CRITICAL MASS™

Game Design Document

[SEE COPYRIGHT NOTICE]

COPYRIGHT NOTICE

DEVELOPMENT INVITATION

I wrote this document with the sincere hope that this game would be created and published, and that I might earn enough cash to work on other creative projects. If you are interested in developing or publishing this game, and you have a track record of solid production and publishing values, then I'd like to hear from you. This document is complete in the sense that it describes the entire game, but some details are missing (distracted by my "day job").

Colin Fahey
colinfahey.com
2002, Irvine, California

TABLE OF CONTENTS

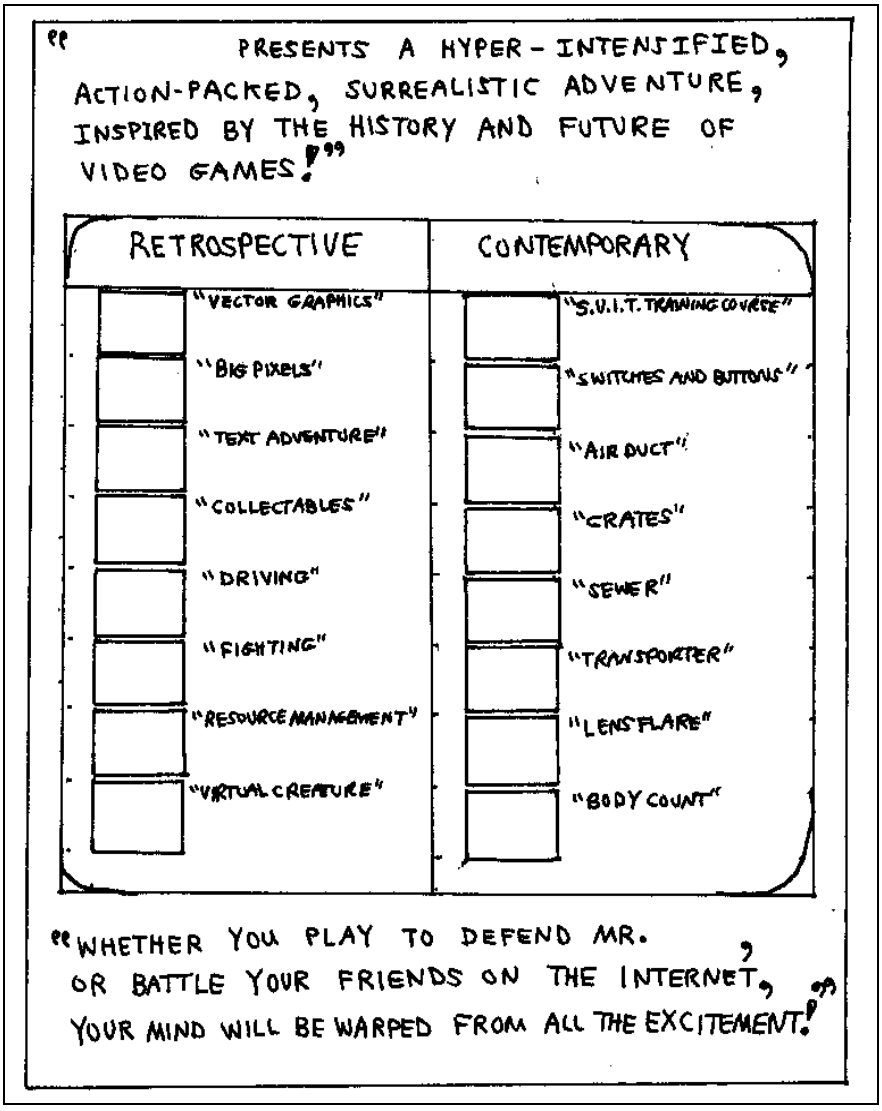


FIGURE: "Critical Mass"™ BOX BACK COVER, with screen shots from all levels in the game.

A. BASIC PREMISE

A.1 SINGLE-SENTENCE DESCRIPTION

CRITICAL MASS™ is an exciting and hilarious tour of video game genres from vector-based graphics to contemporary first-person shooters, with single-player and multi-player death-match modes.

A.2 ONE-PARAGRAPH DESCRIPTION

CRITICAL MASS™ is an exciting and hilarious tour of video game genres from vector-based graphics to contemporary first-person shooters, with single-player and multi-player death-match modes.
In Story Mode you are Mr. One, defender of the digital realm, thrown back in time by the evil Dr. Zero, and forced to fight his way back to the preset. In Battle Mode, you can create, modify, and play levels for some of the video game genres featured in the CRITICAL MASS™ game. Also, in Battle Mode you can compete with other players on your LAN or on the Internet.

A.3 GAME MODES

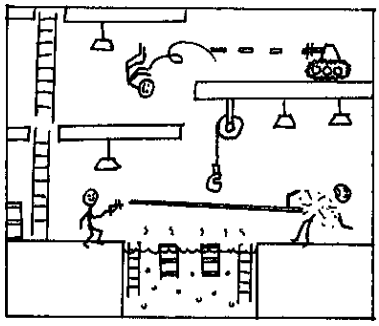
STORY MODE	You are "Mr. One", thrown back to 1970's video game technology by the diabolical "Dr. Zero". You must fight your way back to the future, moving through the history of video game genres. But "Dr. Zero" is determined to blast your pixels apart at every opportunity, using traps and deadly assassins.
BATTLE MODE	Single-player, or network multi-player combat in custom game levels. Compete with your friends in many different game genres, and even create your own levels using the same level editor used to produce the game!

The user can enter either of these modes from the main menu of the game.

RETROSPECTIVE LEVELS

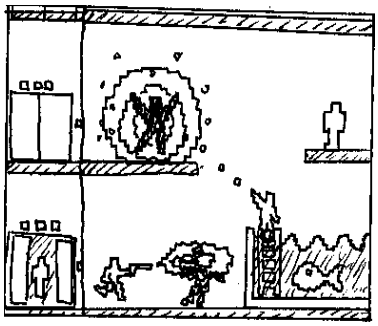
You are “Mr. One”, thrown back to 1970’s video game technology by the diabolical “Dr. Zero”. You must fight your way back to the future, moving through the history of video game genres. But “Dr. Zero” is determined to blast your pixels apart at every opportunity, using traps and deadly assassins.

There are eight “RETROSPECTIVE LEVELS”, each with a unique rendering style and theme. Each of these levels has numerous sub-levels, with complex environments and scenarios.



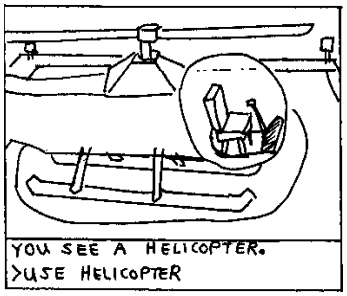
[1] “VECTOR GRAPHICS”

This level is rendered using vector graphics, like the video game classic Asteroids.



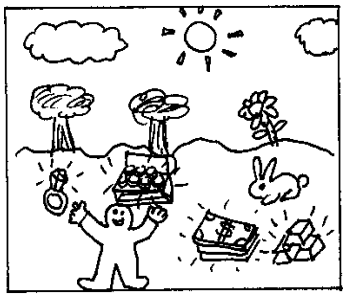
[2] “BIG PIXELS”

This level is based on the Atari 2600 rendering style.



[3] “TEXT ADVENTURE”

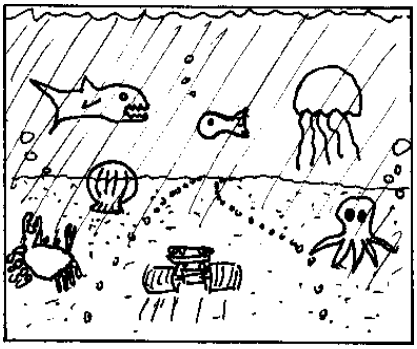
This level is based on the semi-graphical text adventure games featured on early home computers.



[4] “COLLECTABLES”

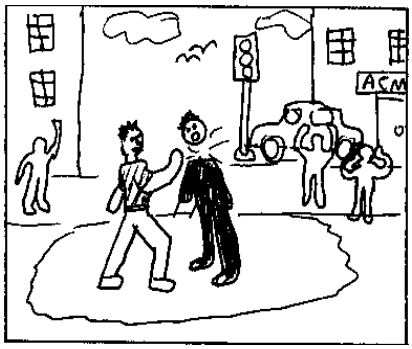
This level is based on games like “Super Mario World” and “Pitfall” in which the player just collects valuables.

RETROSPECTIVE LEVELS (continued)



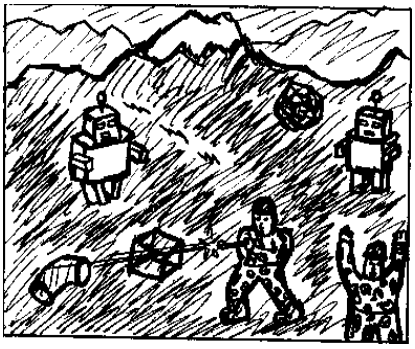
[5] “DRIVING”

This level is based on early driving games, like “Pole Position”.



[6] “FIGHTING”

This level is based on video games like “Street Fighter” and “Mortal Kombat”.



[7] “RESOURCE MANAGEMENT”

This level is based on resource management games like “StarCraft” and “Ground Control”.

Here we render in true 3D, with real 3D character models. The player(s) can zoom in and out, and control the camera in a variety of other ways.

The three races: (1) Robots; (2) Blobs; (3) Humans; are easy to learn about and control.

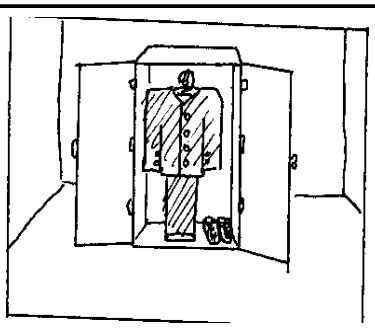
[8] “VIRTUAL CREATURE”

This level is loosely based on games like “The Sims” and “Seaman”.

CONTEMPORARY LEVELS

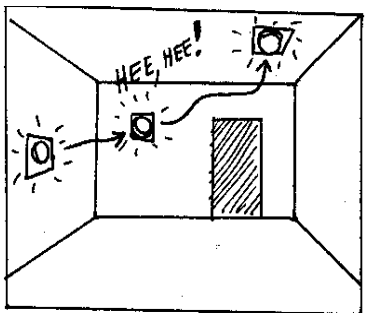
"Mr. One" has made it to the present era of video game technology, but "Dr. Zero" has pulled out all the stops, taking the modern first-person shooter paradigm and turning familiar, benign game elements in to terrorizing obstacles. Will "Mr. One" make it through alive? Can he defeat the evil "Dr. Zero"?

There are eight "CONTEMPORARY LEVELS", each focusing on a specific element of the modern, first-person shooter game genre, but with hilarious, creepy intensification.



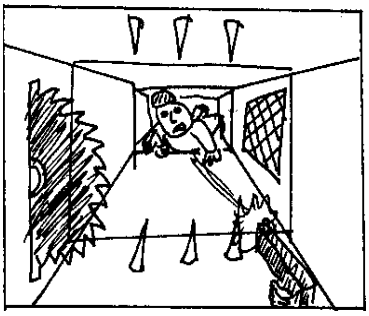
[1] "S.U.I.T. Training Course"

This level is based on training courses found in many first-person shooter games (Half-Life, System Shock 2, Deus Ex, etc).



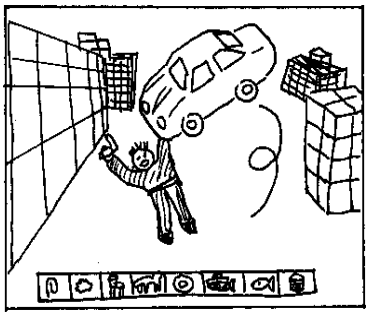
[2] "SWITCHES & BUTTONS"

This level is inspired by the use of switches and buttons in first-person shooters.



[3] "AIR DUCT"

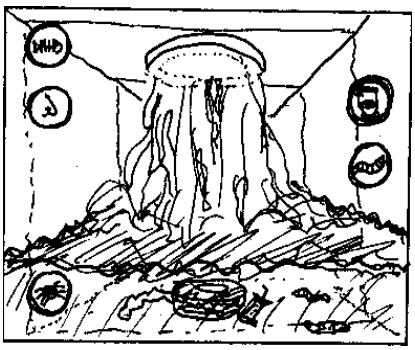
This level is inspired by the popularity of air ducts and ventilation shafts in first-person shooters.



[4] "CRATES"

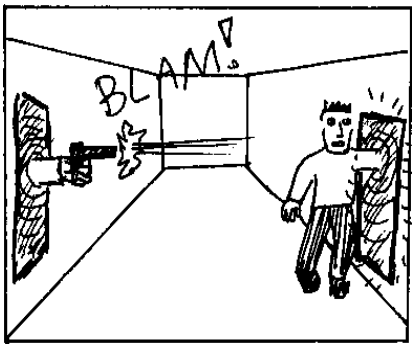
This level is inspired by the popularity of crates in first-person shooters.

CONTEMPORARY LEVELS (continued)



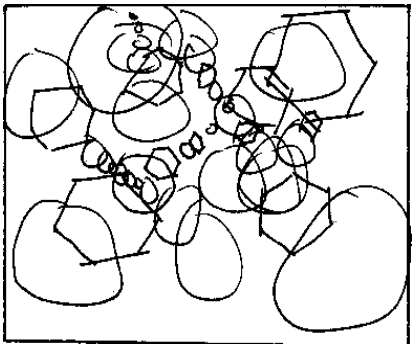
[5] "SEWER"

The sewers found in first-person shooters are the inspiration for this level.



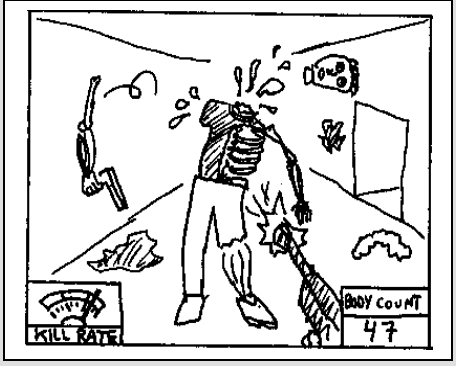
[6] "TRANSPORTER"

Transporters are featured in many first-person shooters, but they scarcely exploit the possibilities.



[7] "LENS FLARE"

This level is inspired by the pressure in the video game industry to add lens flare to everything! This level is nothing but lens flare…and lens flare due to other lens flare…



[8] "BODY COUNT"

This level is the FINAL REWARD. This level presents a game that will surpass all existing first-person shooting games (Quake III Arena, Unreal Tournament, Team Fortress), NOT because of its superior frame rate or exotic levels, but because of the out-of-control gore, unique weapons, and spectacular new effects.

Once the player completes this level in STORY MODE, he'll want to join on-line "death match" sessions in BATTLE MODE!

TECHNICAL SPECIFICATIONS

The following table summarizes the primary target specifications. This table is simplistic, leaving out many possibilities and explanations. Please refer to the notes following the table, otherwise you will have an inaccurate or incomplete understanding of the specifications.

GAME CLASSIFICATION	"ACTION", "HUMOR"
TARGET AUDIENCE	Everyone (subject to MSRP limits)
GAME FORMAT	Multiple Genres
HARDWARE AND OPERATING SYSTEM	PC compatibles; Windows 2000/ME/98
GRAPHICS API	OpenGL (3D accelerator required)
SOUND API	DirectSound (DirectX component)
SINGLE-PLAYER MODE	Story plot, or choose levels and battle AI
MULTI-PLAYER MODE	LAN or Internet "death match", "capture the flag",…

GAME CLASSIFICATION

This game is primarily "ACTION", with a significant "HUMOR" component.

TARGET AUDIENCE

This video game will have broad appeal, like "The Simpsons" or "Rocky and Bullwinkle" television cartoons. Teenagers with short attention spans, eager for action, will love this game. Adults, seeking intelligent, sophisticated entertainment, will love this game. Hard-core gamers will love this game.

GAME FORMAT

This game transcends existing game genres because this game actually contains many different game formats: side-scrolling action; first-person shooter; fighting; driving; resource management; text adventure; and even a virtual creature simulation.

HARDWARE AND OPERATING SYSTEMS

PRIMARY TARGET: PC-compatible; Windows 2000/ME/98; OpenGL; 3D graphics hardware required.

HARDWARE	OPERATING SYSTEM	GRAPHICS API	NOTES
PC	Windows 98	OpenGL	PRIMARY TARGET
PC	Windows ME	OpenGL	PRIMARY TARGET
PC	Windows 2000	OpenGL	PRIMARY TARGET
PC	LINUX	OpenGL	SMALL MARKET (?)
XBox	Windows CE (?)	Direct3D	POSSIBLE
GameCube	N/A	OpenGL variant	POSSIBLE
PlayStation2	N/A	N/A	VERY COSTLY

Producing a console version of this game (Xbox, GameCube) is possible, but many of the levels and much of the artwork will need to be redesigned to work at the limited resolution of a television screen. Furthermore, the engine itself may require major changes.

GRAPHICS API

The primary goal is to support OpenGL. This API is very stable, well documented, and is very easy to use and optimize. It also has the secondary benefit of being supported on many different platforms. It is also easy to convert OpenGL code to other 3D graphics API's, whereas the converse is rarely true.

Direct3D is the obvious alternative. Direct3D does not offer significantly more than OpenGL. Direct3D is significantly "uglier" than OpenGL, and uses an unconventional "left-handed" coordinate system. Two reasons why Direct3D may be desired include (1) Potentially better driver support (hence, better 3D rendering speed); (2) Support for "XBox".

Porting from OpenGL to Direct3D might take a month. The resulting game would then support both API's simultaneously (i.e., the user can choose at runtime).

SOUND API

DirectSound (part of DirectX) is a powerful API that is relatively easy to use. Also, applications using DirectSound work well with many versions of Windows (Windows 2000/ME/98).

GAME THEMES

ACTION:

The primary goal of this game is to create the most exciting, action-packed gaming experience ever. This will be achieved by combining modern technology (physics, AI, network play) with traditionally exciting video game genres. Furthermore, themes and actions in all parts of this game will be amplified and exaggerated to unprecedented proportions, intensifying the player's experience.

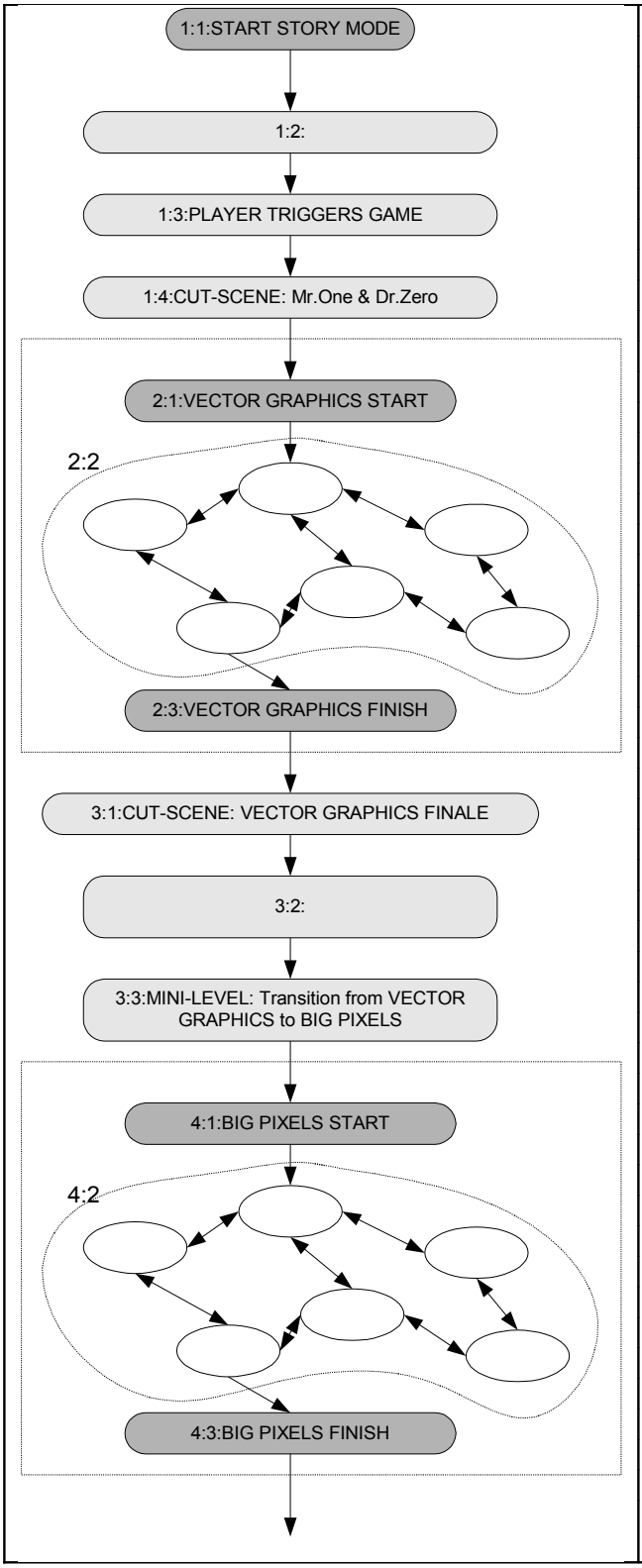
HUMOR:

This game seeks to be "laugh out loud" funny from beginning to end. However, there will be phases when the player is immersed in hard-core action without humorous distraction.

SATISFACTION:

An important feature of this game is the genuine "warm and fuzzy" feeling it produces in the player. The classic graphics motifs, sophisticated humor, and cool scenarios all make the user smile from sincere appreciation. This is more than a good-looking, exciting video game; it's real satisfaction.

STORY MODE GAME FLOWCHART



1.1: Moment Story Mode Game Starts
(From Main Menu selection)

1.4: "Critical Mass" Game Begins, with Mr. One and Dr. Zero cut-scene.

2.1: Moment VECTOR GRAPHICS level is first entered.

2.2: VECTOR GRAPHICS, non-linear plot
We must save state information indicating User inventory, location, status of enemies, Location of objects, state of world,…

2.3: Moment VECTOR GRAPHICS level is guaranteed to be over.

3.1: Cut-Scene: VECTOR GRAPHICS finale.

3.3: A very brief, but somewhat challenging level. The user cannot save in the middle. The player begins just at the threshold between the VECTOR GRAPHICS world and the BIG PIXELS world; they see the boundary…

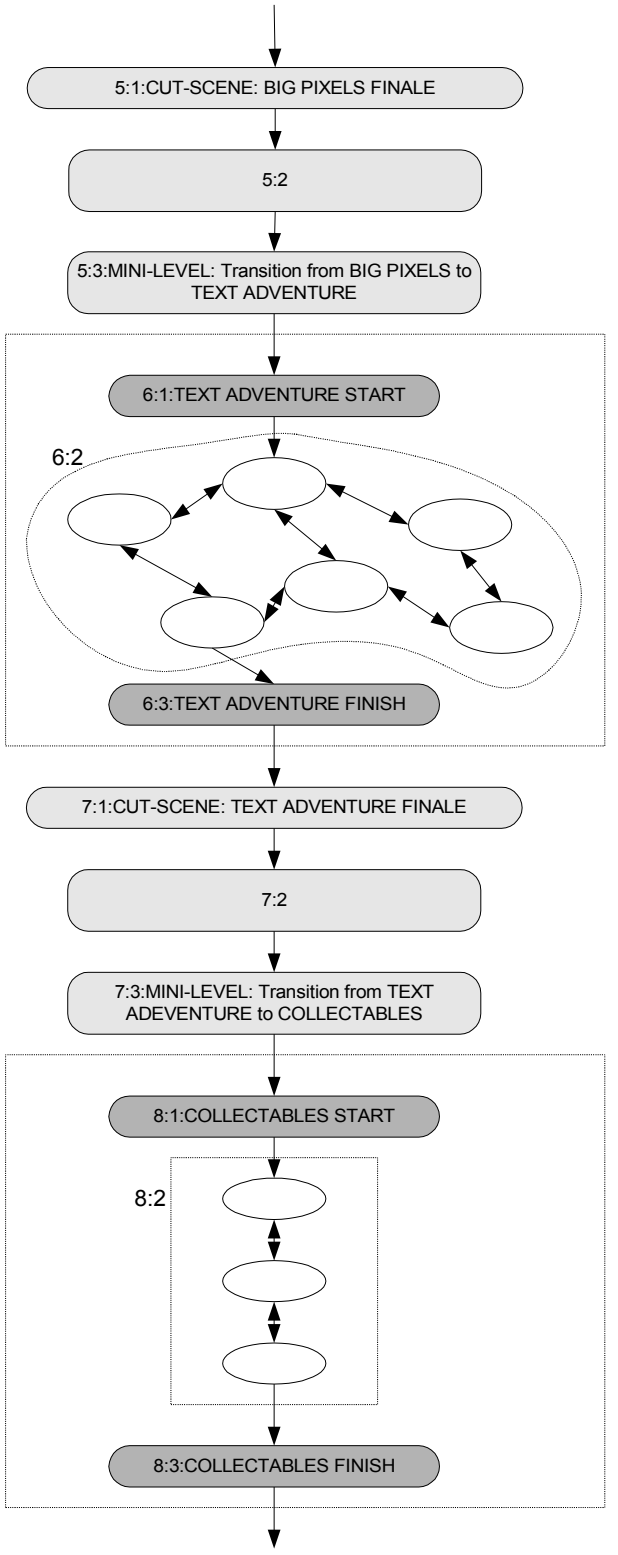
4.1: Moment BIG PIXELS level starts.

4.2: BIG PIXELS, non-linear plot
We must save state information indicating User inventory, location, status of enemies, Location of objects, state of world,…

4.3: Moment BIG PIXELS level is guaranteed to be over.

FIGURE: Start of game, and Retrospective Levels [1] and [2] of STORY MODE game play.

STORY MODE GAME FLOWCHART



5.1: Cut-Scene: BIG PIXELS finale.

5.3: A very brief, but somewhat challenging level. The user cannot save in the middle. The player begins just at the threshold between the BIG PIXELS world and the TEXT ADVENTURE world; they see the boundary…

6.1: Moment TEXT ADVENTURE level starts.

6.2: TEXT ADVENTURE, non-linear plot
We must save state information indicating
User inventory, location, status of enemies,
Location of objects, state of world,…

6.3: Moment TEXT ADVENTURE level is guaranteed to be over.

7.1: Cut-Scene: TEXT ADVENTURE finale.

7.3: A very brief, but somewhat challenging level. The user cannot save in the middle. The player begins just at the threshold between the TEXT ADVENTURE world and the COLLECTABLES world; they see boundary

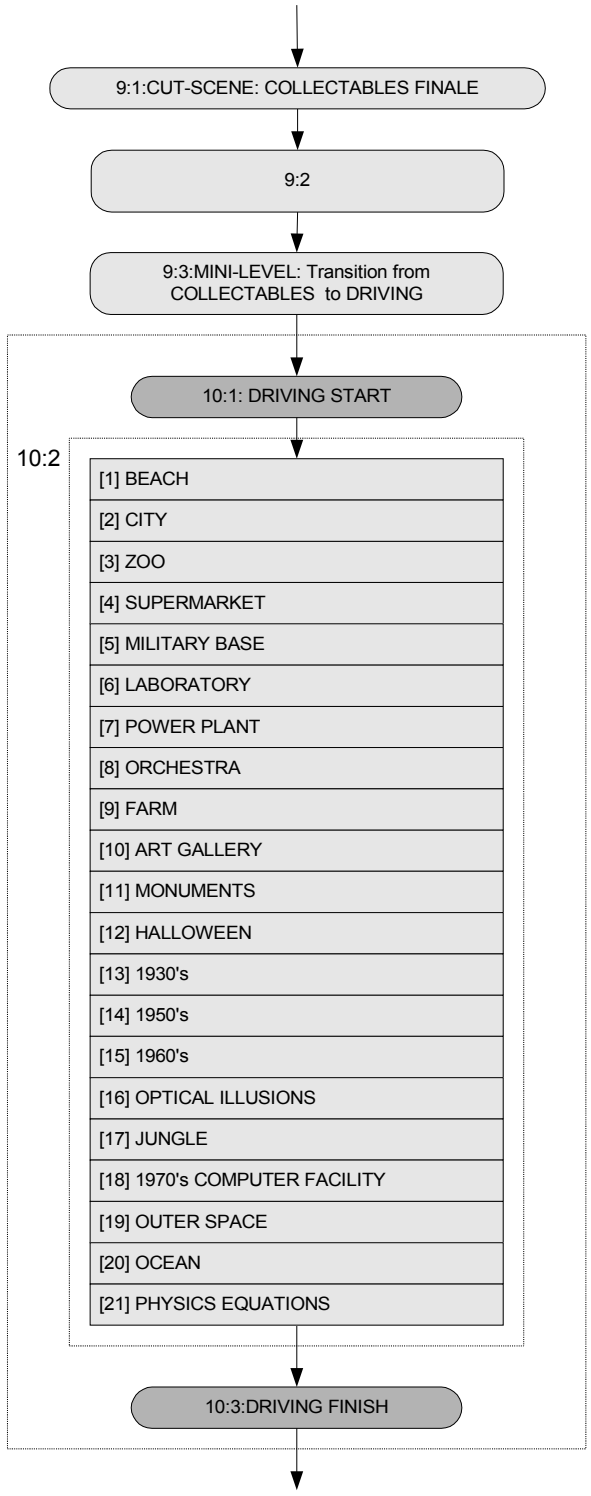
8.1: Moment COLLECTABLES level starts.

8.2: COLLECTABLES, ***linear*** plot
We must save state information indicating
User player location, score,
location of objects, state of world,…

8.3: Moment COLLECTABLES level is guaranteed to be over.

FIGURE: Retrospective Levels [3] and [4] of STORY MODE game play.

STORY MODE GAME FLOWCHART



9.1: Cut-Scene: COLLECTABLES finale.

9.3: A very brief, but somewhat challenging level. The user cannot save in the middle. The player begins just at the threshold between the COLLECTABLES world and the DRIVING world; they see the boundary…

10.1: Moment DRIVING level is first entered.

10.2: DRIVING, ***linear*** plot
We must save state information indicating which of the 21 driving "laps" the player has reached, and how much damage they have sustained within the current level, and how many times they have played the current "lap", and a score.

When a player is damaged too often in a lap, or if they don't complete the lap in a competitive time compared to non-player cars, then the player is forced back to the previous "lap" (motif).

However, a player will NEVER be forced to drive a lap more than twice. So, even if we determine that a player deserved to be demoted, we won't force him back more than a single lap, and never back to a lap he has already been forced to repeat.

Each of the 21"laps" (motifs) should only last 30 seconds each! The total driving time should range between 10 minutes (perfect) to 20 minutes (absolute worst case). [These times assume average driving speed.]

10.3: Moment VECTOR GRAPHICS level is guaranteed to be over.

FIGURE: Retrospective Level [5] of STORY MODE game play.

LEVEL-TO-LEVEL TRANSITION MINI-LEVELS

Once a level (such as "VECTOR GRAPHICS") has been completed, there is a finale "cut-scene" within the level itself, and then there is a "cut-scene" set in the courtroom, basically featuring one of the three game critics, making a brief comment on the level that has just been completed.

When the game resumes, we find the main character ("Mr. One") in the same environment as the level recently completed (e.g., "VECTOR GRAPHICS"). However, we now see that the main character is at the very threshold of the next level (e.g., "BIG PIXELS"). This is the beginning of a "Level-to-Level Transition Mini-Level" (in this case, the "VECTOR GRAPHICS to BIG PIXELS" transition mini-level).

In this transition level, the player faces a small number of fairly challenging obstacles. If the player fails to overcome one of the obstacles, the player is forced to start the transition level over from the beginning. This level is so short that we do not allow saving a player's progress somewhere in the middle of the level. The level is designed to be just enough of a challenge that the player has a feeling of accomplishment when it is over, and feels that the transition to the new game genre was a nice reward. We make it obvious from the very first moment they start this mini-level that they're fighting their way to an interesting and exciting new generation of video game technology. We may show the borders of the new genre on part of the screen, or we may have some other very obvious visual and audio signs.

FIGURE:
In the transition level from "BIG PIXELS" to "TEXT ADVENTURE", we start by zooming in to a computer screen in the "BIG PIXELS" world. As we zoom in, the screen becomes detailed, and we see that it is a text adventure. The player must succeed in playing the text adventure to advance to the "TEXT ADVENTURE" level.

FIGURE:
However, if the player fails the mini-level ("A monster eats you. GAME OVER."), we quickly zoom out of the screen, back in to the "BIG PIXELS" world. We see the player there, and he exclaims "Damn it!" (with perhaps other phrases if the player fails a few more times).

The player might say: "I'm not going to give up!", as we immediately zoom back in to the screen (as pictured in the sequence above) for another try.

FIGURE: "COLLECTABLES" to "DRIVING" transition mini-level. Shown is (a) Getting in to car to start driving; (b) Explosion and flying back to original spot, where a new car magically appears.

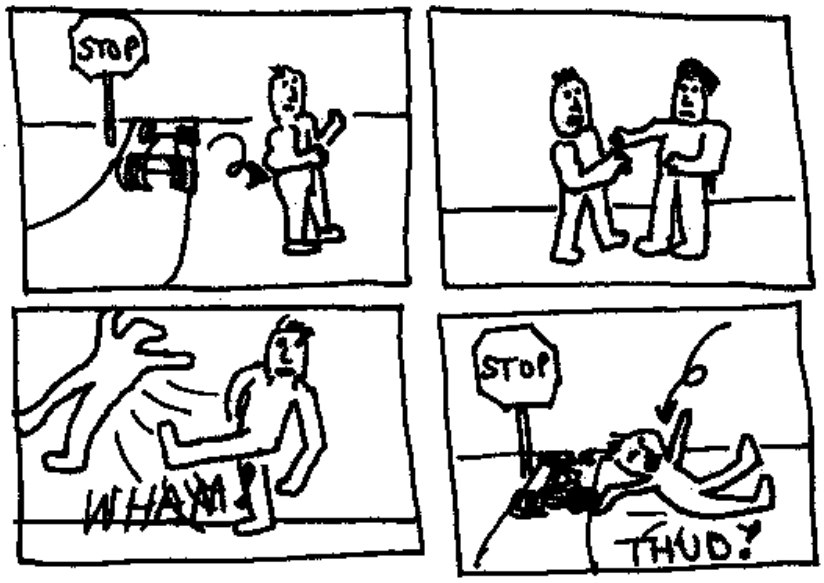


FIGURE: "DRIVING" to "FIGHTING" transition mini-level. "Mr. One" emerges from the car as a fighter (muscle shirt, and big muscles, etc)…and he might remark, "Check out my muscles!" "Mr. One" encounters an initial challenging fighter. If he loses this battle, the opponent fighter kicks "Mr. One" up high in to the air. "Mr. One" lands on his ass, right next to the car he drove in on! He might exclaim, "No more 'Mr. Nice Guy'!", as he returns to the opponent fighter for another round.

"CRITICAL MASS"™ GAME INNOVATIONS

The "Critical Mass"™ video game will be popular based on its cool rendering styles and exciting game play. But "Critical Mass"™ will also have a significant number of video game innovations that will reinforce its unique, extraordinary character.

Here is a very brief summary of some of the innovative concepts and features in "Critical Mass"™, organized by levels:

OVERALL INNOVATIONS:
(1) Unusually many game genres in a single game (in a coherent way);
(2) Unparalleled level of humor in a video game;
(3) Strong "game within a game" theme;
(4) The game can be run in "screen saver" mode, with complex configurations;
(5) The World Editor will be part of the game itself (not a separate utility), and readily accessible;

"VECTOR GRAPHICS" INNOVATIONS:
Physics (collision, rigid body dynamics, buoyancy, chains, etc), Dynamic lighting and shading, Level Of Detail (LOD), and motion capture has never been used for a vector graphics video game!

"BIG PIXELS" INNOVATIONS:
Physics (collision, rigid body dynamics, buoyancy, chains, etc), Dynamic lighting and shading, Level Of Detail (LOD), and motion capture has never been used for a low-res, 2D side scrolling video game.

"TEXT ADVENTURE" INNOVATIONS:
(1) Easy level builder (including graphics);
(2) Tricky and funny "mini-adventures";

"COLLECTABLES" INNOVATIONS:
(1) Unprecedented assortment and arrangement of collectable items;
(2) Very diverse sound effects;

"VIRTUAL CREATURE" INNOVATIONS:
(1) Very different from other simulation games;
(2) High level of ambience (animal sounds, environmental sounds, animations);
(3) Interesting collection of different AI systems (per creature);
(4) Insane, off-the-hook "death match" play! (animals fight each other);
(5) You can "stop playing" and just watch things happen indefinitely;

"DRIVING" INNOVATIONS:
(1) You can shoot anything, and everything can be destroyed;
(2) You drive through very unusual times and places;
(3) "Smart" steering logic makes the car seem more responsive, and yet tends to keep you on the road so the fun doesn't slow down!

"FIGHTING" INNOVATIONS:
(1) Most creative, sinister, and outrageously funny commentary ever featured in a fighting game;
(2) Most dramatic and hilarious injuries and embarrassments in a fighting game;
(3) The final "victory" sequence will NEVER be topped; You destroy the entire Universe!

"RESOURCE MANAGEMENT" INNOVATIONS:
(1) True 3D world (unlike isometric rendering found in similar games);
(2) Races (robots, blobs, humans) are radically different;
(3) Simplified interface and rules make it easy to start playing;
(4) Very serious atmosphere does not relent for a moment; it's cool how intense and creepy it will be. (There will be no jokes to break this creepy atmosphere.)
(5) There is a rapid day/night cycle; creatures have various lights that you can see in the complete darkness!
(6) True 3D models of creatures, with mesh and skeletal animations;
(7) Fractal terrain, LOD, and user zoom and camera angles.
(8) Weather (rain, snow, wind)
(9) Victory celebration; the surviving members of a race celebrate their victory!
(10) TRAITORS: Players can convert opponent troops to be traitors to their own team.

"S.U.I.T. TRAINING COURSE" INNOVATIONS:
(1) At last, a course where you don't learn anything!

"SWITCHES, BUTTONS, AND KEYS" INNOVATIONS:
(1) Most diverse and devious assortment of button puzzles ever!
(2) You get to fight buttons carrying guns in "death match" style.
(3) A sentient button taunts you;

"AIR DUCT" INNOVATIONS:
(1) Most interesting, dangerous, and challenging air duct system ever;
(2) Other people fight you in the air duct;
(3) Witness wacky events through air duct gratings;
(4) Highest uncontrolled fall ever in an air duct;

"CRATES" INNOVATIONS:
(1) The most crates ever featured in a video game;
(2) You can amass the most stuff ever in any video game;
(3) Fight with unusual weapons (paperclip, chairs, bananas, etc) with devastating effectiveness;

"SEWER" INNOVATIONS:
(1) The most disgusting sewer ever featured in a video game;
(2) The most hazards ever reported by an automated "hazard suit" before;
(3) Your automated protective suit actually loses its mind and becomes ill;
(4) Juvenile humor;

"TRANSPORTER" INNOVATIONS:
(1) The most-convoluted array of transporters ever featured in a video game;
(2) The most object-oriented transporter implementation, allowing almost anything to be transported;
(3) First time ever: There is a chance of becoming partially DISFIGURED by a transporter error!
(4) Spherical level with transporter panels and very weak gravity!

"LENS FLARE" INNOVATIONS:
(1) First level ever made entirely of lens flare!
(2) Lens flare causes more lens flare; another first!
(3) Most lens flare ever…in any medium.

