

Game Design for Engineers

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Software Engineer

EA/Maxis

Spore

Not about “How to break into the games industry”

- Plenty of resources for that
 - Work hard
 - Internship
 - Promote yourself (but be humble)
 - Network
- Getting a job is a one-time event

What this talk is about

- What you should know after you get a job
- What engineers should know about design
- How to gain credibility as a designer
- Tips for final project

Disclaimer



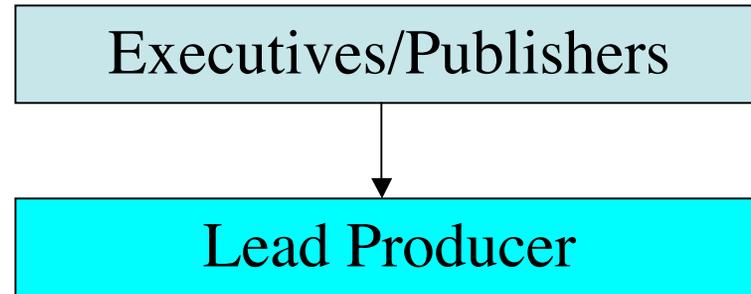
Different types of designers

- High concept guy, Visionary
- Lead Designer
- Designers
- Level designers
- Writers

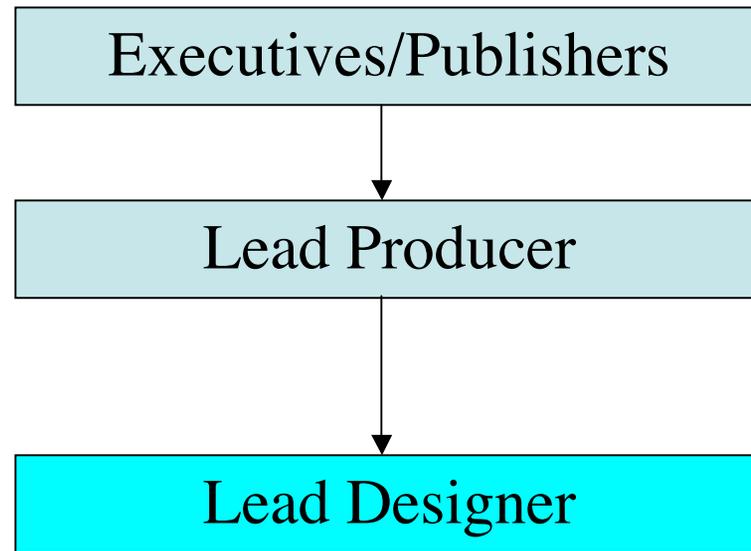
Design Hierarchy

Executives/Publishers

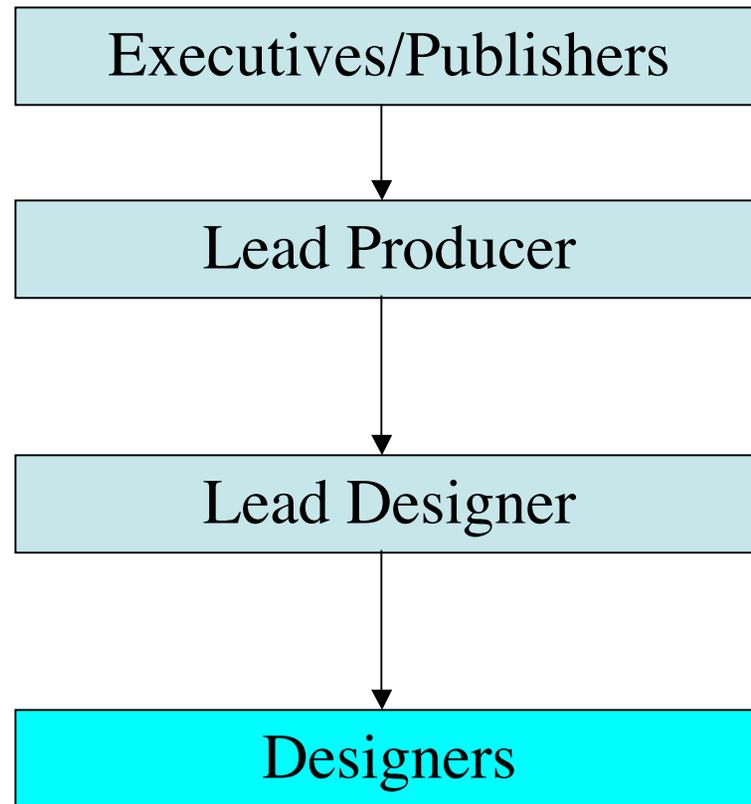
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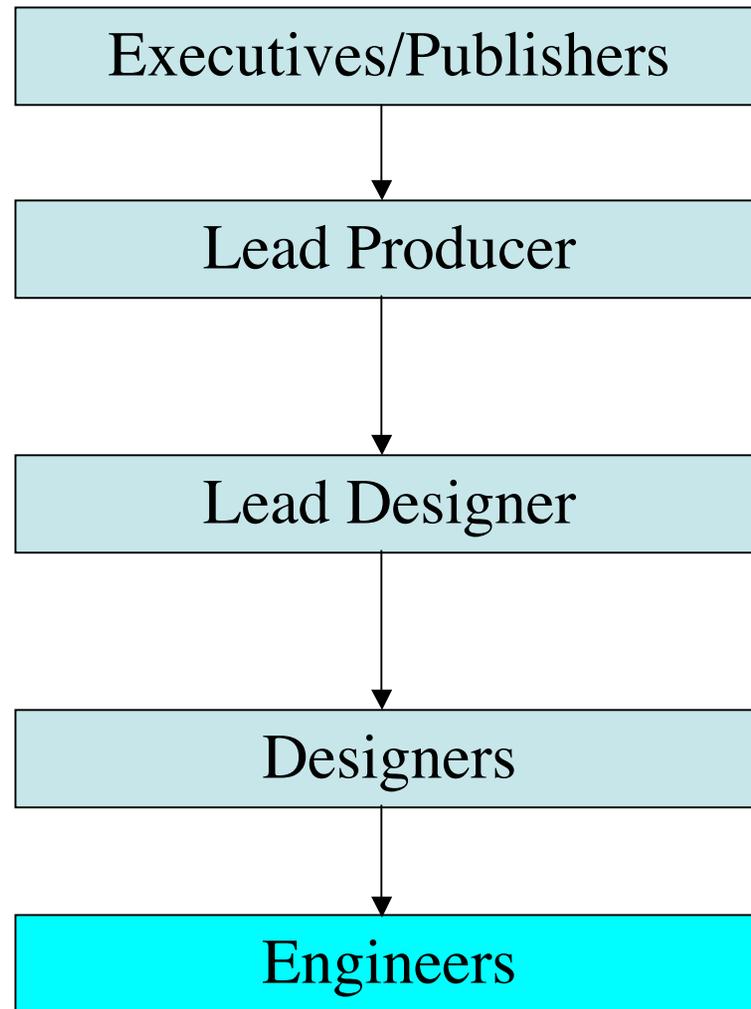
Design Hierarchy



