such “rectangular” game boards evolved, but historically this is probably not the case.
The children’s game *Chutes and Ladders* (also known as *Snakes and Ladders*), is a linear game played on a 10x10 (or some similar pattern) board.

As with *Hounds and Jackals*, it provides a dramatic means for falling back (chutes) and skipping forward (ladders).

But, aside from *Senet* and *Chutes & Ladders*, there are very few “linear” games played on any sort of square or rectangular areal board.
Pure Areal Layout

- We can easily find dozens of examples of pure areal layout game boards.
- The 8x8 checkerboard is the best known arrangement of this kind.
- Besides 8x8 square arrangements are layouts that have gone as large as 19x19 for both Go and the ancient Saxon game of Hnefatafl.
- This is purely coincidental. *Go* is played on the intersections (points); *Hnefatafl* in the squares.
Areal Layout

Other layouts are possible, with various squares omitted or placed in novel arrangements. The *Royal Game of Ur* was one example.

Here is *Pachisi*, an instance of a “cross-and-circle” areal layout game.
Areal Layout

War games nearly always use areal layouts, but with a few twists:

- Turn-based war games are more likely laid out on hex grids, not squares, because terrain movement seems more natural on a hex-grid.
- The field of play is further modified by terrain features of all sorts that can affect both movement and targeting.
- Such as so-called “line of sight” targeting rules, movement boosts, like roads or railroads, and impediments, like forests, swamps, and rivers).
Reticular Layout

This refers to any board layout that allows connections among squares beyond simple adjacency.

The diagonal move is probably the best known innovation.

Allowing diagonal moves in a board game seems to be a fairly modern development, found notably in *Chess*. 
Reticular Layout

- Nearly always, a reticular game board makes the legal moves explicit.
- Here is one for the ancient Egyptian game *Alquerque*:
- No line, no move.
Some of the most elaborate game boards are based on the reticular layout.

One example is *Cows and Leopards*, the ancient game from Sri Lanka (Ceylon).

The next slide shows the layout for *Kensington*, invented in 1979 by Brian Taylor and Peter Forbes.

- Pieces are placed on the intersections (points), not in the squares or triangles.
Kensington Board
Reticular Evolution

- But reticular layouts have the disadvantage of often being complicated to construct and remember.
- We have evidence of games evolving from reticular layouts to ordinary areal layouts.
- *Alquerque* is a game originally played on a reticular layout but the game eventually evolved into *Draughts (Checkers)*, which is played on an ordinary 8x8 checkerboard.
Classifying By Movement

The Third Classification Scheme
Layout Moves

In a game like Senet or Chutes & Ladders, play follows a zig-zag pattern called the boustrophedon pathway, starting at one corner and zig-zagging to a different corner, while making progress across the board.

- **Boustrophedon** means “ox-like”... the movement of an ox plowing a field.
- **Senet** was the first game we know of to make use of this pattern.
- The current Free Cell deals the cards that way.
Boustrophedon
Basic Moves

Games played on areal boards can have a variety of movement patterns.

*Chess* illustrates most of the common moves found in most games that are played on areal boards.

Other games can, of course, invent their own moves.
Basic Areal Moves

*Chess* illustrates many of the common moves:

- **Orthogonal** – both horizontal and vertical, like the Rooks.
- **Diagonal** – Bishops move on diagonals only, but over many squares.
- **Orthogonal + Diagonal** – Both the King and the Queen can move on diagonal and orthogonal squares: the Queen over many squares, while the King is limited to a single square.
- **Hippogonal** – The Knight’s 2+1 move is the most complex of all.
Basic Areal Moves

Note that the distinction between orthogonal and diagonal is somewhat artificial, because it is always possible to convert a board from one configuration to the other without changing the game play whatsoever.

The term “hippogonal” generally refers to any compound move, as with the way the knight moves in Chess (hippos is Greek for horse).

- It doesn’t have to be the 2+1 of the knight.
- It could be 3+1 or 2+3, for example.
Tricky Areal Boards

Some areal layouts are “warped”, providing for moves that violate the Euclidean 2D notion of the game board.

The corner-to-corner “secret passage” moves in the game of Clue are an example.