"BODY COUNT" INNOVATIONS:

(1) Body Counter (digital readout) in the corner of the screen, dramatically tracks your total kills;
(2) Kill Rate meter (analog meter with swinging needle), indicates the rate of your killing spree;
(3) Partial dismemberment (without dying);
(4) Acid burns;
(5) Lasers that cut off individual limbs;
(6) Nuclear grenade that nukes everyone in the area and leaves creepy "shadows" of their bodies;
(7) Sticky walls that you can run up. Run on the ceiling upside-down;
(8) Unique hologram and invisibility behavior;
(9) Rocket launcher with smart rockets that tracks moving targets while in the air;
(10) "Soft walls" that you can see, run, and shoot through with the right module;
(11) Fake your own death, and then resume fighting;
(12) Creepy, moving, autonomous organs and limbs when a body is blown to bits;
(13) Continue playing after decapitation (see through your detached head);
(14) Glue puddle; people get trapped;
(15) Oil slick; people slip and become trapped by the slippery puddle;
(16) Effective manual combat options are viable, attractive alternatives to weapons (punch, tackle, kick, shove);
(17) Strobe light for creepy effect;
(18) UNCONSCIOUSNESS points; players can be temporarily knocked out by physical impacts, etc;
(19) IMBALANCE points; players can't remain standing, or drift when walking;
(20) Electrical discharge; unique effect;
(21) Body degradation; three levels of body damage, per "Hit Zone";
(22) Unique FREEZE gun effect, and partial or total body shattering; thawing;
(23) Intense, visceral sound effects;
(24) Diverse particle system effects possible for all body parts (blood squirting or dripping, steaming, smoking, burning, etc)

B. STORY MODE

B.1 INTRODUCTION

Story Mode is a single-player mode that allows the user to play the role of Mr. One.

B.2 STORY MODE BACKGROUND STORY

B.3 STORY MODE GAME PLAY

The game has two basic phases: (1) Historical; (2) Contemporary. The historical phase has "levels" that look and play just like various arcade classics, with all of the fun and humorous crudeness. The contemporary phase takes common elements from today's most popular 3D games, separates each element in to its own "level", and takes each theme to an absurd degree for hilarious effect. So, this single game is really like a collection of diverse games connected by a main character. The main character does "walk" from one little game to another, so that there is definitely continuity, but the theme of the little games can be very different. It's especially important that the historical games have distinct missions and look-and-feel and yet be connected so that the player doesn't feel like he's just playing a sequence of separate arcade games!

B.X STORY MODE: GRAPHICS ART ASSETS

The following table gives a rough overview of the types of graphics art assets required for each level.

	LEVEL	GRAPHICAL ART ASSETS
F	INTRODUCTION	Simple 3D models, 2D, vector art
J		
1	VECTOR GRAPHICS	Vector art (some in color) (Asteroids)
2	BIG PIXELS	Low-res 2D art (Atari 2600)
3	TEXT ADVENTURE	Low-res 2D art (Apple][graphics)
4	COLLECTABLES	Medium-res cartoon-like 2D art (Super Mario)
5	DRIVING	Scanned, highly-processed 2D photos
6	FIGHTING	Medium-res, cartoon-like 2D art (Street Fighter)
7	RESOURCE MANAGEMENT	Textured 3D small isometric landscape, 3D characters (Star Craft, but with true (and tiny) 3D models)
8	VIRTUAL CREATURE	Scanned, highly-processed 2D photos (multi-plane, pseudo-3D), 2D animated animal sprites. Possibly true 3D animal models, and skeletal animations.
K		
1	SUIT TRAINING COURSE	3D models, basic skeletal animation
2	SWITCHES, BUTTONS, AND KEYS	3D rooms and models; no characters
3	AIR DUCT	Simple 3D tunnel, non-interactive rooms with 2D background and scripted character animations; limited 2D and 3D objects and animations
4	CRATES	Numerous 3D models of miscellaneous static objects; 3D character animations (AI driven); explosion billboards, crate smashing
5	SEWER	Simple 3D tunnel; water effects; various 3D models
6	TRANSPORTER	3D rooms, objects, and character animation (AI)
7	LENS FLARE	2D lens flare billboards; 3D rooms and objects
8	BODY COUNT	Total 3D arena, 3D objects, 3D characters; 2D explosion billboards; Smoke and spark particles

The historical levels are mostly 2D, cartoon-like bitmaps. The contemporary levels are mostly complete 3D environments with 3D objects, and sometimes with AI-driven character animations.

B.X STORY MODE: SOUND EFFECT REQUIREMENTS

The following table gives a rough overview of the types of sound effects required for each level.

	LEVEL	SOUND EFFECTS
F	INTRODUCTION	Voice acting, CD-ROM drive sound, explosions and beeping sounds from various video game genres
J		
1	VECTOR GRAPHICS	Asteroids explosion and beeping
2	BIG PIXELS	Atari 2600 explosion and beeping
3	TEXT ADVENTURE	Apple][beeping and simple speaker melodies
4	COLLECTABLES	Super Mario digital audio; Ch-Ching; wacky sfx
5	DRIVING	Driving sounds, machine gun, explosion; Each region has specific sound samples (ocean, lab, beach, …)
6	FIGHTING	Fighting game sounds (punch, kick, pain,…) and extra sound effects (explosions,etc) and digital audio samples for specific scenarios (fatality,…) Extensive fight commentary voice acting.
7	RESOURCE MANAGEMENT	Robot speech synthesis; Human military talk; Blob creepy communication sounds; Explosion sounds; Robot movement and attack sounds; Blob movement and attack sounds.
8	VIRTUAL CREATURE	Numerous animal sounds, and for each animal we need attack, pain, play, sleep, and idle sounds. Explosions, weather, ocean, river, grass rustling, insects, birds, etc. Scientist voice acting; extensive.
K		
1	SUIT TRAINING COURSE	Flanged SUIT voice acting; business executive and nurse voice acting; flame thrower, machine gun, bazooka, explosion, hospital room.
2	SWITCHES, BUTTONS, AND KEYS	Switch, button and key sounds.
3	AIR DUCT	Crawling in air duct sounds; slipping, sliding, screeching, free-falling, landing in the air duct; special DSP for inside air duct (reverb) which can be applied to all sounds before they're loaded as files
4	CRATES	Crate smashing sound; rocket, grenade, machine gun… Crushing, shattering, dropping, skidding sounds. Security guards shouting and shooting
5	SEWER	Water dripping, rushing, splashing, bubbling, gurgling, etc…
6	TRANSPORTER	Transporter sounds, all kinds of weapons sounds, impact sounds, soldiers shouting sounds, etc.
7	LENS FLARE	Sound impression of lens flare effects
8	BODY COUNT	Combination of all contemporary level sound effects (explosions, weapons, soldiers, transporters, pain sounds, gut splattering sounds)

B.X. BATTLE MODE GENRES AND LEVEL BUILDERS

BATTLE MODE is available for all levels.

A single level editor is used to build all levels for all genres in the game. There will be some specialized functions in the level editor to handle the special editing needs of the different genres.

	LEVEL	LEVEL BUILDER MODES
F	INTRODUCTION	---
J		
1	VECTOR GRAPHICS	2D Line Drawing, 2D Objects
2	BIG PIXELS	2D Pixel Regions, Objects
3	TEXT ADVENTURE	IMAGES, TEXT, LOGIC
4	COLLECTABLES	ICONS, ARRANGEMENT, SOUNDS
5	DRIVING	BILLBOARDS, REGION MOTIFS
6	FIGHTING	FIGHTER SKIN, FATALITIES, SOUNDS
7	RESOURCE MANAGEMENT	WORLD MAP, AI, WORLD PARAMETERS
8	VIRTUAL CREATURE	CREATURE AI, NEW CREATURE, WORLD PARAMETERS, OBJECT PLACEMENT
K		
1	SUIT TRAINING COURSE	3D MODELS, AI, BUILDINGS,...
2	SWITCHES, BUTTONS, AND KEYS	
3	AIR DUCT	
4	CRATES	
5	SEWER	
6	TRANSPORTER	
7	LENS FLARE	
8	BODY COUNT	

BATTLE MODE is supported for all levels, even if some genres are not conducive to single-player or multi-player death match.

The following table lists significant level builder modes:

Vector Graphics Mode	This is basically a special “vector graphics” drawing mode, with various 2D physical and graphical objects to choose from. There are triggers, object and AI properties, sound effects, etc.
Big Pixels Mode	This is basically a low-res 2D drawing program, limited to a certain set of physical and graphical objects. There are triggers, object and AI properties, sound effects, etc.
3D Mode	**ALL contemporary levels are built using this mode.** This is a 3D arena-building program. We will have separate operations for editing the world and the characters and objects in this world, including collision areas, physics and AI properties, etc. Buttons, triggers, paths, scripted animations are all supported in a simplistic way. REMEMBER: “BODY COUNT” and the other contemporary levels derive their entertainment value from their wacky extremes, not the visual realism or astonishing technical wizardry.

LEVEL EDITOR 3D MODE

The 3D mode of the level editor will be used to build the contemporary levels of the game.

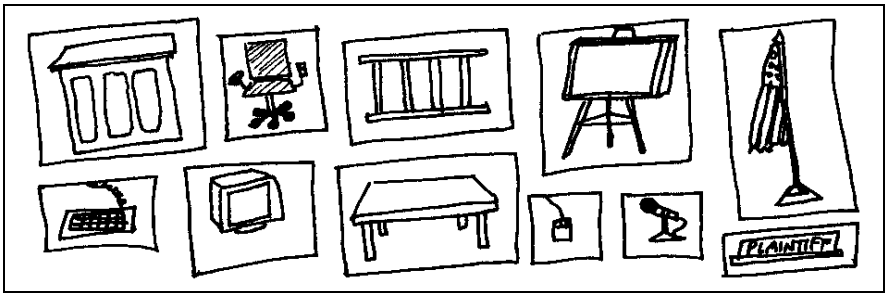


FIGURE: The artist supplies individual 3D objects.

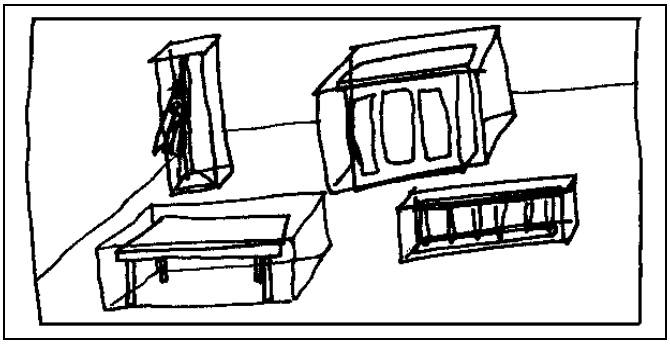


FIGURE: Put 3D objects in the world with the level editor.

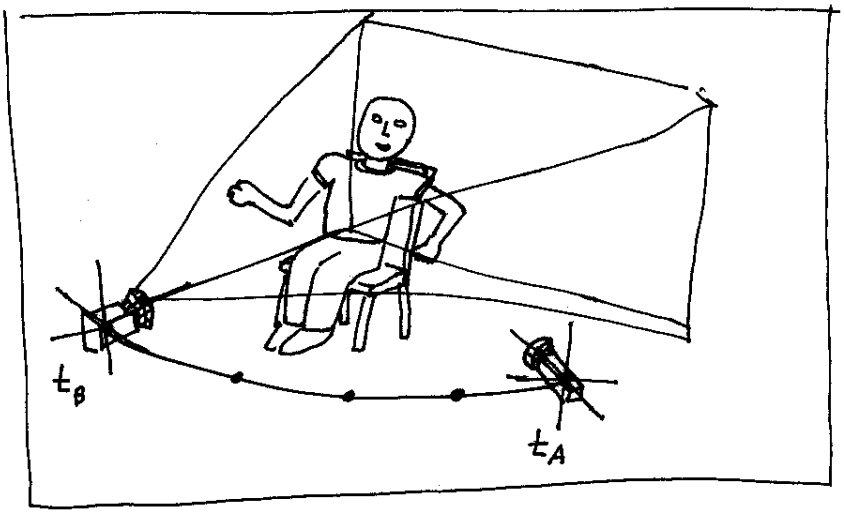


FIGURE: Cut-scenes will be created using the in-game level editor. Multi-track editing, involving multiple cameras, camera position splines, camera modes (aim at target, aim in direction, etc), skeletal animations, sound effects, etc, will be built in to the game engine itself.

C. BATTLE MODE

C.1 INTRODUCTION

Battle mode is a single-player or multi-player mode that allows the user to create, modify, and play levels of the game within a single game genre ("VECTOR GRAPHICS", "BIG PIXELS", …). The user can even play levels from the story mode of the game, but all of the story elements will be missing.

Several interesting Battle Mode levels will be provided for each of the supported game genres. Stand-alone utilities will also be provided to allow the user to essentially "draw" his own levels, much like other "world editors" provided with other games (Duke Nukem "Build", Half-Life "WorldCraft", Unreal/Deus Ex "UnrealEd", etc). However, in addition to providing a stand-alone utility, the editor will be accessible from within the CRITICAL MASS™ game itself, so that the user can quickly switch between editing and playing a level.

Some Battle Mode levels specifically designed for interesting multi-player combat will be provided, so that players can have even more fun playing in network mode right away.

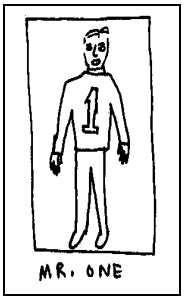
Network games will be hosted by the "first player", who starts by joining his own multi-player game and letting others know that a new game has started; his computer becomes the "server", the master arbitrator of game activity. Other players locate the first player's "server" and join the game, thus becoming "clients" of the "server". If the game is played on the Internet instead of a LAN, the "server" may send information about a new game session to a public server that has a real-time database of games in progress. This allows other players to locate public and private games by going to a common location. There may be many public game-list servers, and the user must enter the IP address and port for this feature to work – and hopefully this information will rarely change, and the user will never have to think about it again. Microsoft's "Game Zone" is based on this principle, but it's terrible and should be avoided like the plague!

D. MAIN CHARACTERS
D.3 DR. ZERO

Dr. Zero: "You can't destroy what doesn't exist!"

Dr. Zero is literally nothing. Dr. Zero is like a small Black Hole, a pure black sphere. However, it has a small event horizon, with shimmering light, like the Sun's corona. It makes a creepy vacuuming sound, or like the rushing sound of a huge waterfall, with a low pitch droning noise. He appears and vanishes at will, and drifts around. He can project Dark Matter and Dark Energy to summon up anti-things and anti-people.

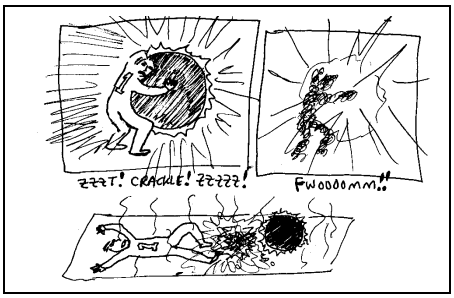
D.4 MR. ONE



Mr. One: "There can be only one!"

Mr. One wears a pure white jumpsuit, or something like Speed Racer, but all white. On the front and back of his long-sleeved white shirt is a large number one ("1"). In most respects, Mr. One is a normal human being, as if he was recruited for the job of representing "the opposite of nothing".

Few people know this, but Mr. One's first name is "The", so he's really "The One".



Mr. One makes futile attempt to grab Dr. Zero.

D.7 CRITICAL MASS™ PROGRAMMERS

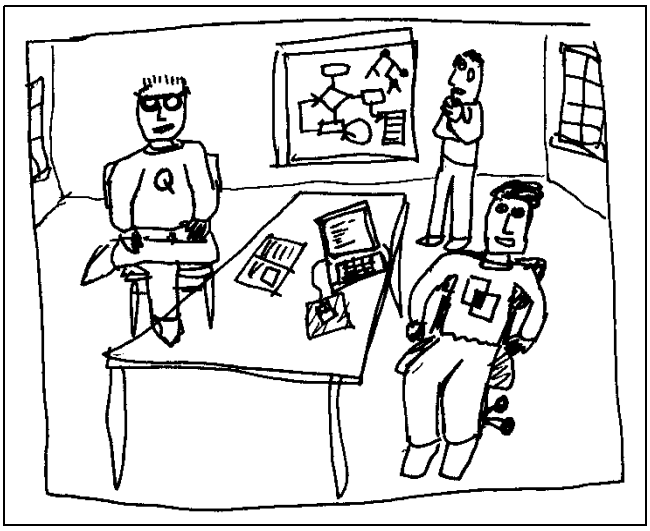


FIGURE: PROGRAMMERS AND ARTISTS: “Hey, what’s up!”

At one point in the game we may actually see and hear the programmers and artists who created the CRITICAL MASS™ video game. At one point they cut in to the game and dialog takes place (in the programmer’s real-world office, with whiteboards, computers, desks, chairs, posters, etc).

E. GLOBAL FEATURES

E.1 INTRODUCTION

Save, restore, hints, keyboard, mouse, etc

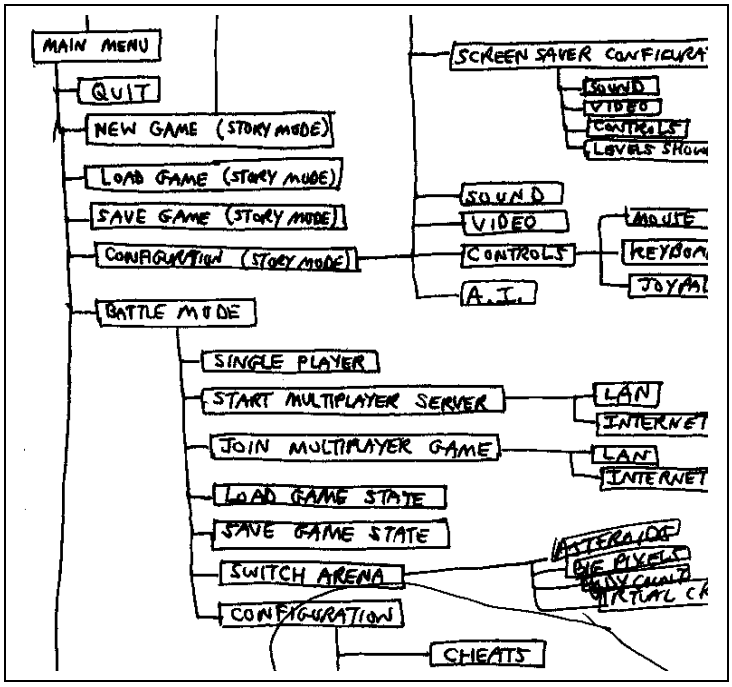
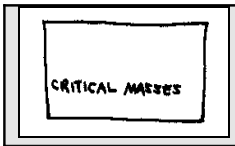
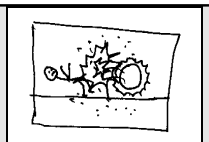
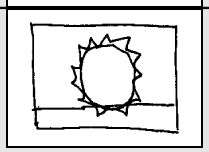
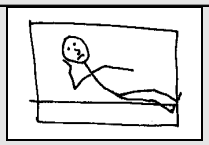
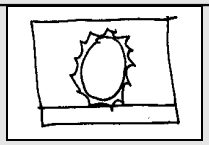
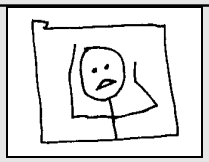
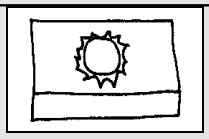
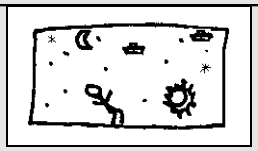
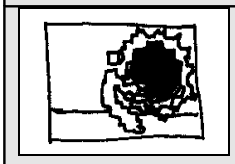
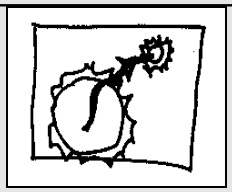
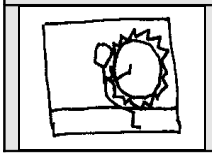


FIGURE: Menu System…TO BE DETERMINED!!!

F. "INTRODUCTION"

The following "cut scene" plays when you start a new STORY MODE game.

	**DRAMATIC VOICE**: "Critical Mass"		**MR.ONE**: "Uuunnnggggghh!!" (Falls backwards)
	**DR.ZERO**: "Mr. One, we meet at last."		**DR.ZERO**: "Mwoo,ha,ha,haaaa!!! You can't destroy what doesn't exist!"
	**MR.ONE**: "I've got you now, Dr. Zero."		**MR.ONE**: (scratching head) "What happened? Where are we?"
	**DR.ZERO**: "If you touch me, it will cause a paradox, and the Universe will be destroyed!"		**DR.ZERO**: "We've traveled (BEEP) years back in time! It's the year 1979."
	**MR.ONE**: "I've got to take that chance!" **DR.ZERO**: "No, you fool!"		**MR.ONE**: "(BEEP) years back in time? The year 1979? That's impossible!"
	BOOM!!! (Street Fighter type graphics)		**DR.ZERO**: "Haa,haa,haaa!! Take a look around."
	BOOM!!! (Apple II 8-color graphics, with text-adventure caption: "> grab", "You grab Dr. zero.")		(Dramatic music) **MR.ONE**: "Oh, no! This can't be!"
	BOOM!!! (Atari 2600 style explosion sound and graphics style)		**DR.ZERO**: "You'll have to fight your way back to the future. Until next *time*, Mr. One! Mwoo-haa-haa-haaa!" (vanishes in distance)
	BOOM!!! (Asteroids style explosion sound and graphics style)		

J.0 RETROSPECTIVE LEVELS OVERVIEW

J.0.A. INTRODUCTION

The CRITICAL MASS™ "Retrospective Levels" form a fun and humorous tour of video game history. We start with a level that looks like the classic arcade game "Asteroids". Later levels are inspired by the following platforms and games: Atari 2600 cartridge system; Apple II personal computer; Early Nintendo system; "Pole Position" arcade game; "Street Fighter" arcade game; "StarCraft" game for the PC; "Seaman" and other virtual creatures.

These levels just LOOK like arcade classics, but the game elements and game play of these levels are as modern and sophisticated as contemporary first-person action games like "Half-Life" or "System Shock 2". These levels take the modern game paradigm and present it through various rendering styles, which gives the game a fun, refreshing appearance.

For example, the "VECTOR GRAPHICS" level may LOOK like the "Asteroids" arcade classic. But by the end of the level you are flying around with a jetpack, going through transporters, throwing grenades, shooting machine guns, finding your way around with a flashlight, and interacting with a complicated object-oriented world that obeys the laws of physics – all in 2D line drawings!

The "DRIVING" and "FIGHTING" levels really do involve driving and fighting, just like the games that inspired these levels. But our version of these game genres is far more intense and surreal than their historical counterparts.

So, the "RETROSPECTIVE LEVELS" do not emulate platforms or classic video games. These levels take hints from the "primitive" art styles of video games from the past, and borrow modern game elements, to create an exciting and fascinating gaming experience.

J.1 "VECTOR GRAPHICS"

J.1.A. INTRODUCTION

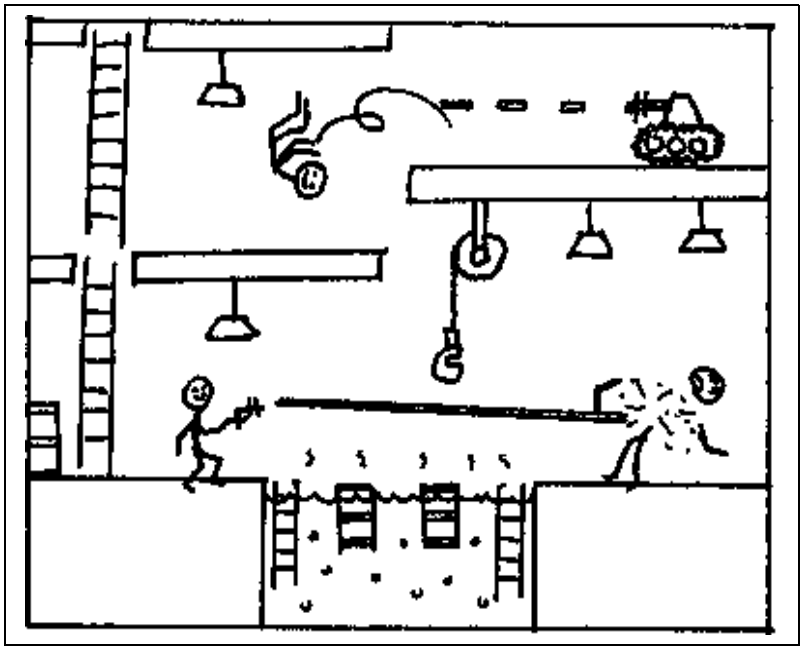


FIGURE: Vector Graphics; Terror in 2D.

The "VECTOR GRAPHICS" level is based on the rendering style of games like "Asteroids", "Star Castle", and "Tempest". The game play will also seem primitive at first, but the level will quickly become very complex. Just because the game is using vector-based graphics doesn't mean we can't use "modern" game elements, like puzzles, motion captured animation sequences, AI, physics, large worlds, object-oriented entities, non-linear plot, players with inventories of stuff, etc.

Basically, players should eventually feel like they're playing "Half-Life" or "Quake III Arena", or games of similar sophistication (story and action), but in 2D vector graphics!

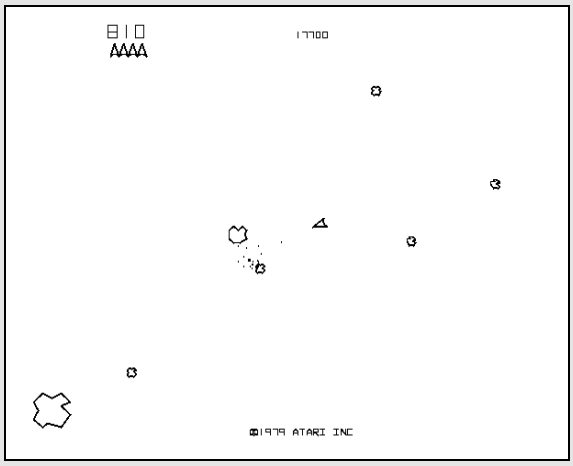


FIGURE: "Asteroids"

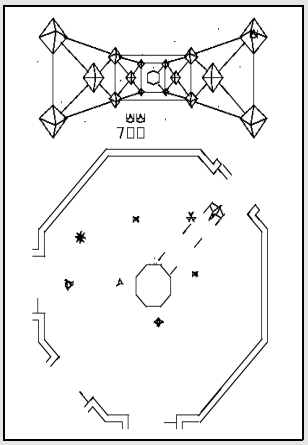


FIGURE: "Cosmic Chasm"

FIGURE: Examples of classic "vector graphics" arcade video games.

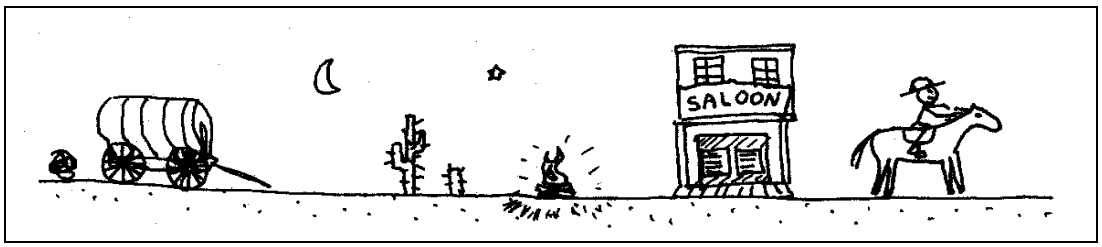


FIGURE: Western theme area of "VECTOR GRAPHICS" level. Wagon, campfire, saloon, and horse.

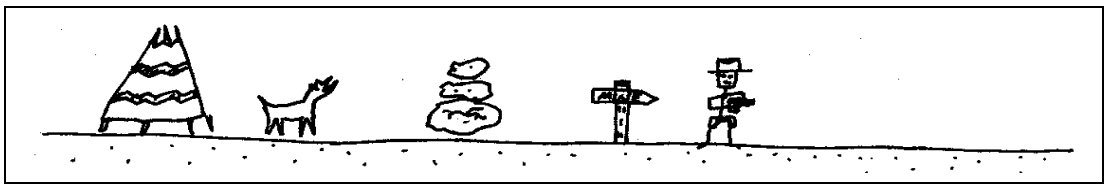


FIGURE: Western theme area of "VECTOR GRAPHICS". Teepee and cowboy.

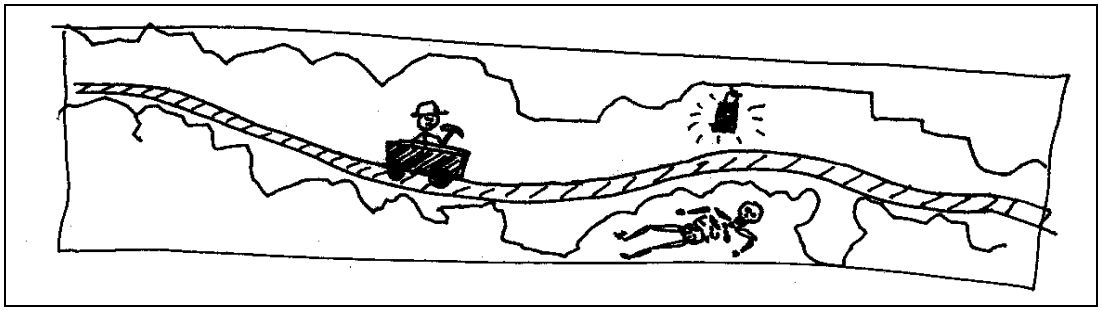


FIGURE: Western theme area of "VECTOR GRAPHICS". Mine car on track.

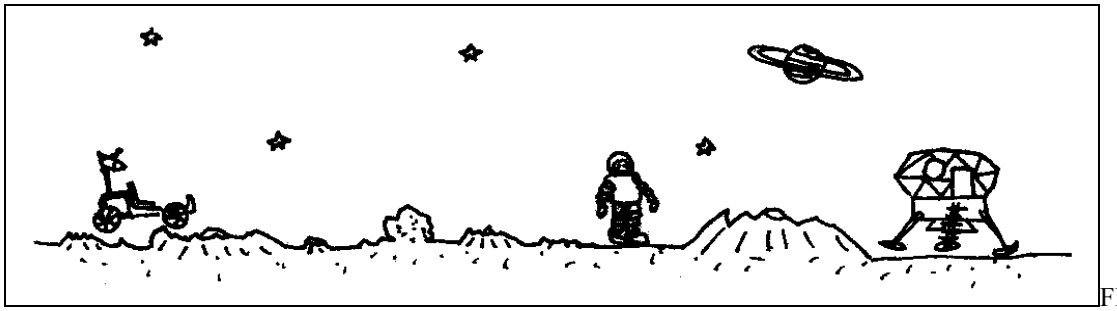


FIGURE: Outer Space theme area of "VECTOR GRAPHICS" level. Surface of the Moon.

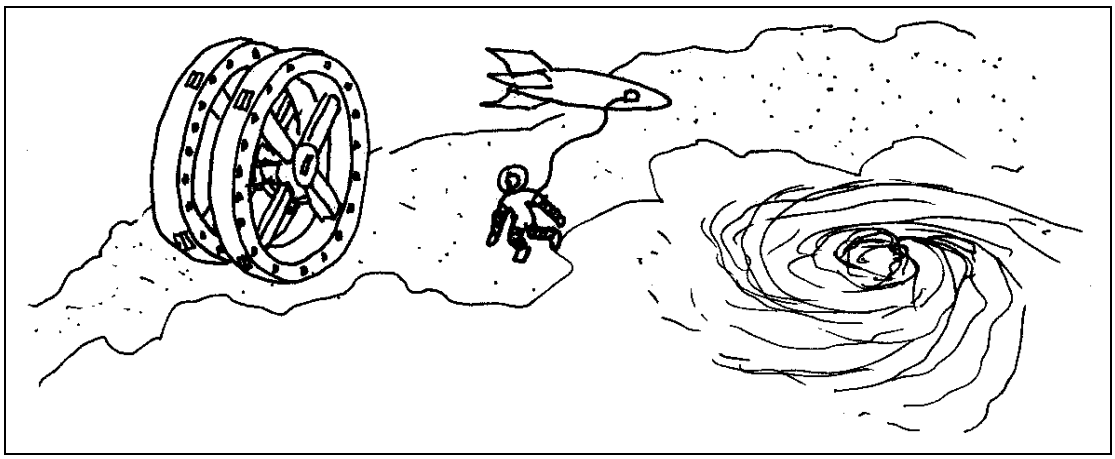


FIGURE: Outer Space theme area of "VECTOR GRAPHICS" level. Galaxy and space station.

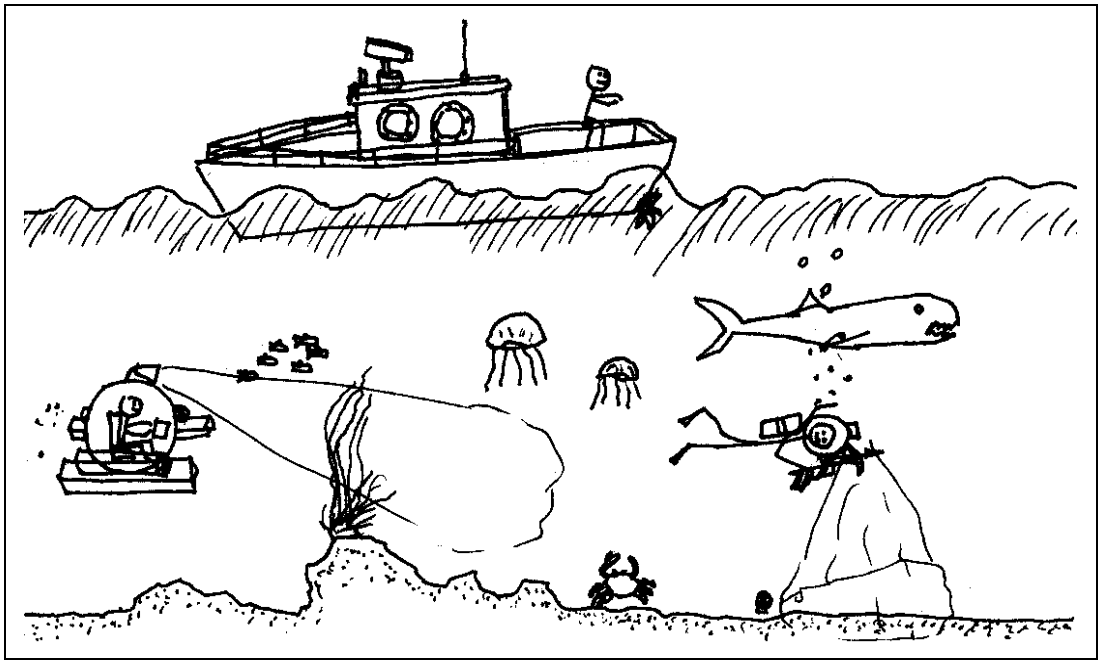


FIGURE: Ocean theme area of "VECTOR GRAPHICS" level. Boat, submarine, shark, diver.

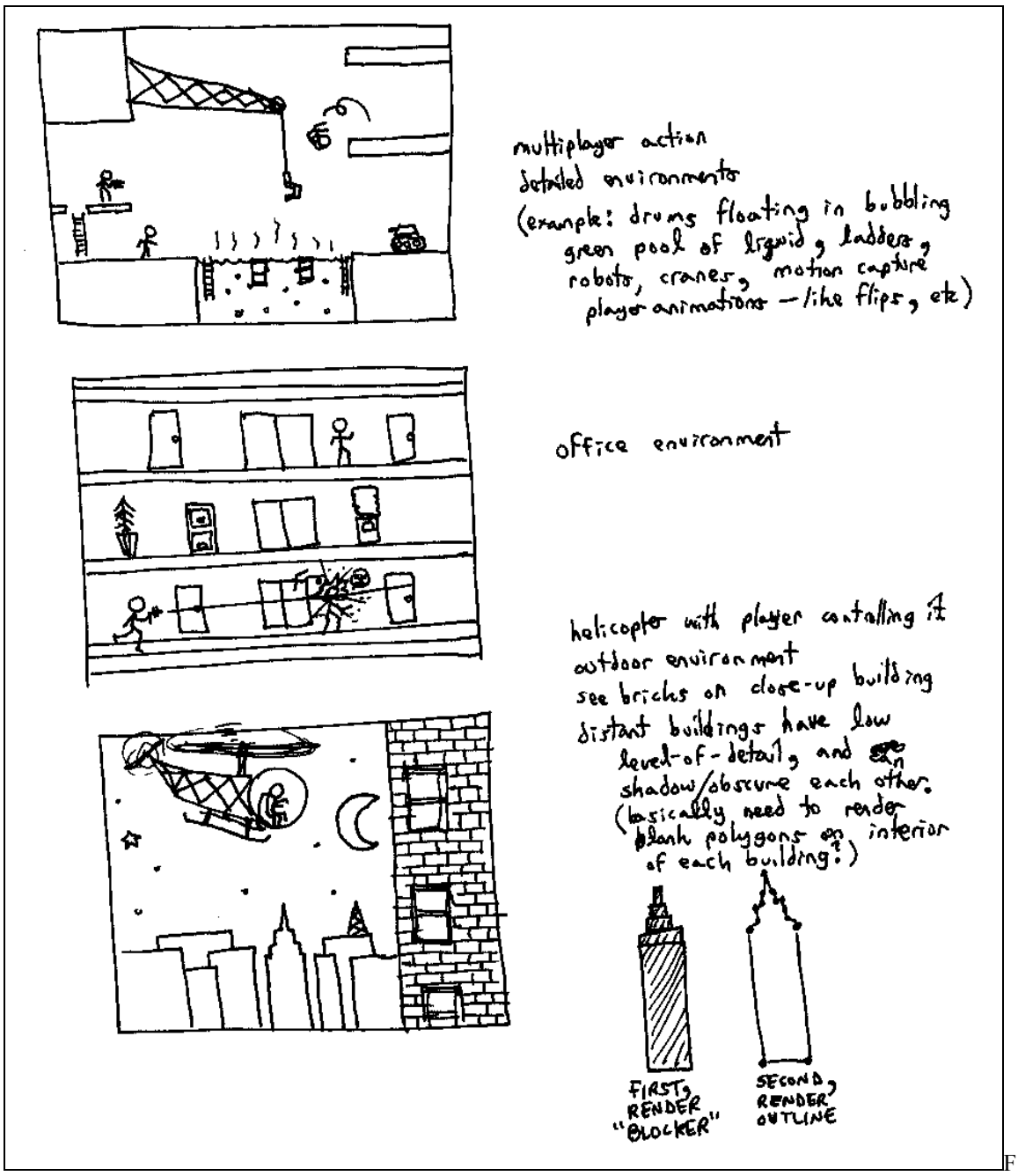


FIGURE: Various environments in the "VECTOR GRAPHICS" level.

J.1.B. PHYSICS

The physics can be very detailed because we have a two-dimensional (2D) world, and the calculations are much easier than in three-dimensional space (3D). We can have: (1) Swinging ropes and chains; (2) Water that obeys wave dynamics; (3) Objects floating in water (buoyancy); (4) Bouncing or shattering objects; (5) Gravity; etc…

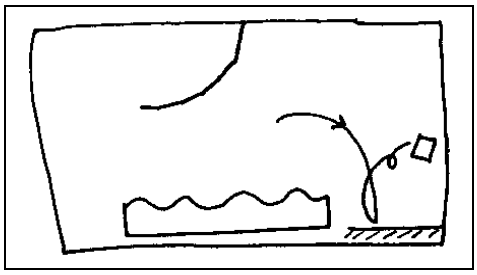


FIGURE: Swinging rope, Water waves, Bouncing box.

J.1.C. BASIC WORLD ELEMENTS

We can have stairs, elevators, platforms, keys, conveyer belts, ladders, trampolines, etc.

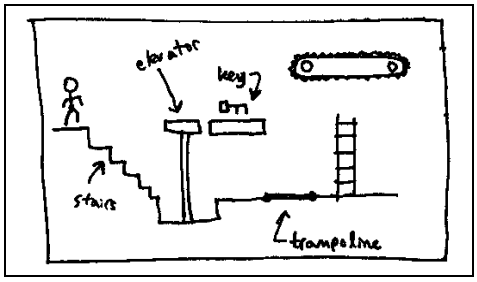
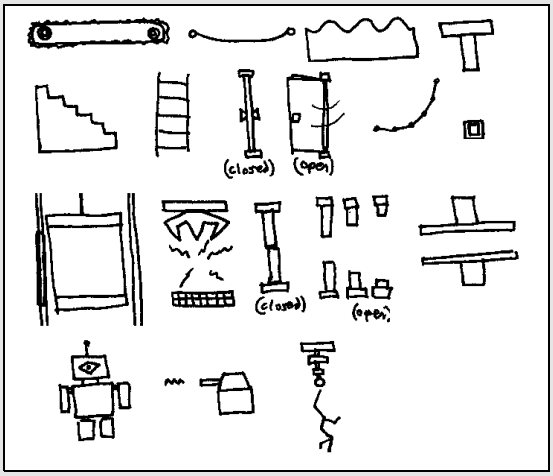


FIGURE: Example of area with basic world elements.