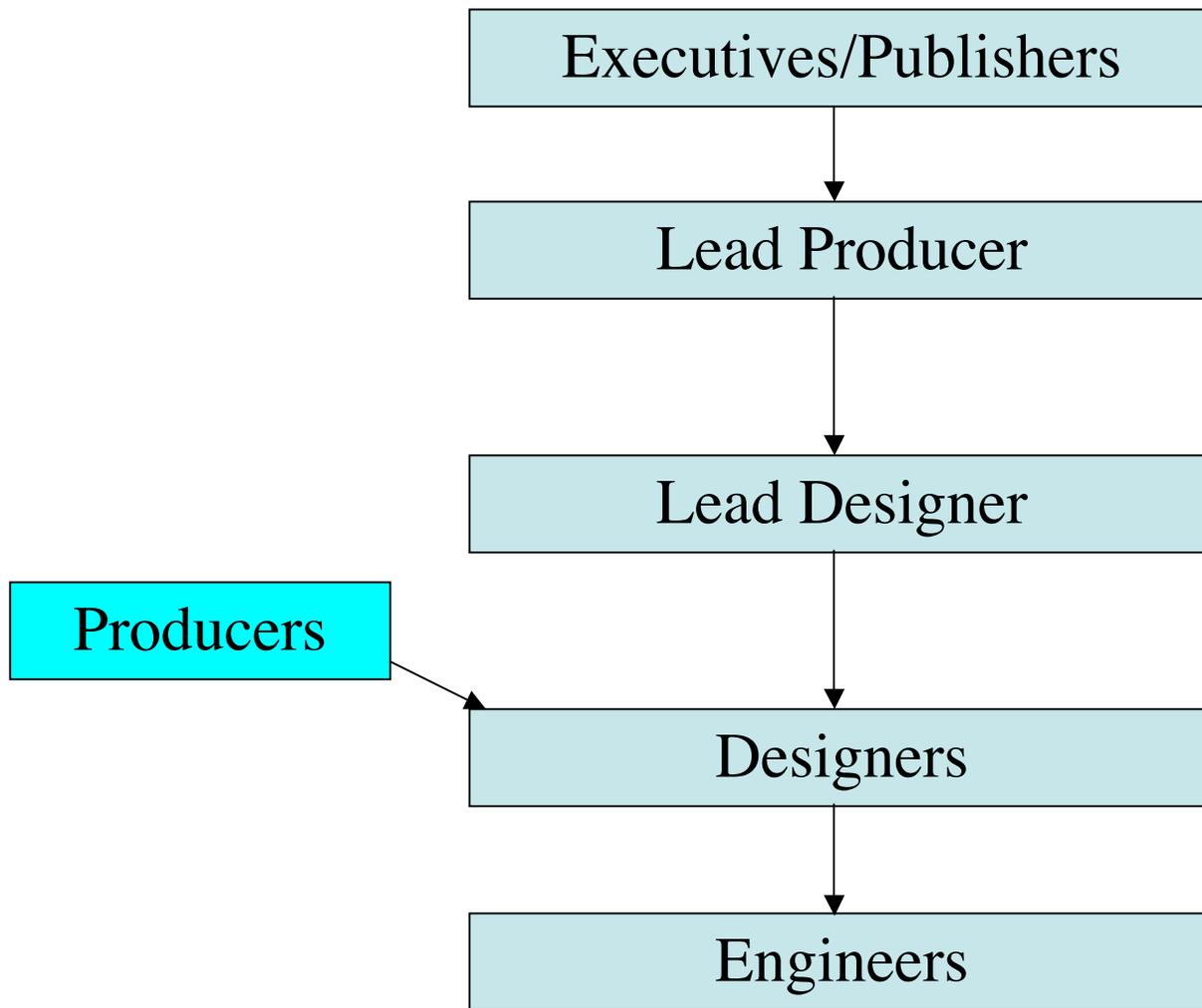
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