There is also a version of Chess played on a Moebius Strip chessboard.
Basic Reticular Moves

- Reticular game layouts make legal movement simple to understand: if there is a line connecting two points, the move is legal, otherwise it is not.
- The game rules, of course, can impose further restrictions or conditions on piece movement.
Classifying by Skill vs. Chance

The Fourth Classification Scheme
Skill Versus Chance

Yet another classification scheme considers how much of a game is based on chance and how much on skill.

Recall that Roger Caillois made use of this distinction in his explorations about Play.
Skill Versus Chance

- In general we tend to regard skill games more highly than chance games... unless there is money on the table.
- When skill and chance are both part of a game, finding the sweet spot can be difficult...
  - *Backgammon* did this rather well.
- People also differ in their personal preferences in how much of each they like.
Classifying by Capture Modes

Yet Another Classification Scheme
Classifying by Capture Modes

- This is classification by how the capture of pieces is performed.
- Mostly applies to the Displace Game genre, although capture is not unknown in other genres (like Race and Chase).
- Next slide shows the many ways to have capture (from Parlett).
Capture Examples

replacement
short leap
long leap
line leap
custodial (2)
intervention
approach
withdrawal
The Many Forms of Capture

**Replacement** – your piece moves completely onto the opponent piece, removing it.
- Examples: *Chess, Rithmomachy*

**Short leap** – the Checkers jump move.
Implies that the square opposite is clear.
- On the lines, i.e. reticular (*Alquerque*)
- Diagonally (*Draughts*)
- Orthogonally (*Dama, Siga*)
The Many Forms of Capture

- **Long leap** – very rare. Like the *Checkers* jump move, but done from two away and moves two squares past.

- Implies that the square *two* squares opposite is clear.

- May or may not require the intervening spaces (ahead or behind) to also be clear.

  - Example: Some obsolete checkers variants.
The Many Forms of Capture

- **Line leap** – also rare. Your piece can jump (and maybe capture) a whole series of your opponent’s pieces if all are in a row.
  - Example: Some obsolete checkers variants.
The Many Forms of Capture

- **Custodial** – your piece can capture your opponents if you surround him on two opposing sides.
  - Orthogonally (Latrunculi)
  - Diagonally (several Native American games)

- **Intervention** – very rare. You move your piece *between* two of your opponents pieces, capturing both.
  - Parlett didn’t give any examples.
The Many Forms of Capture

- **Approach** – you capture your opponent’s piece by moving adjacent to – not onto – it.
  - Some war-simulation board games

- **Withdrawal** – you capture your opponent’s piece by first being adjacent it, then moving away from it.
  - Example: *Fanorona*
The Many Forms of Capture

- **Enclosure** – you capture your opponent’s piece by completing a surround of it on all four sides. (Custodial only involves two sides.)
  - Example: *Go*

- **Conversion** – making an enemy piece your own.
  - Example: *Reversi/Othello*
Yet another classification considers other forms of conquest other than capture:

- **Territorial** games (*Go*, *Reversi*)
- **Blockade** games (*Do-guti*, *Twixt*)
- **Clearance** games (many forms of solitaire)

The primary objective is not capture, and so Parlett categorizes these as “space games”. 
Classifying By Piece Differentiation

Still another classification
Piecing Differentiation

How pieces are allocated:

- **Neutral** (not belonging to either side) *(Mancala)*
- **Undifferentiated** (all the player’s pieces are alike and none have special powers) *(Siga, Chinese Checkers)*
- **Differentiated** by function, power or value:
  - Promotion *(Draughts)*
  - Definition *(Chess, Stratego)*
Miscellaneous Classifications
Additional Classifications

Different styles of capture:
- Single or Multiple
- Immediate or Delayed (i.e., on next turn)

How victory conditions are determined:
- Capture all the opposing pieces
- Capture most of the opposing pieces
- Capture the figurehead (the king in *Chess*)
Additional Classifications

The dimensionality of the game board:

- Linear (*Puluk, Tab, Tablan*)
  - These are surprisingly primitive and often really boring. Linear games are better as race games.
- Two dimensional (nearly all the others)
- Three dimensional.
  - This had to wait for clever craftspeople, or computers.
Don’t Get Carried Away!
Don’t Get Carried Away

Games can readily be found that span more than one of these classifications.

As with any system of classification, there will always be borderline cases and situations that defy analysis.

Looking for opportunities to bang a couple of them together to create a new game can be a useful exercise.
A Few Ancient Examples

... Of Linear War Games
Linear War Games

These are generally the most primitive games we know of, and probably represent an early stopping point on the way to more sophisticated game play.

