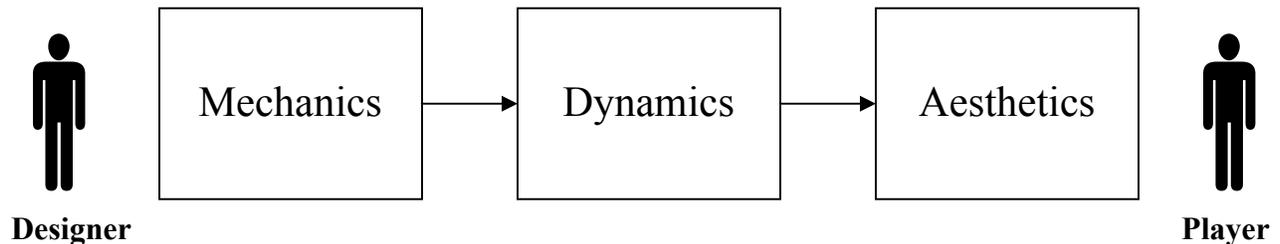# Game Design Workshop

Overview
GDC 2009

The MDA framework

- **Mechanics**: The rules and concepts that formally specify the game-as-system.
- **Dynamics**: The run-time behavior of the game-as-system.
- **Aesthetics**: The desirable emotional responses evoked by the game dynamics.

Eight Kinds of "Fun"

1. Sensation
Game as sense-pleasure
2. Fantasy
Game as make-believe
3. Narrative
Game as drama
4. Challenge
Game as obstacle course

5. Fellowship
Game as social framework
6. Discovery
Game as uncharted territory
7. Expression
Game as self-discovery
8. Submission
Game as pastime

A Few Aesthetic Models

Aesthetic models describe *how* a game can accomplish our aesthetic goals.

Goal: Challenge
Model: A challenging game provides the player with *difficult* but *tractable* problems. Players are rewarded for success; more difficult challenges yield greater rewards.
Failure modes:
- Problems are trivial, or too hard.
- Rewards don't match difficulty.

Goal: Competition
Model: A game is competitive if:
- Some players are adversaries (i.e. victory is mutual exclusive)
- Players have an ongoing emotional investment in defeating each other.
Failure Modes:
- Some players think they can't win.
- Players can't assess who is winning.

Goal: Cooperation

Model: A game is cooperative if:
- Some players (a "team") are working together to a common goal.
- Players have an ongoing emotional investment in helping the team achieve its goal.
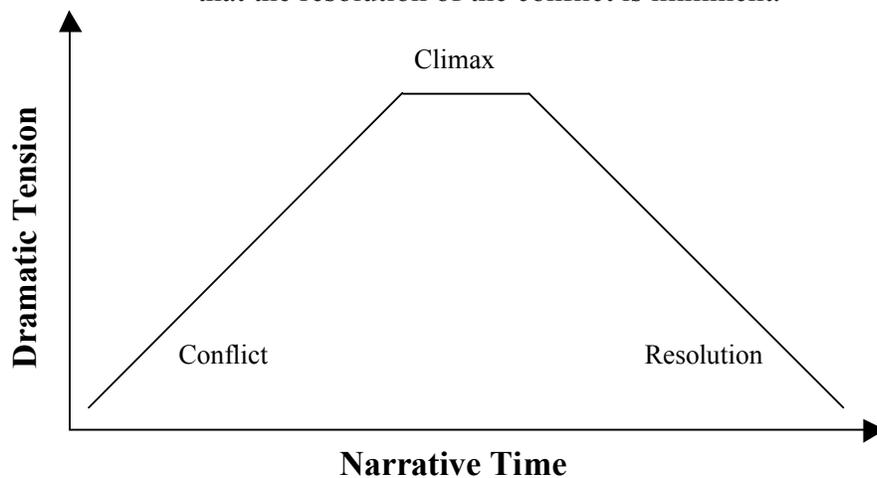
Failure Modes:
- Team members can't interact.
- Some team members have nothing to contribute.
- Players can't assess the team's progress.