In the level editor utility we can have a menu of basic world elements, which may include some of the items in the following illustration:

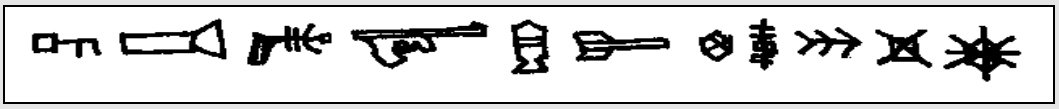


(1) Conveyer belt
(2) Trampoline
(3) Pool of water
(4) Lift (platform elevator)
(5) Stairs
(6) Ladder
(7) Door (on hinges)
(8) Rope or chain
(9) Button
(10) Elevator & shaft
(11) Transporter portal
(12) Door (stacked pneumatic panels)
(13) Crusher
(14) Robot
(15) LASER turret
(16) High-voltage terminal

FIGURE: Miscellaneous game elements

J.1.D. COLLECTABLE ITEMS

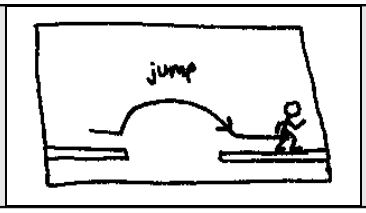
The player may be able to collect some of the items in the following illustration:



(1) Key (to a door, or whatever)
(2) Flashlight
(3) LASER gun
(4) Machine gun
(5) Jetpack
(6) Missile
(7) Grenade
(8) Invisibility module
(9) Portable transporter portal type-A (creates tunnel to 'B')
(10) Portable transporter portal type-B (other end of tunnel from 'A')
(11) Proximity mine (explosive)

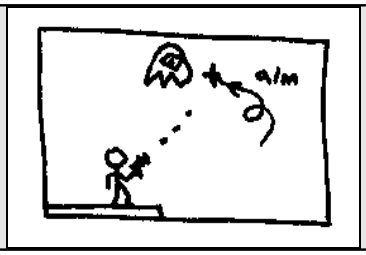
J.1.F. GAME FEATURES

The following illustrations show various features of the game that may be introduced as the level progresses.



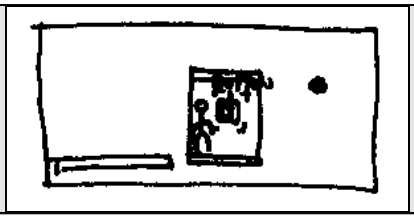
JUMPING

Jump across gaps, or on to objects, etc.



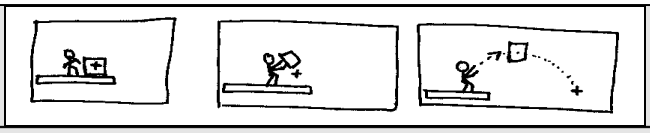
AIMING

Use the mouse to move your aiming cross-hairs (cursor).



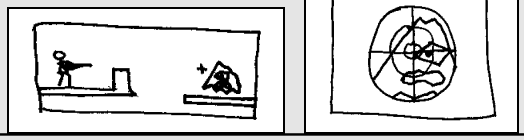
PRESS BUTTONS

Aim at a button, and four "L" brackets will appear. Push mouse button to push the button in the world.



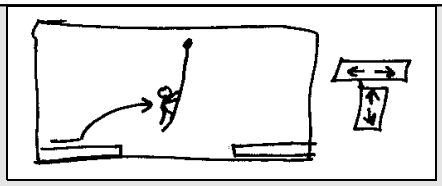
LIFTING, CARRYING, THROWING OBJECTS

Aim at an object next to you, and four "L" brackets will appear around the object. Click the mouse button to grab and lift the object. Walk normally to carry the object (aim is irrelevant). Aim at a spot where you wish to drop or throw the object. If the spot is in your throwing range, the object is guaranteed to land or pass through the aiming point (unless there are obstacles in the way). If it is out of range, you will simply throw toward the aiming point at the highest possible speed.



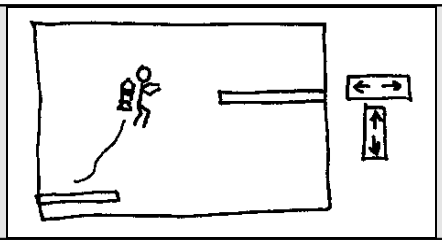
SNIPER RIFLE

You need to have a sniper rifle to do this, and you must select the sniper rifle as your current weapon. Use the mouse cursor to aim at a distant object on the screen. Click the alternate mouse button to activate the sniper scope, and you will zoom in to the distant object and see the scope's cross-hairs. Click the "use" button to shoot the rifle, with or without the scope view. Click the alternate mouse button to toggle the scope view "on" and "off".



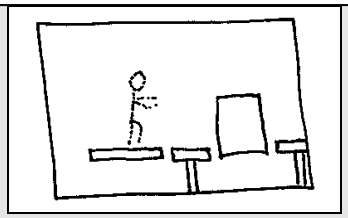
ROPE CLIMBING AND SWINGING

Jump on to a rope, and you will cling to it. When you are on a rope, you jump to let go, or simply climb and automatically release at the bottom or top of the rope.
Use the UP and DOWN cursor keys to climb up or down.
Use the LEFT and RIGHT cursor keys to swing.



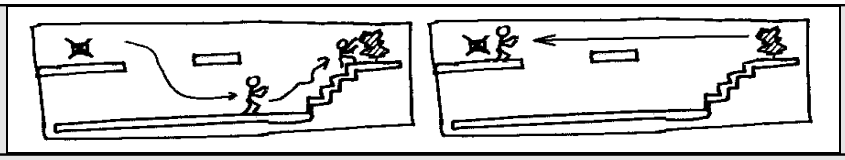
JETPACK

You must have a jetpack to do this, and you must activate it. When you are flying, the UP, DOWN, LEFT, RIGHT cursor keys control your position.



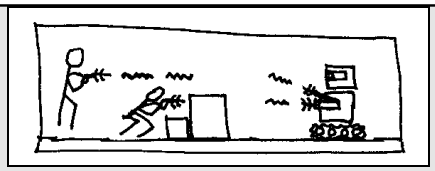
INVISIBILITY

You must have the INVISIBILITY MODULE to do this. When invisibility is activated, nothing that depends on visible light will be able to see you. You see a faint image of your own body. If you shoot weapons, lift objects, make noises, etc, then other creatures or machines will know where you are at that instant in time – but you can simply walk to a new place and they will not know your position anymore.



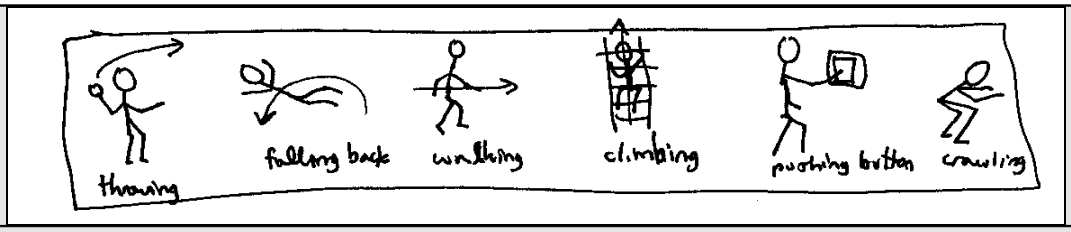
TELEPORTATION MODULE

You need a teleportation module to do this. At any time you can use the mouse cursor to set a teleportation target position. You can only set one such target, and setting a new target clobbers an existing target. When the target is set, you may teleport to the target location at any time. When you initiate a teleportation, a portal is opened around your body, wherever you are, even if you're falling or jumping, and you arrive at the target. However, the portal at your previous location remains open for several seconds, and you or anyone else can walk between the portals at your starting and target locations. Essentially you've created a temporary two-way tunnel in hyperspace between the two portals. You can teleport to almost any location you can aim at, including inside sealed rooms. You may have to wait a significant amount of time for the transporter module to recharge after use.



WALKING, DUCKING, CRAWLING, PUSHING

You can walk, stand, duck, and crawl. You can crawl behind obstacles to avoid enemy fire. You use the LEFT and RIGHT cursor keys to walk on a flat surface, and use the DOWN cursor key to duck or crawl. You PUSH objects just by walking or crawling directly in to them.

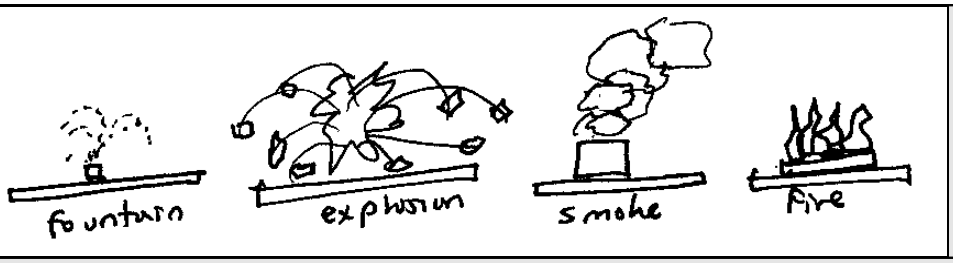


MOTION CAPTURED BODY ANIMATION

Throwing, falling, walking, climbing, pushing button, crawling, firing weapons, etc, can all be motion captured body animations. In fact, existing motion capture data can be used, as long as we simplify the data to fit our simple 2D model.

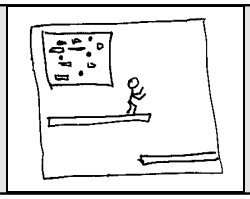
GRENADE

A player can throw grenades. They have a time delay before exploding, and so they may bounce or roll on the ground, or bounce off of walls. Body parts fly in all directions, and may bounce, slide, or spin when they hit walls or the ground. The head changes from a smiley face in to a frowning face with "X" eyes. 2D physics is used here so that the body parts fall and bounce in cool ways, and may even fall through transporters to new locations. These body parts vanish after a while, and in general these body parts can not be collided with (although they can collide with almost anything).



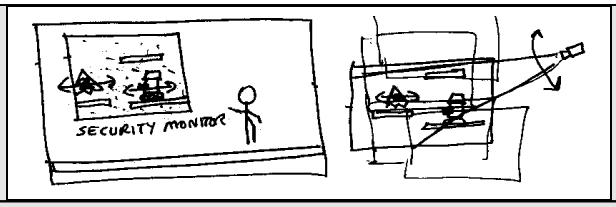
PARTICLE SYSTEMS

Various particle systems include: fountains, explosions, smoke clouds, and fire. Special physics or other algorithms will be required. Swarming or flocking behavior is also needed.



MAP AND RADAR

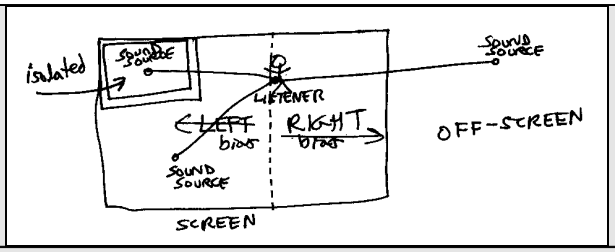
The user might have a map or radar that shows up in the corner of the screen, much like the radar in "Battle Zone".



SECURITY CAMERAS

A remote security camera can have a fixed position and orientation, or it may be rotating or oscillation. When you are near a security camera monitor screen you can see what the remote camera sees. The camera view is always world-aligned, even when the angle pans to see other stuff. (However, the camera view may be tilted for effect sometime.)

2D SOUND



2D SOUND

In addition to ambient and announcer sound modes we will require other sound modes for sound sources that have a definite 2D position in the world (relative to our listener position). Each sound will have its own world position, range, volume, etc. Rooms will have acoustics. Walls and doors will have their sound insulation properties.
We do consider off-screen sounds if they're in range. Even an on-screen sound may not be audible if it is isolated by a door, wall, box, etc.

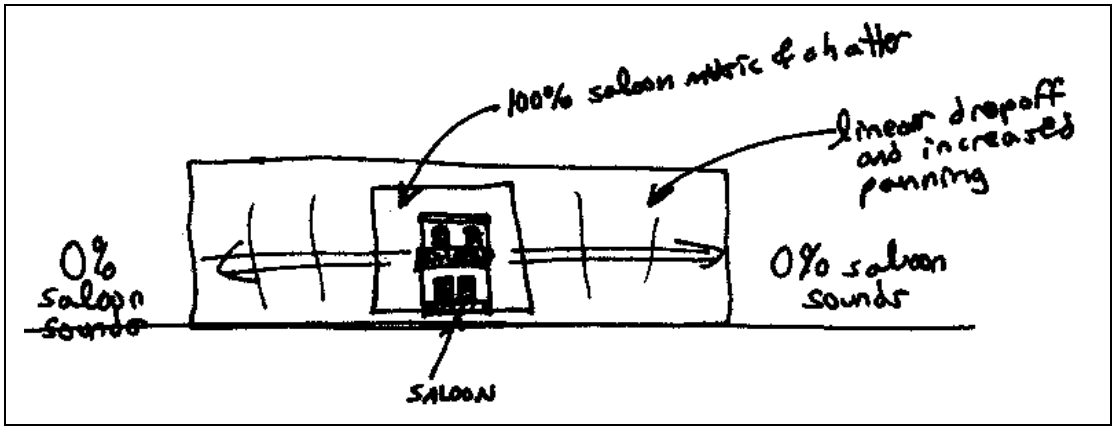


FIGURE: 2D sound regions with 100% zones, and linear drop-off zones.

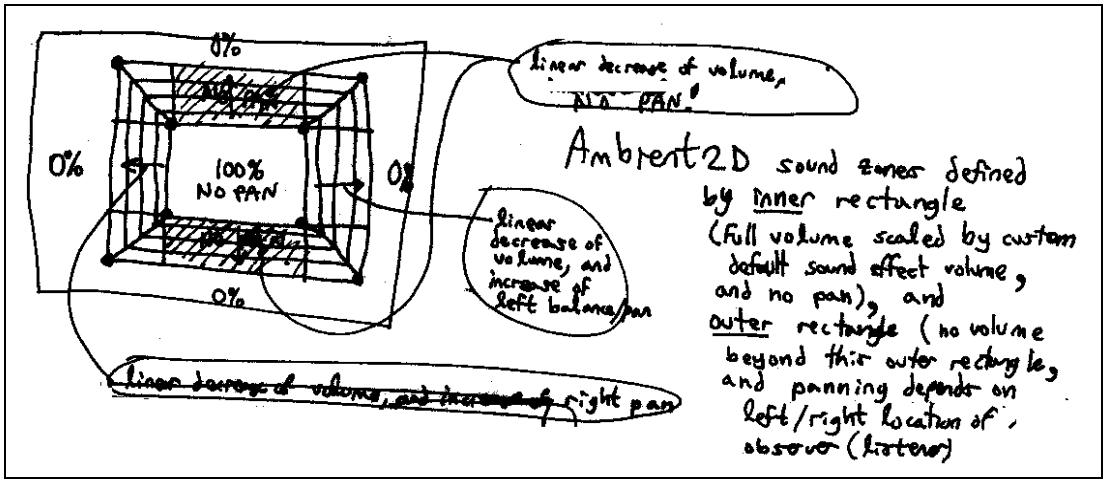


FIGURE: Details of 2D sound zone definition. Volume and pan rules are illustrated.

J.1.G. SOUND EFFECT PROGRESSION

Initially we want the level to seem just like "Asteroids", as if it were some game that was released in 1980. This includes the sound effects. So we should follow the "Asteroids" and "Star Castle" examples very closely as far as sound effects are concerned.

However, as the player progresses in the level, we add some simple digital audio, like speech synthesis. But by the end of the "VECTOR GRAPHICS" level we should have advanced stereo digital sound effects (ambient sounds, cool explosions, weapon sounds).

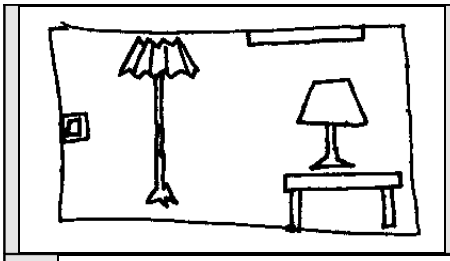
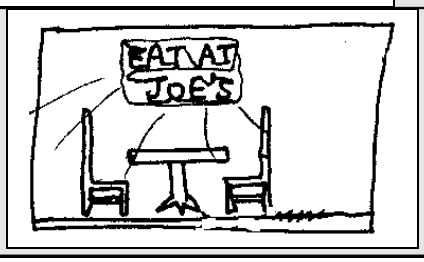
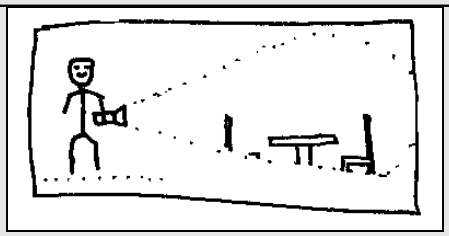
J.1.H. GRAPHICS EFFECTS PROGRESSION

Initially we want the level to seem just like "Asteroids", as if it were some game that was released in 1980. This includes graphics effects. The objects in the world, and their dynamics, will be just like "Asteroids" or "Star Castle", and we should follow the example of these games very closely.

However, as the player progresses in this level, the graphics and object dynamics should become somewhat better. And by the end of the level we will have very "advanced" graphics effects, which should clearly be the 2D analogue of the contemporary graphics effects in 3D (lighting, shadow, alpha-blending, and maybe even lens flare!).

We start in black & white, and move on to 4 shades of gray, and then to full grayscale, and then to 24-bit color with full lighting.

Here are a few examples of possible lighting effects:

	**SIMPLE LIGHT SOURCES:** Here we see a floor lamp, table lamp, and a ceiling lamp. We might turn these lamps on using a button on the wall, or turn them on individually just by clicking on them. When the light is off, all of the objects in the vicinity are darker or fainter. When the light is on, nearby objects are bright.
	**COLORED LIGHT SOURCES & SHADOWS:** Here we see a neon sign, which might have many colors, and might be flickering and making a buzzing sound. The table and chairs cast shadows of the neon light, so that parts of the floor are dark. Colors from multiple light sources may also mix to create new colors on objects – so we need a kind of Gouraud shading method for line segments! Fortunately, the ray tracing will be really easy.
	**FLASHLIGHT:** Here we see a player moving a flashlight around in the darkness, so we are only able to see stuff that the flashlight shines upon. This requires having reflective material properties of all 2D objects, and doing basic ray tracing and dot-products to determine brightness of objects. Shadows may be created, too. Light falls off with distance (as well as the sharp limits of the cone of light created by the flashlight).

J.1.J. LIGHTING MODEL

As mentioned above, we will eventually progress to a complex lighting model for the 2D world.

(1) Diffuse material property (brightness seen from any angle just depends on angle between surface and light source);
(2) Specular material property (brightness seen from a given angle depends on the angle between light source and viewer taken in the plane of the surface normal);
(3) Ambient material property (brightness that depends on the ambient light component);
(4) Emission material property (brightness intrinsic to material; in a detailed model we can have this light actually illuminate other objects);
(5) Transparency and Translucency (light can pass through object, and possibly be tinted or darkened, before moving onward and striking other objects);
(6) Opacity (light blocked, causing shadows);
(7) Hard shadows (no light inside the edge of a shadow);
(8) Soft shadows (non-point light sources, like a nearby glowing disk or sphere, cast shadows with gradual transitions in to darkness as less of the light source's surface is visible from each point);

There may be other aspects of 3D lighting models (fog, blending, convolution, blurring, accumulation buffer, etc) that can be successfully translated in to the 2D world with amusing results. 2D texture maps?

J.2 "BIG PIXELS"

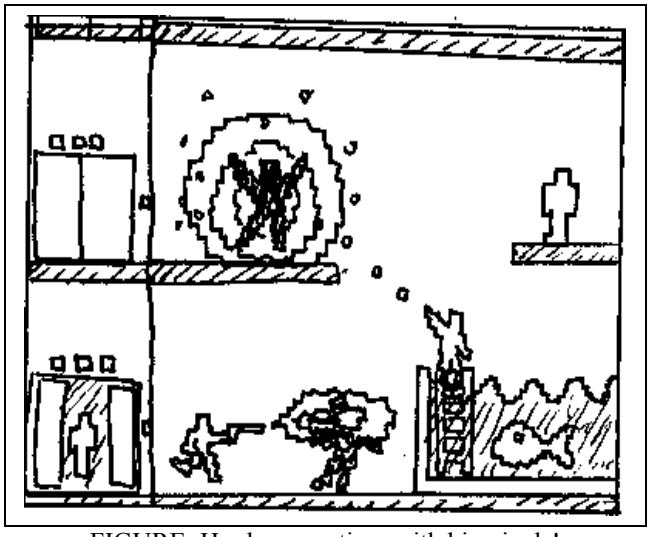


FIGURE: Hard-core action, with big pixels!

J.2.A. INTRODUCTION

The goal of this level is to have an enhanced Atari 2600 experience, in a game that is a cross between "Combat", "Adventure", and "Pitfall". All of the sounds and video effects will be approximately limited to the capabilities of the Atari 2600, but the concepts within the level itself will be relatively modern, including some physics, etc.

FIGURE: "Pitfall" on the ATARI 2600.

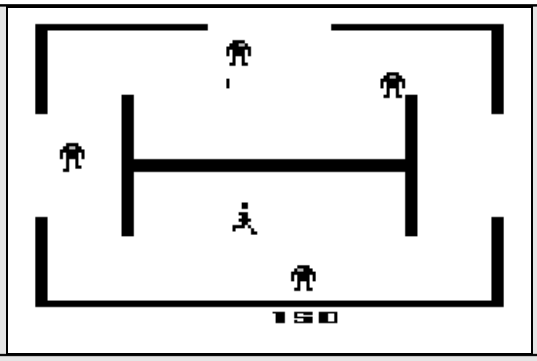
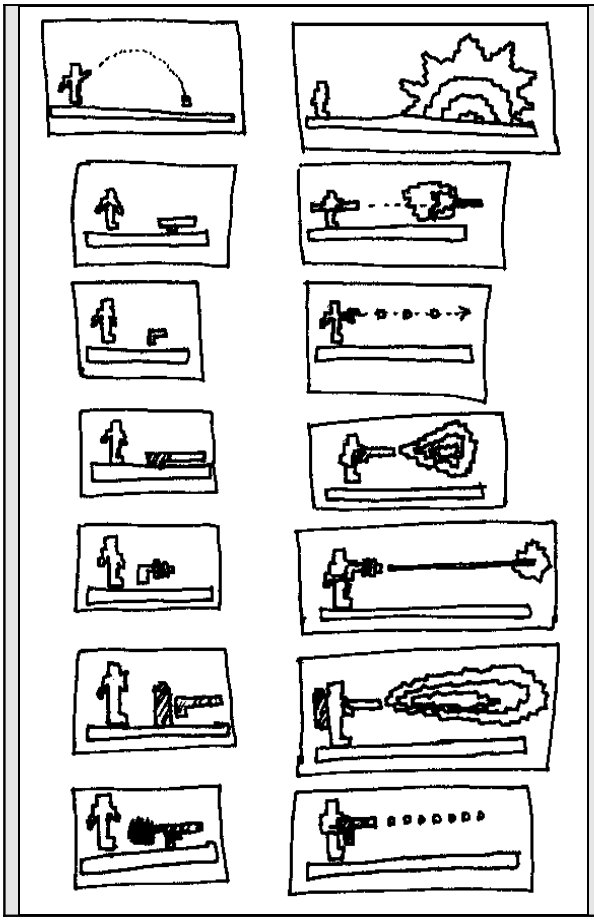


FIGURE: "Berzerk" on the ATARI 2600 (changed to b/w and inverted for clarity).

The ATARI 2600 has a screen resolution of 160 x 200, with 8 or 16 colors. Note that the screen resolution is essentially 320 x 200, but horizontal pixels are in pairs (i.e., consecutive pixels with the same color), so the horizontal resolution is actually 160.



HAND GRENADE

Creates a colorful fireball.

ROCKET LAUNCHER

Rocket moves relatively slowly and has a smoke trail.

PISTOL

The pistol fires small blocks.

SHOTGUN

The shotgun has a very small, but wide range, and creates a blast cloud.

LASER PISTOL

The laser beam is simply a straight line, and has a glowing burst at the impact point.

FLAME THROWER

A colorful fire cloud sprays out of the weapon.

MACHINE GUN

A rapid stream of blocky bullets stream out of the machine gun.

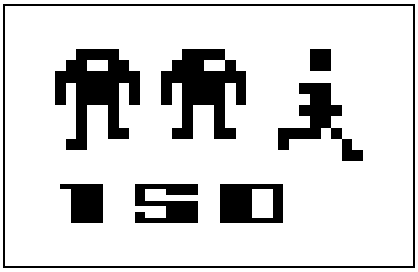


FIGURE: Typical ATARI 2600 characters and numerals. (From "Berzerk")

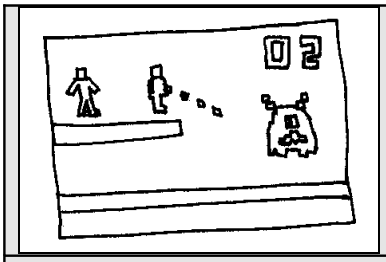


FIGURE: Funny levels.

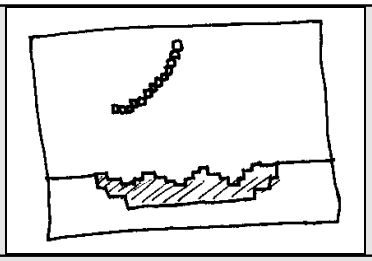


FIGURE: Simple physics.

J.3 "TEXT ADVENTURE"

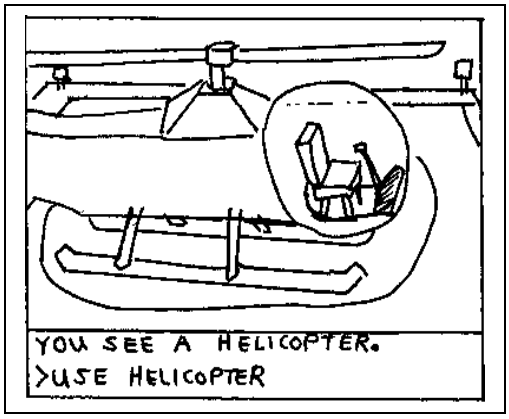
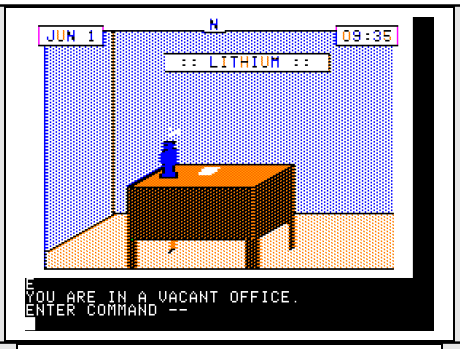
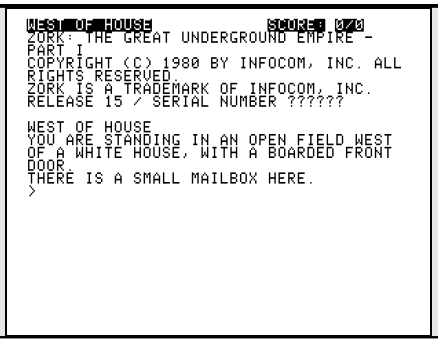


FIGURE: Text adventure (with static images).

J.3.A. INTRODUCTION

The "TEXT ADVENTURE" level makes fun of the numerous text adventure games (Zork I/II/III, Suspended, The Hitchhiker's Guide to the Galaxy, etc) available for personal computers (Apple II, Commodore 64, etc) in the mid-1980's. These text games could be fascinating. Sometimes, however, these games were very irritating because they sometimes had puzzles that could not be solved by logic alone. It seemed like these games were specifically designed to sell printed books with hints to solve puzzles in the game. The solutions to some puzzles were sometimes extremely convoluted and arbitrary. Sometimes you would reach a point late in the game and discover that you neglected to pick up an insignificant item at the beginning of the game that you now needed to solve a puzzle!

	This is a screen capture of the Apple][game called (gasp!) "Critical Mass" (year?, publisher?) This game could toggle between text-graphics split-screen, and a full screen of text. The Apple][high-resolution graphics mode is: 280 x 192 pixels, with option of 4 lines of text at the bottom. The text mode is 40x24 characters.
	This is a screen capture of the text-based adventure game "Zork 1" (1980, Infocom) on the Apple][computer. Zork 1 was one of the first giant text-adventure games, with notoriously arbitrary puzzles and correspondingly large hint book sales.

The Apple II had distinctive graphics where the most popular colors seemed to be: black, white, light green, light violet. The Apple II also had text-adventure games where the top half of the screen was a graphical representation of the room the player was in, and the bottom half was a scrolling text window.

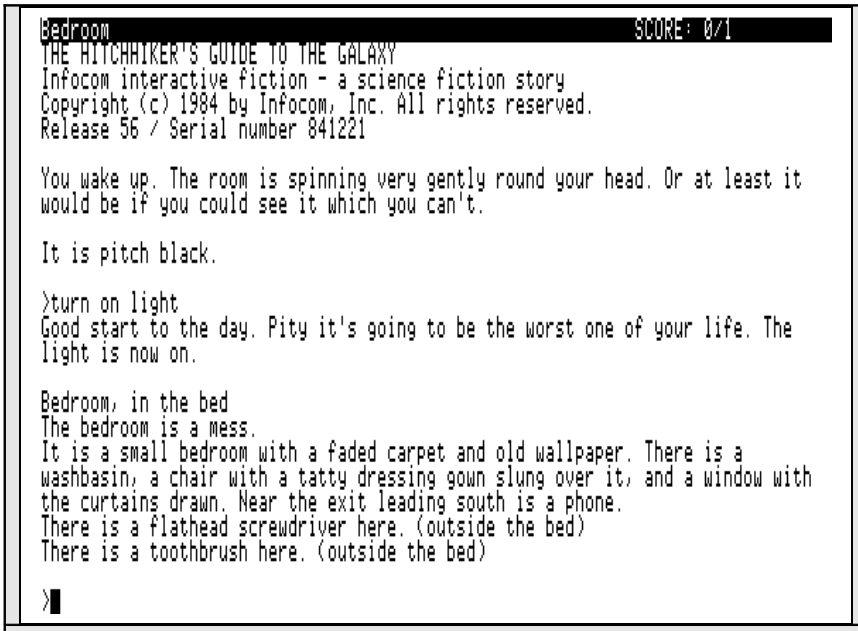


FIGURE: "The Hitchhiker's Guide to the Galaxy" text-adventure game (1984, Infocom) on the Apple][computer in 80x24 character mode.

Notice that "turn on light" is a wild guess about how to solve the problem of the room being "pitch black". There is no hint that we have a light that can be turned on. We could, for example, have said "open curtain" (note that the description of the room, after turning on the light, mentions curtains that are drawn) – but it turns out that this fails, replying "It's too dark to see!" You can get away with just typing "light" instead of typing "turn on light". But the room description does not mention a light of any kind!

You can start the game by saying "get out of bed" and "close door", without turning on the light. This implies that despite the darkness you can find the door and close it. If you can do this, you should be able to open the door and walk through. It turns out that you can open and close the door repeatedly, but every time you try "south" or other method of getting through the door it says "You miss the doorway by a good eighteen inches. (etc)"

If you try various things for a while, and fail to turn on the light, the game ends abruptly with a bulldozer crushing your house – and at that point it suggests that you should have tried turning on the light.

Anyway, this is the typical annoying nature of text-adventure games, where the single solution puzzles and extremely linear story lead to contradictions and failure to recognize common-sense logic. Usually the only ways to recover are hint books and merciful hints given when you've actually died in the game.

J.3.B. TEXT COMMANDS

We need to define a vocabulary and grammar for interacting with the text adventure game. The interpreter should be very simple, so that the player knows exactly how to express commands. The text adventure levels themselves should be designed to lead the player to issue commands that are easy for him to formulate, and easy for the interpreter to parse. We don't want to put the player in to a situation where the solution to a problem involves complex grammar and vocabulary. The trick is to keep the levels fun and sophisticated, but secretly design problems that end up having very few practical solutions – and no other options should be even vaguely reasonable! We don't want to have a solution that can be expressed in a million different ways, all equally valid but not all understood by our interpreter.

COMMAND	ALIAS	MEANING
NORTH	N	Go North
SOUTH	S	Go South
EAST	E	Go East
WEST	W	Go West
UP	U	Go Up
DOWN	D	Go Down
LEFT	L	Go Left
RIGHT	R	Go Right
FORWARD(S)	F	Go Forwards
BACKWARD(S)	B	Go Backwards
JUMP	J	Jump
LOOK [object]	…	Look around, or at specified object
GET [object]	G	Pick up specified object; add to inventory. If an object is not specified, show a list of all objects within your reach that you do not currently have.
DROP [object]	…	Drop specified object, removing it from inventory. If an object is not specified, show a list of all objects in your inventory that you can drop.
USE [object] [?]	…	Use specified object, if it is in your reach or in your inventory. If no object is specified, list all objects within your reach that can be used, and a separate list of all objects in your inventory that can be used. The meaning of "use" for a specific object, or for all objects, can be found by adding a "?" to the command.
KILL [object]	K	Kill specified object with whatever weapon the player has most-recently equipped ("USE [weapon]"), or the default weapon. If no object is specified, list all objects within range that can be killed.

NOTABLE IGNORED WORDS

WORD(S)	EXPLANATION
A, AN, THE	Articles are just not needed.
GO	"Go" is implicit when a direction is specified.
EAT	If something's primary function is food, then "USE [food]" is equivalent to "EAT [food]".
OPEN,CLOSE	If something's primary function is opening and closing, like a door or drawer, then "USE [object]" will alternately open and close the object.
PUSH,PULL	If something's primary function is being pushed or pulled, like a button or lever, then "USE [option]" will perform the primary function. The game level should not require the user to differentiate between pushing or pulling; it should be thought of as using the object.

The commands mentioned above should be sufficient to go anywhere and do anything in a game level. Any task that seems like it might lead to an ambiguous use of the commands above should be avoided, or redesigned.

Each object must have a defined "USE", and this definition should be common sense and unambiguous. So, we don't want objects with fifty plausible uses, like a Swiss Army knife! A sandwich is food, and so "USE SANDWICH" is equivalent to "EAT SANDWICH". A pushbutton can be pushed, not eaten, so the meaning of "USE BUTTON" is interpreted as "PUSH BUTTON". A door can be opened and closed. "USE DOOR" toggles the state of the door, alternating between open and closed. The initial state is known by inspection (room description when "LOOK" command is used, for example), and the new door state is reported when the "USE DOOR" command completes ("Door is now open (closed)."

Weapons, such as a sword, have slightly more complex "USE" interpretations. A sword is a weapon, and "USE SWORD" is "KILL ENEMY" (if an enemy is present), or "HOLD SWORD" (in preparation for future "KILL ENEMY (with sword)" commands).

J.3.C. BASIC TEXT ADVENTURE ELEMENTS

Here are a few things you can do in text adventure games in general, just to give you a starting point for more imaginative concepts:

(1) Pick up keys and use them to unlock doors in other places;
(2) Pick up weapons and use them later to fight monsters;
(3) Pick up magic potions and use them later to cast spells;
(4) Pick up and read documents.

J.3.D. "PAC MAN" LEVEL

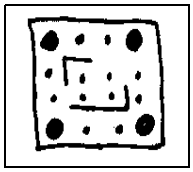


FIGURE: Mini "Pac Man" text adventure level map.

Here we allow the player to play the arcade classic "Pac Man" as a text adventure!

Here is an example "room" description:

MAZE There is a pink GHOST to the NORTH. There is an orange GHOST to the WEST. There is a glowing yellow ORB to the EAST. There is a wall to the SOUTH.
> **EAST**
You eat the ORB. Suddenly all GHOSTS turn blue and Try to flee from you.
(Etc)
All GHOSTS start to flash.
There is a bouncing clump of CHERRIES to the NORTH.
There is a bouncing BANANA to the EAST.
You shrivel up and vanish. Seconds later you reappear, And the GHOSTS seem to have returned to their lair.

J.3.E. "DONKEY KONG" LEVEL

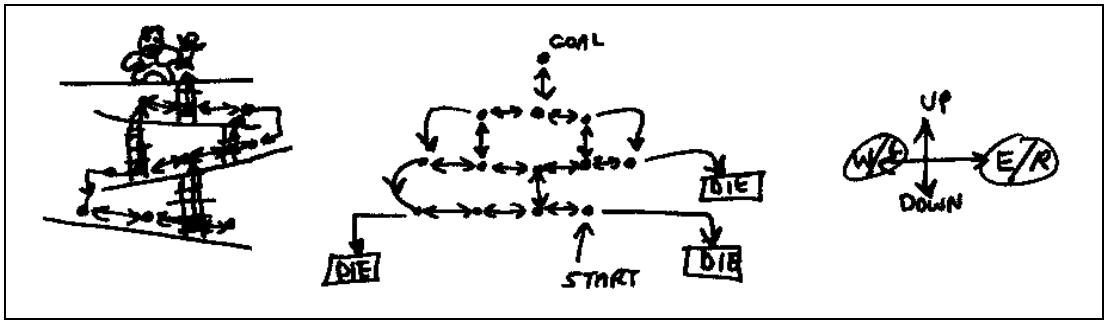


FIGURE: Mini "Donkey Kong" text adventure level map.

Here we allow the player to play the arcade classic "Donkey Kong" as a text adventure!

Here is an example "room" description:

BUILDING CONSTRUCTION SITE There are several floors of steel girders. There is a giant GORILLA. The GORILLA takes a helpless woman to the top of the building and snarls. The GORILLA jumps up and down, causing steel girders to collapse, making each floor slanted. The GORILLA throws a flaming oil barrel directly at your head. There is a LADDER going UP. There is a steel girder leading to the LEFT. There is a steel girder leading to the RIGHT.
> **UP**
You climb UP the LADDER. There is a steel girder leading to the LEFT. There is a steel girder leading to the RIGHT. There is a LADDER leading DOWN.
(Etc)
A wooden barrel is rolling directly toward you on the floor. It seems unavoidable.
> **JUMP**
You jump over the barrel. You get the sense that this was worth 200 points.
You see a woman's umbrella.
A barrel is falling from above.
The giant GORILLA flips completely upside-down and falls to the ground, right on its head. The woman kisses you.

J.3.F. COMPLEX, LINEAR TEXT ADVENTURE

The following table shows a possible complex, linear, text adventure.

START
Deep-Sea Underwater Base
Submarine
Submarine Base
Underground Tram
Nuclear Reactor
Hide in back of Plutonium Transport Truck
Genetics Lab
Prisoner in Government Van
Government Special Agent Brainwashing Facility
Stolen Car
Las Vegas Casino & Hotel
Helicopter Pad
Stolen Helicopter
Shuttle Base
Stolen Space Shuttle
Earth Orbiter Space Station
Stolen Space Shuttle
Moon Base
Escape Pod
Martian Colony
Martian Teleportation Device
Galaxy Z80
Alien Device
Virtual Reality
THE END.

Note that each part of this linear adventure can really be a self-contained, highly non-linear chapter. There can be many tasks, items, people, locations, etc, all crammed in to each chapter of the story. Once an area is completed, we resume the linear journey to the next area, with its own non-linear scenarios.

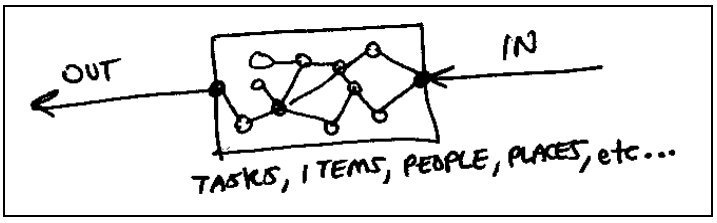


FIGURE: Although our story is just a linear sequence of areas, each area contains many non-linear elements and problems for the player.