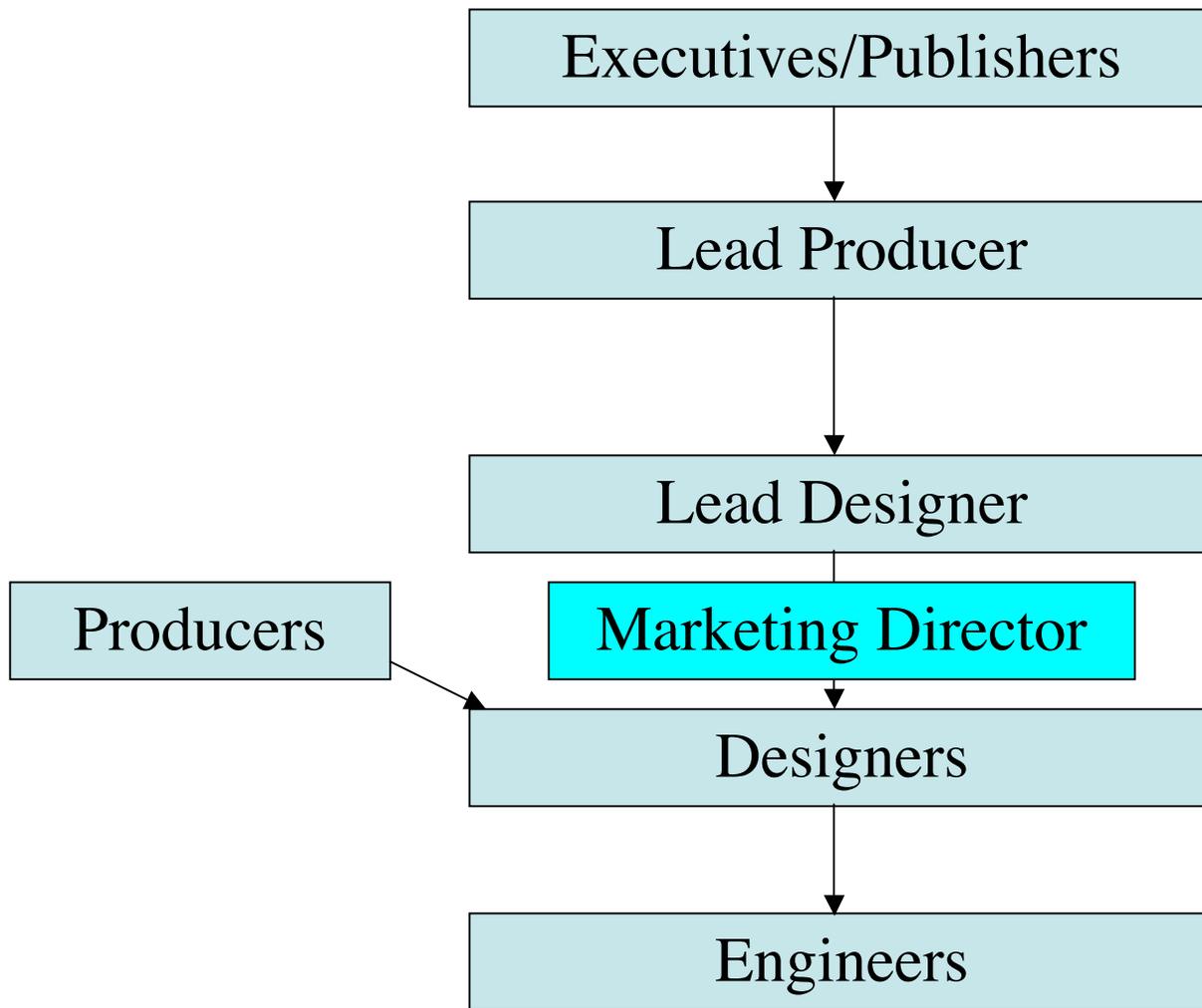
Design Hierarchy



