

Introduction to Game Design

9/27/11: Games as Systems of Information

Oxford Dictionary of Card Games

“All card games hinge on the fact that a card has two sides, one which *reveals* its identity (Ace of Spades, Queen of Hearts, etc.), while the other *conceals* it, being indistinguishable from the reverse of any other card in the pack...

This element of secrecy puts cards into the category of ‘games of imperfect information,’ by contrast with board games such as Chess, in which each player always knows exactly what his opponent’s resources are...

This suggests that ‘information’ and its acquisition are what card games are all about.”

David Parlett

Perfect and Imperfect Information

- **Perfect information** - exists in a game when all players have complete knowledge about every element in the game at all times (e.g. Chess, Backgammon)
- **Imperfect information** - some of the information may be hidden from players during the game (Stratego, Kriegspiel)

Pearce's Four Scenarios

- **Information known to all players** - In chess: the rules, board layout, piece movement parameters
- **Information known to only one player** - In poker: the cards in your hand
- **Information known only to the game** - In poker: unused cards in the deck. In *Centipede*, the paths and frequency of the attackers
- **“Randomly” generated information** - In Backgammon: the roll of the dice



Enchanted Forest Rules

Setup: A set of tree objects is shuffled and placed in set locations on the board. Each tree has a picture of a treasure on the bottom. A deck of treasure cards is shuffled, the top card is displayed



Enchanted Forest Rules

By rolling two dice and moving on a network of paths, players maneuver to specific trees. When a player lands at a tree, they have the option to privately look at the hidden treasure



Enchanted Forest Rules

When a player thinks they know the location of a treasure, they travel to the castle in order to guess. If correct, player keeps the card and a new treasure is selected. Otherwise, player returns to village



Enchanted Forest Rules

Players can bump other players back to the village by landing on their piece. Rolling doubles allows a special action (shuffle/pick new treasure, look under any tree, teleport to castle)



Enchanted Forest

Known to all -
networks of paths,
players' locations,
cards already
collected, currently
sought treasure



Enchanted Forest

Known to one -
location of the
treasures secretly
uncovered during play
(must be kept in
working memory)



Enchanted Forest

Known to the game -
Locations of all
treasures. This
information shifts to
other categories during
the course of play



Enchanted Forest

“Randomly”
Generated -
Movement values
(rolling 2 dice). Each
die is used separately,
so rolling a 4 and 5
could result in moving
one space



Economies of Information

- In the beginning, there is a low chance that a particular treasure will turn up as the one to search for
- As the game progresses, there is much less uncertainty, and the special action to reshuffle the deck becomes more powerful
- Meaning comes from a relational identity - the information on the cards do not exist in isolation from each other - they are part of a larger system - an economy of information

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Digital Games and Information Integration

Fog of War - the game takes place on a large terrain, but the game only reveals information about a map near a player's own units. Scouts and spies become an important component of play

Digital Games and Information Integration

Secret Locations and Hidden Moves -

Locations and features can be hidden from the player at the beginning, and revealed during the course of play. Super Mario 64 integrates the uncovering of information into the geography of the overall game space

Digital Games and Information Integration

Item Economies - Many games that allow you to purchase items will only grant access to a limited section at the beginning, but will reveal all the possible choices. Player then can make a meaningful decision about purchasing an upgrade now, or save up for something more powerful later

Digital Games and Information Integration

Rules as Information - A game can hide more than static information: it can hide dynamic behaviors and relationships as well.

The Bottom Line

- The kind of information system depends on the kind of game you want to create
- A simple system that players fully know can lead to the obsessive play of *Snood*, or opportunities for mastery of *Go*
- A game that contains large amounts of information can let players slowly come to know the game without feeling overwhelmed