Most linear games are usually race games, in which the objective is to get to the last square, and in which capture is incidental.

A few games make capture central, and these are sometimes called “running fight games”.

Boolik and Puluk

- These are substantially the same, with numerous local variations.
- The track is fourteen spaces, formed by setting fifteen corncobs or sticks in a row.
Boolik and Puluk

Play occurs in the spaces between. Players start with five pieces each.

Movement is governed by casting four binary lots (throwsticks).

We won’t go into the rules. *Boolik* takes between one to three hours to play, and is *not* among the great games of the world.
Tab

- Played on a board with four rows and varying odd numbers of columns.
- Played throughout the Middle East (Saudi Arabia, Turkey, and Iran) and north Africa.
- Played with nine pieces each, called *dogs*, and movement is by four throwsticks.
- Appears similar to *Senet*, but has no squares with special properties the way *Senet* has.
Tab
Tablan

- Apparently influenced by Tab, but played on a 12 x 4 board, so it is unlike Tab in that it has a fixed, even number of columns.
- The objective is to move as many of your pieces to the opposite side. Because of capture, not all of them will make it.
- The game thus combines displacement and traversal.
- Played primarily in the Mysore region of India.
Tablan Layout

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- Blue dots in the first row
- Red dots in the last row

The diagram shows a grid layout with blue and red dots arranged in specific patterns.
Technical Sidebar

The idea of “search spaces”
Search Spaces

The “Constitutive Rules” (the formal mathematical structure of a game) can be analyzed in terms of the game’s search space.

Generally speaking, the larger the search space, the more difficult or challenging the game.

True for both humans and computers.
Search Space

Technically, the reason *Checkers* is easier than *Chess* is that its search space is considerably smaller.

The search space refers to the tree structure that emerges when linking the opening move, the opening reply move, etc.
Search Space – *Tic-Tac-Toe*

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Red will represent X
Blue will represent O
Search Space – *Tic-Tac-Toe*

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Red represents X
Blue represents O
Search Space – *Tic-Tac-Toe*

Red represents X
Blue represents O
Search Space – *Tic-Tac-Toe*

Red represents X
Blue represents O

Red (X) is now guaranteed to win.
Search Spaces

The size of the search space roughly corresponds to the perceived difficulty of the game.

*Checkers* has a far smaller search space (about $5 \times 10^{20}$ moves) than *Chess*.

*Chess*, in turn, has a far smaller search space (about $10^{50}$ moves) than *Go*.

*Go* has an amazingly large search space of about $10^{172}$ moves.
Search Spaces

The idea of a search space can be extended to include random events like dice rolls.

This makes the search space far larger, as well as partially indeterminate.

Instead of absolutely knowing what paths work best, we can only compute probabilities.

*Backgammon* falls into this pattern.
Checkers Today

Today, as we have seen, computer checkers will absolutely and routinely beat the best human players.

*Chinook*, in development at the University of Alberta for many years, is the best *Checkers* player in the world.

*Checkers* is now, as of 2007, a solved problem.
*Chess Today*

IBM’s Deep Blue famously beat Garry Kasparov in 1996.

Computer chess today can routinely beat more ordinary humans, but still loses on occasion to grandmasters.

- But these are only the supercomputer versions of the computer player.
- The PC game ChessMaster is not as brutal.
Go Today

With its massively larger search space, Go has not yet succumbed to computer victory.

Also, Go grandmasters see patterns in a Go board in ways that we simply do not know how to model in software.

Nevertheless, Go software continues its relentless improvement.
Other Games

But, all these are easy compared to games like:

- *Baseball, Basketball, Football, Hockey*
- *Diplomacy, Assassin, Mafia*
- *Pictionary, Balderdash, Taboo*

These are games which involve purely human abilities: athleticism, emotion, language, betrayal, stealth, deception, associative memory, etc.
Let’s Analyze *Pac-Man*
Pac-Man

Pac-Man has modest elements of a race game, even though there are many paths through the maze.

The race “home”, in this context, can be regarded as what happens when Pac-Man clears all the dots off the screen and the next level is started.

Maybe you’ll get a nice cut scene.
Pac-Man

_Pac-Man_ is definitely a _chase_ game. This is made more interesting by those alternate paths through the maze.