J.3.G. EXAMPLE PUZZLE: RUBE GOLDBERG MACHINE

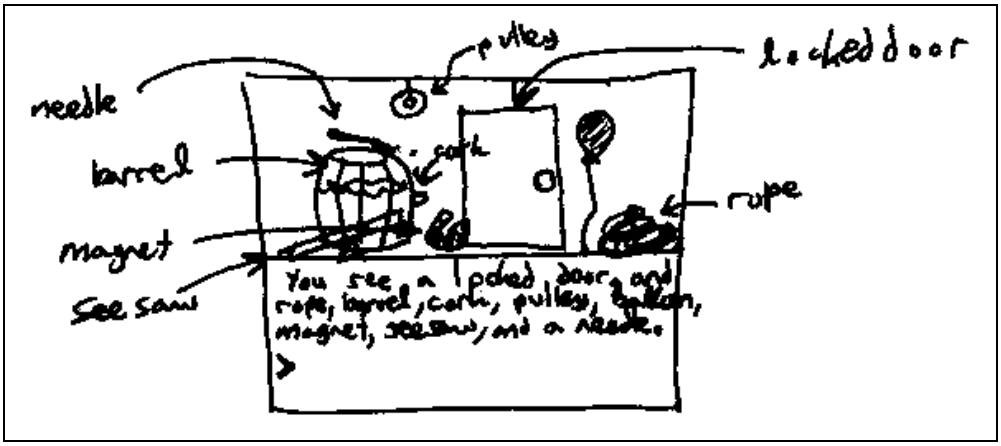


FIGURE: Text adventure screen, with graphics on the top and text on the bottom.

"You see a locked door and a barrel, cork, pulley, balloon, magnet, see-saw, needle, and a rope."

(Anything you try:) "That doesn't work."

FIRST HINT: "Build a Rube Goldberg machine."

(Anything you try:) "That doesn't work."

SECOND HINT: "Try the following:
Put barrel on see-saw. Tie rope to cork. Put rope on pulley. Tie rope to magnet. Tie balloon to door. Pop balloon with needle."

(All further NEW hints are disabled until the player types in a significant portion of the above. We ignore typo's, and just try to detect that a lot of the 2nd hint's suggestion was typed in. Just keep repeating the 2nd hint until the player cooperates.)

OUTCOME (Totally unexciting TEXT description of what would ordinarily be an exciting visual attraction!): "The balloon pops. The water leaks from the barrel. The see-saw slowly tips over, and the rope lifts the magnet in to the air. However, you forgot to pick up the insignificant piece of rubbish hidden in the trashcan back in the first level, so you have to restart the entire game. We offer hint books for $80, or call our 900-number hint line at $6 per minute. …Or just hit the HINT button for another free hint."

THIRD HINT: "Hey, how about that! The door was unlocked after all. I was mistaken. My bad!" (The door opens.)

J.4 "COLLECTABLES"

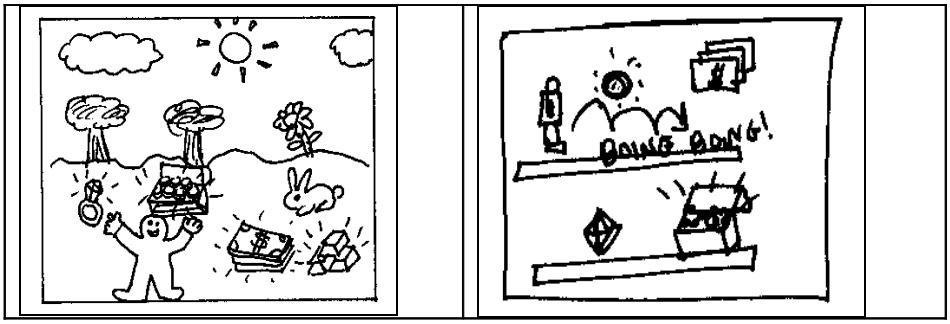


FIGURE: Player bounces and collects colorful icons. Ka-Ching!

J.4.A. INTRODUCTION

The "COLLECTABLES" level is strictly a low-res, 2D side-scrolling game. It is inspired by the crazy excesses of "Super Mario World", and the greedy treasure hunting in the original "Pitfall!" game.

In "COLLECTABLES", the player can only walk left and right, and jump up or fall down. The objective for the player is to simply collect as much stuff as possible! Unlike other games ("Sonic the Hedgehog", "Super Mario World", "Pitfall!"), there are no deadly obstacles – or any obstacles, for that matter. It's a collecting spree.

"COLLECTABLES" is a relatively short level, good for about five minutes. Level should be very simple. Most of the effort should focus on creating a large number of collectable icons and corresponding sound effects.

Basically, the player starts on a screen with one or two "conventional" collectable items (gem, gold brick, cash, etc), and then moves on to a screen with a few more new items. But then the player starts encountering dubious items (apple, cat, dog), and eventually wacky items (comb, Saturn, toilet, paperclip). Furthermore, with each successive screen the collectable items appear in greater numbers, so that by the end of the level there are literally one hundred icons on a single screen – and the user can't possibly move without collecting lots of stuff!

J.4.B. ICON GRAPHICAL STYLE

All of the collectable objects are large, brightly-colored, cartoon-like icons.

J.4.C. ICON SOUNDS

In general, the sound effects should be very short. They should be reduced to their very essence, and maybe even further, so that the total duration of any given sound is less than a half-second. Some of the generic sounds may be longer, but every effort should be made to shrink each sound effect to almost nothing – while preserving the perceived meaning.

There are generic sounds that can apply to any icon at random:

(1) Cash Register Bell: "Ch-Ching!!!"
(2) "Tinkle-link" sound
(3) "Yesss!!!"
(4) Holy choir sound ("Aaaa, aaaa, aaaaaaaa!!!")
(5) "Haa, haa, haaa!" (triumphant, happy laughter)
(6) More elaborate "do-do-dee-link-dee-link!!" melody
(7) Excessive melody "do-dee-do-dee-link-tiddle-dink-dee-link-doo-doo-dink!!!!"

However, many icons will have a specific sound associated with them:

(1) Cat : Has cat meow sound
(2) Dog : Has dog bark sound
(3) Balloon: Has balloon inflation sound
(4) Apple: Has apple chomp sound
(5) Pill: Has pill bottle lid-popping sound
(6) Baseball: Has bat-hitting sound
(7) Alarm clock: Has alarm bell ringing

In general, every icon that represents an object that makes an obvious sound should make that sound. Objects with no direct sound (pencil, "STOP" sign, playing cards, hair comb), should have creative indirect sounds (pencil snapping in two, car horn, card shuffling, scraping comb spokes to produce zipper sound).

There may be occasions when there are dozens of sounds playing at once, especially when there are dozens or hundreds of icons bunched up in a small area of the screen! ☺

J.4.D. ICON TYPES AND PLACEMENT

Basically, the player starts on a screen with one or two "conventional" collectable items (gem, gold brick, cash, etc), and then moves on to a screen with a few more new items. But then the player starts encountering dubious items (apple, cat, dog), and eventually wacky items (comb, Saturn, toilet, paperclip). Furthermore, with each successive screen the collectable items appear in greater numbers, so that by the end of the level there are literally one hundred icons on a single screen – and the user can't possibly move without collecting lots of stuff!

We could have a final screen made entirely of icons, and, like "Breakout" or "Arkanoid", you bounce off of an icon when you run in to it (and the icon disappears). Thus, you bounce like a popcorn kernel off of icon after icon in a chamber of icons!

J.4.E. EXAMPLE COLLECTABLE ICONS

The following illustration has a variety of icons that the player can collect.

FIGURE: Examples of icons that can be collected.

J.5 "DRIVING"

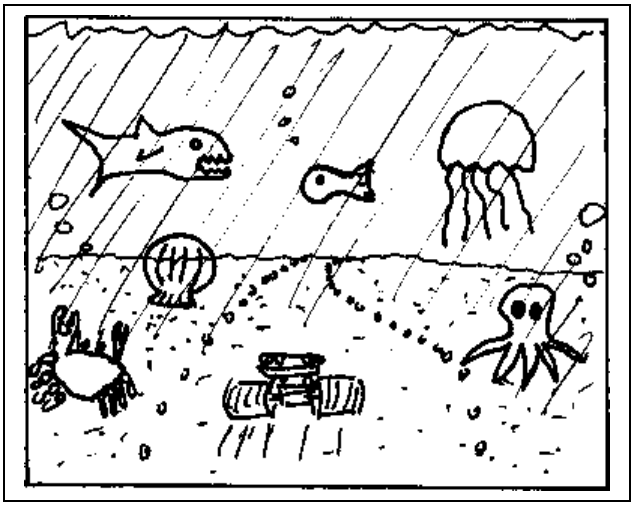


FIGURE: Driving…Under the ocean?!

J.5.A. INTRODUCTION

This is a very simple driving game. You control a car, and there are several other AI-controlled cars. Your car has excellent handling, and it **almost** drives itself. It's almost like a "choose your own adventure", because it may just wait for LEFT or RIGHT button pressing, and it will make sure you stay on the road as it acknowledges your desire to turn. The logic will try to sense obnoxiously bad turning decisions by the user, and only then will it cause the car to fly off of the road and completely explode! For gentle, long turns the logic will simply check the user key pressing from time to time, and if the direction is correct (i.e., follows the road) then the car will follow the road perfectly. There will be several levels of turning error before it gives up on the driver and causes a crash.

You drive through a series of areas, each with its own theme. The transition from theme to theme is instantaneous, with a full-screen flash of white light and a crack of thunder sound.

J.5.B. DRIVING THEME AREAS ("LAPS")

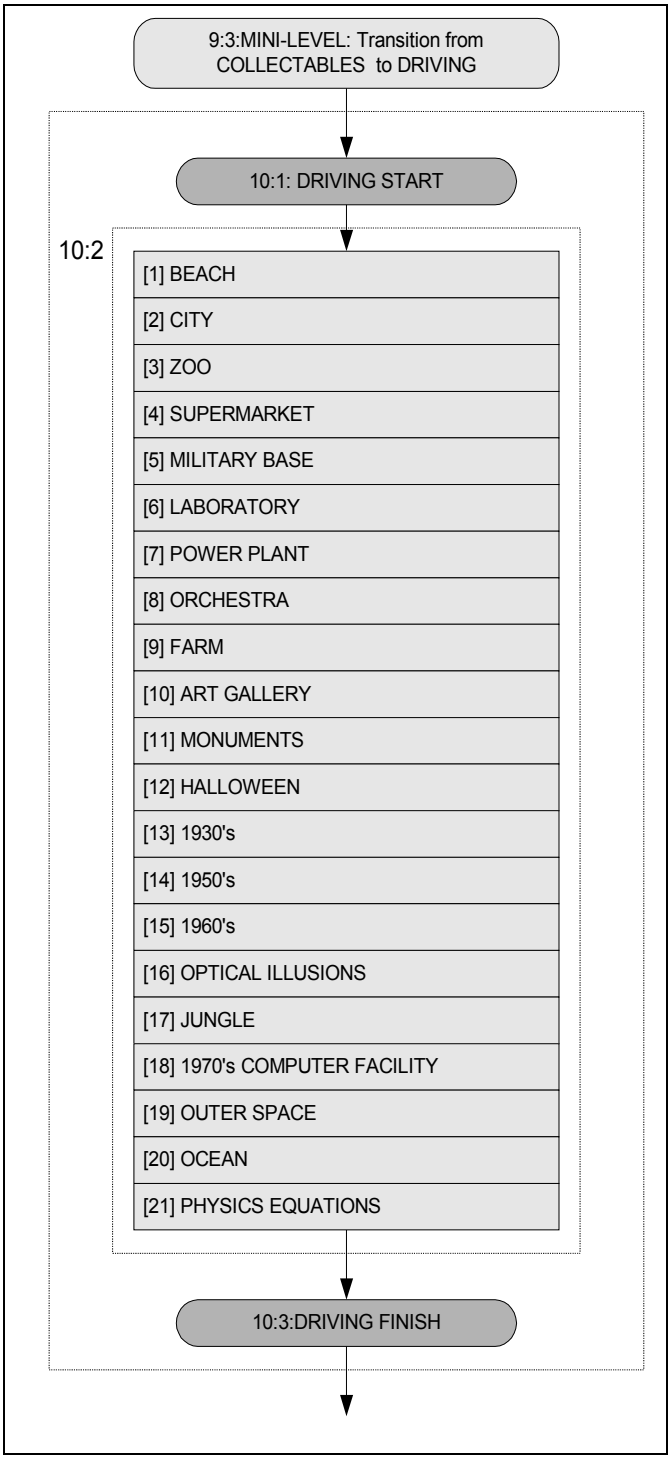
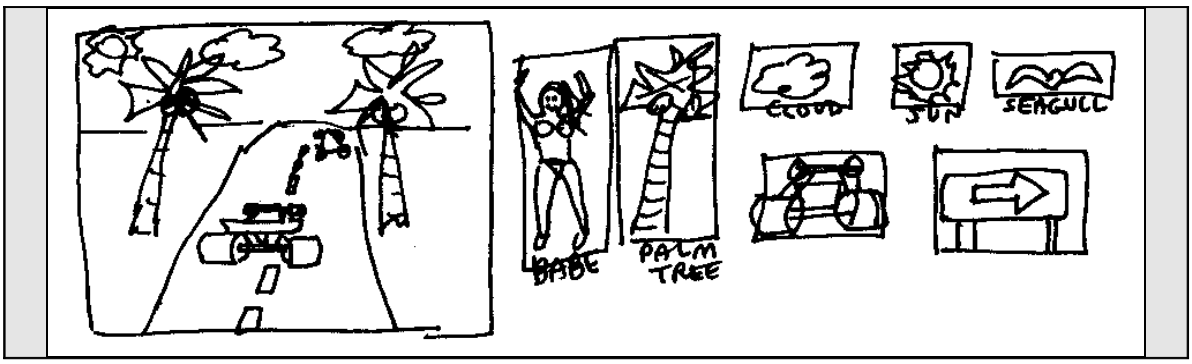


FIGURE: The 21 "laps" (themes) of the "DRIVING" level.



BILLBOARDS

The billboards used here are detailed textures based on scanned photographs. They may be somewhat processed to enhance the color and lighting, but they should retain their photographic realism. Billboards are placed in the world, which is a completely flat plane!

Many billboards rush by at tremendous speed, and we make no attempt to make any sense of the sequence of billboards. It's a stream of consciousness, or free association, kind of driving experience.

The CAR is a billboard, too! We have several angles of the car to accommodate turning. We also have billboards for explosions and car parts for crashes or missile attack to or from opponent cars.

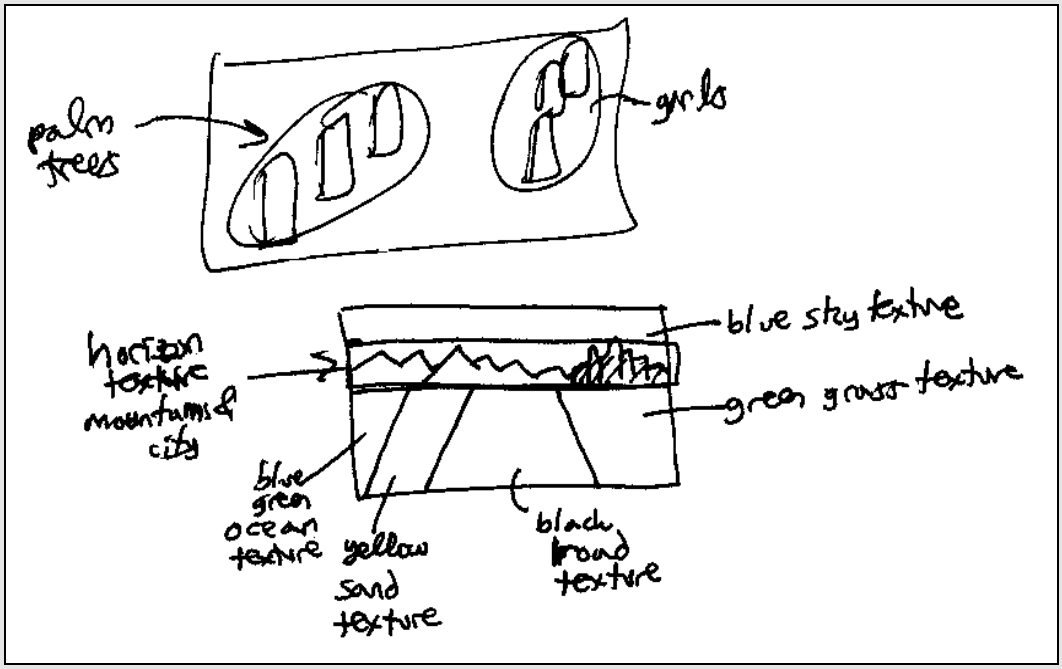
For the BEACH theme pictured above, we have the following billboards: Beach babe, palm tree, cloud, sun, seagull, sign, etc… We might also have lifeguard towers and jeeps, and surfer dudes.

You have a machine gun, and you can shoot anything directly in front of your car, meaning other cars and billboard objects. Anything you shoot will violently explode with a huge fireball… That's right: anything! If you shoot an equation in PHYSICS, it will explode. If you shoot a tiger in JUNGLE, it will explode. If you shoot an Eiffel Tower in MONUMENTS, it will explode. Sometimes other cars will shoot you, and you will explode, and car parts will bounce everywhere, but a moment later you are back on the road, driving at full speed.

If you shoot or crash in to a billboard, it has a special "ouch" or smashing sound:
(1) CLAM SHELL: "Crunch!"
(2) BIKINI GIRL: "Hey! Watch it!"
(3) SHARK: "Grrrr!"
(4) SHOPPING CART: (sound of slamming shopping cart)
(5) BEAKER: (sound of shattering glass)

Many billboards have a default sound effect that you hear as they pass by, and their position dictates their volume and left/right speaker bias. SEAGULL makes typical bird sound. BIKINI BABE giggles or makes other girl sounds. LIONS, ELEPHANTS, COWS, CHICKENS, etc, all make normal, unexcited sounds – but if you shoot or hit them they will make angry or frightened sounds.

Each theme has its own background music or sound loop. For example, the BEACH may have surfer music. OUTER SPACE may have weird sci-fi sound effects. The SUPERMARKET has typical tacky supermarket music.
MONUMENTS may have a tiny bit of theme music, like a national anthem or other fitting tune. Even more abstract things (PHYSICS EQUATIONS) can still have creative sounds that somehow make sense.



RENDERING TECHNIQUES

Many billboards come in sets of three (3), five (5), or twenty-three (23)!

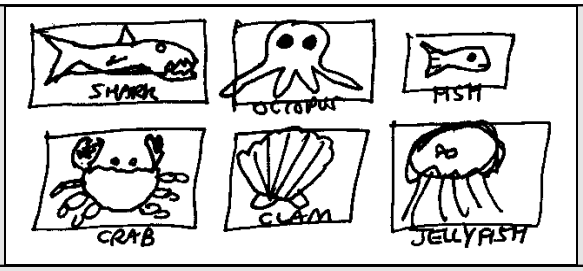
Terrain is always very simple, with maybe five distinct texture-mapped regions (sky, ground, road, horizon, …). The road (if there is one) is simply a shearing and shifting trapezoid! The terrain textures, like the billboard textures, are based on photographs and should retain photographic realism.

In the OCEAN, the ground is just sand, and most of the screen is a blue-green fog over a distant blue-green background.

In OUTER SPACE, there is no "ground", and the background is a bunch of stars and nebulae on a large textured world cube (so the infinitely far-away stars move when we rotate).

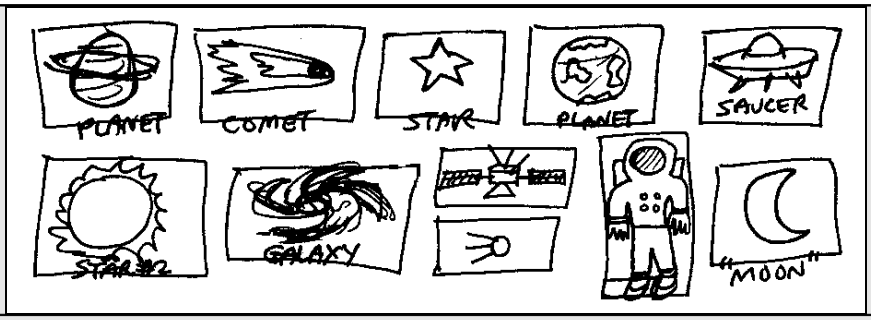
J.5.C. THEME DETAILS

The following are some of the themes for the "DRIVING" game.



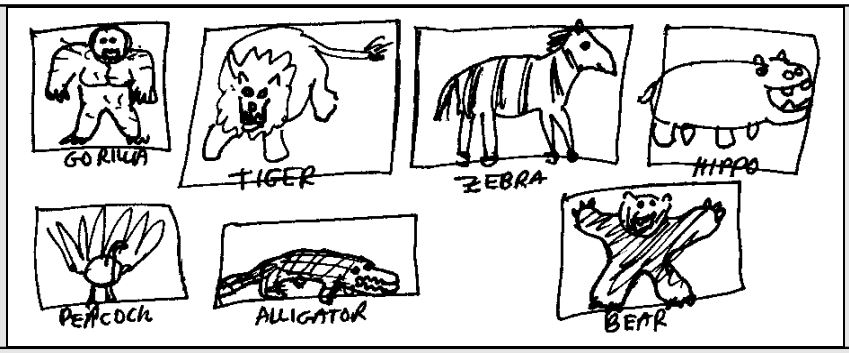
OCEAN CREATURES

Theme Music: Sound of diver making bubbles, distant wave sounds, occasional whale or dolphin sounds.
Of course we can't have a road, but we can put tiny fish on both sides of the "road"



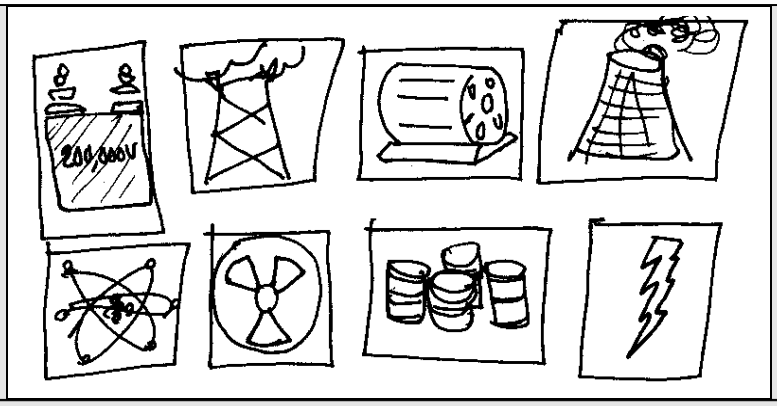
OUTER SPACE

Theme Music: Abstract sci-fi sounds.
Of course we can't have a road, but we can put tiny stars on both sides of the "road".



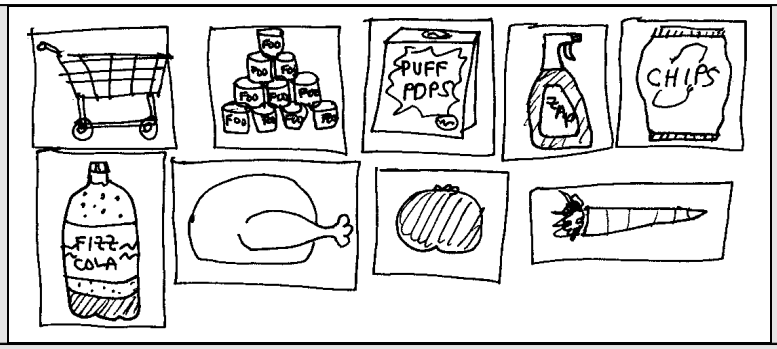
ZOO ANIMALS

Theme music: Boring tour guide tape. ("The lion spends most of its day sleeping. (etc)")



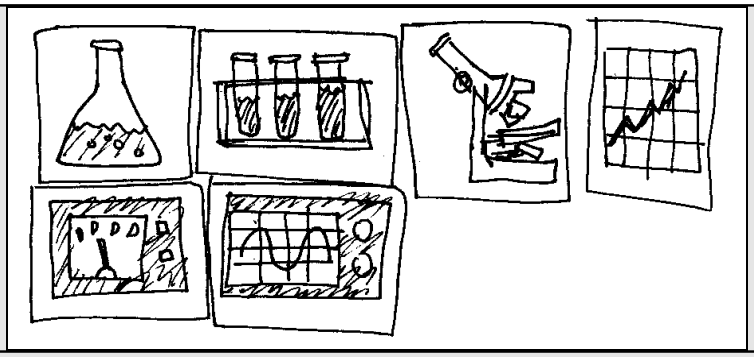
POWER PLANT

Theme music: Rumbling turbine, humming of electrical power.



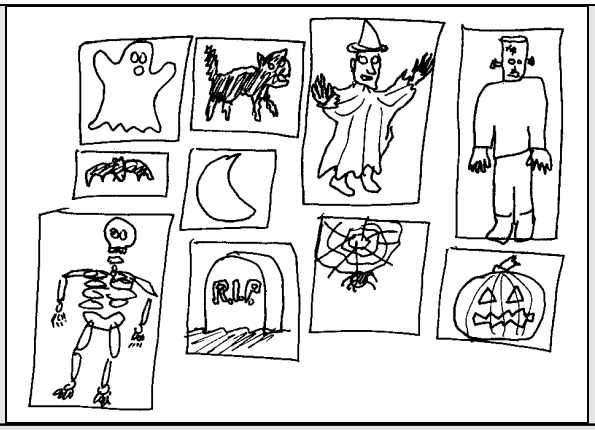
SUPERMARKET

Theme Music: Typical supermarket music. Random PA announcements ("Special in aisle #3!")
The road is a tiled floor.



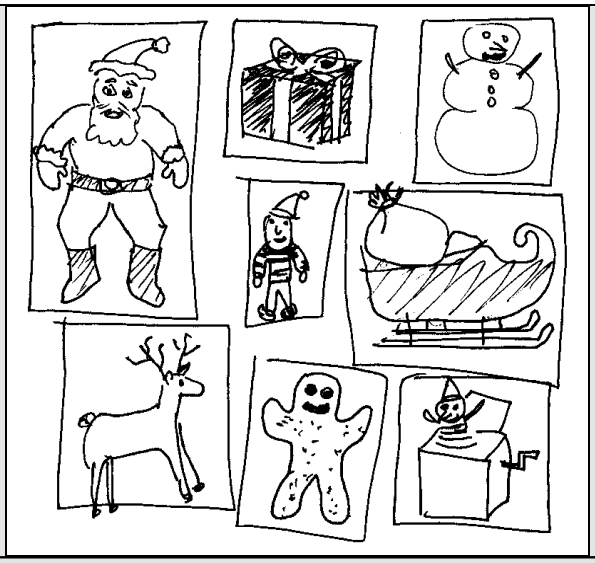
LABORATORY

Theme Music: Jacob's ladder sparking sound, bubbling test tubes, beeping, etc…
The road is a checkered tiled floor.



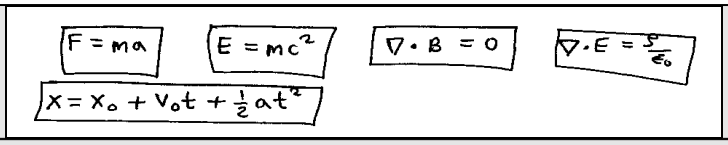
HALLOWEEN

Theme Music: Haunted house pipe organ music, man screaming, woman screaming, wind blowing, thunder sounds, door creaking, moaning, chain dragging, Jacob's ladder sparking sounds, evil laughter, etc…
The road is just dirt with grass on both sides.



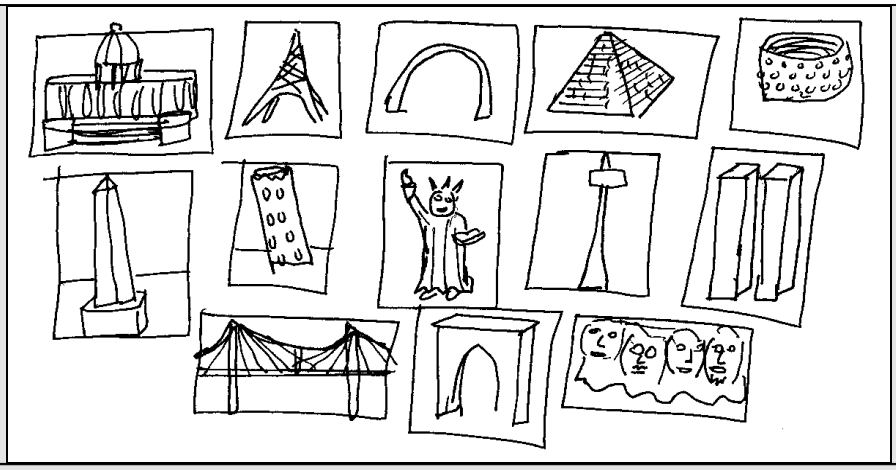
CHRISTMAS

Theme Music: Jingle Bells (or royalty-free Christmas song), sleigh bells, etc…
The road is snow, with snow drifts on both sides.



PHYSICS EQUATIONS

Theme Music: Weird, abstract science sounds!
The road is something like magnetic field lines, with strong lines on both sides of the road.



MONUMENTS

The road is just a regular asphalt road, with painted lines on both sides and a broken yellow line in the center.

J.5.D. ADDITIONAL THEMES

(1) **OPTICAL ILLUSIONS** (Theme Music: Something that make you think of psychoanalysis; All kinds of optical illusions, including spinning disks, parallel lines, faces or vase, … NOTE: These optical illusions move by very slowly compared to typical billboards so that people can really see them!)
(2) **ART GALLERY** (Theme Music: true Surrealism music; only **surrealism** paintings; Magritte, Miro, Klee, etc)
(3) **FARM** (Theme Music: Old Mac Donald (or royalty-free equivalent); tractor, barn, bales of hay, farmer, chicken, cow, horse, chicken head, chicken without head)
(4) **MILITARY BASE** (Theme Music: bad-ass Military drum cadences; marine in fatigues, drill sergeant, jeep, tank, fighter jet, radar dish, tripod machine gun)
(5) **ORCHESTRA** (Theme Music: NONE!; violin, kettle drum, cello, bass violin, flute, French horn, xylophone, pipe organ, guitar, sheet of music, conductor, piano, harp, slide trombone, triangle,…)
(6) **1930's MOBSTERS** (Theme Music: Untouchables (royalty-free equivalent); Tommy gun, big cars, mobster faces, keystone cop, police wagon, keg of beer, roulette wheel, poker deck)
(7) **1950's STUFF** (Theme Music: 50's hop music; jukebox, girl in swing dancing dress, cool car, big TV in cabinet, hamburger / fries / malt, diner, Godzilla in B/W on drive-in theater screen, big band, A-bomb mushroom cloud, Sputnik, …)
(8) **1960's STUFF** (Theme Music: Indian sitar music; Lava lamp, yin-yang, marijuana leaf, peace symbol, flower, VW Beetle, VW Bus, hippie with tinted glasses, groovy colors, …)
(9) **JUNGLE** (Theme Music: Tribal Bongo music; monkey, vines, parrot, tribal witch doctor, head on a spear, lion, tribal warrior with scary mask, tribal drums, snake, tribal straw hut, leopard, tall grass, giant bugs,…)
(10) **1970's COMPUTER FACILITY** (Theme Music: Droning, clicking, whirring of big computers; punch cards, big paper tape drives, big disk platter drives, big terminal, geek in 1970's suit, big printer, sheet of green and white striped printer paper with stuff printed on it, cockroach, vacuum tube, vacuum tube numeric display, oscilloscope, panel of lights and buttons,…)

J.6 “FIGHTING”

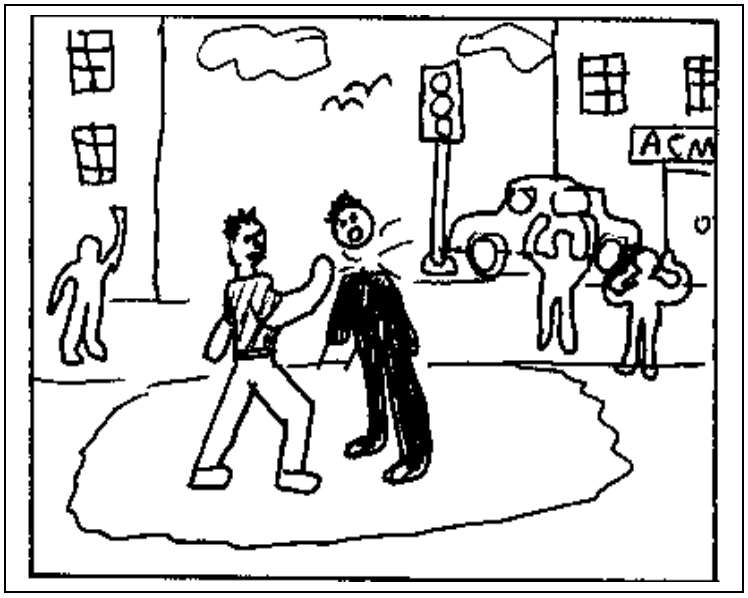


FIGURE: That has got to hurt!

J.6.A. INTRODUCTION

FIGURE: Typical fighting game.

The “FIGHTING” level is based on “Street Fighter”, “Mortal Kombat”, “Virtual Fighter”, and a bunch of less imaginative fighting games. Basically it’s just two guys punching and kicking with their “special moves”, and a crowd of anonymous spectators surrounding the fight area. Only we take the silly or “cool” aspects of traditional fighting games and take them to absurd, hilarious extremes.

J.6.B FIGHT COMMENTATOR DAMAGE PHRASES

An invisible, serious, dramatic fight commentator, much like the one in Mortal Kombat and Quake III Arena, delivers the damage phrases. Damage phrases are often directly preceded by sinister laughter, or dramatic "aaahhh", etc. Use flange, echo, reverb, bender, or whatever it takes to make the following phrases even cooler sounding!

"Astonishing Damage"	"Top-40 Damage"
"Mind-altering Damage"	"Double-Dog Damage"
"Miscellaneous Damage"	"Old-School Damage"
"Triple-Infinity Damage"	"Yankee-Doodle Damage"
"Microscopic Damage"	"FRESHHH Damage"
"Righteous Damage"	"Genetically-enhanced Damage"
"Off-the-hook Damage"	"Unspecified Damage"
"D-D-D-Damage"	"Drunken Master Damage"
"Who's your daddy Damage"	"Alternative Damage"
"Negative-Zero Damage"	"Amateur Damage"
"Negligible Damage"	"Unstoppable Damage"
"Happy Damage"	"Mainstream Damage"
"Virtual Damage"	"Four-dimensional Damage"
"Damage Damage"	"Real Bad Damage"
"Ridiculous Damage"	"Unrealistic Damage"
(whispered) "Secret Damage"	"Unjustified Damage"
"Possible Damage"	"Professional Damage"
"Dain Brammage!"	"Irreversible Damage"
"Hilarious Damage"	"Heartland Damage"
"Deluxe Damage"	"Inner-city Damage"
"PATHETIC Damage!"	"Merciless Damage"
"First-class Damage"	"128-bit Damage"
"Infinitesimal Damage"	"Unconventional Damage"
"Insignificant Damage"	"Duo-deca Damage"
"Infinity-Squared Damage"	"Googol Damage"
"Severely-underestimated Damage"	"Aleph-Null Damage"

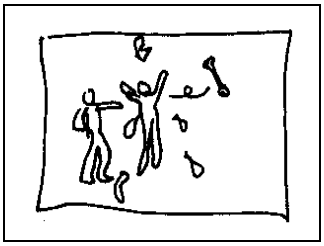
"Inverse Negative Reverse Non-Damage"
(multi-voice cascade) "E-E-Extreme Damage"
"One-hundred, twenty-seven point four percent Damage"
"Mega-Micro-Tera-Giga-Pico-Femto Damage"
"Supercalifragilisticexpeali-Damage"
("Name Game" song; Copyright problem?:) "Damage, Damage, Bo Bammage, Banana Fanna, Fo Fammage, Fee Fie Mo Mammage, DAMAGE!"

J.6.C ON-SCREEN VICTIM EMBARRASSMENTS

The following are ways one fighter can embarrass his opponent, where the victim remains on the same screen as the other fighter.

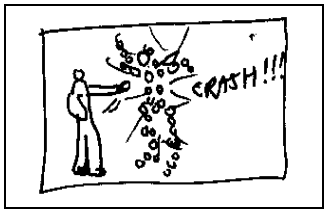
NOTE: ALL sequences described below must be very brief, like one second. The player must not feel like any interruption has taken place. Really, try to make everything fit in to a single second; it might seem insanely rushed, but it's an important goal.
Only severe hits result in special sequences, and special sequences are selected at random and do not repeat for a given game session.

J.6.C.1 PUNCH OUT BONES AND ORGANS



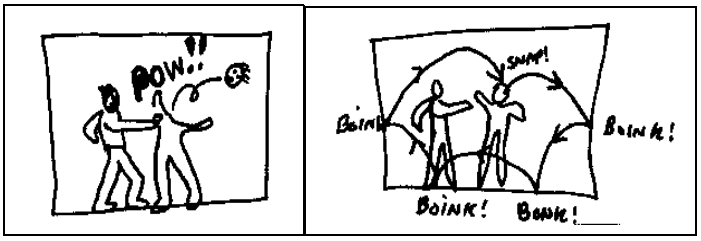
Each punch (perhaps when you are extra-powerful) results in a harsh crunching sound, or a sloppy, wet, mushy, splattering sound, and bones and entire organs (liver, heart, lung, brain, etc) fly out of the victim's body in random directions. The organs and bones don't run out! So you may see several hearts and livers fly out over successive punches.

J.6.C.2 PUNCH SHATTERS VICTIM LIKE GLASS (OR FROZEN OBJECT A LA TERMINATOR 2)



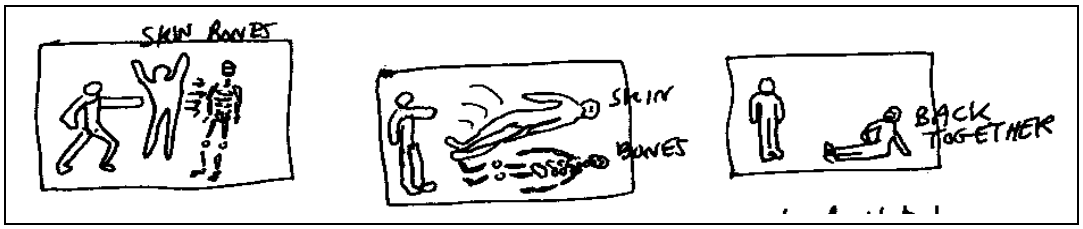
The punch shatters the victim like glass, with lots of particles flying everywhere, forming a dust cloud that fills the entire screen. But, when the dust cloud quickly dissipates we see the victim all back together without explanation.

J.6.C.3 PUNCH KNOCKS VICTIM'S HEAD OFF



The punch knocks the victim's head off, and the head bounces off of the screen boundaries and arcs perfectly back on to the victim's neck, and the victim can resume fighting!

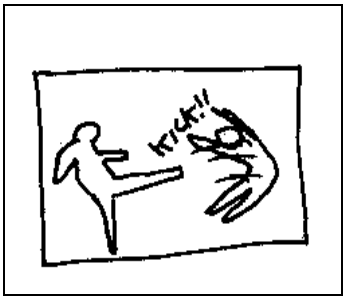
J.6.C.4 PUNCH KNOCKS VICTIM'S SKELETON OUT OF HIS BODY



The punch knocks the victim's skeleton out of his body, and the skeleton tips over and falls to the ground. But the skin tips over a moment later and falls perfectly on top of the skeleton, and the two merge together, and the victim can resume fighting!

J.6.D OFF-SCREEN VICTIM EMBARRASSMENTS

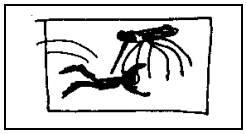
The following are ways one fighter can embarrass his opponent, where the victim is kicked or pushed off of the edge of the screen. When this occurs, we do a camera pan to follow the victim until we are at least one screen width away from the other fighter, then we play a scripted "fatality" sequence. But, when we pan back to the other fighter we see the victim fighter back in his original position as if nothing happened.



