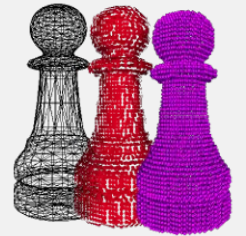


# MDA Framework

## A View of Game Parts for Analysis and Discussion



Brent M. Dingle, Ph.D.  
Game Design and Development Program  
Mathematics, Statistics and Computer Science  
University of Wisconsin - Stout

2015

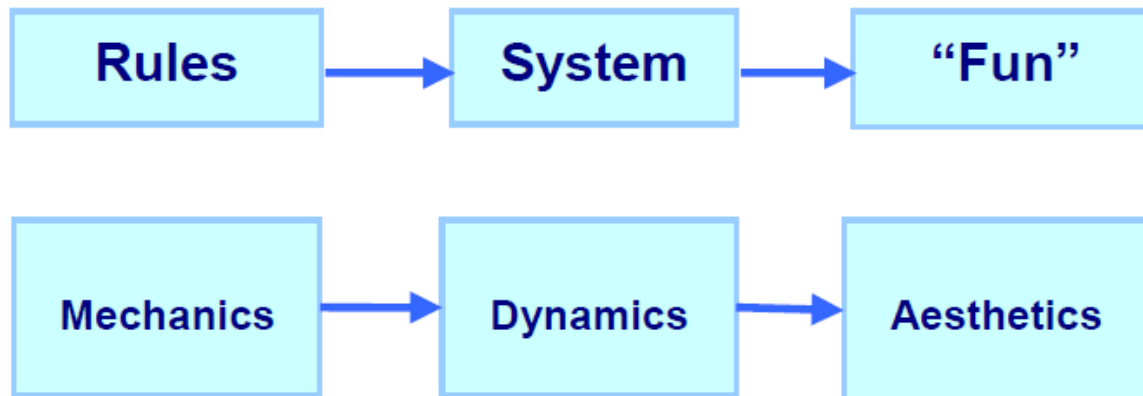
See also references at end of slides (if any)

# Recall

- Designing a game is designing a system
- Game design and development is iterative
- Games can be described as
  - the successive layering of constraints
- Games have elements

# Another Set of Parts

- It is possible to look at a game in different ways depending on how you define “parts”
- The Mechanics, Dynamics, Aesthetics **(MDA) Framework**
  - Has received a lot of attention from industry professionals
  - **Shows the designer perspective AND the player perspective**
    - How each “sees” and relates to the same game parts
  - **Aids the process** of designing and developing a game



- *Defined in 2001 by LeBlanc, Hunicke, and Zabek*
  - <http://www.cs.northwestern.edu/~hunicke/MDA.pdf>

# Mechanics = Rules

- **Mechanics are the rules of the game** at the level of data representation and algorithms
- These Formal Rules define
  - What is allowed (and not allowed)
  - How is the game setup
  - What actions can players perform
  - What goals/objectives can/should/must be achieved
  - When does the game end
    - Who wins, who loses, what is scored
  - How are rules enforced
  - ...

Rules

Mechanics

# Dynamics = System (in motion)

- **Dynamics describe the run-time behavior** of the mechanics acting on player inputs and each others' outputs over time
  - Describe **the “play” of the game**
    - What strategies/behaviors emerge from the rules
    - How do the players interact with the environment and each other