Note the _asymmetry_ between the lone Pac-Man and the four ghosts.

Adding interest to the chase is that the chasers can become the chased whenever Pac-Man eats a Power Pellet.
Pac-Man

Pac-Man is **not** an example of a **space** game.

There is nothing in the game that requires the player to form a particular arrangement of pieces to score.
**Pac-Man**

- *Pac-Man* is partially a **displace** game.
- Pac-Man consumes dots, or pellets, to score, but these do not belong to the ghosts, and so, in a sense, *Pac-Man* is a **gathering** game.
- But since the player is playing against the machine, you could say the player is consuming the “opponent’s” pieces.
Pac-Man

So *Pac-Man* can also be regarded as a kind of *Mancala* game, since running over the dots, or pellets, is essential to scoring and game play.

Unlike *Mancala* games, however, the player does not redistribute the pieces over the board to form captures; the player merely runs over them to score, removing them from play “forever”.
Pac-Man

Pac-Man is an example of a proprietary game, as manufactured by Namco, and with unauthorized pirate editions and workalikes all over the world.

It is also an example of a theme game, based on Japanese folklore and the word *pukupaku*, which means to flap one’s lips open and closed rapidly.
Pac-Man

Pac-Man uses an areal board layout. In particular, a maze layout. Moves are orthogonal (← → ↑ ↓), with no diagonal moves. It has one instance of warping: the left and right exit points effectively wrap the play field into a cylinder. Aside from that, there is no teleporting or other distortions of 2D geometry.
Pac-Man

In the US, the game was going to be called Puckman, but arcade operators were concerned about vandals scraping away part of the letter P....
A perfect score of 3,333,360 was obtained by Billy Mitchell, on July 4, 1999.

- This involved gobbling all the pellets, wiping out all the ghosts, and gobbling all the fruits, without any misses, on all 256 levels.
- This has been done only six times to date.
Key Gameplay Features

- Gobbling pellets is fun and addictive in its own right.
- The chased can become the chaser and get revenge, a new hunt game wrinkle.
- Ghost AI is fairly stupid, but brilliantly tuned, and can still trap the player in parts of the maze.
- Player gets the occasional entertaining “cut scene” every few levels.
Key Gameplay Features

Running over the fruit (whose value increases with each level) is a nice challenge, since the ghosts often nail the player right then and there.

Game is only minimally violent, and appeals to both sexes.

- Females played *Pac-Man* in large numbers, surprising the industry.
Key Gameplay Features

- A major factor for Pac-Man’s popularity may be in the quality of the personalities on screen.
- Pac-Man himself is one of those cute game characters that Japanese game developers are noted for.
Key Gameplay Features

- The four ghosts in *Pac-Man* (Blinky, Inky, Winky and Clyde) each have different artificial intelligences (AIs) which give them different behaviors and personalities.
- Knock-offs of *Pac-Man* were notorious for having unfair ghost AIs that simply always aimed directly for Pac-Man, spoiling the fun.
- Getting the AI exactly right is tough!
HOMEWORK
Homework – Design a Game

- You’ve seen dice, cards, and board layouts. Time to design a game.
- Think of Monopoly or Risk, or any of a number of war games. All use dice, cards, and boards.
- Your job is to design a non-trivial and well-play tested board game which make interesting use of all three elements.
- You can also have tables, like CRTs.
Homework – Design a Game

- You will have several weeks to complete this exercise. It won’t be due until after spring break.
- There will be a prototype or two, already play tested, that we will play test in class.
- After that (and still more play testing), you submit the final version.
- Expect to have this reasonably polished and with a *well-written* set of rules.
The Steps

First, come up with an overarching theme. Spend some quality time on this.

Get some large sheets of paper on which to craft prototype game boards. Regard these as disposable.

Use index cards or other card stock for the cards.

Cards can serve several purposes, if you like (as in Deed, Chance, Community Chest, etc.).

You can use d6, but can use other dice as well.

Depending on sophistication, you may find it useful to create tables, like Combat Resolution Tables.
The Steps

- Excel is surprisingly handy for creating cards and tables, especially if you get good at using its many layout and formatting features.
- I’m not expecting terrific art quality, but please make use of whatever art skills you have.
- Adobe Illustrator is quite handy for basic board layouts, plus you can print those at the VCC.
  - Reserve that for final and near-final versions of the board.