Goal: Drama

Model: A game is *dramatic* if:
- Its central conflict creates *tension.*
- The dramatic tension builds towards a climax.
- Dramatic tension is created by a combination of two factors:
  - *Uncertainty* is the sense that the outcome of the conflict is ambiguous.
  - *Inevitability* is the sense that the conflict is moving forward towards resolution; that the resolution of the conflict is imminent.

Failure modes:
- Lack of conflict.
- Lack of tension (lack of uncertainty, inevitability).
- Tension does not build towards a climax.

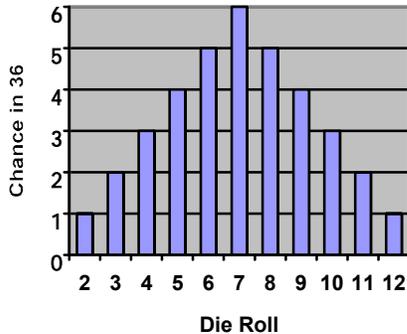## Properties of Good Models

Good models are:
1. Formal; rigorously defined.
2. Abstract; widely applicable.
3. Proven; known to work

A Few Dynamic Models

Dynamic models help us explain and predict the system dynamics of our game.

Random Variable

Mathematics gives us models for predicting and explaining the behavior of random variables.
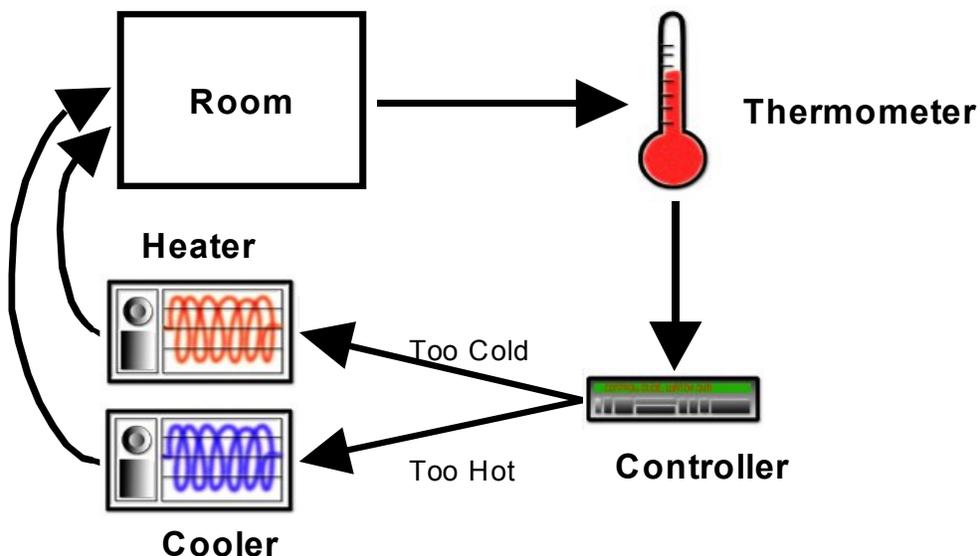For example, this is a model of 2d6:

Non-Renewable Resource

When we identify certain resources in our game as "non-renewable," we can predict certain behaviors in our game systems:

- A non-renewable resource will (quite obviously) eventually be totally depleted.
- If our game has a non-renewable resource whose depletion ends the game:
  1. We know that the game will eventually end.
  2. We can use estimates of the depletion rate to predict the length of the game.
- A non-renewable resource can create the sense of *forward progress* ("inevitability") necessary for drama.

Feedback System

A feedback system monitors and regulates its own state.

We can classify feedback systems into two types.

- Negative Feedback: Drives the system towards a stable state (e.g. a thermometer).
- Positive Feedback: Drives the system towards an unstable state (e.g. a "snowball effect.").

By identifying the feedback systems that exist in our game, we can predict the game system's tendency towards certain states.   In particular:

- A game system that gives the losing player an advantage will drive the players closer together.
- A game system that gives the winning player an advantage will drive the players further apart.