All of the off-screen embarrassments start with a really big kick or punch!

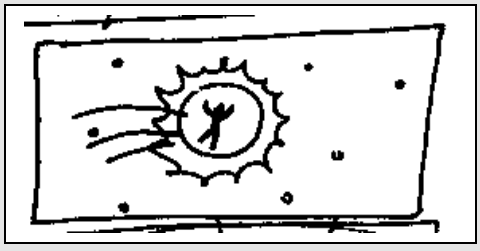
NOTE: ALL sequences described below must be very brief, like one second. The player must not feel like any interruption has taken place. Really, try to make everything fit in to a single second; it might seem insanely rushed, but it's an important goal.
Only severe hits result in special sequences, and special sequences are selected at random and do not repeat for a given game session.

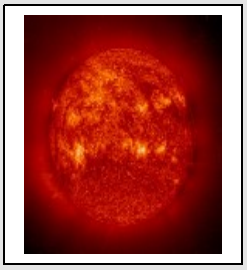
J.6.D.1 GIANT MOSQUITO DRAINS VICTIMS BLOOD



A giant mosquito drains ALL of the victim's blood in an instant, making him shrink to a tiny, doll-sized body. The mosquito makes a slurping and sucking sound, until the victim is completely drained, at which point we hear a sound similar to drinking through a straw when the beverage has run out!

J.6.D.2 VICTIM FLIES DIRECTLY IN TO THE SUN



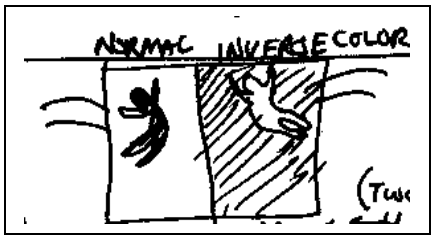


The force of the blow was so strong that we see the victim in outer space, falling directly in to the sun. We see several stars, and hear the victim's scream until he's just a tiny speck on the surface of the fiery sun. Maybe we can have lens flare or other effects to accentuate the sun's bright corona.

J.6.D.2 VICTIM FALLS IN TO A TANK WITH PIRANHAS AND SHARKS

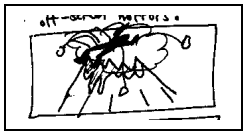
The victim falls in to a tank of water with piranhas, sharks, alligators, electric eels, octopus, etc. For a brief moment we simply see the creatures facing the victim, and then we see and hear tremendous, chaotic splashing. There is screaming and the water turns blood red.

J.6.D.3 VICTIM COLLIDES WITH ANTI-MATTER TWIN



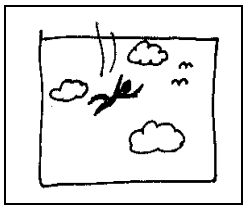
The victim flies from the left half of the screen, and the right half of the screen is a perfect horizontal reflection of the left half, including inverting the color (like the negative of a color photograph). We hear weird, sci-fi warp sound effect, followed by a HUGE explosion that turns the screen a bright white. The two twins speak nearly in unison: "Oh, no! My anti-matter twin!" Meanwhile, the last moments before collision (and explosion) occur in relative slow motion, for emphasis.

J.6.D.4 VICTIM FALLS IN TO ACTIVE VOLCANO



The victim flies straight in to the flaming, molten cone of a volcano. Rock and smoke are erupting in to the air, and the whole screen is shaking.

J.6.D.5 VICTIM FALLS FROM A HIGH ALTITUDE

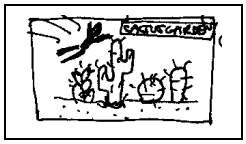


The victim falls through the sky as if he was just thrown out of an airplane or something! We see a nice blue sky, puffy clouds, and a few birds in the distance.

J.6.D.6 VICTIM CARVED UP BY SHARP MACHINES

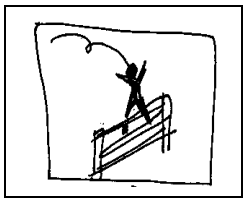
The victim falls right in to the middle of a complex array of motorized chopping, drilling, sawing, stabbing blades. The motorized blades are already moving when the victim falls in to them, and we hear terrible metal-rubbing-metal sounds (like knife sharpeners) and drilling and sawing sounds. The victim is instantaneously turned in to a huge splash of bloody body parts that splatter everywhere.

J.6.D.7 VICTIM FALLS IN TO CACTUS GARDEN



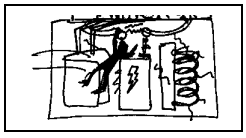
The victim falls in to a cactus garden, in an arid, sunny, sandy desert patch. All kinds of exotic cacti (round, flat, tall, skinny, etc) are scattered around, with HUGE needles. When the victim falls on top of them we hear the sound of lots of needles penetrating his body (an exaggerated sound effect, though), and a big cry of pain. There is a Wild West wooden sign "CACTUS PATCH".

J.6.D.8 VICTIM HURTS GROIN ON FENCE



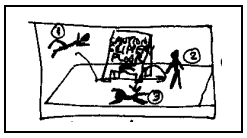
The victim falls on a fence, hurting his groin. We hear a crunching sound on impact, and the victim just rolls off the fence in pain.

J.6.D.9 VICTIM FALLS IN TO HIGH-VOLTAGE TRANSFORMERS



The victim falls right in to the middle of a bunch of high-voltage transformers, wires, coils, giant ceramic insulators and steel poles and arcs. There are sparks everywhere, and a loud 60Hz humming and crackling. The moment the victim makes contact with all of this, there is a brilliant blue-white light, and the crackling, sizzling, sparking, arcing sounds intensify with explosive suddenness. In an instant the intensity drops down to its original level, and there is nothing left of the victim's body, except for a cloud of smoke.

J.6.D.10 VICTIM FALLS ON TO WET, SLIPPERY FLOOR

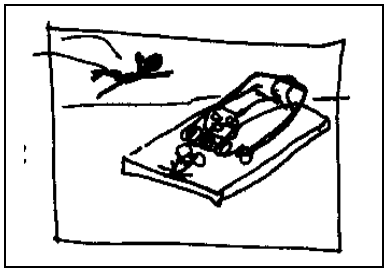


The victim falls on a wet, slippery floor, and skids for several feet before coming to rest. He stands up and starts to run back to the fight, but he slips and falls flat on his face! There is one of those yellow plastic "CAUTION: Wet Floor" wedge-shaped signs sitting in the middle of the floor, with big letters, so we know what's going on.

J.6.D.11 VICTIM FALLS IN TO MANURE PILE

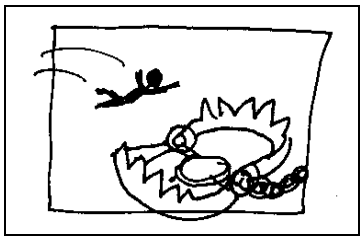
The victim falls in to a manure pile, and we hear a squishing, splattering sound. There is a big sign "MANURE", and we hear the victim groan with disgust when he realizes (smells) where he is.

J.6.D.12 VICTIM FALLS IN TO GIANT MOUSETRAP



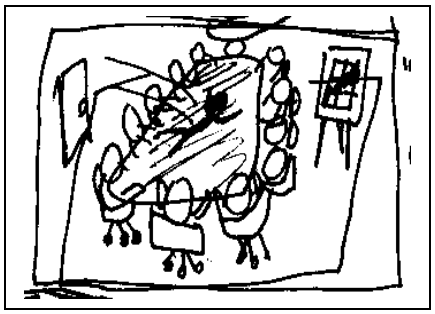
The victim falls directly on to the cheese trigger of a giant mousetrap. This trap is BIGGER than the victim himself! When it is triggered we hear a tremendous cracking sound as the spring-loaded metal bar smacks in to the wooden panel. The victim's head is chopped off, and it rolls toward the camera a little bit so that we clearly see that the trap did this to him.

J.6.D.13 VICTIM FALLS IN TO GIANT BEAR TRAP



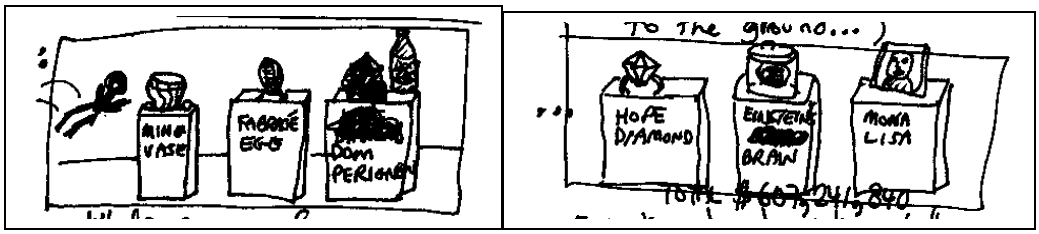
The victim lands directly on the trigger plate of a giant bear trap, and the jagged jaws of the trap snap shut with a tremendous metallic clashing sound. We also hear the chain links jangling. The victim's head bounces out and settles close to the camera, and blood splats and drips out of the jaws of the trap.

J.6.D.14 VICTIM FALLS ON TOP OF BOARDROOM TABLE



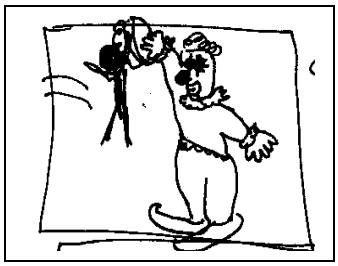
The victim falls flat on his back on a large boardroom meeting table, and one of the people seated at the table says: “Hey, this is a private meeting!”

J.6.D.15 VICTIM KNOCKS OVER FRAGILE, PRICELESS ITEMS



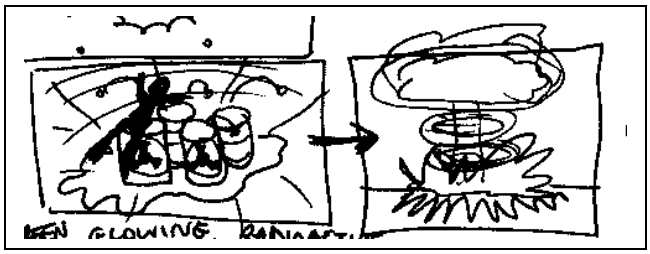
The victim lands on the floor in what looks like an exhibit in a museum or gallery, and tips over a pedestal labeled “MING VASE”. The pedestal teeters and totters with the vase on top of it, until finally tipping over and throwing the vase to the floor with a great crash. But the pedestal hits another pedestal like dominos. We see the following sequence of items crash to the floor: “MING VASE”, “FABRAGE EGG”, “(Bottle of) DOM PERIGNON”, etc. But then we see items that are not fragile nonetheless fall to the ground and shatter with a glass-breaking sound: “HOPE DIAMOND”, “EINSTEIN’S BRAIN” (in a jar), “MONA LISA” (painting). Starting with the first item (MING VASE), we see a numerical total price value being calculated at the bottom of the screen. When each item crashes on the ground we hear a cash register “Ch-Ching!” sound, and the total cost (like “$407,860,231.55”) increases accordingly. We also hear anonymous commentary (“Oh!”, “That’s not good…”, “I don’t think they’re going to be able to fix that!”, “Two hundred million! Who would’a guessed!”).

J.6.D.16 GIANT CLOWN SPLATS PIE IN VICTIM’S FACE



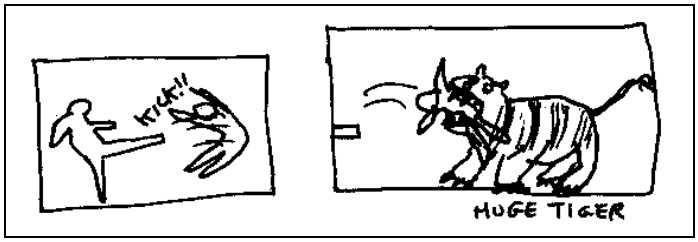
The victim falls next to a giant clown, but manages to stay on his feet, and instantly the clown splats a pie directly in to the victim’s face. An off-screen crown laughs and then approvingly applauds. During all of this we hear: slide whistle, bike horn, and a squeaky toy; typical clown fare.

J.6.D.17 VICTIM FALLS ON RADIOACTIVE DRUMS CAUSING NUCLEAR EXPLOSION



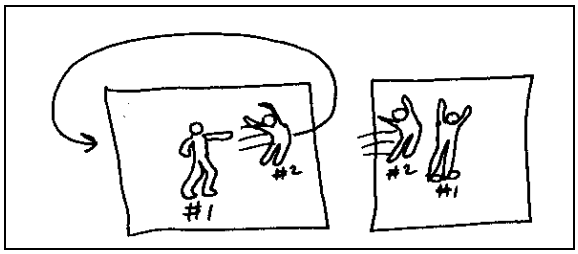
The victim falls in to the middle of a cluster of 55-gallon drums filled with glowing green radioactive goo. The drums are sealed, but they're clearly leaking, and there's a pool of glowing green liquid on the ground. Also, drops of radioactive goo are sputtering in to the air like popcorn kernels. The whole area is glowing with a slight flickering of intensity. The instant the victim lands on the drums there is a huge nuclear explosion; we switch to a camera far from "ground zero", and see a flash and a huge mushroom cloud, and only moments later do we hear the explosion itself. The moment of silence accentuates the distance from the explosion.

J.6.D.18 VICTIM IS RIPPED TO SHREADS BY A HUGE TIGER



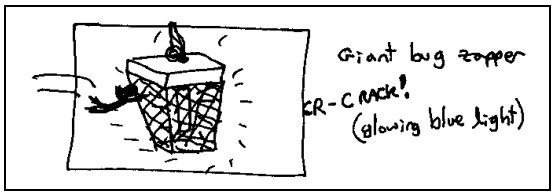
The victim lands in the jaws of a huge tiger, and we hear the tiger growling wildly as he violently shakes the victim to bits in his jaws. Blood splatters everywhere, and the victim screams in terror for a moment before being ripped apart. Every part of the tiger's body tells us that he's in attack mode; his legs are bent, and he's hunched over, and his tail is whipping wildly during the attack. Tall grass, like on the African planes, is in the close background.

J.6.D.19 VICTIM FALLS AROUND THE WORLD



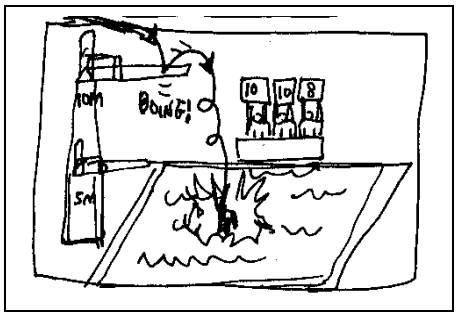
The victim is punched or kicked off-screen, and the camera remains on the other fighter while we hear the victim's cry quickly become distant. A few moments later we hear the victim's cry growing louder! Then the victim falls in to the other fighter's back from the opposite side of the screen. The implication is that the victim was kicked or punched all the way around the world (or Universe).

J.6.D.20 VICTIM FALLS AGAINST GIANT BUG-ZAPPER



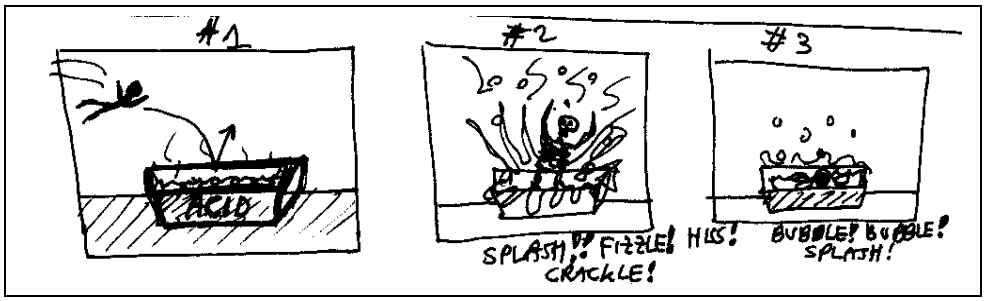
The victim falls directly in to the screen of a giant, hanging bug-zapper. There is a flash, and a loud crackling sound (with electrical buzz), and a wisp of smoke where the victim once was. The bug-zapper lamp is the typical glowing blue-green color. When the victim hits the bug-zapper and is vaporized, the lamp continues to swing from the impact.

J.6.D.21 VICTIM FALLS ON OLYMPIC DIVING BOARD



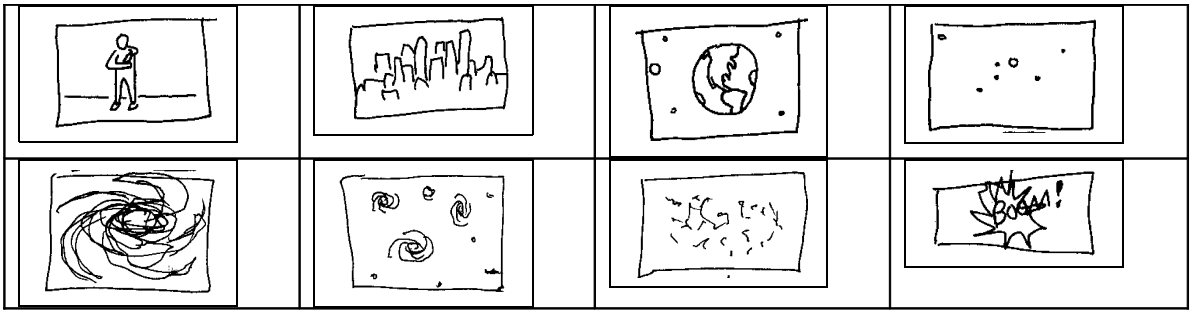
The victim falls flat on his back on a 10 meter Olympic diving board, but bounces up an happens to execute a perfect triple flip dive in to the pool. An off-screen crown roars with applause and cheers, and we hear immediate score announcements (English: "Ten, ten, eight." French: "Dix, dix, huit"). Poolside judges hold up score cards ("10", "10", "8") synchronized with the English score announcements.
(NOTE: We must NOT use Olympic logos. Make up something similar.)

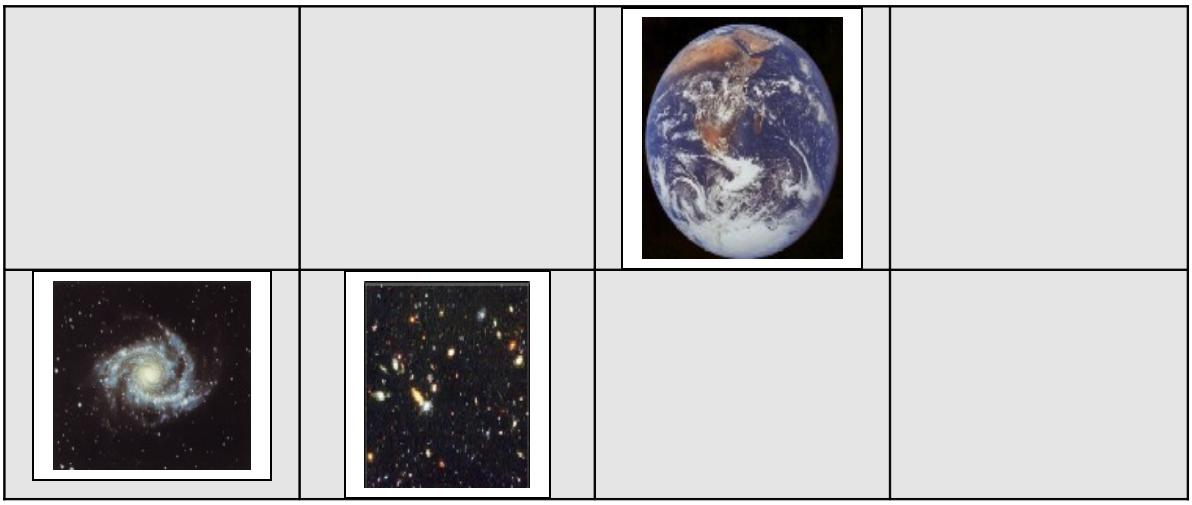
J.6.D.22 VICTIM FALLS IN TO TUB OF ACID



The victim falls in to a tub of violently bubbling, hissing, and steaming acid. The tub is clearly labeled "ACID", and is apparently on the floor of a simple chemical laboratory. The wall may have a typical hazardous material sign warning of corrosive acids (with the half-eroded hand logo). When the victim lands in the tub of acid there is a splash (with splashing sound), and a dramatic increase in bubbling, hissing, frying, gurgling, sputtering, steaming, etc. The victim screams and attempts to stand up with his arms in the air, but all we see is a skeleton! Nonetheless, the skeleton's arms are waving in the air for a moment before the whole skeleton collapses back in to the tub of acid. The dramatic acid effects subside to an intermediate level, with a steady bubbling (like the sound and appearance of steadily boiling water).

J.6.E FATALITY MOVE: DESTROY ENTIRE UNIVERSE





This is similar to Cyrax's fatality move in Mortal Kombat, where Cyrax types on his wrist keypad, we zoom out to see the entire planet Earth, and the planet explodes. The wrist keypad idea was also seen in the original "Predator" movie, where the alien uses his wrist keypad to self-destruct with an atomic blast. Anyway, we start with the fighter typing on a wrist keypad (we hear five button beeps with random pauses), and then we see a city skyline image that shrinks by 25% (suggesting that we're zooming away). Then we cut to an image of the Earth, and shrink it by 50% so that we see the whole Earth and a few stars. We pause for a moment so that the player thinks that this is the end – just the Earth blowing up. But then we zoom out much further so that we see the entire Solar System. We pause, and then we cut to an image of the Milky Way galaxy, zooming out by 50%, and fading in to the next image: a group of neighboring galaxies. We zoom out by 50%, and fade in to the next image: a very dense mush of galaxies that gives you the impression that you are looking at the ENTIRE UNIVERSE. Then there's a blinding flash of light, and a huge explosion sound. An off-screen commentator makes a sinister laugh: "M'wah, ha, ha, haaa! Outstanding!"

J.7 "RESOURCE MANAGEMENT"

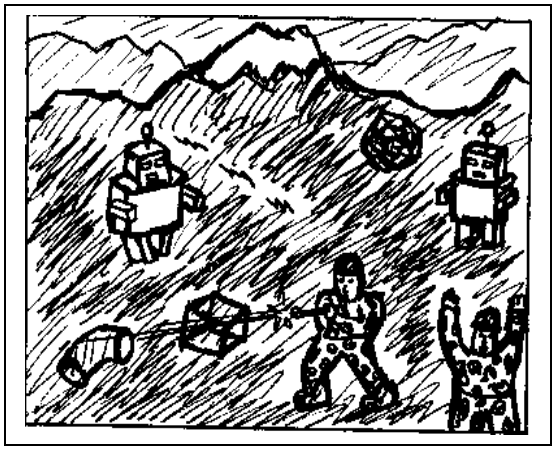


FIGURE: Humans, Blobs, and Robots.

J.7.A BACKGROUND

The "RESOURCE MANAGEMENT" game is mostly based on the wildly popular game StarCraft. Similar games include: WarCraft, Ground Control, Homeworld, and dozens of other popular games. In all of these games you are an unseen commander of troops in a giant battle. You select individual troops, or a group of troops, and assign them various tasks, like collecting resources or fighting enemy troops. When troops have their orders they act autonomously, but you can interrupt them at any time and give them new assignments. These games typically have a small number of competing powers (governments, races, tribes) who begin in very different locations in the world. In some of these games each player sees only parts of the world that his troops has explored, and so each player does not initially know where his enemies are, or what kind of invasion they may be planning.

J.7.B BASIC CONCEPT

The "RESOURCE MANAGEMENT" game will take place on Earth in the year 2101, after numerous global thermonuclear wars, insane biochemical disasters, and robot uprisings. Now it's a showdown to claim the planet Earth. The three races involved in this contest are: ROBOTS, HUMANS, BLOBS.

J.7.C GAME MODES

J.7.C.1 STORY MODE

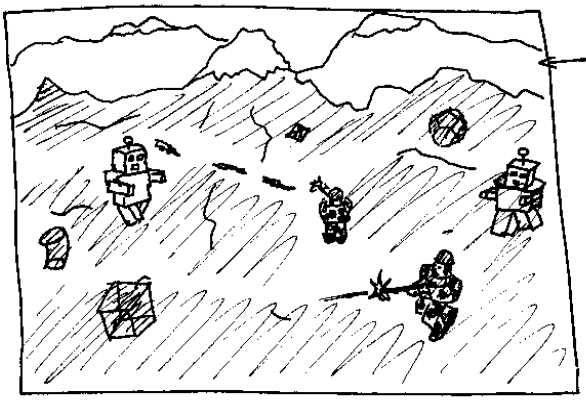
Mr. Cash controls the HUMAN race, fighting AI-controlled ROBOTS and BLOBS. The ROBOTS and BLOBS fight each other, but they both go after the HUMANS with relentless determination.

J.7.C.2 BATTLE MODE

The single player can select any of the three races, and any available world map, and can configure the other opponents' AI logic. The player can fight one to seven other opponents, and so some of these opponents will be of the same race (like two ROBOT teams, and three HUMAN teams, and two BLOB teams, all fighting each other). When there are two or more teams of the same race, their teams are given different, very distinct, very prominent team "uniform" colors. Otherwise, each team has more conventional color schemes (ROBOTS are just shiny silver metal, HUMANS have military fatigues, BLOBS have basic glassy gel-like appearance).
The opponent races may be AI-controlled, or controlled by real human players on a LAN or the Internet.

RESOURCE MANAGEMENT

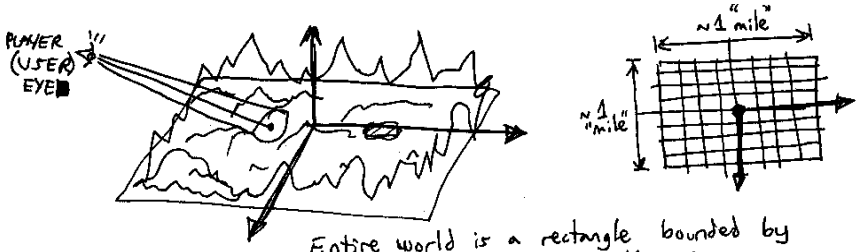
This is a case of 3D terrain (LOD, mesh refinement, heightfield, polygon splitting, fractal terrain, ...)



3D Fog makes distant hills/mountains faint

Terrain has snow patches at peaks, forest colors, sand colors, dirt colors, grass colors, water colors & (and water 3D semi-transparent simulation)

Robots, Blobs, and Humans (Marines in fatigues) fight for survival in RESOURCE MANAGEMENT



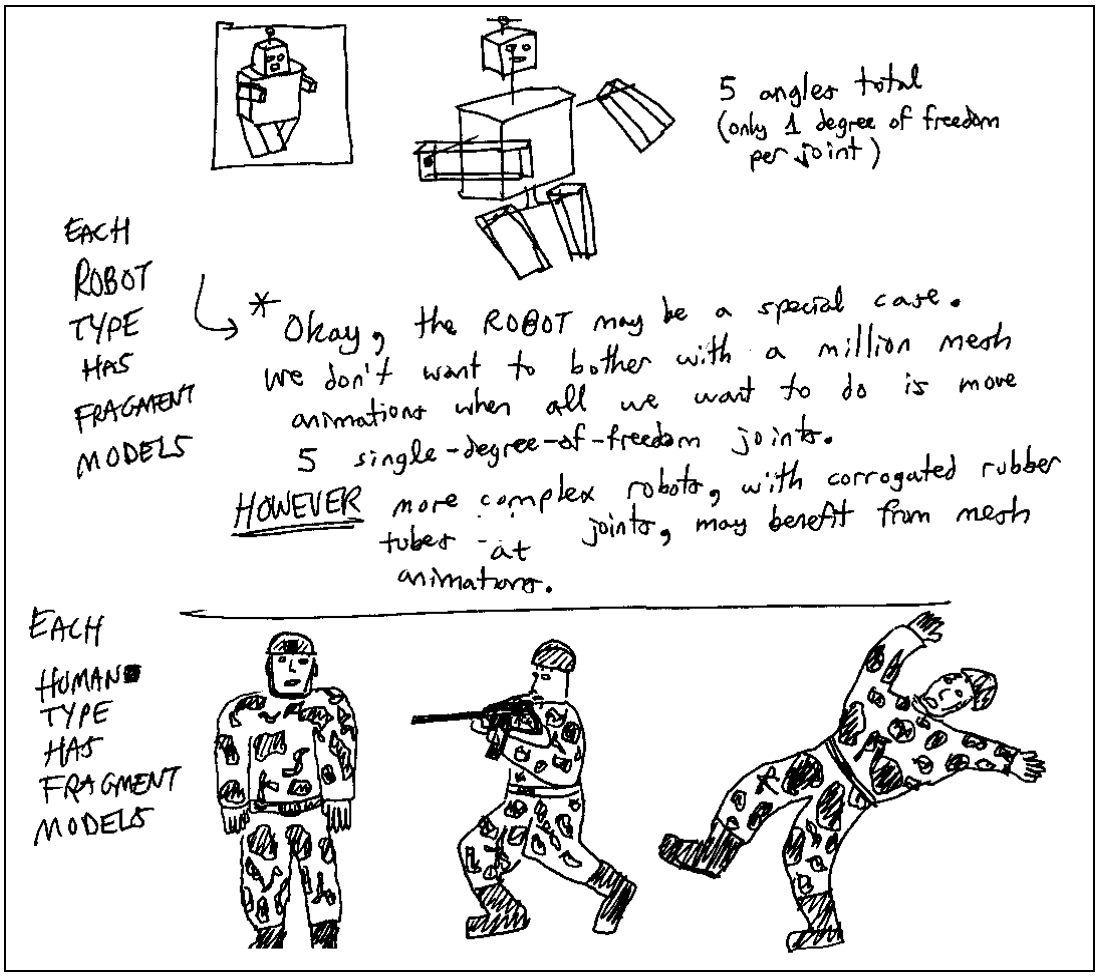
The player controls a point to look at in the world, and has a certain range of allowed field-of-view. The player can change his eye position.

Entire world is a rectangle bounded by high mountains on all sides (these mountains on the borders can not be climbed or flown over)

World can be described by a height-field.

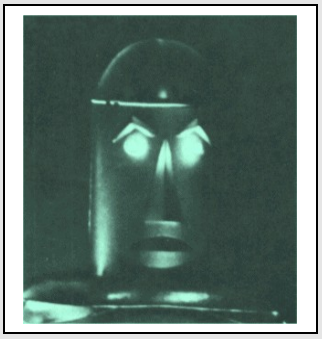
Terrain can be randomly generated, but we need to save the terrain if the game is saved or if we want a specific randomly generated terrain to tweak and save as a real, known terrain.

1 mile is about 17 football fields in length. If we have regular size humans (like my football screen saver) then we can imagine combat areas of about football ~~field-sized~~ areas. We end up with roughly 16 x 16 = 256 football field "tiles". We use LOD (level of detail) for high altitude perspectives.


5 angles total
(only 1 degree of freedom per joint)
EACH ROBOT TYPE HAS FRAGMENT MODELS
* Okay, the ROBOT may be a special case. We don't want to bother with a million mesh animations when all we want to do is move 5 single-degree-of-freedom joints.
HOWEVER more complex robots, with corrogated rubber tubes - at joints, may benefit from mesh animations.
EACH HUMAN TYPE HAS FRAGMENT MODELS

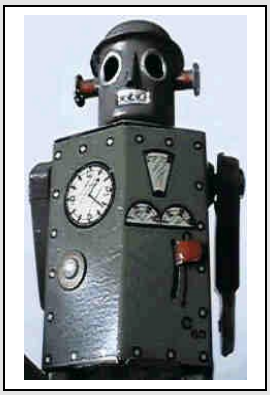
J.7.D RACES

J.7.D.1 ROBOTS



"Door Robot"

"Proton Man"

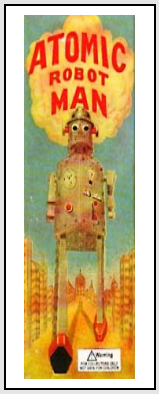


"Atomic Robot Man"

"Strenco"

"Space Captain" / "Amphibious Robot"

"Zoomer"



"Atomic Robot Man"

The robots in "RESOURCE MANAGEMENT" will be 3D models based on antique toy robots. The will move like wind-up toys, and when they speak it will sound like the voice is coming out of a metal can.

The robots must move, click, whir, and have flashing lights, just like their toy counterparts. They must be creepy. They must not have any soul. They're not nice, funny, or anything more than hollow cans with motors and simple logic circuits, out to rid the world of living things.

SPOKEN PHRASES

Their speech is the creepiest, mid-80's speech synthesis we can find. Something like the Daleks from the British television show Dr. Who, or the Cylons of Battlestar Galactica, or the robots in the video games Berserk and Frenzy. Their speech sounds should be further processed by playing them back in to metal cans and re-recording them so that they have a hollow, dramatic sound. These robots are empty in so many ways, and their voice should accentuate their cold, calculating, unfeeling purpose.

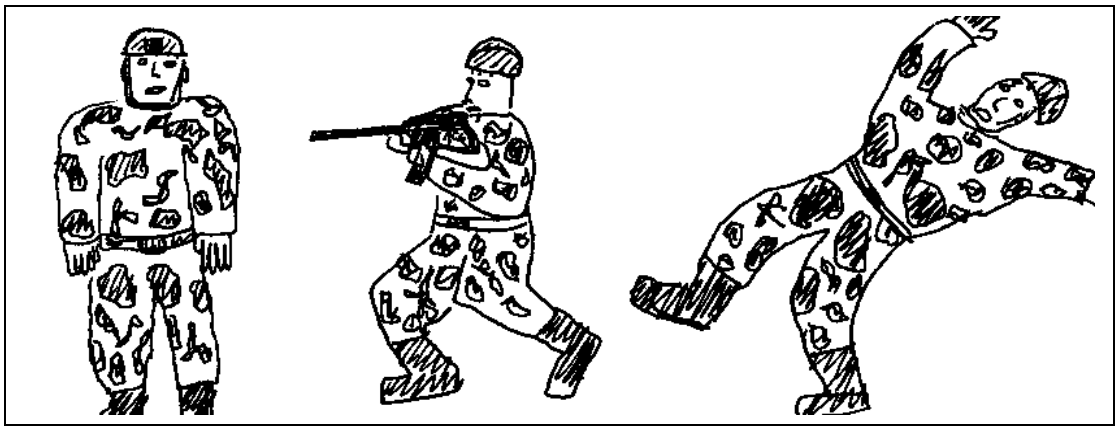
Okay, some of the following phrases might be humorous, and maybe they should be discarded if we want to maintain the creepy nature of the robots.

"Death to the organics"	
"Attack the humanoid"	(Berzerk)
"Exterminate!"	(Dr.Who: Daleks)
"Destroy the humanoid!"	(Berzerk)
"Danger! Danger!"	(sort of Lost in Space)
"Intruder alert. Intruder alert."	(Berzerk)
"Resistance is futile."	(classic)
"Human fight like robot"	(Berzerk)
"Let's be friends"	(WipeOut game, another joke)
"I come in peace!"	(joke a la Mars Attacks)
"I'll be back."	(Terminator)

WEAPONS

Fire breath	A wide cone of low-speed flames shoots out of the robot's mouth.
LASER beams	A rather thick beam projects out of either the eyes, or a handheld pistol.
Electrical discharge	A lightning bolt shoots out of the arms, or the eyes, or any antenna.
Missiles	Rockets shoot out of the arms, or any other plausible location.

J.7.D.2 HUMANS



The humans in "RESOURCE MANAGEMENT" are bad-ass Marines dressed in camouflaged combat fatigues, carrying MP5 machine guns with LASER sights, grenades, flashlights, etc.
(See the movie "Aliens 2" for conduct of Marines; this portrayal is high-intensity and hard-core. The movie "Predator" has a similar portrayal. NOTE: The humans in StarCraft sound like dorks! They sound so wimpy! But the Marines in the video game Half-Life are fantastic.)

These humans are hard-core soldiers, yelling at the enemy and at each other. They're determined, experienced, relentless fighters. They're never calm; they're fighting for their god-damned lives against freakin' robots and blobs! It's always "Go, go, go!"

SPOKEN PHRASES

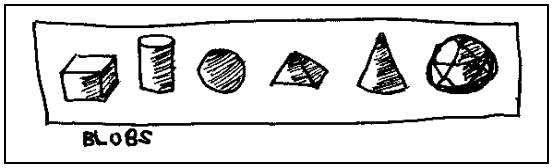
Some of the following phrases might be humorous, and maybe they should be discarded if we want to maintain the serious nature of the humans.

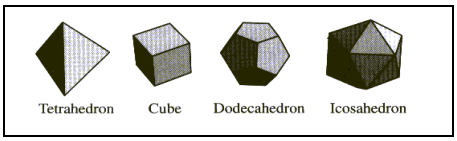
"Go, go, go!"	(classic, Half-Life)
"Fire in the hole."	(classic, Half-Life)
"We've got hostiles!"	(classic, Half-Life)
"Let's kick some robot ass!"	
"Make way for mankind!"	

WEAPONS

Machine gun	Typical machine gun (but unlimited ammo, with reload pauses)
Grenades	Typical grenade (unlimited supply, but throwing time)
Bazooka	Launches rockets (unlimited rockets, but big reload delay)
Flame thrower	Typical flame-thrower (unlimited fuel, but pausing increases range)
Land mines	Typical land mines (unlimited supply; limit to unexploded in world)

J.7.D.3 BLOBS





The BLOBS are inspired by the old DOS video game "D-Gen", which was about a biotech company employed by the Department of Defense to come up with organic creatures to fight wars of the future. The experimental creatures escape from laboratories and take over the entire building, and your job is to clean up the mess. There are two types of blobs in "D-Gen": Sphere (bounces and absorbs victims) and Cylinder (bounces and crushes victims). Another creature in "D-Gen" is something that can morph in to anything small, like a chair, plant, person, etc.

The BLOBS here include the following shapes: Cube, Cylinder, Sphere, Tetrahedral (4-vertex) pyramid, Cone, and Dodecahedron (12-hex faces).

The BLOBS look like they're made out of gel, and they're very transparent, but they may have different subtle hues (red, orange, yellow, green, blue, and violet). They are squishy, bouncy, and deform dramatically when compressed (bounce landing, etc). They really are made of pure organic matter, and so they are vulnerable to fire and conventional bombs. However, bullets pass right through their undifferentiated, amorphous gel bodies.

You can see through a BLOB's body, but they have enough translucency to permit seeing their volume and edges. When it is dark, they glow with a creepy fluorescence.

SPEECH SOUNDS

BLOBS do not speak, but they do make creepy squishing sounds, or even more abstract noises.