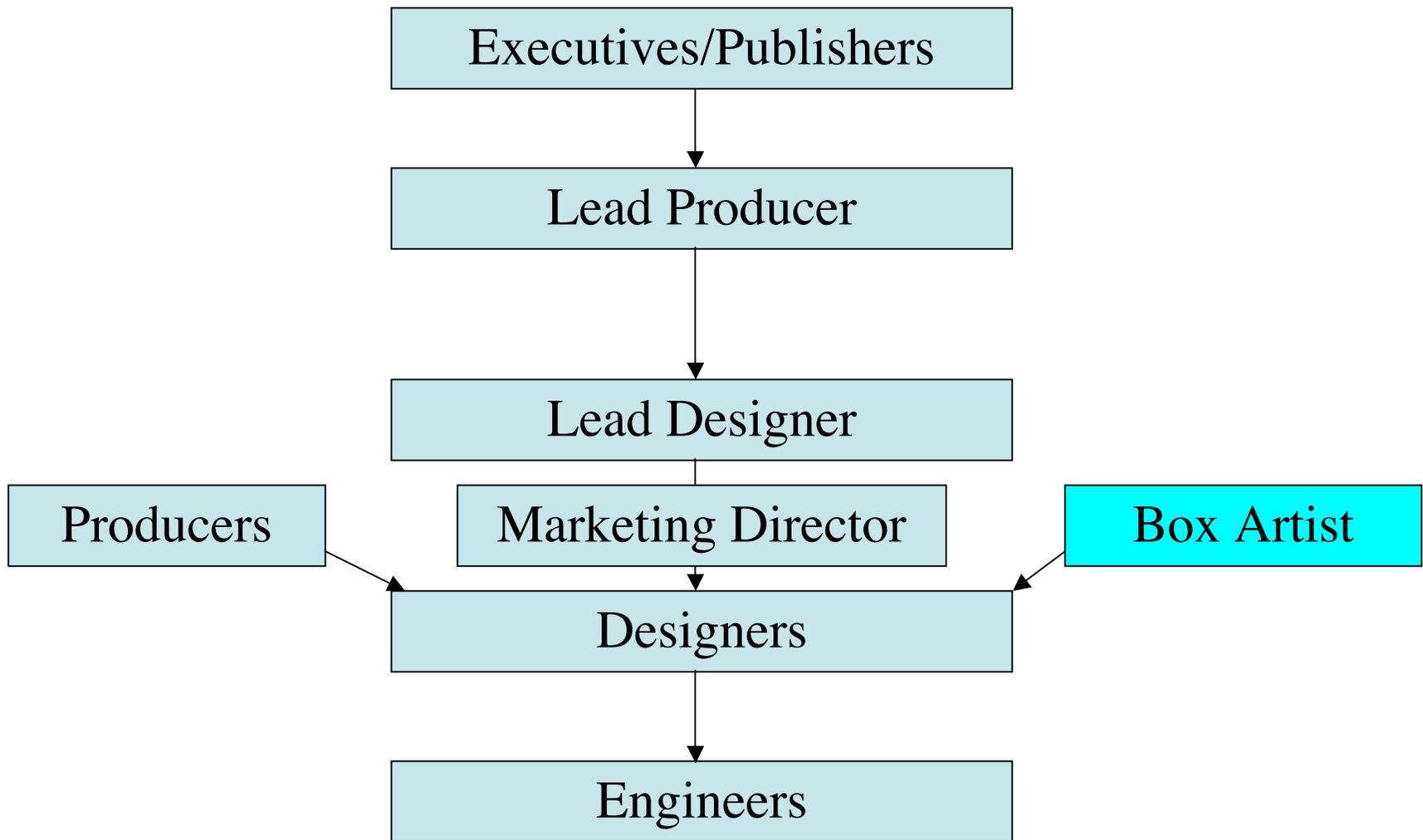
Design Hierarchy



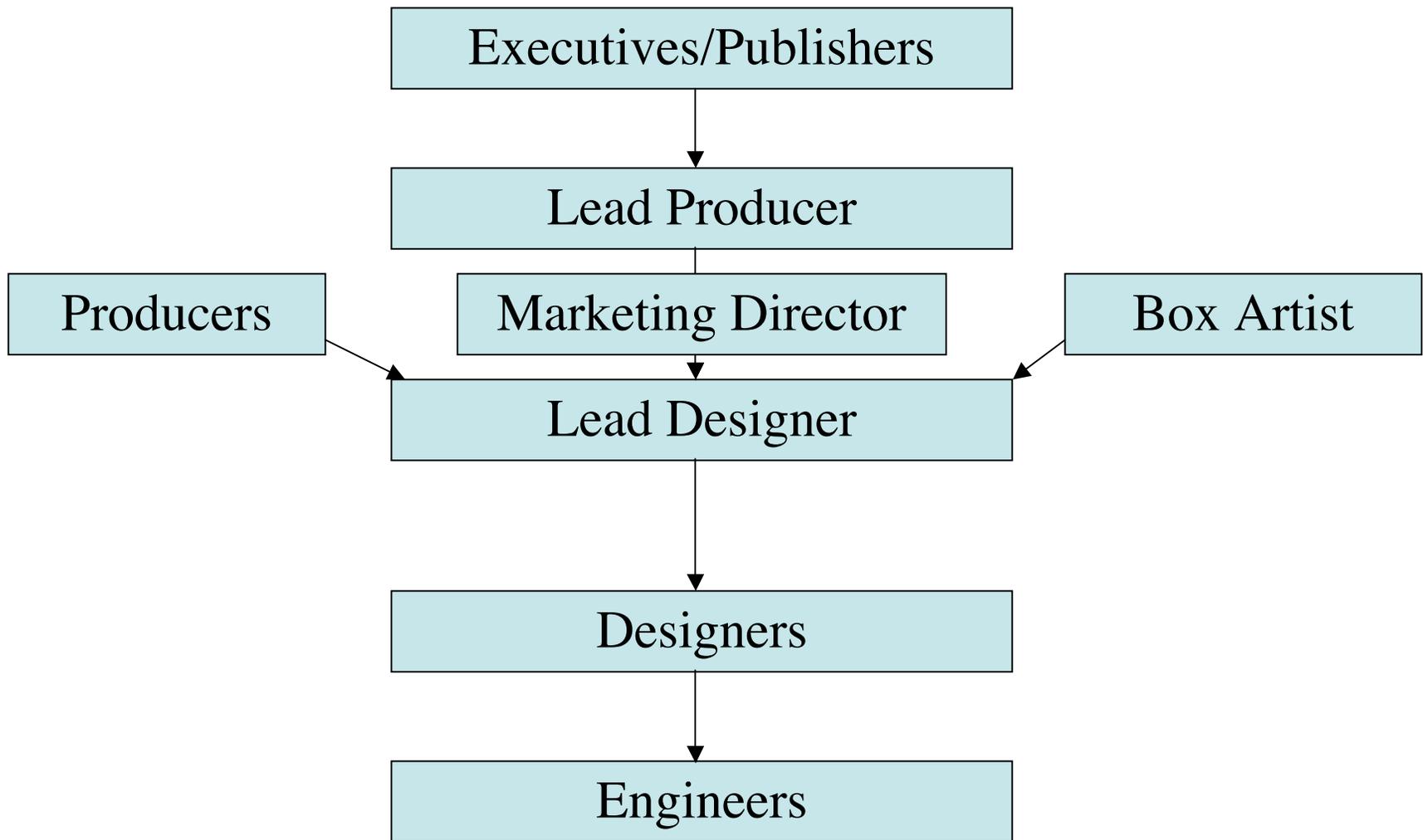
Design Hierarchy



Design Hierarchy



Design Hierarchy



So, where do you have input?

- Feature level
- Miyamoto:
 - “Programmers should understand the goal, and help find the answer. The designer’s job should be to set the problem, and work with the programmer to try and solve it.”
- Support your arguments
- Give feedback early and often
- Be nice!

Building Credibility

- Know your craft
- Know your medium
- Know your history
- Know your engineering
- Know lots of other stuff
- Know your industry and economics

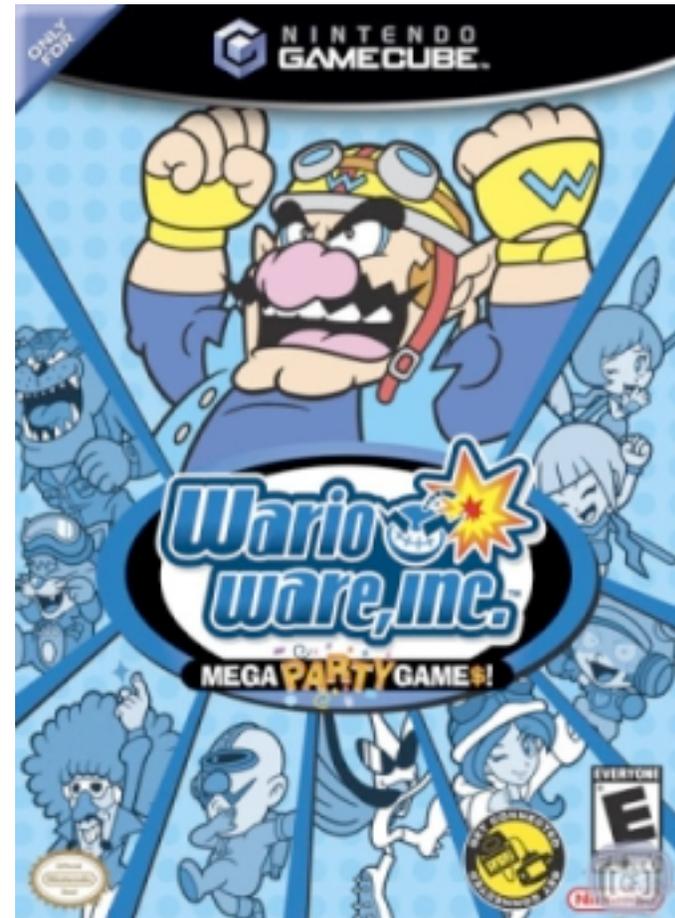
Know your craft

- Play lots of games (especially bad ones)
- Gamefly
- Take notes
- Find good things in bad games (-Alex Hutchinson)

Know your medium

- FILMVID 460 - Video Games: Form and Culture
- Understand the different aspects of games
 - Mechanics
 - Narrative
 - User Interface (controls & display)
 - Representation of space
 - Representation of time

Wario Ware Analysis



Wario Ware Analysis

Mechanic	Definition	Wario Ware Example
Timing	Pushing a button at a certain time	Shooting the basketball
Navigation	Moving	Entering the cave
Mashing	Mashing a button as quickly as possible	Blowing up balloons (multiplayer NGC)
Collision - Avoidance	Avoiding contact with something	Avoiding anti-spacecraft fire
Collision - Intercept	Seeking contact with something	Catching fruit
Perception	Perceiving something in the game	Counting frogs
Sequencing	Performing an action in a certain sequence.	Beam game (down, down, a)
Sequencing - Memory	Remembering and performing an action in a certain sequence.	Jug band game



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"But I would no more believe that this particular notation could fully describe a game than I would believe a mass spectrometer could fully describe the Mona Lisa." - Joe Maris

Know your history

- Q: What was the first video game ever made?

