

# Design Essays: Centipede, Adventure, Eastern Front

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# Why Study Older Games?

- Greater consensus on which games were truly great, and hence worth studying.
- Games were typically more simple, and hence design choices are more evident.
  - It is easier to understand the complete range of design tradeoffs in older games
- Lessons learned from analysis of older games are still applicable to new game design.
  - While graphics have changed substantially, the design choices involved in creating excellent gameplay have not changed as much.
- Portable games still have many of the same hardware limitations as older games
- The kinds of games that one can design with Game Maker are most similar to older games, rather than newer console games
- Big difference: older games do not provide as much insight into the design of the fictional elements of games

# Centipede

- Traits of classic arcade games:
  - Single screen play
  - Infinite play
  - Multiple lives
  - Scoring/high scores list
  - Easy-to-learn, simple gameplay
  - No story
- Many elements borrowed from pinball
  - Infinite play, multiple balls, scoring/high scores

# Centipede: Input

- Ability to use a trackball and dedicated fire button greatly enhanced gameplay
- Can see this in Guitar Hero, and Dance, Dance Revolution
  - Novel controllers can provide enhanced gameplay
  - Controllers have to be well-tuned to the gameplay

# Centipede: Interconnectedness

- Different elements of the gameplay combine together very well
- Combination of:
  - Centipede crawling towards the bottom of screen (and variations on this)
  - Spider
  - Flea
  - Scorpion
  - Mushrooms
- Movement of centipede and flea are predictable, but spider is less predictable
- Spider can eat mushrooms: kill or let live?
- Definitely emergent gameplay

# Centipede: Escalating Tension

- Elements of the gameplay combine to create increasing levels of tension in the player.
  - Increasing numbers of mushrooms over time
  - Centipede released in multiple segments as game gets harder
  - More poison mushrooms, hence the centipede dives more often
  - Action at the bottom of the screen once the centipede reaches there
- These all combine to create increased difficulty for the player, and hence increased tension.

# Centipede: Tension

- One of the key aspects of Centipede's design is that there are interludes in the tension.
- It's not always a steady ramp-up.
- For example, there is a brief period after a centipede is eliminated before the next one appears.
- If you die, the game gets a little bit easier for awhile, then starts escalating again.
- Enhances the tension effect by ramping up, then releasing, then ramping again. The delta between states is more noticeable.

# Adventure on 2600

- Four key ideas here
  - Translation of text language (verb-noun) into graphical language (move, pickup, drop)
  - Use of multiple screens to create a larger game world
  - Use of non-regular topologies to increase difficulty of navigating through the game world
  - Use of two-step process for dragon eating cursor

# Non-Regular Topologies

- Show diagrams from pages 705-712 on the document camera
- Note the various forms of non-regular topology
- Also note how the maze is spread across multiple screens, to increase difficulty.

# Dragon Eating Cursor

- This is a two-step process
  - Initial collision
  - Delay
  - Dragon eats cursor
- Allows the player to potentially escape, if they are fast enough
- Adds interest and skill into this collision
  - Would be easy to implement this using Game Maker

# Eastern Front (1941)

- Key ideas
  - Design process
  - Combat system
  - AI
  - Tuning

# Design Process

- Crawford did significant initial design work in his head, and on paper
- Once you have a firm grasp on the design issues, it's much more flexible to resolve design issues mentally, and on paper, before doing expensive implementation
  - Once you have implemented, you have an investment of time in the implementation, and you're less likely to make radical changes since you don't want to throw work away.

# Design Process

- Crawford also advocates writing mini design essays
  - Have a difficult element of your design? Write your thoughts down on paper.
  - Serves to make your ideas more concrete, and exposes weaknesses in your thinking.
  - Collection of essays combines to record your ideas on the game
    - Can also be useful for communicating ideas to other team members

# Design Process

- A key focus was on the player's experience in playing the game
- What would the player do? What were their key actions?
- Ties back to the notion of interaction being a conversation – what expressive power do you want to give the player?
- A powerful way of starting to ask design questions.

# Tuning

- Crawford and Robinett both stress the importance of tuning a game
- Very difficult to get a game right initially
- Need to have people play your game, see how it goes, then adjust the game to improve the gameplay
- Many aspects of gameplay are impossible to get exactly right without having many people play your game.
- In your projects, you should set aside time to have others play your game, and do fine tuning.