MOVEMENT AND MORPHING

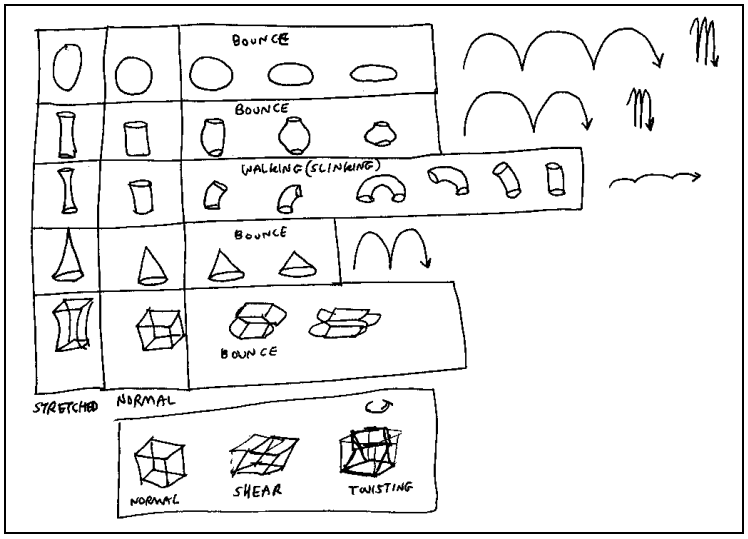
Each BLOB type moves differently:

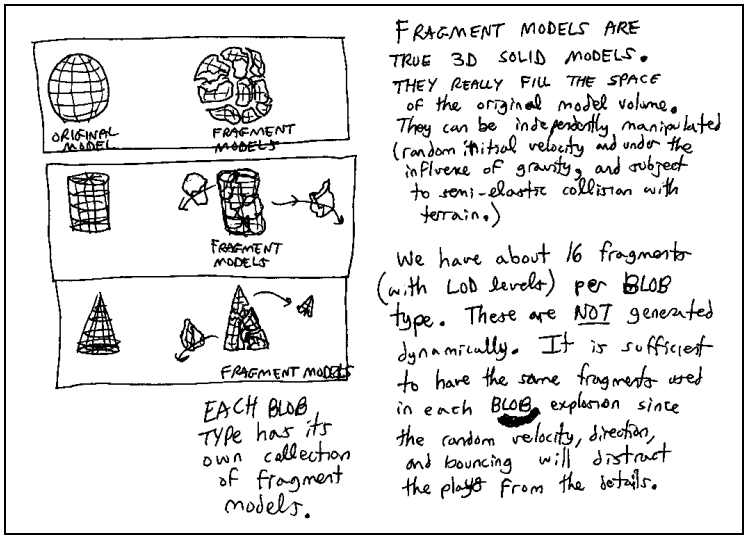
Cube	This BLOB does never moves; it's like a wall or land-mine.
Cylinder	Bounces or tumbles like a "slinkey" giant spring coil toy.
Sphere	Bounces or rolls
Tetrahedron	Tumbles like 4-sided dice
Cone	Bounces, and may invert to stab victim on a dive bounce
Dodecahedron	Rolls

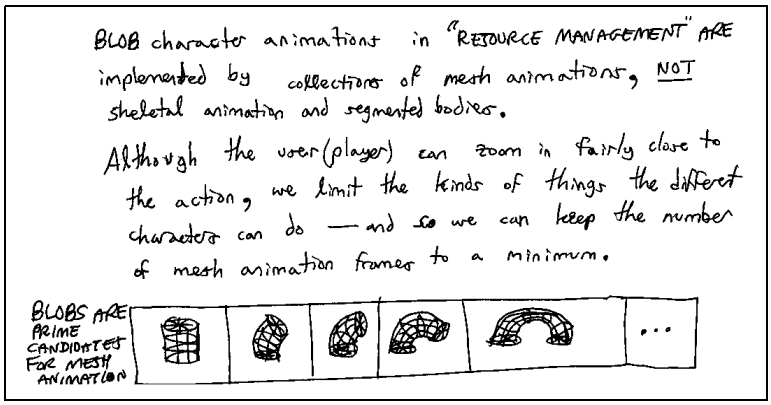
BLOBS can morph to other shapes. Perhaps the morphing is random, or follows rules and limitations.

ATTACK MODES

Direct contact	Poisonous and corrosive gel can kill robots and humans; Blobs totally engulf victim like a jellyfish!
Burst apart	Splattering within a radius, burning and poisoning victims
Emit gas	Poisonous and corrosive gas, drifts in random direction
Mutate victim	Alters victim to be a traitor of his own kind


BOUNCE
BOUNCE
WALKING (SLINGING)
BOUNCE
BOUNCE
STRETCHED
NORMAL
NORMAL
SHEAR
TWISTING


ORIGINAL MODEL
FRAGMENT MODELS
FRAGMENT MODELS
FRAGMENT MODELS
EACH BLOB TYPE has its own collection of fragment models.
FRAGMENT MODELS ARE TRUE 3D SOLID MODELS. THEY REALLY FILL THE SPACE of the original model volume. They can be independently manipulated (random initial velocity and under the influence of gravity, and subject to semi-elastic collision with terrain.)
We have about 16 fragments (with LOD levels) per BLOB type. These are NOT generated dynamically. It is sufficient to have the same fragments used in each BLOB explosion since the random velocity, direction, and bouncing will distract the player from the details.


BLOB character animations in "RESOURCE MANAGEMENT" ARE implemented by collections of mesh animations, NOT skeletal animation and segmented bodies.
Although the user (player) can zoom in fairly close to the action, we limit the kinds of things the different characters can do — and so we can keep the number of mesh animation frames to a minimum.
BLOBS ARE PRIME CANDIDATES FOR MESH ANIMATION
...

J.7.E CONVERTING INDIVIDUAL ENEMY TROOPS TO YOUR TEAM

Each race has some method of converting individual enemy troops to their team. Really the individual is overpowered by an enemy and is significantly altered (like ROBOT reprogramming, HUMAN surgery, or BLOB genetic modification) to fight on behalf of the team doing the conversion. Most of the time the troop should return directly to his own team's headquarters or camp and fight his own people, rather than fighting just any arbitrary enemy of the team who converted him.

Each race requires specialists to do this kind of conversion, and these specialists have limited combat ability and are hard to acquire (take a normal soldier and set him to training mode, essentially immobilizing him until he gets a Ph.D. and forgets practical combat skills).

Traitors can not be fixed, and when a soldier is converted to a traitor he is restored to full, original strength, so that others of his team end up fighting the best of their own kind.

Opposing teams can be in a situation where two conversion specialists are trying to convert each other! The winner of this battle will have created a traitor conversion specialist, who will then return to his camp and convert his own kind to traitors! The whole enemy team might become completely allied to another team by their own specialist!

Traitors can be discovered easily. They walk or move just like the race that converted them. For example, a HUMAN will walk just like a ROBOT if he was converted to the ROBOT team – however, the HUMAN will still look like a HUMAN. Furthermore, a traitor speaks just like the enemy team. A HUMAN may end up speaking like a ROBOT or making sounds like a BLOB. BLOBS may start talking like HUMANS or ROBOTS. ROBOTS may bounce like BLOBS. In all cases, though, the creatures retain their original appearances, and they may only gain a single ability from their new race. For example, a HUMAN may shoot lightning bolts from his arms (ROBOT power), or shoot out slime (BLOB power). BLOBS might shoot lightning bolts (ROBOT power) from various points on their bodies, or operate human-provided firearms (machine gun, flame thrower, rocket launcher) or grenades.

J.7.F DAY AND NIGHT CYCLES, WEATHER

The "RESOURCE MANAGEMENT" world will go through an entire day-night cycle in about two minutes.

NIGHT battle should be really cool. ROBOTS will see in infra-red, shining greenish beams that converts landscape and creatures in to colorful infra-red images. HUMANS have flashlights. BLOBS have organic fluorescence, casting light within a certain radius, with a color similar to their body color. Most of the world will be almost pitch-black during the darkest "hour" of night.

DAY battle will be conventional.

FOG will obscure the locations of enemies, even to the player controlling those enemy troops!

RAIN will sometimes fall, making areas wet. Lighting will sometimes strike a creature at random, especially if it's a high place (hilltop or mountain).

SNOW & ICE may sometimes appear. ROBOTS may be immobilized, HUMANS may freeze to death, and BLOBS can freeze and are then easily shattered (otherwise they thaw later and resume battle).

J.7.G HAZARDS

Here's a basic matrix of hazards:

HAZARD	ROBOTS	HUMANS	BLOBS
Fire		X	X
Ice	(immobilized)	X	(shatter)
Radiation		X	
Electricity		X	X
Toxins/Corrosive	X	X	
Bullets	X	X	(pass through)
Bombs	X	X	X

HUMANS are hurt by everything, but they have better weapons and can move around faster.

J.7.H OTHER CAPABILITIES

Here is a list of other capabilities to explore:

Invisibility	Entirely invisible to enemy; any interaction with environment (attack or defend) causes temporary suspension of invisibility with considerable delay before able to resume invisibility. Therefore, invisible enemies can be flushed out by random shooting, and they remain visible as long as you can sustain the attack (plus significant time margin).
Teleportation	Team must acquire (build) portals. Anybody, including the enemy, can use these portals. Teleportation is always between portals. Portals can be carried. People can teleport to or from portals even when they are being carried or transported, or even if they're on a boat, flying machine, or moving platform! Enemies can take portals. Portals work in pairs. Portals can not be destroyed. Portals will transport bombs, bullets, lasers, and anything else. Portals are two-way; you can return from whence you came just by returning to the portal.
Holograms	The team must build a holographic projector. (BLOBS may create holograms with organic methods.) Each projector casts a single image of a troop that is indistinguishable from a real, physical entity. The holographic projector can be destroyed. The holographic troops can be given orders, but they can not stray too far from the projector. Holograms are just images; they can't be harmed, and they can perform any physical tasks. Their AI will continue trying to do something, like pick up rocks, but will constantly fail, and will try again forever.
Flight	The team must build a flying machine. All flying machines can be destroyed. Flying machines can carry individuals or several people, depending on size. Jetpacks are available in some form for all races. Slow-moving floating platforms can also be created by all races. No fast-moving platforms can be created by any race. All flight has a very-limited altitude; roughly fifty feet above the ground. Floating platforms do not require fuel; they're like blimps. Personal jetpacks have unlimited use, but after a few seconds of initial use their altitude steadily decreases until the thrust can barely keep the individual off of the ground! Turning the jetpack off starts a recharging phase that quickly enables the short, full-altitude flight capability.

J.7.J FACTORIES

ROBOTS need electricity, and build robot factories.
HUMANS need food, and build human clone factories.
BLOBS need slime, and simply divide when they're ready.

ROBOTS and HUMANS start with more individuals at the start of a game, but both races have the burden of having to create factories to increase their populations. HUMANS must have a clone factory, and ROBOTS must have a robot factory. Meanwhile, BLOBS can always divide from the very beginning of the game, just by absorbing sufficient organic slime (from slime pools scattered around the world) and choosing to divide. BLOBS, however, start with fewer individuals, so their burden is to find slime pools and start dividing.

J.7.K RESOURCE EXHAUSTION AND REGENERATION

All natural resources can be temporarily exhausted. When a ROBOT absorbs electricity from special rocky sites, you can see the charge diminish from the precise areas the ROBOTS harvested electricity. The resource is exhausted at a fixed rate during harvesting, and is regenerated at a certain rate when it is not being harvested. If a resource is aggressively harvested (multiple individuals harvesting the same exact site), the resource may be completely tapped out and may go in to medium-term blackout. This blackout may last several times longer than expected by strict exhaustion and regeneration times; blackout is to discourage continuous or aggressive harvesting, by suspending regeneration for a time after a resource is initially depleted.

J.7.L VICTORY CELEBRATION

All races have a victory celebration. Each race has its own way of letting the Universe know who kicked everyone else's ass to take over the Earth. There may be some form of dancing, throwing enemy body parts around, cheering, firing weapons in to the air, and saying menacing things.

J.8 "VIRTUAL CREATURE"

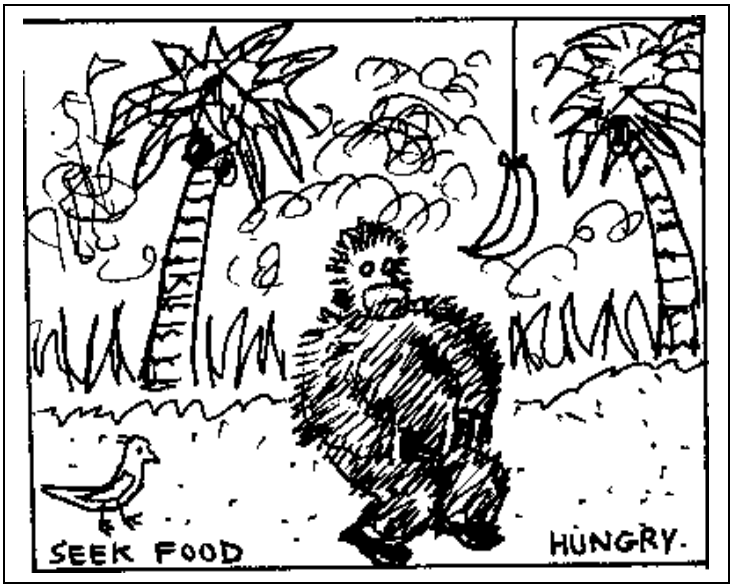
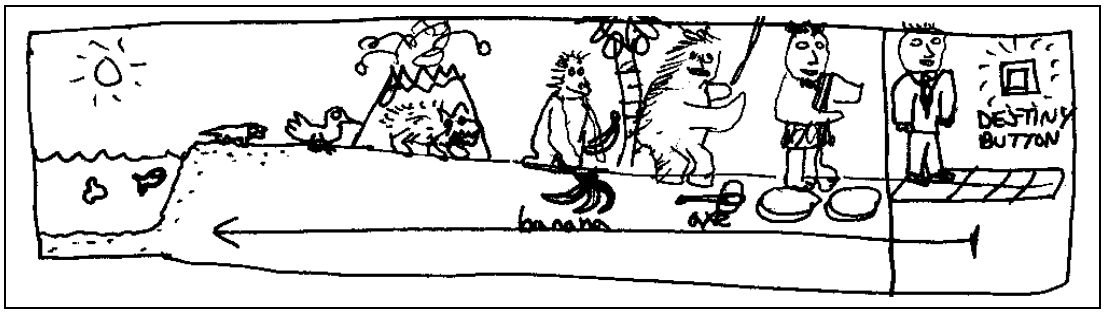


FIGURE: If the gorilla can get the banana, he might evolve to a caveman!

J.8.A BASIC IDEA



Your ultimate goal is to press a flashing red button, but you start out as an amoeba in the ocean! You have to go through the entire evolutionary chain ("correctly") to produce a human being to get through some final obstacles and push the "DESTINY BUTTON".

It's one big linear world. To introduce the "VIRTUAL CREATURE" level to the player we start at the far right, at the red, flashing button, and quickly pan leftward until we are in the ocean, and then we zoom in on a single amoeba.

You are NOT the creature. You do NOT directly control the creature. The creature is on its own, thinking for itself. You are GOD, prodding and indirectly leading the stupid creature through evolution. The creature, if left alone, will lose focus and will wander away, or scratch itself, or sleep, or chase after little irrelevant creatures for sport. The single creature, starting as an amoeba, undergoes transformations to ultimately become a human; it is not separate generations, gradually changing form, but a single creature that actually evolves during its lifetime. Any other creatures that appear in an area are just incidental and are always several evolutionary steps behind you. For example, you might be a monkey (I mean, you're prodding a monkey), and there are a few parrots in the trees, just sitting there and squawking.

J.8.B COMMENTATOR

There is a commentator. He is a grandfatherly, friendly, excited, giddy scientist, with a British accent, much like Indiana Jones' father, or the scientist in the Jurassic Park movie. At the start of "VIRTUAL CREATURE" he explains the ultimate goal of life: to push the button. And then throughout the game he makes excited comments about the miracle of life, and how fascinating your blunders are.
Typical comment: "Hoo, hoo, hoo! Nature will find a way!"

We pan to the "beginning", and the scientist explains that we start out as a single amoeba.

At each stage of evolution we are faced with a problem suitable for the current creature species. When we solve the problem, we "graduate" to the next stage of evolution. Some goals are really mundane, but that's how it is for many creatures! A bird has to build a nest. A monkey has to reach a banana. An amoeba has to chase after complex molecules!

We take liberties with the order/branching of evolution (a bird doesn't normally become a saber-toothed tiger) just to have more cool puzzles.

The "DESTINY BUTTON" blows up the Earth. The scientist inappropriately roars with delight and laughter, apparently vindicated in his opinion that self-destruction was the ultimate fate of mankind. Comment: "Hoo, hoo! Jolly good show!" Then we pan to the heavens, and we see a UFO among the stars. We cut to the interior and see an alien creature laughing just like the scientist commentator. He speaks ("You guys never had a chance!"), and it's obvious that the space alien IS the guy we've been hearing all along, laughing at our stupid evolutionary process.

J.8.C EVOLUTION AND GOALS

CREATURE	NOTES
Amoeba	Chase after molecules
Fish, shark	Creepy ancient fish, shark, …
Salamander	
Lizard	
Bird	Catch bugs, build nest, sit on egg and hatch next species!
Sloth	
Wolf (ancient)	
Saber-Tooth Tiger	
Wooly Mammoth	
Gorilla	Stone weapons and clubs
Chimp	Rope, pulley, box, banana puzzle
Caveman	Discovers fire, simple tools
Ancient Man	Gunpowder, steam engine, writing
Modern Man	Couch potato, TV, VCR (flashing time)
Future Man	(No hair, pale, super thin, big head, big eyes)

There is a lot of potential for atmosphere and humor throughout evolutionary history. The cool environments (ocean, beach, pond, tropical jungle, forest, cave dwellings, castle, modern living room, futuristic laboratory) can be rich with detail, like ambient sounds, background activity, special effects, etc. Even the creatures themselves will have cool noises, behaviors, and animations. Monkey screams, bird squawks, sloth squeaks, gorilla roars, caveman grunts, mammoth trumpeting, tiger roars and snarls, etc…

We might take small liberties with creature abilities, like letting a dolphin emit a sonic blast that can blow up small fish.

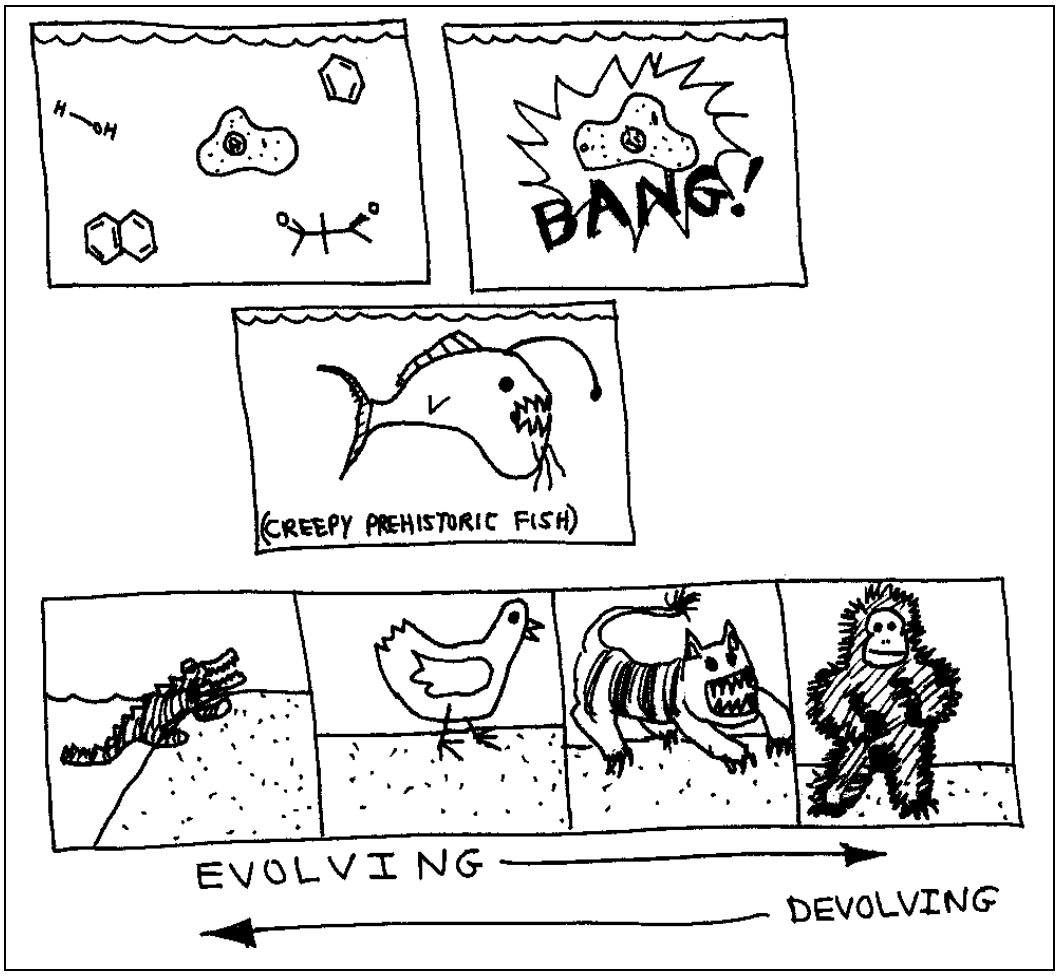


FIGURE: "Amoeba" evolves to a creepy, pre-historic "Fish", with an explosive "BANG!". Similarly, creatures like "Alligator", "Chicken", "Tiger", and "Chimp" evolve to the next creature type in a kind of small explosion.

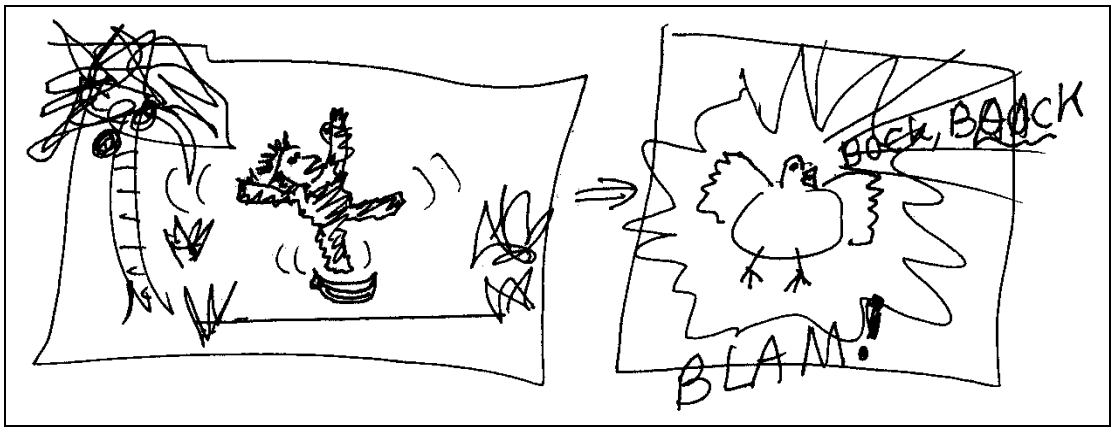


FIGURE: Some actions by the creature are so unbecoming of the species that we cannot accept the action without severe punishment. If a monkey, for example, slips on a banana, it is so egregious, so wrong, considering that a monkey is supposed to be a banana expert, that he immediately *devolves* in to a chicken!

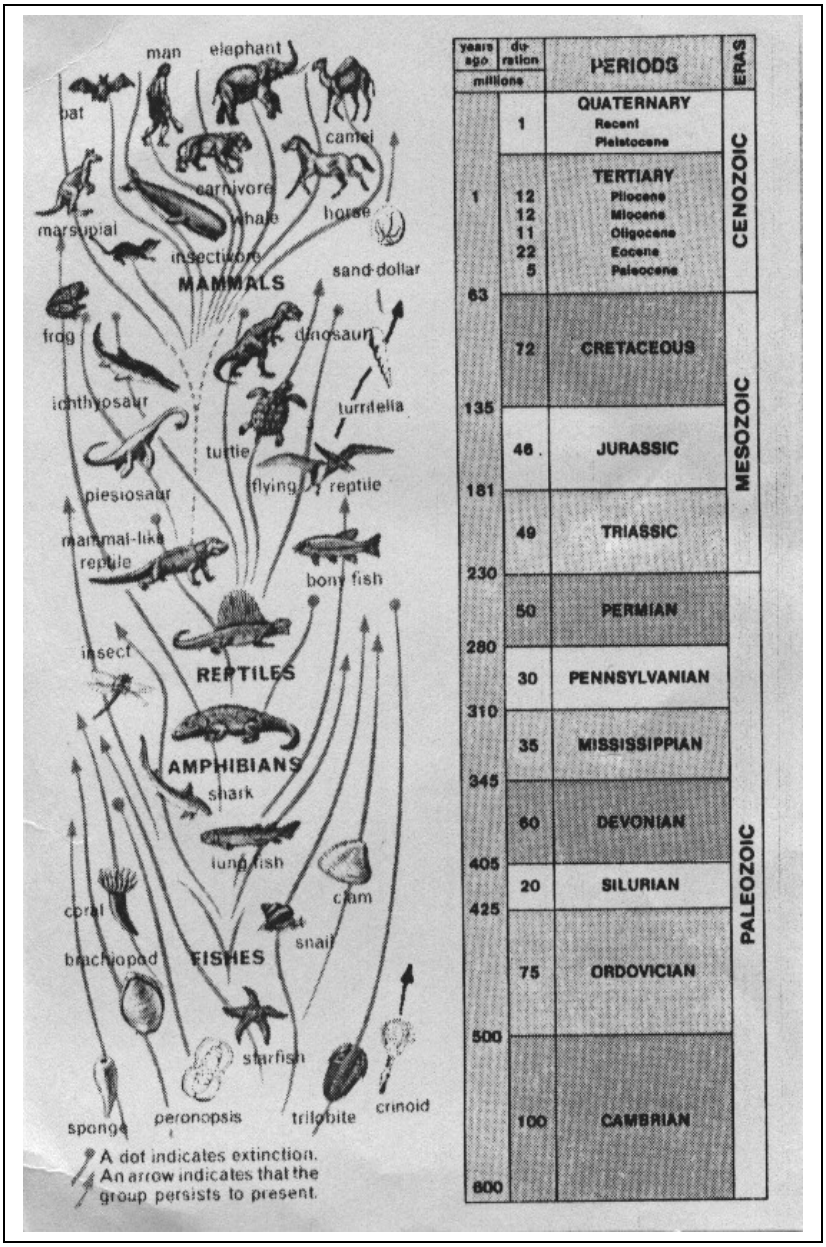


FIGURE: True Evolution

J.8.D DEATH MATCH DESIGN CONSIDERATIONS

Death match mode will be called "Natural Selection" Mode.

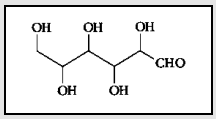
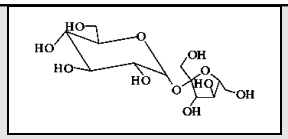
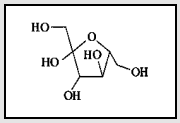
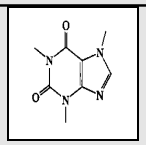
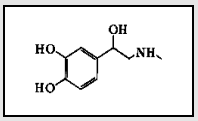
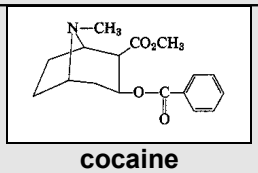
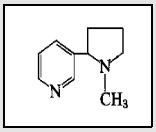
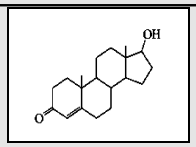
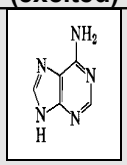
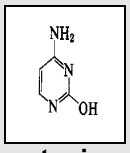
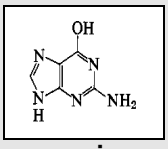
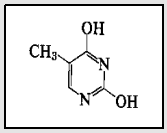
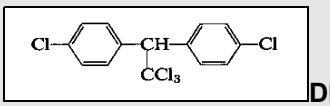
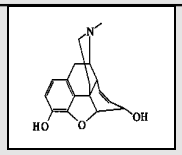
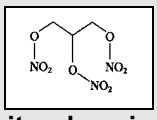
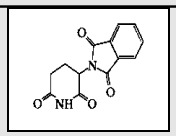
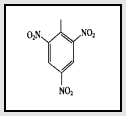
People are probably going to want to play "human", but we should have bots for all other creature types. The creatures' powers should be balanced so that any creature has a fighting chance. The caveman is stronger than a human, but can't operate doors or guns, or do anything "smart" that humans can do. In death match mode you directly control the caveman (or other creature), unlike single-player mode, but even direct control is not enough to get the caveman to do something beyond his mental capability. When directed to operate a door, the caveman will scratch his head or pound on the door, or do other things to hint that he hasn't a clue on doors!

The tiger can run fast and rip a man to shreds. The gorilla and chimp can climb trees and vines. The amoeba can fling out molecules or something! Birds can fly and peck at victims, or have a squawk attack. Sharks are limited to water, but they are dangerous in their element. Land creatures are helpless in water. Chimps can lay bananas on the ground and other creatures can slip on them. Salamanders can squirt poison, climb rocks and trees, etc.

In death match, creatures re-spawn in random locations when they're killed, and these aren't always the best places! For example, a monkey might appear in the ocean – only to be eaten by a shark. Meanwhile, a shark might re-spawn in the jungle…not so good!

J.8.B AMOEBA

The amoeba has to absorb the correct genetic code molecules to evolve.

 water (neutral)	 glucose (food; sugar)	 sucrose (food; sugar)
 fructose (food; sugar)	 caffeine (jitters)	 adrenaline (heart-pounding)
 cocaine (excited)	 nicotine (addicted)	 testosterone (macho)
 adenine (evolve; genetic code)	 cytosine (evolve; genetic code)	 guanine (evolve; genetic code)
 thymine (evolve; genetic code)	 DDT (poison)	 morphine (pain-killer)
 nitroglycerine (explosive)	 thalidomide (hallucinate)	 TNT (explosive)

All of these molecules, and others, are drifting around in the ocean water surrounding the amoeba. The goal is to get food, while pursuing the necessary genetic codes to evolve beyond an amoeba. Hitting a TNT molecule will cause an explosion, and may destroy any current genetic codes. Hitting nicotine makes the amoeba chase after more nicotine molecules. Hitting caffeine makes the amoeba jitter.

J.8.X CONTROLS

How do you prod an amoeba? How do you influence a monkey? We want the user to essentially have direct control of the creature, but we also want to remind the user that he or she really just has a strong psychic influence over the creature, which opens the possibility for disobedience. We want to keep disobedience to a low level, otherwise the user will feel too out of control, leading to frustration. However, we can gain the user's forgiveness, and added patience, if we clearly explain the causes of disobedience and have clear methods of avoiding disobedience. The user will accept things with reasonable explanations.

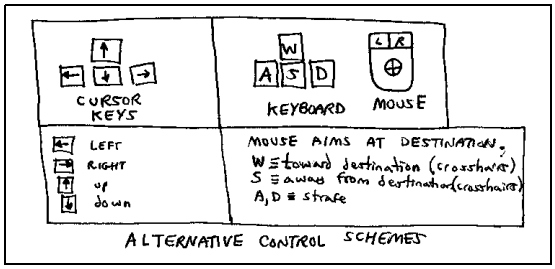


FIGURE: Basic keyboard and mouse control schemes.

Let's say we are controlling an amoeba. The amoeba starts out as completely obedient to our keyboard movement controls, or whatever controls we have. Hitting a NICOTINE molecule, for example, might initiate a period of disobedience, during which the amoeba ignores our controls and instead seeks out other NICOTINE molecules as part of its addiction!

Hitting a tranquilizer molecule slows the amoeba down, and it becomes sluggish and in a sense this is a kind of disobedience.

In all cases of disobedience, we inform the user verbally, using the S.U.I.T. System voice! "Amoeba Tranquilized!", "Amoeba Nicotine Addiction", etc… (NOTE: Although the S.U.I.T. System is part of the CONTEMPORARY LEVELS of the game, we use the same voice here, just because it's is impersonal, analytic, androgynous, and sounds cool!)

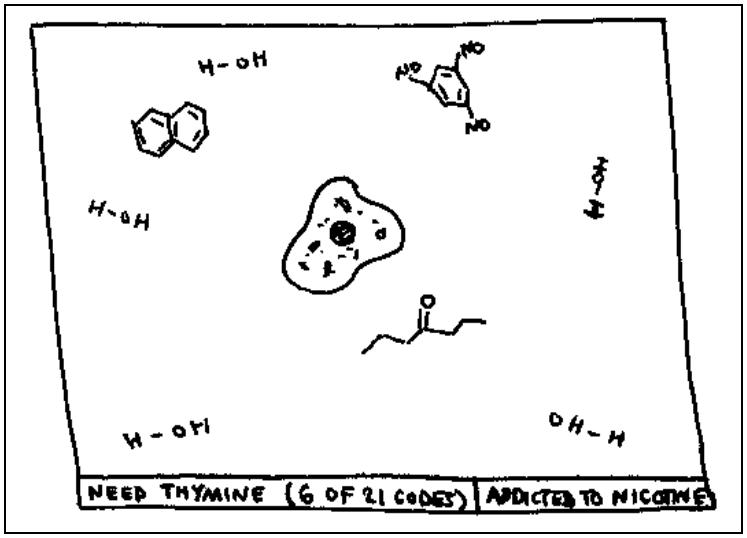


FIGURE: Amoeba in ocean of molecules. We see the CURRENT GOAL and the CURRENT STATUS.

When a creature is disobedient, it is 100% disobedient; it does exactly what it wants.

CURRENT GOAL

The current goal indicator tells the player what his immediate task should be. In the case of a disobedient creature, the current goal indicates what the disobedient creature wants to do. The color of the font used to print the current goal on the screen indicates whose goal is being shown, using a traffic signal color scheme.

FONT COLOR	MEANING
GREEN	Goal for the User; What the player should try to do.
YELLOW	Disobedient Goal (almost obedient; less than 40% disobedience time remains)
RED	Disobedient Goal

Example goals:

SEEK THYMINE
SEEK NICOTINE
SEEK BANANA
SCRATCH HEAD

CURRENT STATUS

The current status indicator summarizes the status of the creature, which may be the motivation for the current goal, or it may explain an obstacle to the current goal. The color of the font used to print the current status on the screen indicates if the player is in control, using a traffic signal color scheme.

FONT COLOR	MEANING
GREEN	Player is in control
YELLOW	Creature is in control (almost obedient; less than 40% disobedience time remains)
RED	Creature is in control

Example status messages:

STATUS MESSAGE	EXPLANATION
OBEDIENT	Appears in green; the creature is obedient to user control, and there's nothing better to say in terms of its status.
ADDICTED TO NICOTINE [13.2]	Probably appears in red. The creature is disobedient, and we see a countdown timer in tenths of a second in the square brackets as part of the status.
ADDICTED TO NICOTINE [03.1]	Probably appears in yellow. The creature is disobedient, and we see a countdown timer in tenths of a second in the square brackets as part of the status. The time of disobedience, however, is probably nearly expired, relatively speaking, which is why the text would appear yellow.
BORED	Probably appears in yellow. This is "soft disobedience", when there is no time limit. It's just that you haven't asked the creature to do anything. You can escape from this kind of "soft disobedience" simply by doing anything.

Here are some examples of status and goals for various creatures:

AMOEBA

STATUS	GOAL	EXPLANATION
ADDICTED TO NICOTINE [17.3]	SEEK NICOTINE	The amoeba hit a NICOTINE molecule, and is now addicted to NICOTINE. It is disobedient and seeks out more NICOTINE. The only hope is that the next NICOTINE molecule is so far away that the addiction runs out before the disobedient amoeba gets to it and perpetuates the addiction.
TRIPPING ON LSD [13.0]	CHASE PRETTY MOLECULES	The amoeba hit an LSD molecule, and became disobedient, chasing "pretty" molecules with reckless abandon.
TRANQUILIZED [5.1]	ZZZZZZ….	The amoeba hit a molecule with a tranquilizing effect. It obeys user control, but it is sluggish and practically asleep!
(6 OF 21 GENETIC CODES)	SEEK THYMINE	The user is in control. The goal to evolve requires a specific genetic code (part of a sequence).

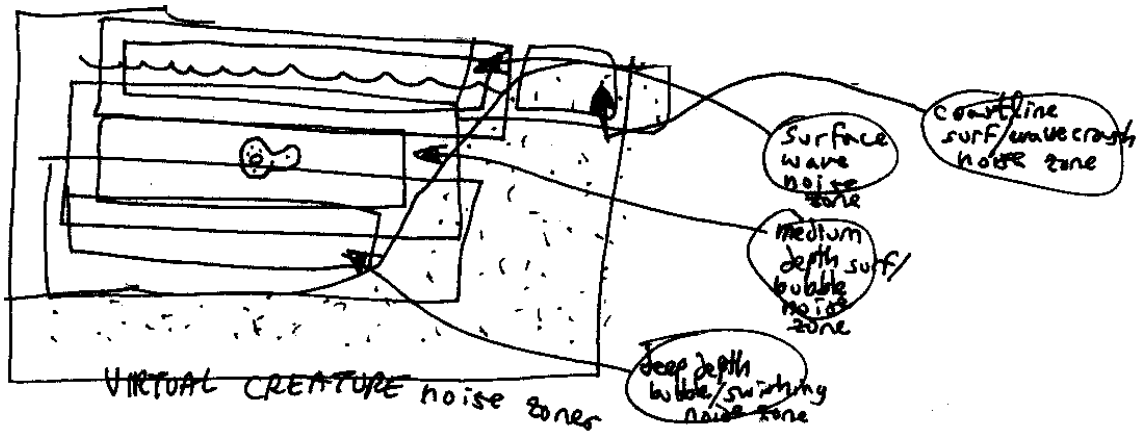
MONKEY

STATUS	GOAL	EXPLANATION
DELERIOUSLY HUNGRY	SEEK FOOD	The creature is desperately hungry, and is disobedient until it finds food on its own. It will eat almost anything and will then become obedient. Having the creature lose an "evolution point" for becoming so hungry punishes the user.
BORED	SCRATCH HEAD	The creature is bored. This is "soft disobedience" cause by a lack of user control activity. The user can just sit back and watch the creature change between "soft disobedience" states. Any activity resumes control of the creature, if they didn't get in to serious disobedience states, like "DELERIOUSLY HUNGRY", etc.
EVOLVING	SOLVE BANANA PUZZLE	The user has to solve the puzzle in order to get enough "evolution points" to evolve to the next creature.

HUMAN

STATUS	GOAL	EXPLANATION
DISTRACTED BY TELEPHONE	ANSWER TELEPHONE	Human is disobedient.
DISTRACTED BY PAGER	RESPOND TO PAGE	Human is disobedient.
DISTRACTED BY E-MAIL	RESPOND TO E-MAIL	Human is disobedient.
HUNGRY	RAID REFRIDGERATOR	Human is disobedient.
EVOLVING	SET FLASHING CLOCK ON VCR	User is in control. This is the task he must perform to earn "evolution points".
EVOLVING	SOLVE CROSSWORD PUZZLE	User is in control. This is the task he must perform to earn "evolution points".

Here the creature (HUMAN) will behave like a person from "The Sims" video game. The human can be distracted, just like a Sims character can freak out during a kitchen fire, but we soon regain control.


Surface wave noise zone
coastline surf/wave crash noise zone
medium depth surf/ bubble noise zone
deep depth whale/swishing noise zone
VIRTUAL CREATURE noise zones

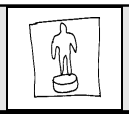
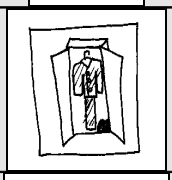
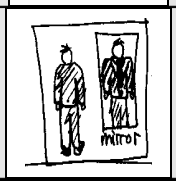
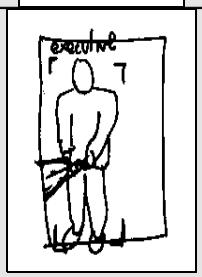
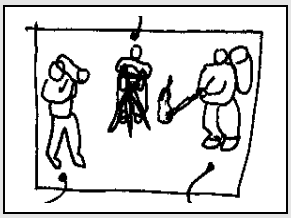
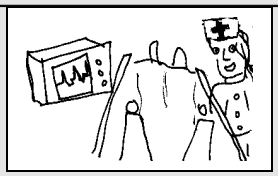
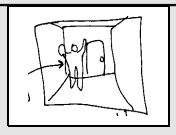
K.0 CONTEMPORARY LEVELS OVERVIEW

K.0.A. INTRODUCTION

X…

K.1 "S.U.I.T. TRAINING COURSE"

K.1.A. INTRODUCTION

	Holographic Woman: "Welcome to the 'Critical Mass' training course. We will train you to become an executive."
	Holographic Woman: "Step in to the expensive Italian suit which you see in the cabinet."
	S.U.I.T.: (Speaks in monotone word fragments, just like the HEV suit in the game Half-Life, perhaps with flange): "Welcome to the 'S', 'U', 'I', 'T' system, for use in business transactions, and to promote user confidence and domination."
	Holographic Woman: "Make a deal with the executive you see in front of you. Simply click on him to shake hands." (Waits for mouse click…) Other Executive: "It's a deal." (2nd click: "Pleasure doing business with you.") S.U.I.T.: "Warning: Sleazy business man detected. Bribe money administered." Holographic Woman: "Congratulations. The SEC will cancel the audit of your company."
	Holographic Woman: "Your suit will protect you against typical business hazards, like flame-throwers, bazookas, and anti-aircraft machine guns. Approach your angry business associates." Exec#1: "Where's my money?!" Exec#2: "I trusted you, you sonofabitch!" Exec#3: "'Guaranteed', my ass!" The flame-thrower, bazooka, and machine gun all fire nearly simultaneously with devastating fury and sound. The screen shakes violently and turns to pure white, and maybe we hear a heavenly choir singing.
"FIVE YEARS LATER…"	We see the text "FIVE YEARS LATER…" on the white screen.
	When the fade-in is complete you see that you are in a hospital bed; you can see your hands and feet in front of you, and you hear the "beep, beep, beep" of the heart monitor. A nurse is beside the bed, surprised to see you awaken. Nurse: "Wow! You're alive! I guess I owe Nurse Hill two dollars."
	You're instantly transported back to the training course, to the exact spot where you were blown to bits. Holographic Woman: (shrugging) "Uh, I guess the SUIT pretty much only protects *itself*!…I did not *know* that…Sorry. So, you're going to have to not get shot or blown up."