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- Q: What was the first video game ever made?
- A: It depends!
- Space War!, Atari, Odyssey, Amiga, Commodore 64, Nintendo, Tetris, etc.
- Hardware crash, Software crash
- Why did these companies (and products) fail, succeed, and/or change the industry.

Know your engineering

- Object Oriented Design
- Human/Computer Interface
- Concurrency
- Software Engineering

Know lots of other stuff

- 3D Modeling (from Art School)
- Music theory
- Take Social Science and Humanities classes
 - Literature
 - Philosophy
 - Psychology
 - Sociology
 - Anthropology
 - Women's Studies?

Building Credibility

- Work with feature designers
- Talk to designers
- Learn to take criticism
 - Design is not measurable
 - Don't take things personally
 - Fail early
- As you gain credibility, your input will increase

Advice for Final Game Project

- Innovation
- General purpose design tips
- Inspiration

But first... where's my Soapbox?

- Don't try to make Starcraft
- Be innovative
- Realistic scope

Inspiration

- WSoft 48-hour game competition
- Independent Games Festival
- Manifesto Games
- Newgrounds
- Jayisgames.com
- Eyezmaze.com
- jenovachen.com/flowingames/

Experimental Gameplay Project -- Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://experimentalgameplay.com/show.php? Go

experimental gameplay project

games developers articles game search

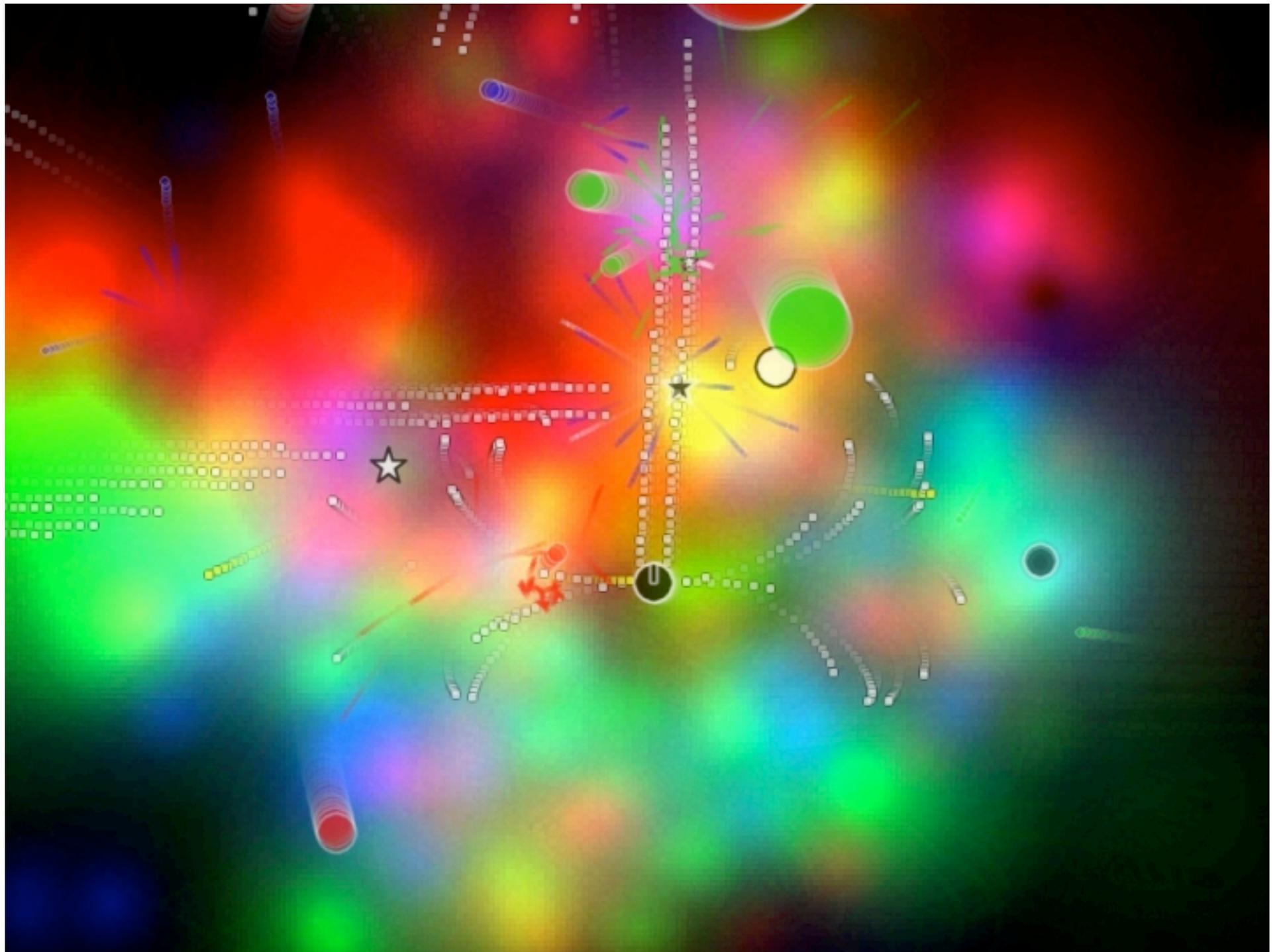
[top rated](#) | [most talked about](#) | [most recent](#) | [name](#) | [random](#)