System

Dynamics

# Aesthetics = “Fun”

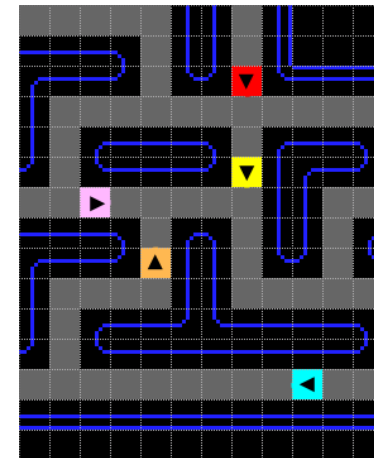
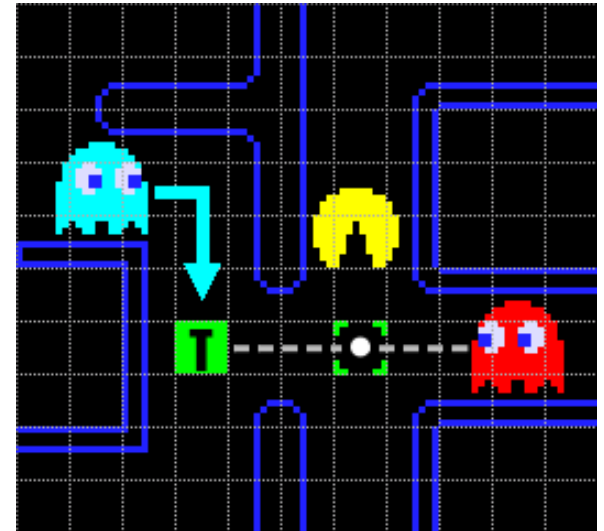
- **Aesthetics describes the** desired **emotional responses** evoked in the player when interacting with the game system
  - Not the visual elements of the game
  - But rather the player experience of the game
    - enjoyable, fun, frustrating, boring, interesting...
    - emotionally or intellectually engaging

“Fun”

Aesthetics

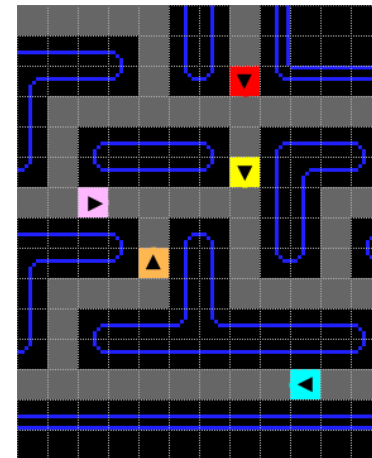
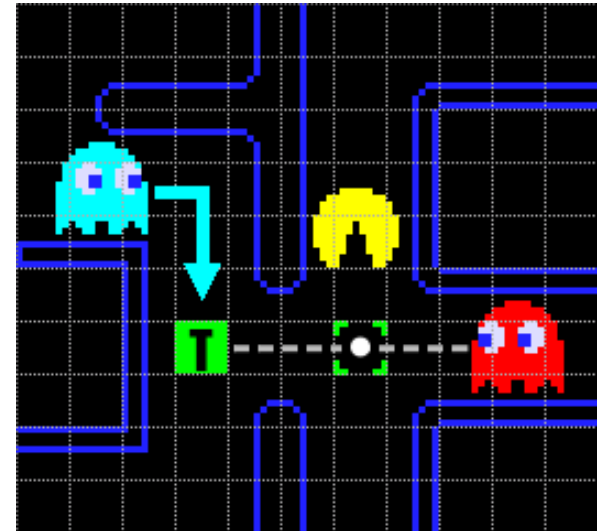
# Example: Pac Man Mechanic

- Ghost's pathfinding logic is defined by rules
  - Each ghost has a unique seeking **mechanic**
  - Blinky targets the tile the player is in
  - Inky targets the end of the vector that
    - starts at Blinky,
    - goes through two tiles in front of player
    - is twice as long as distance of that tile to Blinky



# Example: Pac Man Dynamic

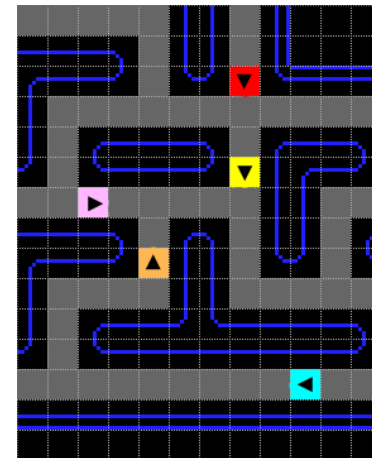
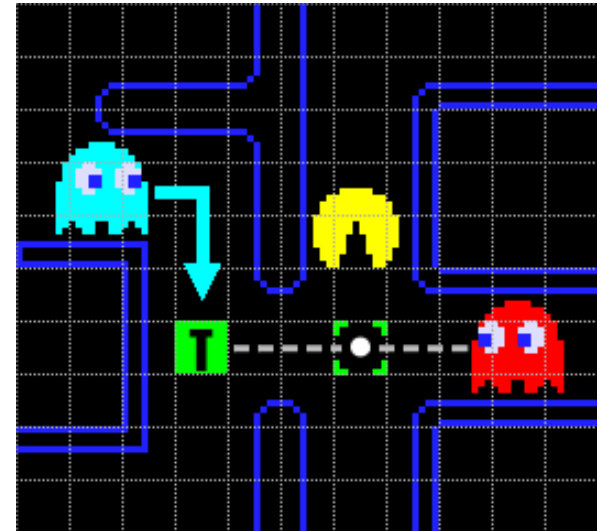
- The rules create a **dynamic**
  - where the player is trapped by Blinky and Inky