K.1.B. S.U.I.T. MESSAGES

The following S.U.I.T. messages can be issued at any time during game play. They don't necessarily require any justification! We COULD trigger them based on certain conditions, but it doesn't really matter. We should space them out so we don't hear each comment more than once or twice over the entire game, and so we don't run out of comments too early.

These comments should be spoken just like the "HEV suit" voice in the game "Half-Life", which means speaking each word as a completely separate entity, in pure monotone, with an androgynous voice (maybe female, but with flange effect).

"Warning: User boredom detected. (Pop!) Happy pill administered."
"(Doo-doo!) Power: one point twenty-one jiga-watts."
"Minor wrinkle detected. Seek dry cleaning immediately."
"Business opportunity detected. (Puff!) Cologne administered."

K.2 "SWITCHES & BUTTONS"

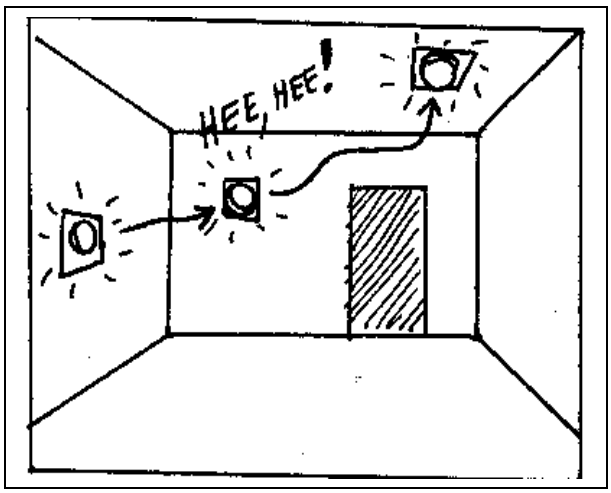


FIGURE: Moving button evades you…C'mere little fella'.

K.2.A INTRODUCTION

The "SWITCHES & BUTTONS" level is inspired by the importance of switches and buttons in many first-person action games. In fact, the primary goal of most video games is to find and press these important buttons, blocked by locked doors or guarded by monsters.

Well, here we cut right to the chase. The buttons ARE the challenge! No more wandering all over creation to find a switch or a button; they're right in front of you. But they present their own…problems!

K.2.B. LEVEL DESCRIPTION

The "SWITCHES & BUTTONS" level is primarily a sequence of rooms, each connected to the next by a locked door. The implicit goal, made obvious by the first room, is to open each door and advance to the next room. The first rooms involve various button and switch pressing puzzles, where solving the puzzle opens the locked door.

When the player enters a room, and is sufficiently far from the door from which he entered, this door instantaneously closes, and fades out to reveal solid wall. Therefore, if the player turns around, all he will see is a solid wall, with no gaps or seams. The only door to be seen is the locked door to the next room. Successive doors, from room to room, have very different color biases (always dominated by a dark, neutral gray, but clearly biased by a basic color: red, orange, yellow, green, blue, indigo, and violet). This will make it obvious to the player, after the previous door vanishes, that the remaining door is a NEW door that he must go through.

Each room looks like it's made of dark gray concrete (walls, floor, ceiling).

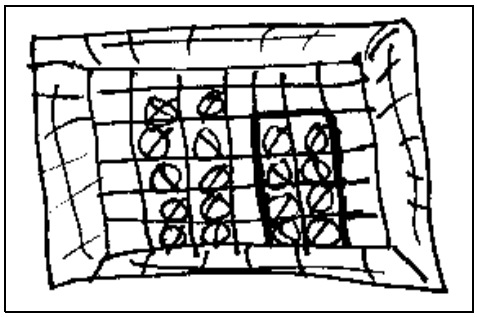
AREA #1: SINGLE BUTTON (INTRODUCTORY ROOM)

This room has a single illuminated button on the wall. The room, apart from the button and a single locked door, is empty. The player pushes the button, and the door swings open.

AREA #2: THREE SWITCHES

This room has three two-state (ON/OFF) switches on the wall, next to a locked door.
The player must set the three switches to (1) ON; (2) OFF; (3) ON; and the door will swing open.
Clicking on a switch toggles it to the opposite state (OFF ←→ ON) and changes the entire illuminated color of the switch from dark red to bright orange. (Green and red don't look good together, and green suggests "go" or "okay" or "good", and the player may wonder why setting all switches to "go" (green) doesn't open the door. On the other hand, maybe people want green?)

AREA #3: WALLS, FLOOR, CEILING, DOOR ALL COVERED BY SWITCHES



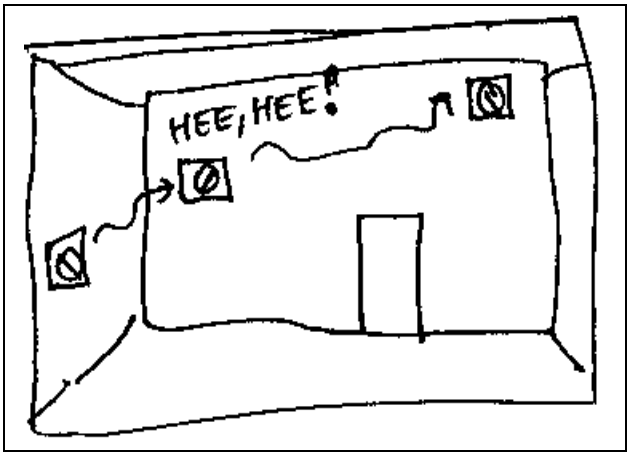
This room has all of its surfaces (walls, floor, ceiling, door) completely covered by a grid of identical two-state (OFF/ON) switches. All switches are initially in the OFF state. Each switch in the OFF position has a dark red illumination, and when a switch is put in the ON position it has a bright orange illumination. The player faces any given switch, even those on the ceiling, with his crosshairs on the switch, and clicks the mouse button to toggle the switch state (OFF ←→ ON).

The player can not easily see the door, since it is covered by switches and blends in with the walls, etc. However, the door is not exactly flush with the plane of the wall, so the player can notice the location of the door, however this is just a nice touch rather than a part of the puzzle.

Of course we expect the player to freak out. What switches to throw? Just to make him sweat, we don't give him any feedback when he throws switches, other than the normal "click" sound and color change.

The solution is just to alter five (5) different switches (arbitrary number to be tuned according to the patience or random players). When the player does this, we hear: "Lucky guess!", and the door opens.

AREA #4: WANDERING BUTTON



This room has a single button on the wall. When the player is in range of the button, and actually clicks the button for the first time, the button instantaneously moves about 1 foot in a random direction and emits a shy giggle ("Hee, hee!"). The button is shy, happy, and ticklish.

When the player shifts his aim (mouse cursor crosshairs) to get the button, the button giggles and moves further away. The button becomes increasingly excited and shy, and eventually the button continuously seeks a position on a wall (or door, ceiling, floor) that is the furthest from the player.

The solution is to remain still (no walking) and wait for the button to calm down and head to your position, at which point the button can be pressed.

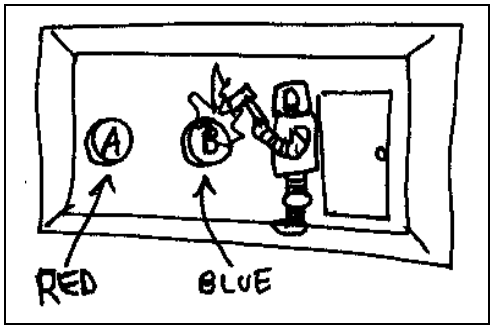
The button's giggles grow more worried and obviously excited as its panic increases; they're still pure giggles, but somehow more intense in an artificial, creepy, psychotic way. But the button does calm down, if you don't rush toward it.

The button's behavior should be tuned so that players quickly recognize that the button can calm down, and that the key is just to remain still and wait for the button to come back!

Maybe you hear a critic say: "C'mere little fella!" When the player is still and the button is just on the threshold of coming over to the player.

The button can move freely on all surfaces of the room, like an ant. It moves deliberately, and stops; it does not drift. Its speed depends on the threat presented by the moving player; escaping at a matching speed, and slowing to a stop when sufficiently far away.

AREA #5: INTERVENTION FROM THE FUTURE



The room has two large, illuminated buttons on the wall: "A" (RED) and "B" (BLUE), and a locked door.

The player wanders over to an arbitrary button. When the player is within a particular distance for a particular button, and perhaps even when the player presses the button, there is a thunder clap sound and a flash of yellow rays directly in front of the player. The player is pushed back to the midpoint of the room, and the player's camera pans to a target location that allows him to see both buttons and the door.

A man in a funny space suit (big glass dome for a helmet, and dark silver cans on body parts, linked by corrugated black rubber joints, vaguely reminiscent of the robot from the television show "Lost In Space") appears out of the sparks, holding a sledge hammer high above his head. Immediately we hear him loudly proclaim: "I was sent from the future! You caused 4 million years of human misery by pressing the (RED/ BLUE) button!" (He says this while giving the button a huge whack. The button smashes and sparks and flames fly out, followed by faint smoke.) When the button is smashed, the man walks to the corner closest to the button and turns to face you, with his back directly against the wall.

The player can attempt to press the broken button, and with each press there will be an electrical cracking sound, more sparks, and the faint smoke continues to drift upward.

When the player approaches and tries to press the other button, there is another thunder clap sound and another flash of yellow rays in a radial pattern. Again the player is pushed back to the center of the entire room, and his attention is centered between the two buttons, but biased toward the remaining button.

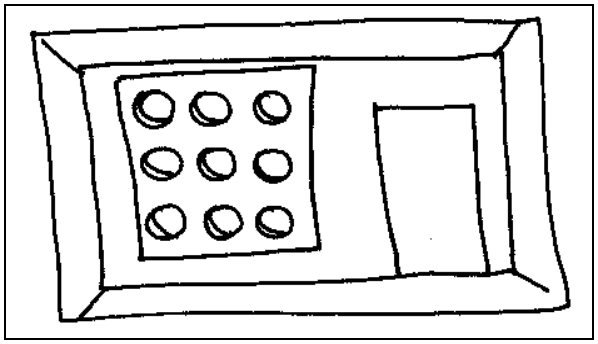
A second man in a funny space suit appears out of the sparks, holding a sledge hammer high above his head. Immediately we hear him loudly proclaim: "I was sent from the future! We're still miserable! It must be this (BLUE/RED) button!" (He says this while giving the button a huge whack. The button smashes and sparks and flames fly out, followed by faint smoke.) When the button is smashed, the man walks to the corner closest to the button and turns to face you, with his back directly against the wall.

When both men are standing still and facing you, a brief moment passes with no talking or moving, and then there is another thunder clap sound with a radial pattern of bright yellow rays. The player is pushed to the center of the room, and his camera is centered between the two buttons, with both men in full view at the left and right sides of the screen. Meanwhile, the sparks are in the very center of the screen.

A third spaceman appears from the sparks and is facing you with both arms at his side. He addresses the player directly: "I was sent from the future! We now believe that it was sending these two guys to the past that caused the problem! Sorry!" This third man reaches to his left and right and easily pulls the other two guys by their necks closer to him, saying: "Lord Button wants a word with you two!" As the third man says this, there is a cool, flanged buzzing sound and all three men are alpha-blended away, quickly becoming glassy and completely transparent.

After all of this is over, the door swings open automatically.

AREA #6: TIC-TAC-TOE



There is a three by three (3x3) grid of large, semi-transparent gray raised buttons on the wall. When you push a button, you hear an A440 beep and the button becomes illuminated in orange (like an orange neon bulb was in the clear button).

There is a pause of about one-second during which all attempts to press buttons is ignored. After this pause you hear an A220 low-pitched beep, and one of the other gray buttons becomes illuminated by a red color.

If you push any button that is already illuminated (red or orange), you hear a really low-pitched A110 beep, and nothing else happens.

If you push an available gray button, it too will emit an A440 beep and become illuminated with an orange color. And again, there will be a one-second pause, after which there will be an A220 beep and some other gray button will become illuminated by a red color.

The player should soon realize that he is playing a game of TIC-TAC-TOE, where he is the ORANGE player, and some AI is the RED player.

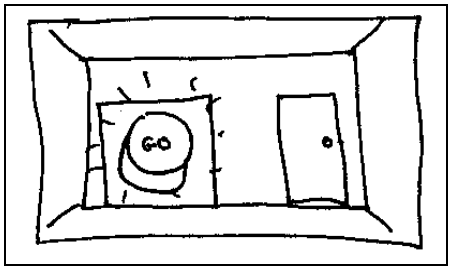
If at least five moves have been made, and it is impossible for either player to win the game, the board is cleared with an A110 beep (really low pitch), and there is a pause of one second before any input from the player is accepted. This will speed things up; no waiting for an inevitable stalemate.

If the AI wins, we hear a quick A220 beep-beep-beep. In another moment the board is cleared for the next game to begin.

If the player wins, we hear a rapid A440 beep-beep-beep, and the door swings open. In another moment the board is cleared and all further input from the player is ignored.

The AI will play perfectly for the first two games. All future games, and the AI will have a one-quarter chance of making a random move on any given move. This will lead to random errors that will eventually allow the player to win against the AI.

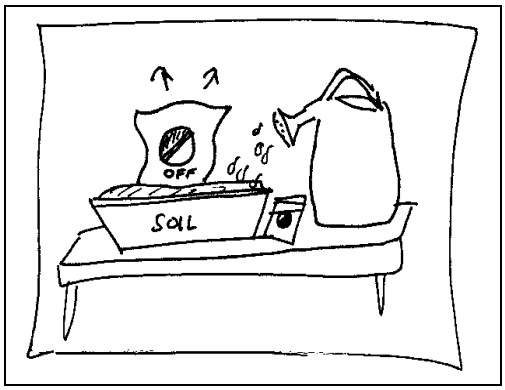
AREA #7: GIANT BUTTON



There is a really huge green illuminated semi-transparent glassy button, about six (6) feet in diameter, on the wall beside a locked door.

The user simply walks up to the button and clicks on it to press it. But on the first press we just hear huffing and puffing, and grunts of hard muscular exertion: "Grrrrr….Huff, puff…" When the player presses a second time we hear another grunt and huffing and puffing, but we also hear sliding and scraping noises, and the semi-transparent cap of the button sinks in to the wall, and then we hear a loud "click" sound, and we hear the door swing open.

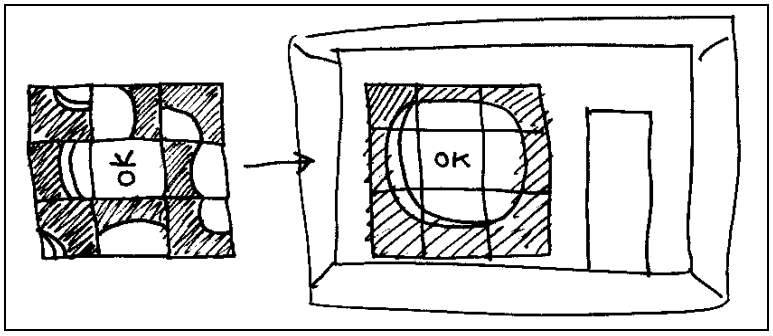
AREA #8: GROW-A-BUTTON



There is a table in the middle of the room. On this table there is a watering can, a big tray of soil, and a big bag labeled "Button Seeds".

The player must click on the bag of seeds, at which point they float at arm's length in front of the player, attached to the mouse crosshairs. Then the player must point to the soil (the mouse crosshairs must touch some part of the soil or the tray), at which point we see seeds drop on to the soil. The player can drop seeds anywhere, and they persist, up to a limit of fifty seeds. If the player drops more than fifty seeds, then the oldest seeds disappear, so that fifty seeds in conserved. The player must then click on the watering can, at which point the bag of seeds instantaneously appears at the original location on the table, and the watering can instantaneously appears under the mouse crosshairs. The player can run around the room and press the mouse button to pour water drops out of the watering can; we see the watering can tilt while still centered under the mouse crosshairs at all times, and little bright blue-green water drops (particle system) drop out. These drops vanish as soon as they encounter a surface (floor, table, soil). For each drop of water that hits the soil, we see a full-sized (one foot diameter) button rise further above the soil, millimeter by millimeter. After a few seconds of watering, the button is fully exposed. When the button is more than 60% exposed, the user can press it – and the door will swing open. When the door swings open, the seed and the watering can are faded away (alpha-blending to complete transparency), and are disabled.

AREA #9: JIGSAW PUZZLE BUTTON



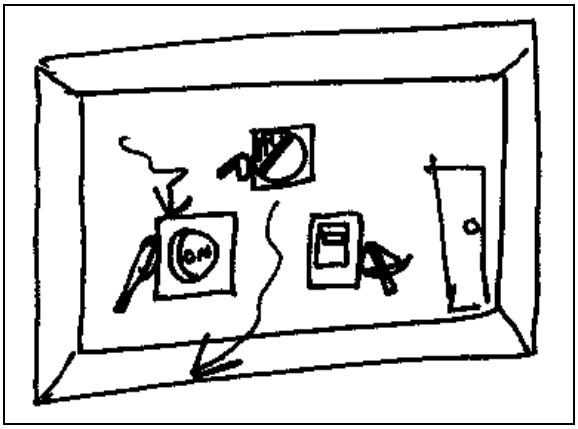
There is a three by three (3x3) grid of large tiles (two square feet each) on the wall. It is obvious that it is a scrambled image of a large button. Clicking on a tile makes it rotate by 90 degrees, and the opposite mouse button makes it rotate 90 degrees in the opposite direction. There is a clicking sound at the start of each rotation.

This is a really easy puzzle. You just click on each tile as many times as necessary to rotate it to the correct orientation. When all nine (9) tiles are in the correct orientation, forming a perfect image of a huge button, you hear a bell sound ("ding!").

Each tile has a black border that is one or two inches thick, so that it is clear that these are independent tiles. When the image is correctly formed, these black borders disappear.

Still, the player must now press this button image to open the door.

AREA #10: BUTTON DEATH MATCH



The room appears empty when the player enters, apart from the locked door on the far wall. However, after a few seconds we see an MP5 machine gun materialize in the players hands. It looks just like a guy carrying a machine gun in a typical first-person shooting game (Quake3, Half-Life, etc), and a moment later we hear this gun being loaded and prepared for firing.

The player has unlimited ammo, and can start firing the machine gun immediately. There is no reloading. Bullets will streak to the walls or door, and we'll see impact particles and impact marks, with a FIFO queue so that the oldest marks are recycled for new ones.

We wait for the user to start shooting, and then we start a timer that lasts ten seconds after the very first shot fired. This assures us that the player knows how to fire the machine gun (by experimentation or intuition), realizes that the gun can not be used to destroy anything in the room (like the door), and is waiting for something to happen.

When the ten-second timer expires, we hear a transporter buzzing and humming sound, and we see a large button, materialize (rapid alpha blending fade-in) in mid-air, somewhere near any wall. This button character is about the size and shape of a suitcase, but with a raised cylinder about two feet in diameter in its center; so it's like a piece of a control panel with a large button.

The button character…IS HOLDING A MACHINE GUN! The button does not have arms, legs, or eyes, etc. It's just a button, but it moves and acts like a small elf with an invisible arm and hand that holds the machine gun from its right side, rotated slightly toward its line of sight. The button starts to shoot the machine gun at the player, and the player is slightly pushed back by the impact of the enemy bullets.

When the player shoots this single button with about ten machine gun bullets, its red illumination fades out to black (a la terminator) and it falls on its "back", and his machine gun just drops to the ground with a metallic crack and thud. After a few moments the dead button vanishes (alpha-blended fade-out).

A few moments after the first killed button, another button materializes and starts to shoot the player with his machine gun. And a few moments after that, a second button materializes and joins the attack. Then a third button materializes and starts to fight the player.

At random, buttons explode when killed, with button fragments flying in all directions, bouncing off of the walls and tumbling through the air before rolling and skidding on the ground.

For a while there is a plateau of about three materialized buttons attacking the player at any given time (i.e., a new button quickly appears every time one of the three previous buttons is destroyed and disappears). However, after thirty seconds (or whatever), the button attack escalates, so that at the battle's peak there are ten or fifteen buttons swarming around the player, all shooting machine guns. The buttons should be easier to kill at this stage, so that the player feels like the tide is turning and that he is not being overwhelmed.

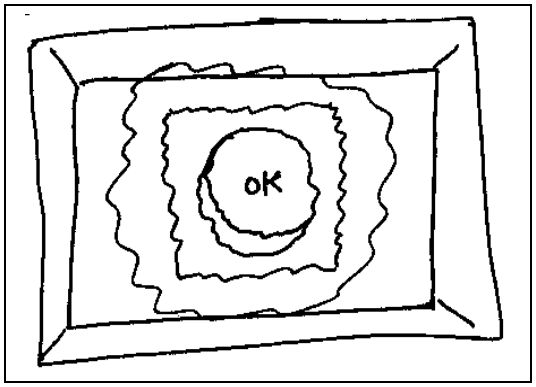
At the bottom of the screen is a discreet, but obvious health bar that spans the entire width of the screen. It starts out completely green. With each hit from the enemy, the player's health bar goes down. If the player does nothing, the buttons can "kill" the player. When the player's health bar falls below 50%, it turns yellow. When the player's health bar falls below 25%, it turns red. When the player's health bar falls below 12%, it starts pulsing red (quick attack to full brightness red, and a rapid linear decay to medium brightness red).

If the player dies, the camera tilts on its side (like the player fell over), and the screen fades to black. After turning completely black, a moment passes and the room reappears in its original empty condition, and the players hands are empty. Essentially the whole process begins again. The next thing to happen is the sudden appearance of the machine gun in the player's hands, etc.

The combat should be tuned so that the player has about a 25% chance of surviving the first battle with the buttons. This will teach the player that CRITICAL MASS™ is a tough game! But the second round of fighting should be tuned so that by the time the player's health bar is at 25%, all of the buttons are dead.

When the player wins the battle, there is a beeping sound and the door swings opens. At the instant of victory, the player's machine gun vanishes (alpha-blending fade-out) and is disabled. All dead buttons, button debris, and machine guns on the floor, vanish at an accelerated rate – in synch with the player's machine gun vanishing.

AREA #11: LORD BUTTON GIANT HOLOGRAM



The player enters an empty room. There are a few moments of silence.

Then there is a buzzing, humming, crackling sound, and the walls of the room become brighter. We see a fuzzy, bright white cloud forming in the center of the room. Soon the cloud dissipates, leaving the bright, shimmering and warping image of a giant button.

The button is light blue, and when it speaks there is additional brightness according to the intensity of the sound of its voice.

The button says: "Im-PRESS-ive! Most im-PRESS-ive! But don't PUSH your luck!".

After saying this, the player can click on the hologram of the button to "press" it.

If the player does not press the button after five seconds, then the hologram prods him by saying: "Nobody PUSHES *MY* button!" It will repeat this every five seconds, until the player presses him.

With each successive button press by the player, the button advances to a new phrase. It will repeat this new phrase every five seconds until the player pushes the holographic button again. Only by clicking through all of the phrases will the player solve this "puzzle".

(1) "First im-PRESS-shuns are important."
(2) "I will not tolerate your op-PRESS-shun!"
(3) "I sense a PRESS-ense!"
(4) "Feel the PRESS-shure!"
(5) "You are so de-PRESS-ing."
(6) "You are im-PRESS-shunable."
(7) "You have a lot of re-PRESS-ed memories!"
(8) (beep) "PRESS O.K. to continue…"

and finally…"PRESS-toe"! ("presto!")

With that final phrase, the door swings open.

K.3 "AIR DUCT"

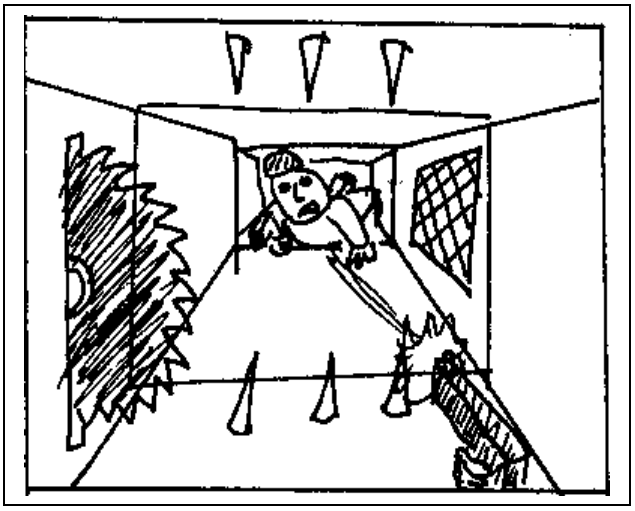


FIGURE: Never has an air duct been so…challenging!

K.3.A INTRODUCTION

The "AIR DUCT" level is inspired by the importance of air ducts in many first-person action games. In fact, an air duct system often becomes the primary means of getting around certain game levels of these video games. Well, here the air duct IS the level!

But our air duct will be the most complex, action-packed air duct ever encountered. Our air duct system will put all others to shame.

K.3.B. LEVEL DESCRIPTION

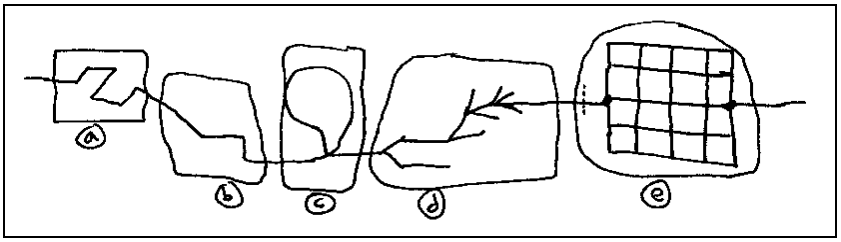


FIGURE: Basic map of our air duct system.

Here is a brief list of air duct regions:

(a) Introductory Zigzag;
(b) Huge Slide and Fall;
(c) "Infinite" Loop;
(d) Branching Tree;
(e) Grid of Death.

AREA #1: INTRODUCTORY ZIGZAG

This is a simple zigzag path, allowing the player to get used to moving in the air duct.

AREA #2: HUGE SLIDE AND FALL

This is a very steep incline, like a laundry chute. Also, it's about a 200-foot fall. When the player first walks in to the inclined area, there doesn't seem to be a problem controlling movement. However, when the player is at least 30 feet in to the chute, any attempt to move backwards (upwards) results in slipping that increases to 100% slipping at the very top of the chute – guaranteeing that the player will not be able to return to the top of the chute. As the player moves beyond the 30-foot depth in the chute, the slipping increases to 100% at the rate of 5% per foot. The degree of slipping is cumulative, so that regardless of a player's actions, the slipping only increases. Attempting to remain still is futile. Basically, the goal is to have the player notice slipping, have early success with resisting, but quickly make the slipping 100% and have the player terrorized as he slides about 200 feet down the chute at high speed.

The skidding and slipping should have sound effects that makes it very obvious that the player is skidding. For example, we hear sweaty hands rubbing against the smooth metal interior of the air duct, making a distinctive screeching and squeaking sound. Also, when the sliding becomes severe, we hear the sound of the entire body sliding against the chute (high-speed, dull material rubbing sounds, and maybe the rushing of air, and maybe flange effects), with occasional screeches and squeaks from futile attempts to slow down using his hands.

Once the player reaches the bottom of the chute, we hear him cry in pain: "Oooofffff!" But it's not over. The player skids on a short, level part of the air duct, reaching a shear 50-foot drop in the air duct. He falls and hits the bottom hard: "[Boom!] Owwwwww!"

When it's all over, the player can not return the way he came.

AREA #3: "INFINITE" LOOP

There is a tight loop; like a radius of 20 feet, so that the player notices the obvious circular arcing of the loop. This loop is on a plane parallel to the ground, and it takes only ten seconds to crawl completely around the loop.

When the player enters the loop, there is an explosion or something unusual that makes a distinctive mark on the wall of the air duct. When the player is halfway through the loop, the loop becomes an isolated doughnut; a true infinite loop. At this point the player can go forward or backwards, and he will pass by the same distinctive mark. Hopefully the player will realize that he has passed the exact marking before, because it is unique (caused by an unusual event), unlike a sign or fixture that might appear in several places.

The only way out of the loop is to go around three times. Going backwards a full turn counts toward this goal. After three turns has been reached, any further movement forward will be in a "new" air duct that is "normal", continuing to the next area.

NOTE: This loop can't be "real" geometry. Special rendering logic will have to handle the doughnut phase, and the entering and exit phases.

AREA #4: BRANCHING TREE

The player goes forward in a straight, level part of the air duct, and encounters a fork, with two different air duct paths. The first path the player selects will always be a trap and a dead-end (must turn back). When the trap zaps the player, he must backtrack to the location of the fork. At that point, both paths become identical, leading to the next area.

The player then encounters another fork with two (2) options. Both of these new paths are identical; the player's decision doesn't matter. Either path leads to the next area.

The player then encounters a "fork" with three (3) alternative paths. The player will think all of this is building up to a very complex maze, and he may consider drawing a map in anticipation of lots of backtracking. However, all three paths are identical; all lead to the next area.

The player then encounters a "fork" with four (4) alternative paths. Now the player should be freaking out. Committing to one of these paths means that he's selected one out of 2x3x4=24 paths (assuming the alternate paths lead to similar forks). The cost of choosing the wrong path just got bigger.

Then the player encounters a "fork" with five (5) alternative paths. Again, they're all equally good.
Finally, the player encounters a "fork" with five (6) alternative paths. Again, they're all equally good.
All of the forks are in small chambers with a shape that corresponds to the number of paths.
Here is a table of fork properties:

FORK	OUTGOING PATHS	CHAMBER COLOR	CHAMBER SHAPE
#1	2	Red	Triangle
#2	3	Orange	Square
#3	4	Yellow	Pentagon
#4	5	Green	Hexagon
#5	6	Blue	Heptagon

Each of the outgoing paths are numbered: "1", "2", "3", etc. For example, in the first fork we have two outgoing paths, labeled "1" and "2". The incoming path is always labeled "X".

AREA #5: GRID OF DEATH

The player enters a grid of air ducts, and the entrance closes behind him. He sees the exit air duct directly ahead of him, but as he approaches the first intersection in the grid, an enemy appears.
Enemies include: People with guns; Monsters; Traps; etc.

After reaching the exit, the final part of the air duct has the following series of traps:

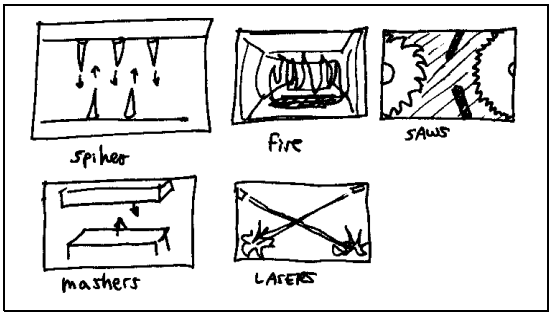
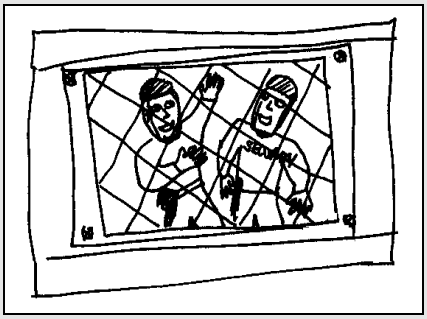


FIGURE: (a) Spikes; (b) Flames; (c) Saws; (d) Mashers; (e) LASERS;
All traps follow predicable patterns of oscillation.
Somebody should comment aloud: "Jeez! Who would booby-trap an air duct?!"

RANDOM ENCOUNTERS

The player passes by air duct vent gratings from time to time. As the player approaches each vent grating, sound effects and a conversation is triggered, attracting the player's attention.

SCENARIO	DESCRIPTION
 **Security Officers**	Two security officers in a control room are exchanging secrets that would confirm every conspiracy theorist's nightmares. "Our secret invasion begins in one hour. Keep your helmet on, otherwise the global mind-control ray will turn your brain in to mush! Man, if people knew that half the population was really government-controlled robots, they'd freak. The space aliens are demanding more human corpses to feed their troops."

SCENARIO	DESCRIPTION
Laboratory	**ROBOT:** "Humans are weak and must be destroyed." **SCIENTIST:** "We created you! Let us live!" **ROBOT:** "That is illogical. You must be exterminated." **SCIENTISTS:** "Noooooo!" **ROBOT:** (Firing LASER beams) "Die! Die! Die!" **SCIENTISTS:** "Aaaaggghh!"

SCENARIO	DESCRIPTION
Self-destruct Button	**COMMANDER:** "Are you sure this room is secure? We don't want people just coming in here and pressing the SELF-DESTRUCT button, and blowing up the entire base." **OFFICER:** "Yes, sir. The walls are twenty feet thick, made of solid titanium. A person would need to pass ten security stations, and hundreds of armed guards. Retina scanners, voice identification, finger scans, X-Rays, security badges, key cards, and one-time 7000-digit encryption keys; we've got it all." **COMMANDER:** "You're SURE that nobody can get in here." **OFFICER:** "Sir, an invisible, super-genius with telekinetic powers couldn't get in here! Trust me. I designed this place myself." **COMMANDER:** "What about the air ducts?" **OFFICER:** "Air ducts? Hmmmm... I suppose, theoretically, a person could crawl through the air ducts directly to this room, see this enormous red, flashing button labeled 'SELF-DESTRUCT', and press it, blowing up the entire base." **COMMANDER:** "Right. This person could be in the air duct, watching and listening to us right now." **OFFICER:** "We could walk over to the air duct grating to see if anyone is in there." **COMMANDER:** "No, son. Let's leave this room unattended." **OFFICER:** "Yes, sir. That makes sense."

SCENARIO	DESCRIPTION
Outer Space	You see a galaxy, stars, planets, UFO's, nebulae, all through the air duct ventilation grating.

SCENARIO	DESCRIPTION
Alien World	You see space aliens at a control panel, with planet Earth in large crosshairs, and a giant red, flashing button. They're all laughing. They speak in an alien language, but there are subtitles: "Ha, ha, ha, haaaaa! Ha, ha, ha, ha, haaaa!" "Okay, which of us gets to destroy planet Earth?" "Please, let me!" "You got to destroy the LAST batch of planets." "Those weren't planets! They were planetoids!" "Since when?" "Check your charts of this sector." "Well, I don't care. It's my turn to blow up planets. I get to blow up the Earth." "That's going to be hard without a 'space-demodulator'." "Give that back!" "Say 'please'." "Fine, keep it. We'll see how you like it when I put Plutonium in your flying saucer's anti-matter reactor." "That's a childish prank. Besides, I could beam your collection of holograms straight in to a Black Hole." "Oh, that's good. But if I were to atomize your trans-dimensional navigation circuit in your time machine, you'd have to solve a K-level hypercomputing problem before you could escape from the year negative infinity." "Piece of cake. But I could have your sleep chamber altered to put you in such a deep sleep that you'd have to wake up from 7000 layers of dreaming before regaining consciousness." "Impressive idea. Perhaps it's as good as rearranging all of the buttons on your control panel." "Devious! Hardly worse than removing every instance of the number 'one' from your databanks, though." "INTRUDER ALERT. INTRUDER ALERT." "What? An intruder? Where?" "Sensors indicate an intruder is in this room!" "In this room? Impossible!" "What about the air duct?" "Air duct? Nobody crawls through our air ducts." "I guess you're right. Let's leave this room unguarded." "We can blow up the Earth later."

SCENARIO	DESCRIPTION
Huge Missile Silo	**ANNOUNCER:** "Neutron bomb launch in ten seconds… nine… eight… seven… six… five… four… three... two… one." (Rocket fires)

SCENARIO	DESCRIPTION
Under Ocean	You see sharks, fish, submarines, etc, all through the air duct ventilation grating.

K.4 "CRATES"

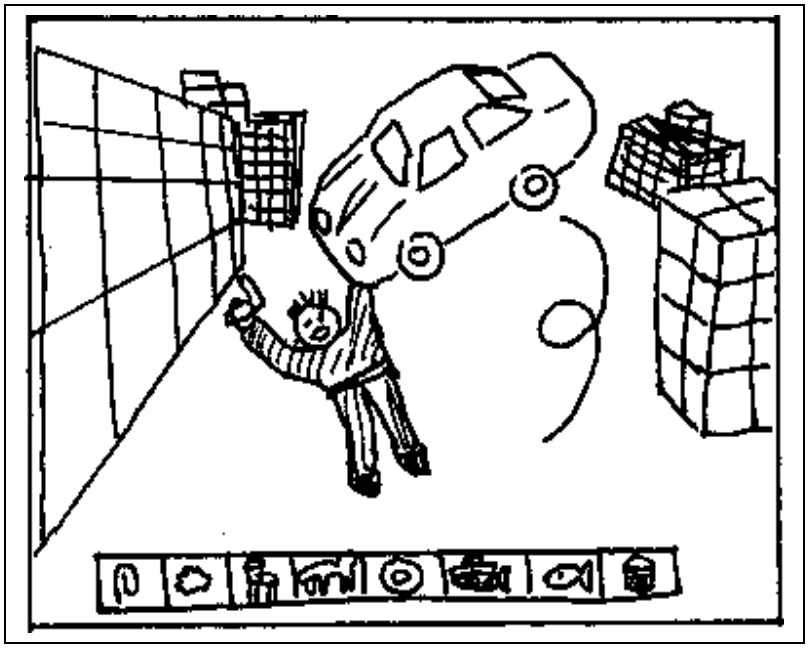


FIGURE: Find a car in a crate. Later, throw it at an enemy with devastating results!

K.4.A. INTRODUCTION

The "CRATES" level makes fun of the importance of supply crates in most first-person shooter games today.

K.4.B. FIRST ROOM

The first of three rooms has a crowbar and a single wooden crate, and a locked door. The player is basically trapped in this small room, with little to do except: (1) Pick up the crowbar; (2) Smash the crate; (3) Pick up the key that was inside the crate; (4) Unlock the door and go to the next room.

K.4.C. SECOND ROOM

The second room has a dozen crates and another locked door. The key will always be found in the last smashed crate, so that the player ends up collecting the items in all other crates before moving to the next room. The other crates contain guns and grenades.

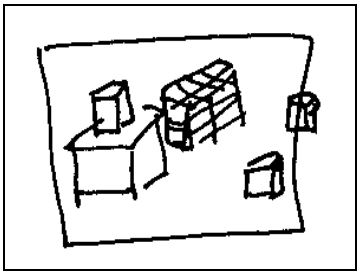


FIGURE: Room with scattered crates.

K.4.D. THIRD (FINAL) ROOM

When the player enters the third room, he immediately sees a huge warehouse filled with crates. In fact, the warehouse is so vast it seems endless. We can't even see any walls or the ceiling! We just see huge piles of crates, arranged like city blocks, vanishing in to the distance. The whole room must be miles wide and deep.

You are faced with thousands of crates that you can smash. After a minute or so you can amass hundreds of medkits, weapons and ammo types – and, as it happens, all items are incompatible. The inventory overlay screen scales to fit all of the different items, until scrollbars are required.

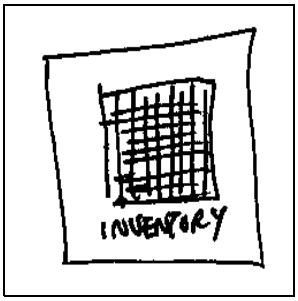


FIGURE: Inventory grid overlay menu with overwhelming number of items.