top rated games

 <p>Attack of the Killer Swarm kyleqabler</p>	 <p>Tower of Goo UNLIMITED! kyleqabler</p>	 <p>Tower of Goo! kyleqabler</p>	 <p>Child Eater kylegray</p>
 <p>On a Rainy Day shalinshodhan</p>	 <p>Big Vine kyleqabler</p>	 <p>EGP COMP 2 String Theory dcover</p>	 <p>Troy eqp2</p>

Twists on a classic

- Binaryzoo.com



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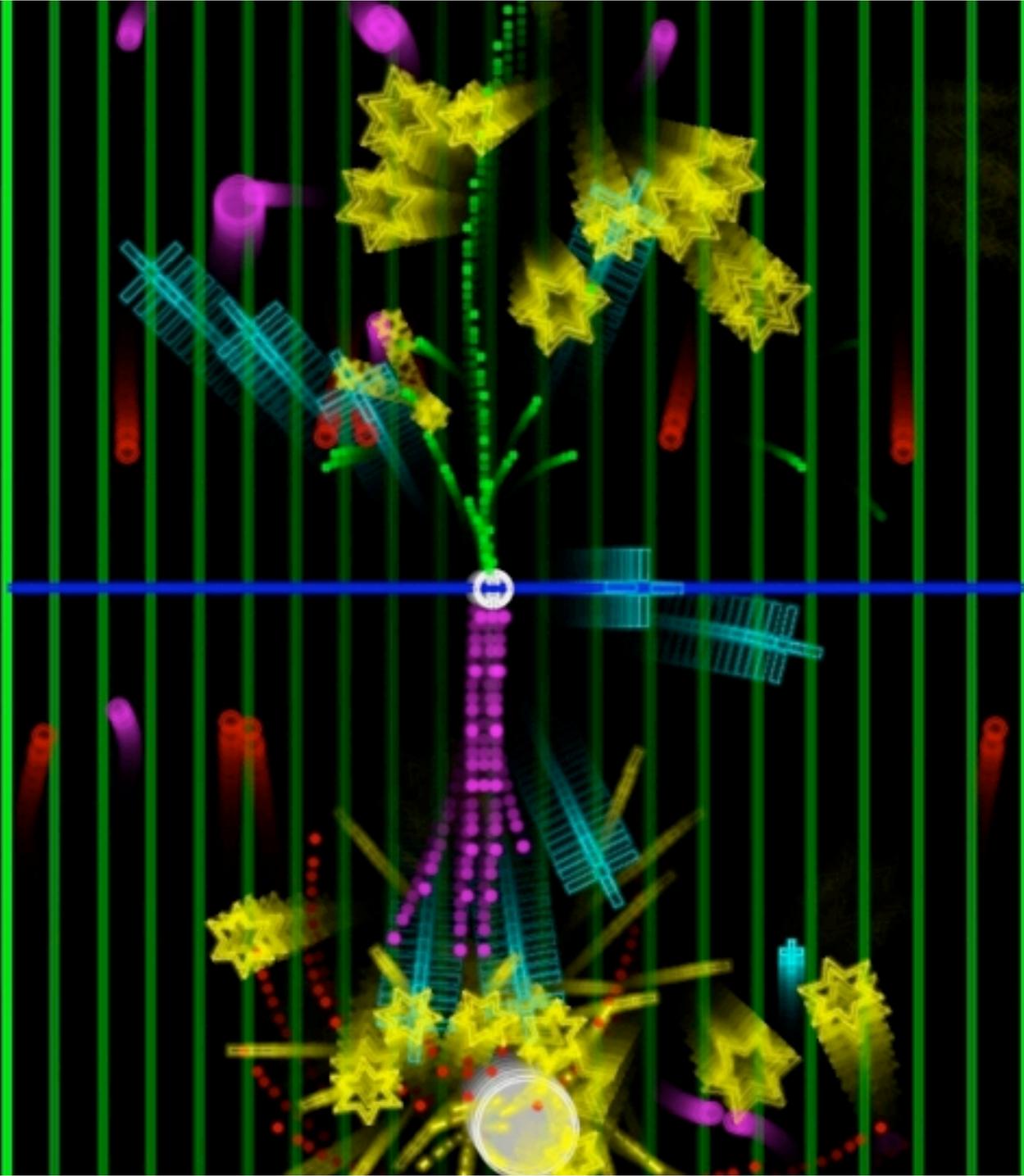
LEVEL
027

ENERGY

300

BONUS

200
GUNS



SCORE

0
0
0
3
2
6
9
2
0
0

"...no boring cut-scenes..."