# Example: Pac Man Dynamic

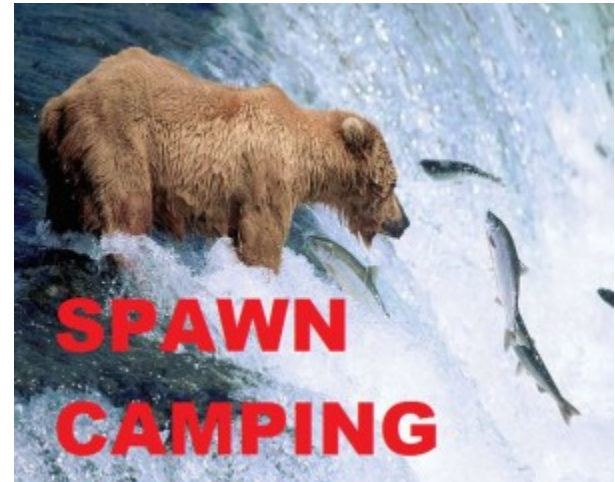
- The enemy dynamics challenge the player
  - creating an **aesthetic** of *fun and excitement*



# Example: Spawn Points

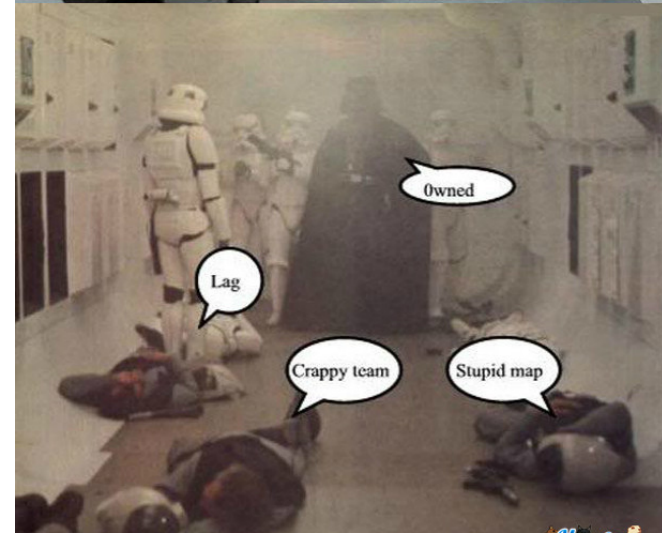
- First-Person Shooters often have a “Spawn Point”

**Mechanic**



# Example: Spawn Points

- Leading to the **dynamic** where a player may sit near a spawn point and take out players as they respawn

