
CGMB534 Game Design

*Chapter 12:
General Principles of Level Design*

Objectives

- Understand how level design can enhance or undermine a game's story and gameplay
- Know the difference between universal and genre-specific level design principles
- List the possible level layouts and understand when to use each and how to combine them

Objectives (Cont.)

- Understand the importance of atmosphere, pacing, and progression
- Describe the key aspects of the level design process
- Recognize some of the pitfalls of level design, such as inappropriate scope and conceptual non sequiturs

What Is Level Design?

- Level design: constructing the experience for the player using components from the game designer
- Level designers create:
 - Space in which the game takes place
 - Initial conditions of the level
 - Set of challenges within the level
 - Termination conditions of the level
 - Interplay between gameplay and story
 - Aesthetics and mood of the level

Key Design Principles

- Universal level design principles
 - Make the early levels of a game tutorial levels
 - Vary the pacing of the level
 - When the player surmounts a challenge that consumes his resources, provide more resources
 - Avoid conceptual non sequiturs
 - Clearly inform the player of his short-term goals

Key Design Principles (Cont.)

- Universal level design principles (cont.)
 - Be clear about risks, rewards, and consequences
 - Reward the player for skill, imagination, intelligence, and dedication
 - Reward in a large way, punish in a small way
 - The purpose of an artificial opponent is to put up a good fight and then lose
 - Implement multiple difficulty settings

Key Design Principles (Cont.)

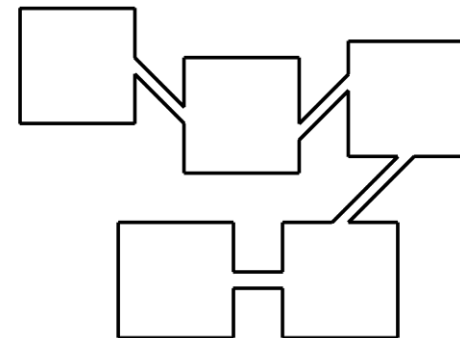
- Genre-specific level design principles
 - Action game—vary the pace
 - Strategy game—reward planning
 - Role-playing game—offer opportunities for character growth and player self-expression
 - Sports game—verisimilitude is vital
 - Vehicle simulation—reward skillful maneuvering

Key Design Principles (Cont.)

- Genre-specific level design principles (cont.)
 - Construction and management simulation—offer an interesting variety of initial conditions and goals
 - Adventure game—construct challenges that harmonize with their locations and the story
 - Artificial life game—create many interaction opportunities for the creatures in their environment
 - Puzzle game—give the player time to think

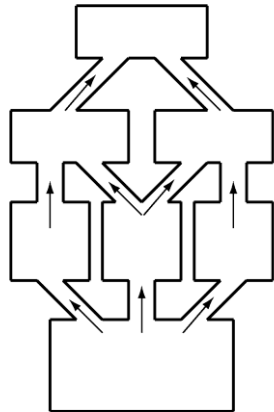
Layouts

- Open layouts
 - Allow unconstrained movement
 - Correspond to the outdoors
 - Used in war games and role-playing games
- Linear layouts
 - Require player to move in a fixed sequence
 - Player can move only to next or previous area
 - Used traditionally in side-scrolling action games and rail-shooters

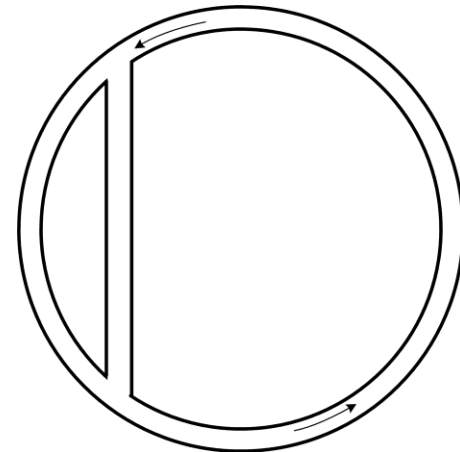


Layouts (Cont.)

- Parallel layouts
 - Modern variant of linear layouts
 - Variety of paths can go through the level
 - Can reflect a foldback story structure



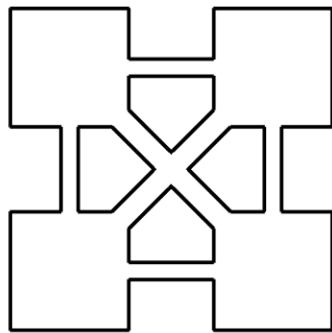
- Ring layouts
 - Path returns to its starting point
 - Oval tracks or twisting road-racing tracks are rings
 - Used for racing games



Layouts (Cont.)