BINARYZO
PARANT

Resources

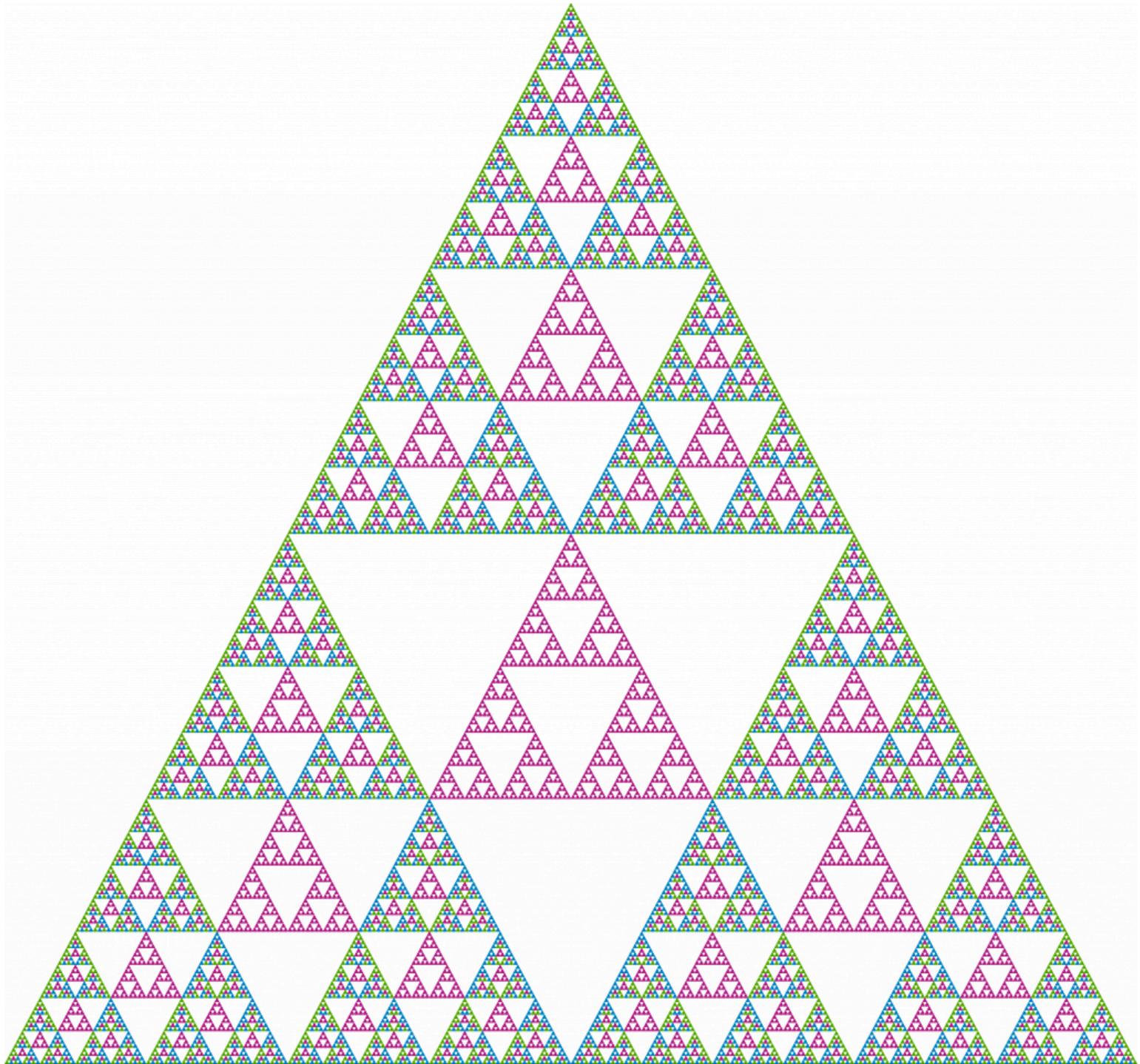
- XNA Toolkit
- ZeniLib
- DXFramework
- Flash

Where to start

- Mechanics are what make the game
 - story, graphics, sound, music, AI, all come later
- First 10 seconds
 - Accessibility
 - Reward system (Mario)
- First 15 minutes
- No one ever reads instructions, **EVER**

General Design Advice

- HCI and consistency
- Turn weaknesses into strengths
- Fake everything
- Don't simulate anything on a level lower than is visible to the player
 - Fun vs. Realism
 - Don't forget consistency, though
- Game design, much like game programming, is fractal.



Cliches, archetypes, and consistency

- Cliché: Put items in crates
 - [Start-to-Crate](#)
- Archetype: Platforms with pit in-between
- Cliches should be avoided, but make sure not to violate archetypes.
 - If you have breakable crates in your game, **MAKE THEM CONTAIN ITEMS!**

Consistency

- Player builds a mental model
- Fills in more details as they play
- Don't invalidate the earlier models

Smart People

- Chris Crawford
- Hideo Kojima
- Sid Meier
- Shigeru Miyamoto
- Warren Spector
- Will Wright

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