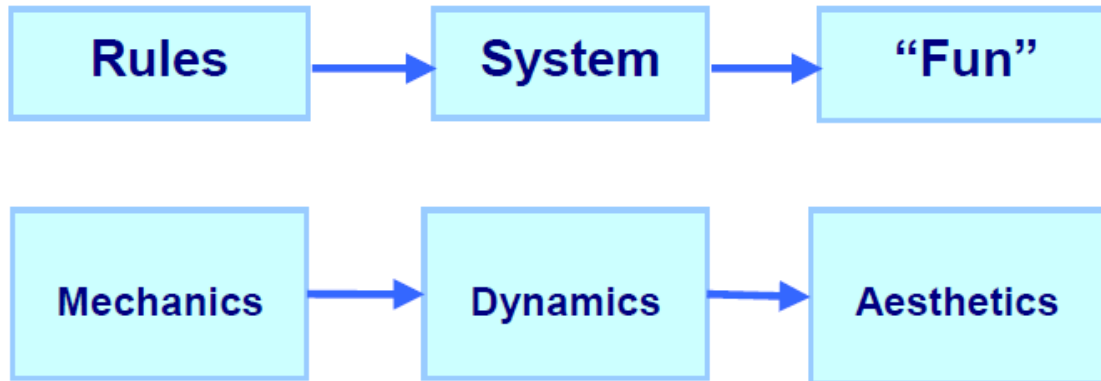


# Example: Spawn Points

- Leading to the **Aesthetic** of Player Frustration



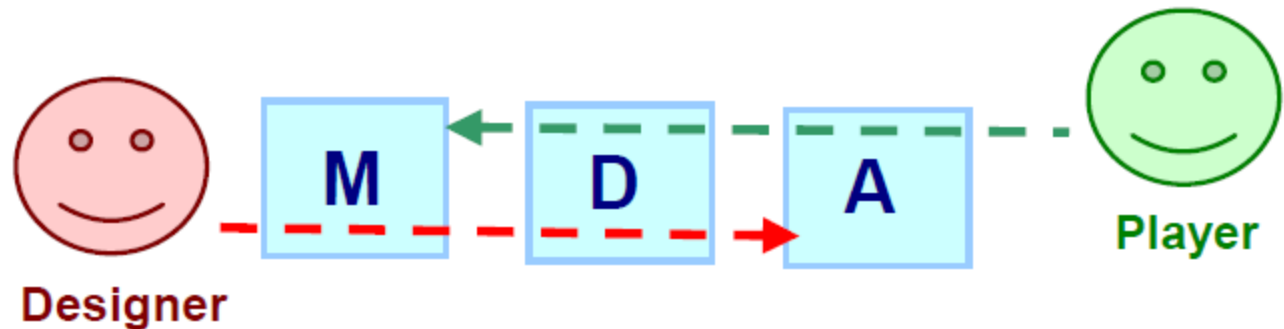
# Order of Thought



- This is the order a Designer will often experience/plan the game
  - Designers control the mechanics
  - Mechanics generate dynamics
  - Dynamics generate aesthetics
- Designers often work outward
  - design the mechanic to generate the desired aesthetic

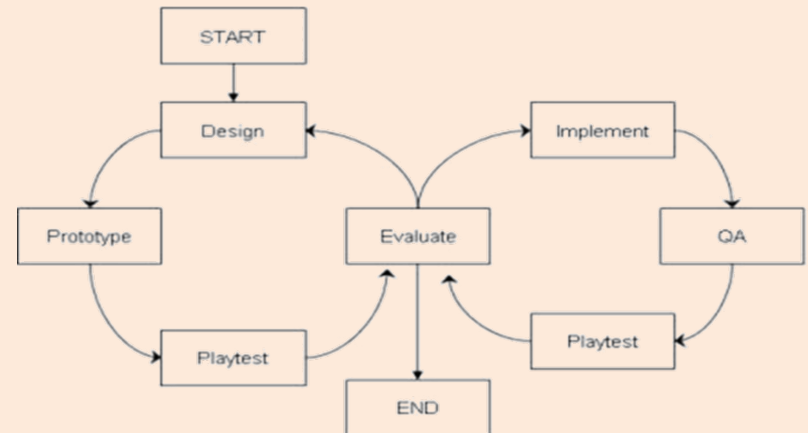
# Player View

- Players see things in reverse order
  - Aesthetics set the tone
  - which is created from observed dynamics
  - which is controlled by operable mechanics



# End Summary

- Games are composed of elements/parts
- Rules are a major part of a game
  - Designers create rules
    - Rules create gameplay
    - Gameplay creates player experience
  - A small rule change may have enormous (or no) effect
- Play Testing is critical
  - Test early → mockups, prototypes
  - Test Often
  - Evaluate
  - Improve
  - Iterate, Iterate, Iterate
  - From “Success” to “More Success”



# Questions?

- Beyond D2L
  - Examples and information can be found online at:
    - <http://docdingle.com/teaching/gdd450/>
  
- *Continue to more stuff as needed*



# References

- Some material in these slides was derived/based on material from:
  - Ian Schreiber, Game Design Concepts
    - <https://gamedesignconcepts.wordpress.com/>
    - Released under a Creative Commons Attribution 3.0 U.S. License
      - <http://creativecommons.org/licenses/by/3.0/us/>
  - Matthew Gallant, Mechanics, Dynamics & Aesthetics
    - Blog, August 21, 2009
      - <http://gangles.ca/2009/08/21/mda/>