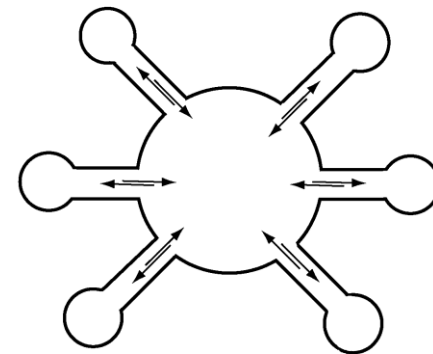
■ Network layouts

- Spaces connect to other spaces in different ways
- Give the player freedom to take any path
- Stories must be able to tolerate player experiencing events in any sequence



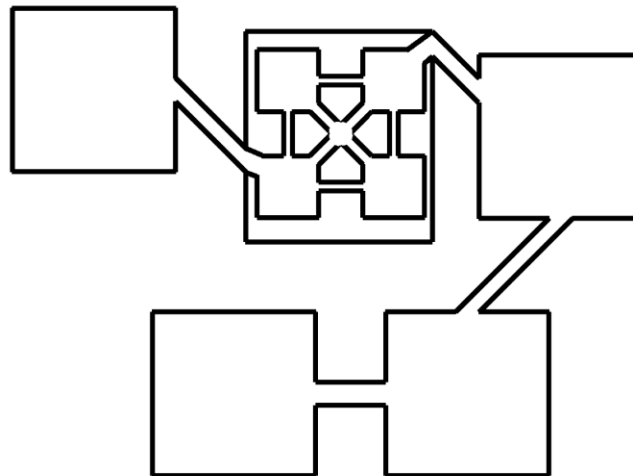
■ Hub-and-spoke layouts

- Central hub is usually a safe zone
- Provides some choice of where to go
- Lock off some areas to control player experiences



Layouts (Cont.)

- Combinations of layouts
 - Combines aspects of several layout types
 - Role-playing games and adventure games often use combination layouts



Expanding on the Principles

- Level designer assembles components to create the atmosphere
 - Lighting
 - Color palette
 - Weather and atmospheric effects
 - Special visual effects
 - Music
 - Ambient audio
 - Special audio effects

Expanding on the Principles (Cont.)

- Pacing refers to the frequency of individual challenges
 - Genre affects pacing
 - Multiplayer deathmatch shooters use the fastest pace
 - Adventure games use the slowest pace
 - Vary the pacing with fast and slow periods
 - Overall pacing should remain steady or become more difficult near the end of the level

Expanding on the Principles (Cont.)

- Tutorial levels teach the player how to play
 - Scripted or partially scripted experience that explains the game's user interface, key challenges, and actions
 - Voiceover narration, text, or a special character can explain the game

The Level Design Process

- Design to level design handoff
 - List features in the level
 - Create a rough overview map of the level
- Planning phase
 - Plan the level in detail
 - Plan the sequence of events
 - Document the gameplay, art, performance, and code requirements

The Level Design Process (Cont.)

■ Prototyping

- Construct temporary models of the landscape and objects
- Models serve as blueprints for the art team

■ Level review

- Review the prototype
- Feedback from the design, art, programming, audio, and testing teams

The Level Design Process (Cont.)

- Level refinement and lock-down
 - Make corrections based on feedback
 - Review and correct until the level is flawless
 - Lock the level
- Level design to art handoff
 - Give all files to the artists
 - Tell artists how the level should look and work
 - Contact the audio team for any needed audio

The Level Design Process (Cont.)

- First art and rigging pass
 - Art team builds the real artwork and rigging
 - You might need to incorporate the new content into software
- Art to level design handoff and review
 - Receive final artwork
 - Conduct a review

The Level Design Process (Cont.)

- Content integration
 - Assemble all the assets into the completed level
 - Adjust any rigging as necessary
- Bug fixing
 - Test for bugs and mistakes and hand off to QA
- User testing and tuning
 - QA creates a test plan and begins alpha testing
 - When thoroughly alpha tested, hand off to beta testing

Pitfalls of Level Design

- Get the scope right
 - Design within your available resources
 - It's common to design something that's too big
- Avoid conceptual non sequiturs
 - Illogical events in a game make it harder to play
 - Players should be rewarded for using their intelligence

Pitfalls of Level Design (Cont.)

- Make atypical levels optional
 - Atypical levels break the player's suspension of disbelief
 - Atypical levels could prevent some players from completing the game
- Don't show the player everything at once
 - Introduce new features gradually
 - Maintain the player's interest

Pitfalls of Level Design (Cont.)

- Never lose sight of your audience
 - Player-centric approach
 - Understand your target audience and deliver what they want

Summary

- You should now understand
 - How to describe level design
 - How to apply key design principles
 - How to create a variety of layouts
 - How to create atmosphere, set a pace, and build tutorial levels
 - How to complete the level design process
 - How to avoid common pitfalls of level design