At first you pick up conventional items (guns, ammo, medkits), but after a few dozen crates you pick up useless oddities, like rocks, tractors, refrigerators, sofas, paperclips…until your inventory reports a total carrying weight of thousands of pounds, and eventually a "million metric tons"!

Your "quick-select" weapon slots on the bottom of the screen become filled with increasingly bizarre items (sofa, plant, rock, car, paperclip, cockroach, …):

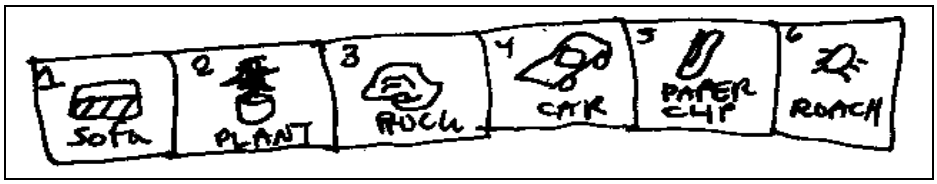


FIGURE: Inventory "quick-select" menu bar on bottom of screen.

Soon after reaching a thousand items (you might get multiple items per crate to speed this up), bad guys attack you from among the stacks of crates (see Half-Life Opposing Force crate level for reference). When they attack, you have no way of selecting conventional weapons from your eclectic inventory (needle in a haystack). So you fight with what you have, with remarkable effectiveness.

Every item in your inventory, from houseplants to paperclips, can be used as a deadly weapon. You select "car" from your inventory, and immediately a full-sized car is thrown at the enemy. The weapon slot is immediately filled with a new, wacky item, like a sofa.

All items are thrown at the enemy as soon as the corresponding number, like "6", is hit on the keyboard. Or, the user can select a "weapon" slot just once (hit "6"), and just continue using that slot by doing mouse clicks to "shoot" (throw).

The enemy is always completely shocked by the stuff you throw at them. After you throw a sofa at an enemy, he may wonder aloud: "How in the world did you carry THAT?!".

"Watch out! He's got a paperclip!"

It's irrelevant what is thrown at the enemy; it always chooses one of the following effects at random:
(1) Explosion on impact;
(2) Explosion after a landing and a time delay (like a grenade);
(3) Instant disintegration of enemy on contact;
(4) Total bloody dismemberment of enemy on contact;
(5) Total eruption in flames of enemy body on contact;
(6) Guided, high-speed flight toward enemy, followed by explosion on contact (guided missile);
(7) Body of enemy totally crushed by object.

So a paperclip can totally dismember the enemy in a bloody splat, and a sofa can fly like a guided missile, turning corners to pursue an enemy and blow them up. Each item causes devastating damage, regardless of the conventional threat or capabilities; each item operates in perfect analogy to real weapons. In fact, we might say that "SLOT #5" items always act like grenades! And items in "SLOT #3" always act like guided missiles. This way the user can select the desired effect for different objectives, and learn to ignore the actual visual appearance of the "projectiles".

K.4.E. ENDING

When the player reaches a certain point, he is knocked out or something (like Gordan Freemans's experience in Half-Life) and reawakens with only one, mundane item in his entire inventory, like "pocket lint". This "pocket lint" would show up in his "quick weapon select" menu bar, and all other slots would be empty. Perhaps the "pocket lint" would be just the thing to enter the next room…

K.5 "SEWER"

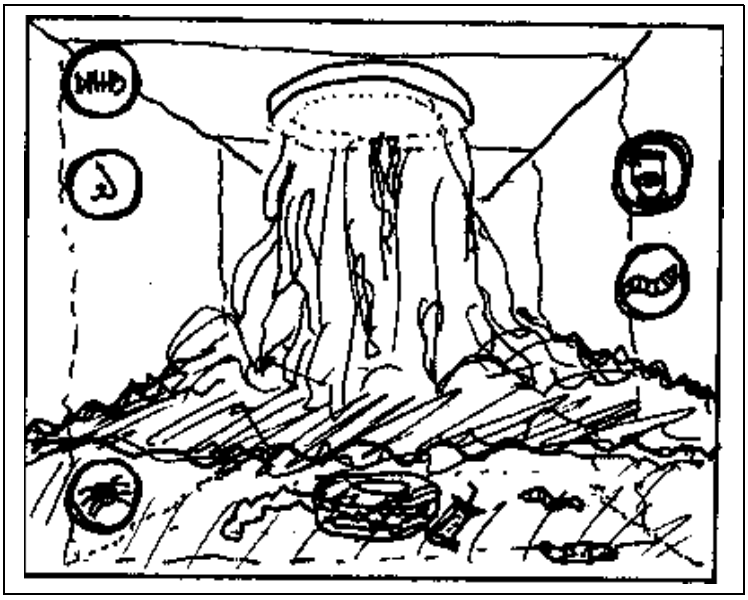


FIGURE: Your "Hazard Suit" freaks out as you crawl through the disgusting sewer tunnel.

K.5.A. INTRODUCTION

The "SEWER" level makes fun of another popular element of contemporary first-person action games: the sewer! Duke Nukem, Half-Life, and Deus Ex all require the player to crawl or wade in a sewer tunnel… sometimes for a really long distance. However, these games have the cleanest sewers ever seen, and somehow we don't get the sense that we're in a disgusting, smelly place.

The "SEWER" level will turn this trend around, once and for all. People will no longer think of sewers as simply another way to get around that just happens to be underground, half-filled with water, and strangely unpopular with non-player characters.

K.5.B. LEVEL DESCRIPTION

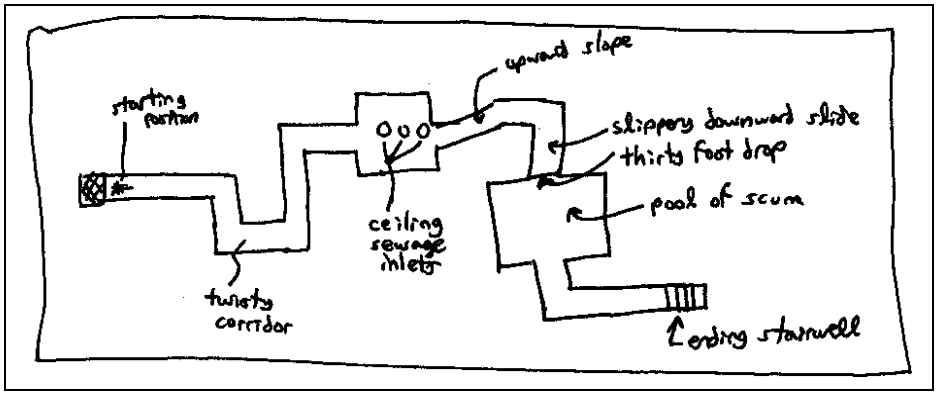


FIGURE: The "SEWER" level is short and sweet…I mean, smelly.

The level is divided in to the following areas:

(1) Simple, twisty corridor, half-filled with slow-moving dirty water;
(2) Room with sewage showering from overhead sewer pipes;
(3) Upward ramp to more corridor;
(4) Slippery downward tunnel that opens in to a giant room;
(5) Giant room (very tall) with a deep pool of sewage at the bottom;
(6) Corridor leading out of the sewage pool, to a stairwell to the next level.

There are no real obstacles, and there are no enemies. It's just a disgusting experience that the player won't soon forget (see the next section for details).

It will take about five or ten minutes to finish this level. In the corridors the player moves slowly due to the resistance of the water, and you hear wading and splashing sounds. In the room with the showering sewage, the force of the sewage falling upon the player tends to push him back (even though the sewage splashes down from directly above). The upward inclines are slippery, slowing the player's progress. When the player falls from a great height in to the sewage pool, he becomes submerged at a large depth (artificially deep, like 100 feet), and we slow his swimming or floating to the surface to a snail's pace, so that the player experiences the horrors of underwater sewage. So, even though the level doesn't cover much physical distance, the player will want to burn his clothes and take a four-hour disinfecting bath!

K.5.C. S.U.I.T. HAZARD WARNING MESSAGES

The key to this entire level is really the S.U.I.T. hazard warning messages. It is critical to get this part right. The actual tunnels and rooms are somewhat interesting to the player, but most of his attention should be drawn to the S.U.I.T. messages.

The S.U.I.T. (introduced in K.1, "S.U.I.T. Training Course") sounds JUST LIKE the "H.E.V." ("Hazardous EnVironment") suit from the game "Half-Life". Study the exact voice of this suit, including the rhythm, pitch, ambiguous gender, weird flanging or other audio processing… Anyway, we want our suit to sound exactly the same, and we want our suit to say almost exactly the same phrases.

Consider some of the things the "Half-Life" "H.E.V. Suit" says to the person wearing it:
(NOTE: These are not exact quotes.)

"Welcome to the HEV Mark IV for use in hazardous environmental conditions."
"Warning: Biological hazard detected."
"Warning: Hazardous radiation detected."
"Warning: Minor blood loss detected."
"Major fracture detected. (hissss) Morphine administered."
"Warning: Minor lacerations detected."
"(Doo-doo!) Power, seventy five percent."
"Ammunition depleted."
"Power drained."
"User death imminent. Seek medical attention."
"User dead." (I'm sure the "user" doesn't need to be told this!)

When the "H.E.V. Suit" detects a hazard, it puts a special icon on the screen, according to the hazard. Fire hazard is a little flame icon, and an electrical hazard gets a little lightning bolt icon, and a radiation hazard gets the usual three pie-wedge radiation icon. These icons are triggered instantly when the corresponding hazard is detected, and fade out gradually over the period of a few seconds. There can be several hazard icons on the screen at any given time, because different hazards can be encountered asynchronously and repeatedly. Any given icon in any phase of fading out will instantly reset to full brightness intensity if the corresponding hazard delivers another discrete harmful blow to the player.

Our "SEWER" level will overwhelm the player with creepy, disgusting S.U.I.T. warning messages and icons. These warnings will hinge on grade school, immature humor – concerning embarrassing human biological functions, creepy critters, and exaggerated horrors.

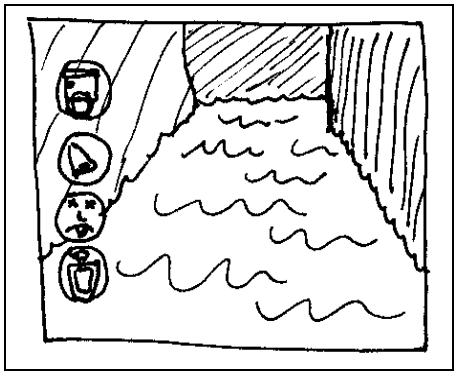


FIGURE: The S.U.I.T. displays icons according to hazards we encounter in the sewer.

K.5.D. SPECIFIC HAZARDS REPORTED BY THE S.U.I.T.

FIGURE: Hazard icons, described below.

ICON	Sound Effect	SUIT Warning Message
Toilet	Toilet bowl flush	"Poopy detected"
Big nose	Flatulence	"Poopy smell detected"
Dead Mr. Yuck	Choking	"Really gross stuff detected"
Urinal	Urination & flush	"Pee-pee detected"
Cockroach	Running bug	"Cockroach detected"
Rat	Rat squeal	"Disease-infested rat detected"
Garbage bag	Sound of garbage	"Garbage bag detected"
Green slime	Slime gurgling	"Green slime detected"
Hypodermic needle	Injection	"Hypodermic needle detected"
Car tire	Tire falling on side	"Old car tire detected"
Dead fish	Blub, blub, blub!	"Dead fish detected"
Vomit	Vomiting	"Chunky barf detected"
Phlegm	Loud snort	"Nasal goo detected"
Maggot	Squishing, Squirming	"Maggot cluster detected"
Baby diaper	Gurgling squishing	"Stinky baby diaper detected"
Turkey guts	Squishing	"Turkey guts and intestines detected"
Mosquito	Buzzing	"Mosquito detected" (#1 in sequence)
Mosquito Bite	Puncturing	"Mosquito bite detected" (…#2)
Dead Mosquito	Slapping sound	"Dead mosquito detected" (…#3)
Mold	Festering	"Deadly mold detected"
Bacteria	Flesh-eating	"Flesh-eating bacteria detected"
Fungus	Fungus sound	"Fungus detected"
Rotten apple	Rotting	"Rotten apple core detected"
Blood worm	Swishing, squirming	"Blood worms detected"
Spider eggs	Rustling, tapping	"Spider egg sack detected"
Salamander	Squishing, Oozing	"Poisonous salamander detected"
Spider web	Web thread flexing	"Spider web detected"
Earwig	Crawling, biting	"Earwig laying eggs in user's brain"
Beer can	Can crumpled and hit	"Beer can detected"
Hornet nest	Buzzing swarm	"Hornet's nest detected"
Broken glass	Glass fragments	"Broken glass detected"
Spit	Hacking cough	"Disgusting glob of phlegm detected"
Bandage	Band-Aid ripped off	"Scab and pus-covered bandage detected"
Airborne virus	Hissing, choking	"Deadly airborne virus detected"
Black plague	Creepy groaning	"Black Plague detected"

Other miscellaneous S.U.I.T. messages:

"User barfing imminent. Please remove helmet."
"User barfing imminent. Seek barf bag immediately."
"Disgusting environment detected. (hiss) Psycho-hallucinogenic drugs administered."
"User poopy-pants at 100%."
"SUIT…ughhh…SUIT…barfing…imminent….BAAARFFFFFF!!!" (Yes, the SUIT gets sick and barfs.)

When you first step in to the sewer water at the beginning of the "SEWER" level, the S.U.I.T. immediately gives you a single, random warning message. For example, you hear a toilet flushing sound effect, and you see the large, semi-transparent toilet bowl icon appear on the edge of the screen, and perhaps a low-pitched beeping ("Boop-boop!") sound from the S.U.I.T. before it says "Poopy detected."

A few seconds pass, and then you get another S.U.I.T. hazard warning message… Then a few seconds later you get two different messages nearly simultaneously, with their corresponding icons and sound effects. The warning message voices partially overlap.

Gradually the number of random, asynchronous S.U.I.T. hazard warning messages increases to the point where there are up to sixteen simultaneous icons on the screen (eight on the left edge, and eight on the right edge) and their corresponding sound effects and voice messages.

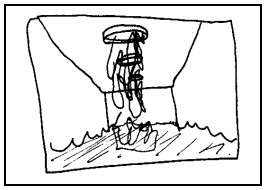
At the peak rate, new hazards immediately take the place of hazards that are about to vanish after running their full course. Each icon takes a second or two to appear and fade out, including the sound effect and voice message. However, with sixteen asynchronous, random hazards appearing at the same time it will be wonderfully overwhelming and chaotic.

The S.U.I.T. is overwhelmed, too. After a full minute of the peak hazard-reporting rate, it actually tries to get a grip on things, trying to calm down.

"Okay…Okay…I can handle this…I am designed for hazardous environments…The user depends on my confidence… (a long pause) Wait, did I just say that aloud?"

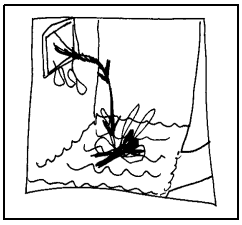
The S.U.I.T. is silent for about one or two minutes, or up to a particular trigger point in the sewer tunnels. Then it reports single, completely random hazards at the rate of one every twenty or thirty seconds. This relaxed pace will allow the user to chuckle at each hazard independently, and the joke won't become annoying.

K.5.E. ROOM WITH PIPES SHOWERING SEWAGE FROM ABOVE



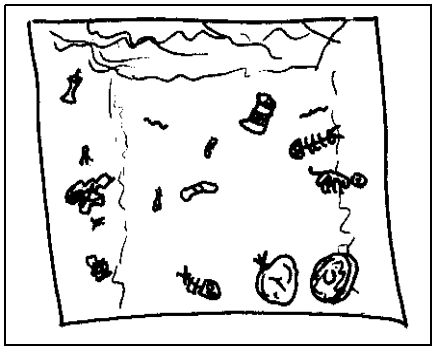
Brown, gray, green, textured, semi-transparent, splashing, gushing, showing water columns come out of huge circular pipes sticking out of the ceiling. There is a loud rushing, gushing, and roaring sound. This is a ton of sewage flowing out of each pipe. The room is not quite wide enough for the player to walk around each cone of water cascading in to the half-submerged room, and there is a big force pushing the player backwards when in range of the gushing. Therefore, it is hard to get by the three big gushers. The player is repelled by each one, and must persevere and eventually get a "lucky break", where the random resistance drops momentarily allowing him to advance incrementally.

K.5.F. FALLING OUT OF TUNNEL IN TO DEEP POOL



When the player is close to the end of the "SEWER" level, he slides down a slimy sewer tunnel in to a very tall room, and falls fifty feet in to a deep pool of sewage.

K.5.G. UNDERWATER HORRORS IN SEWAGE POOL



When the player falls fifty feet in to the pool of sewage, he artificially plummets to a water depth of something like one hundred feet deep. This is to artificially extend the amount of time the player spends underwater, since we also slow his swimming speed to a snail's pace.

While underwater, the player will see all kinds of things slowly drifting and tumbling. They're all in perfect equilibrium with the buoyancy in water, so they just drift and tumble in arbitrary directions, always at a very slow, but noticeable, rate. Horrors include: wriggling worms, fish skeletons, turkey guts, beer cans, apple cores, "Band-Aids", garbage bags, vomit, car tire, etc… The water is mostly gray, but with a green-brown bias, and we use a fogging effect to give the appearance of the scattering volume of water.

K.6 “TRANSPORTER”

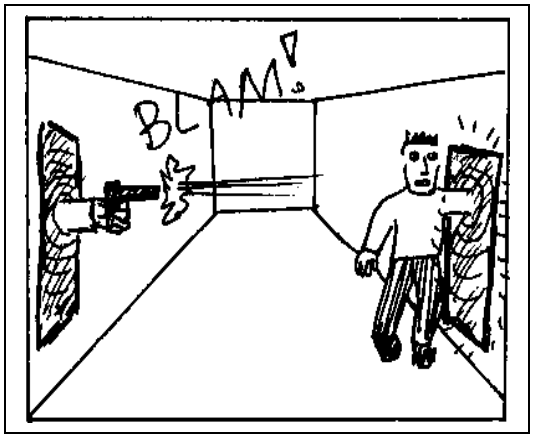


FIGURE: Watch where you point that thing!

K.6.A. INTRODUCTION

The “TRANSPORTER” level explores funny applications or consequences of transporter technology. Duke Nukem has some of the most imaginative applications of transporter technology to date (being able to shoot a LASER that never stops by looping in and out of specially-arranged transporters), but even Half-Life has cool transporter situations (including a transporter “fireball” that chases after you to transport you). The goal of this level is to make the zaniest, most complex, and coolest arrangement of transporters ever seen and experienced.

K.6.B. FIRST ROOM : TRANSPORTER DEMONSTRATION

The first room has a fence that divides the room in half, with a glowing rectangular portal on “your” side of the fence, and another glowing portal on the other side of the fence.

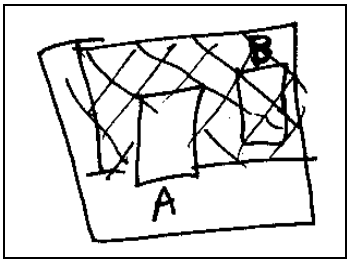


FIGURE: Room divided by a fence, with transporter portals on both sides.

There is nothing to do except walk through the transporter portal on “your” side of the fence, and instantly you arrive at the portal on the other side of the fence.

K.6.C. SECOND ROOM : BASIC LOOP

The second room has many partitions separated by fences or other obstacles. There may be eight transporter portals, all within sight, with a particular "connectivity". If you jump in to the first portal, you emerge from a second portal on the ceiling, and fall on to a portal on the floor. Then you fly out of a fourth portal (from your falling momentum) but at a 45-degree angle that throws you horizontally in a parabola that ends on a fifth portal. You emerge from a sixth portal just at the foot of the first portal. There may be other portals in their own "loops".

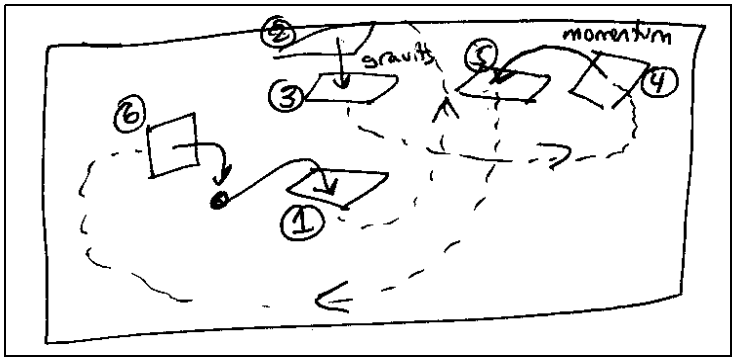


FIGURE: Loop of transporters.

K.6.D. THIRD ROOM : "DOUGHNUT OF DEATH"

The third room is a big doughnut, with flat floor and ceiling, about thirty feet high, with an inner radius of about twenty feet, and an outer radius of two-hundred feet. Basically, it's an indoor, circular football field with a big pillar in the center. The pillar and the cylindrical outer wall both have exactly sixteen (16) rectangular panel faces. All of these faces are transporter portals.

The floor and ceiling are perfectly elastic reflectors, reflecting both matter (grenades, people, and body parts bounce) and energy (LASER beams reflect like a mirror).

The 32 transporter panels (16 outer + 16 pillar) have a connectivity that mixes stuff up.

Anyway, shooting a LASER in to the outer wall or pillar will lead to a deadly crisscrossing of the LASER beam as it enters and exits portals. If the LASER is parallel to the ground, it will continue transporting until it hits a target. Rockets, bullets, grenades, and people will be transported in the same way. The point of this level is to create a very dangerous, somewhat unpredictable environment that can eventually be exploited once the player catches on to the logic.

What I'd like to have as a common occurrence is an exploding corpse, with body parts flying in all directions, and some of these body parts would be transported to another portal – so that someone near the other portal just sees a bunch of body parts fly out! They will be terrorized…Where did those body parts come from?!

K.6.D. FOURTH ROOM : "SPHERE OF DEATH"

The fourth room is a big sphere, made up of large triangular panels, like a geodesic dome. Many triangular faces are transporter portals. Some triangular faces are perfectly elastic reflectors. Other triangular faces are magnetic. There is no gravity.

If you are in space, you drift according to your momentum (which can be altered continuously by your movement controls, as if you had an air jet). You are also drawn to magnetic panels, according to your proximity.

When you hit a magnetic panel, all of your momentum is neutralized, and you stick to the panel. If you then try to move in a given direction, you walk along the surface of the magnetic panel. If you jump, you spring off of the magnetic panel and are temporarily not affected by that magnetic panel (so that you can get sufficiently away). A magnetic panel is a good place to "dock" and start shooting at other opponents in the room. You can walk "upside down" relative to the rest of the room, but there is no absolute "up" direction because there is no gravity.

Basically this spherical arena combines the threat of stray, transported and reflected projectiles with the disorientation of a 3D volume with no gravity.

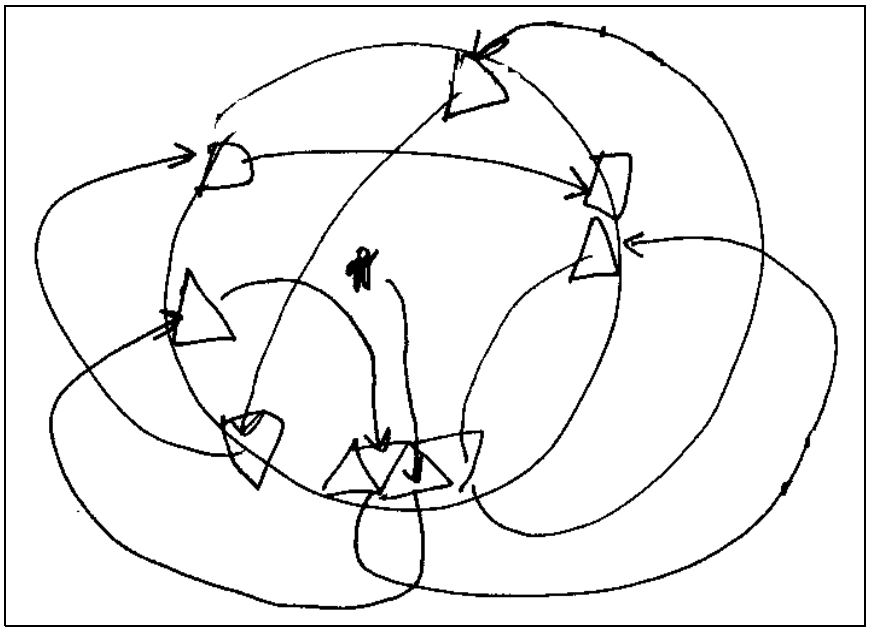


FIGURE: Spherical transporter madness!

K.7 “LENS FLARE”

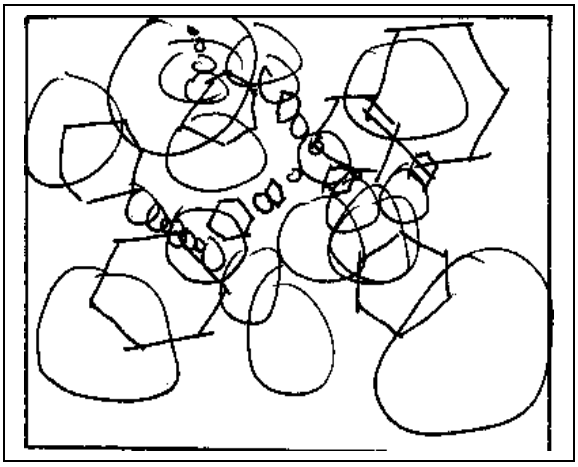


FIGURE: Is there a world beneath all that lens flare?

K.7.A. INTRODUCTION

The “LENS FLARE” level makes fun of the increasing use of the lens-flare special effect in contemporary video games. The basic idea is to start with a normal environment, and add in a simple glint or flare effect. Then we progress to an area with a noticeably significant amount of glare and lens flare effects. Finally, we conclude with an area where you see nothing but glare, glints, and lens flare. In fact, this final area we make it clear that the world IS the glare and even the glare has its own glare and flare, ad infinitum. It’s like a fractal, with self-similar lens flare at every level.

K.8 "BODY COUNT"

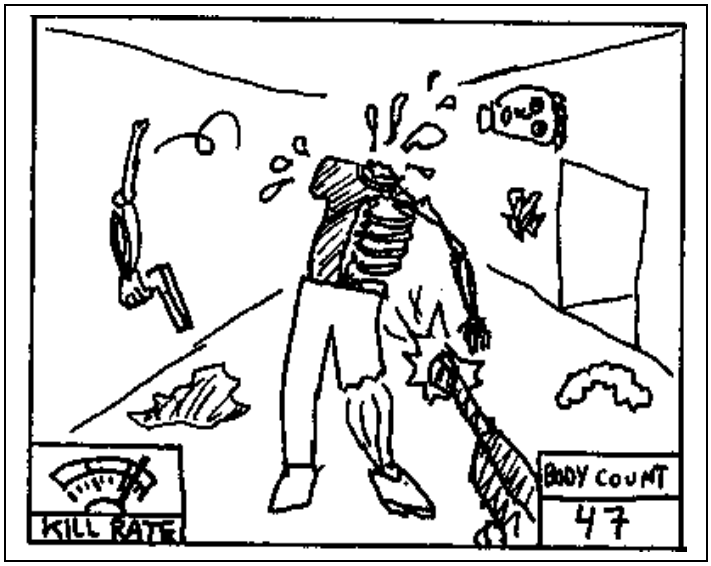


FIGURE: Absolutely disgusting gore, intensifying the battle frenzy!

K.8.A. INTRODUCTION

The "BODY COUNT" level is a full-blown death match game that makes fun of games like Quake III Arena, Unreal Tournament, Duke Nukem (network play), etc. The basic idea here is to take the coolest elements of death match games (bloody body parts, massive explosions, creepy taunts, insane weapons) and take them to an absurd, extra-cool degree.

Simply quadruple the amount of body parts that fly out of an exploded corpse, and make the blood gush out of wounds, and make the screams of pain twice as terrorizing, and we're doing great!

The sound effects should include extra squishing, oozing, dripping, gushing, crunching, cracking, snapping, thudding, gurgling, sputtering, gasping, gargling, and visceral noises!

K.8.B. HIT ZONES AND DAMAGE LEVEL 3D MODELS

The player models in "BODY COUNT" are divided in to "hit zones", distinct sections of the body that can be hit and damaged. When a hit zone is damaged, the body part changes appearance. We divide the body part conditions in to three levels. The first level represents the body in good condition; we see skin and clothing. The second level is the body in a badly damaged condition; we see muscles and organs. The third level is the worst; we see only a skeleton.

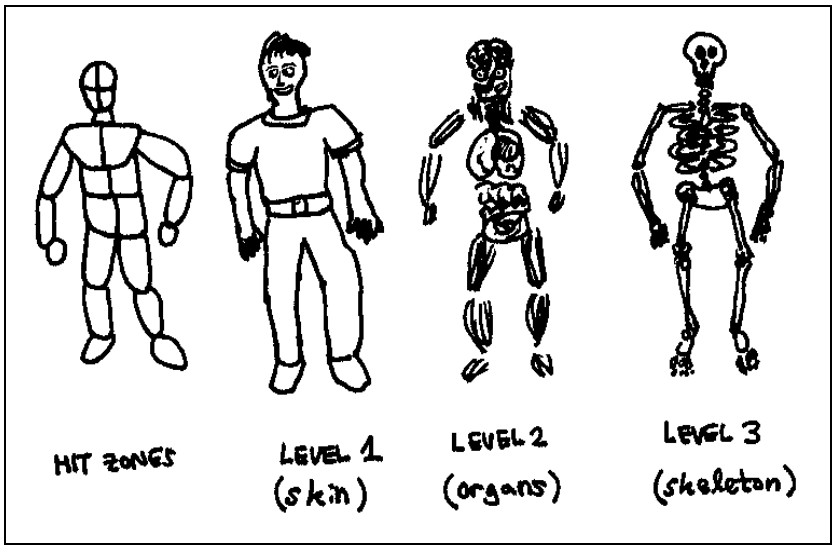


FIGURE: Hit Zones and the three damage levels.

Different hit zones can be at different damage levels. We render the body as a collection of hit zones, and we select the appropriate 3D model (skin, organs, skeleton) according to damage. If a hit zone sustains excessive damage, the nearest joint may fail, and the body part will become detached.

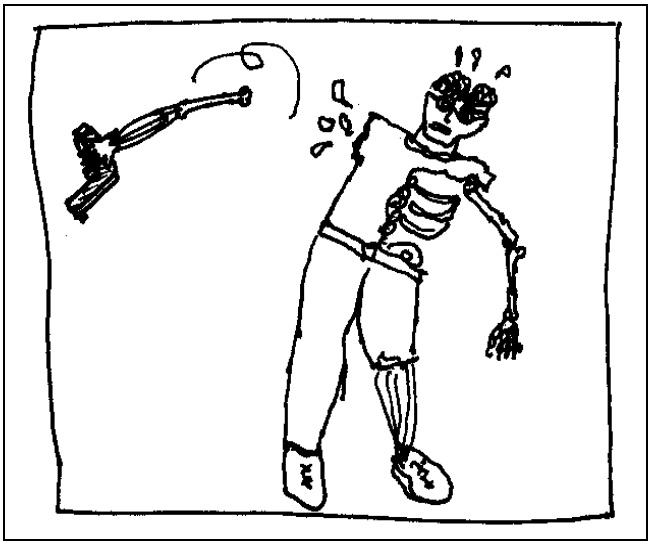


FIGURE: Different levels of damage on the same body.

Each hit zone has its own initial health point value. It's a lot easier to damage a hand than it is to damage the torso to the same degree. The initial health point value may be roughly proportional to the hit zone volume, but perhaps we will have a bias according to the sensitivity of the body parts.

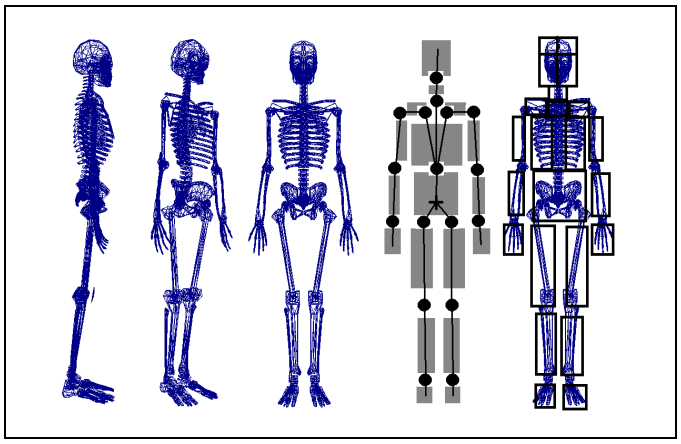


FIGURE: "BODY COUNT" body model (joints and masses), and "Hit Zones".

Different body types, like robots, will have their own 3D models, for all levels of damage. Furthermore, they must have blood and organ equivalents. A robot might have sparks and spark particles for "blood", and circuit boards and motors as "organs", etc.

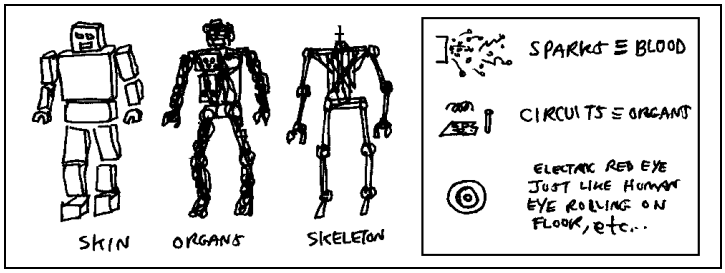


FIGURE: Robot 3D models for damage levels, and blood and organ analogues.

K.8.C. HIT ZONE PARTICLE EFFECTS

Each hit zone, in addition to having its own health point values, has its own condition flags. Possible conditions include "gushing blood", "dripping blood", "pulsing blood (1 second period), "steaming white vapor", "smoking gray clouds", "on fire".

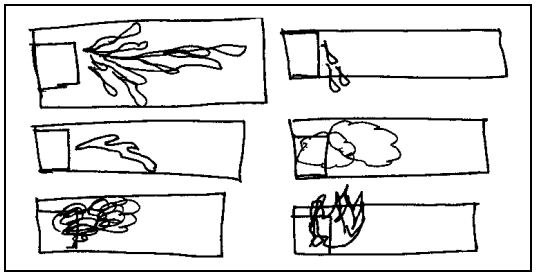
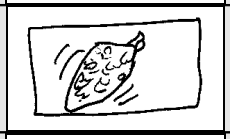
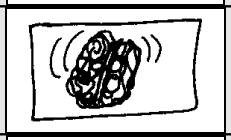
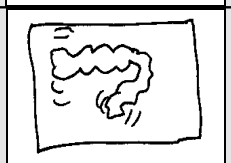
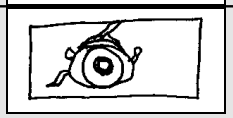
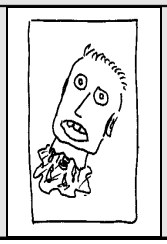
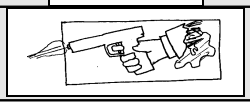


FIGURE: Hit Zone conditions ("gushing blood", etc)

The hit zone may have several things going on at once, like steaming and dripping blood, or gushing blood and fire and smoking gray clouds.

K.8.D. AUTONOMOUS ORGANS AND BODY PARTS

If the body is blown to pieces, certain specific organs may fly out of the explosion, bounce off of walls, and eventually settle on the floor. When an organ is settled, it may start…moving!

ORGAN OR BODY PART	ACTION
	BEATING HEART: The heart bounces with an elastic, firm squishy sound. The heart continues beating, with a heartbeat sound.
	BREATHING LUNG: The lung bounces with an inelastic, extra-squishy, sponge sound. The lung continues to breathe, with a breathing sound.
	THROBBING BRAIN: The brain bounces with a wet, Jell-O™ blob sound. The brain pulses two or three times per second.
	SQUIRMING INTESTINE: The intestine fragment (about six feet long) bounces with a wet-bag sound. The intestine fragment squirms like a stabbed snake, sometimes folding completely at the midpoint.
	LOOKING EYEBALL: The eyeball bounces with a dull popping sound. The eyeball can look in slightly different angles and the pupil changes in size at random.
	TWITCHING ARM OR LEG: The arm or leg bounces with an inelastic thud. Once settled, it twitches rapidly and chaotically, in a really creepy way. (Think of that female "replicant" in the Blade Runner movie when she was shot, or the bodies in the bathtub when the "Cleaner" pours acid on them in the movie "La Femme Nakita" / "Point of No Return".)
	TALKING HEAD: The head bounces with an inelastic coconut knocking sound. The head always rolls and ends up with the face pointing upward. The eyes are extra-wide open, intense. The mouth is moving, and you can hear it talking at regular volume (not really possible without lungs, etc), and it says: "Die! Die! Die! AAAAaaaaggghhh!"
	SHOOTING HAND: The hand still grasps a weapon, and bounces with the sound of the weapon bouncing. The hand continues to fire the weapon at random.

These autonomous organs and body parts survive for ten or fifteen seconds, or until they are significantly damage. They remain passive for another five seconds, and then the passive object is quickly faded out (becomes semi-transparent) and vanishes completely.

K.8.E. PLAYER CAN FIGHT DESPITE SEVERE DAMAGE

Even if a player's head is blown off, he can continue to control the body and can continue shooting. We might be generous and allow the player to see through either his detached head (which will point toward his headless body so he can see where he is going) or allow the player to see a distorted image as if he still had a head on his shoulders. I like seeing through the detached head. We don't have to really have the head pointing toward the headless body. We can use the head's POSITION as the viewpoint, and simply use the direction to the headless body as our camera orientation; we ignore the head's real orientation on the floor or whatever surface it's on.

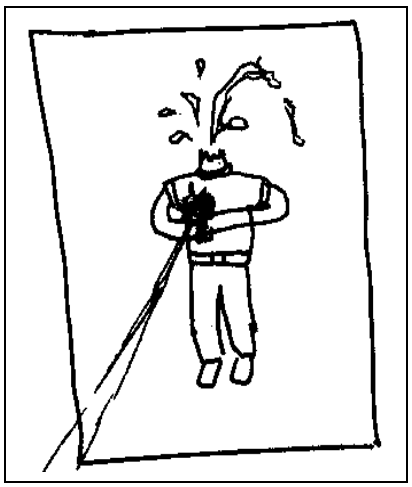


FIGURE: A guy can fight without his head.

K.8.F. SOFT WALLS

Certain walls, marked with a distinctive texture, are "transparent" under certain conditions:
(1) Soft-Vision Module: Makes soft walls semi-transparent, like glass.
(2) Soft-Tunnel Module: Allows a player to move through soft walls without resistance.
(3) Soft-Shoot Module: Allows weapons to shoot through soft walls.

Players can acquire any combination of soft wall modules. These modules are always activated and do not require energy. The only indication that the user has these modules is a possible change in the visual appearance of soft walls, or the ability to walk or shoot through soft wall.

Note that a player who only has the "Soft-Tunnel" or "Soft-Shoot" modules can not see through the soft walls; seeing through the soft walls requires the "Soft-Vision" module.

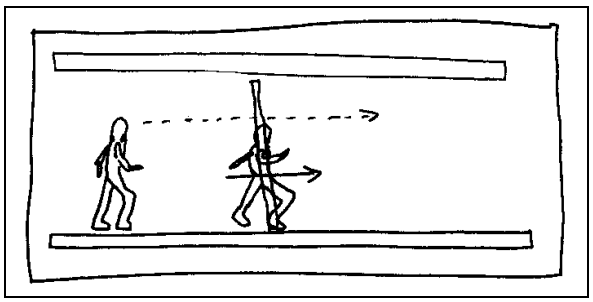


FIGURE: With the proper modules, a player can see, walk, and shoot through "Soft Walls".

K.8.G. OIL SLICK

The "Oil Grenade" creates an oil slick when it explodes. This oil puddle is extremely slippery. In fact, it is almost impossible to stand, let alone crawl or walk out of the puddle area. Victims who get trapped in the oil slick stumble, slide, and fall, and struggle to get out, making easy targets.

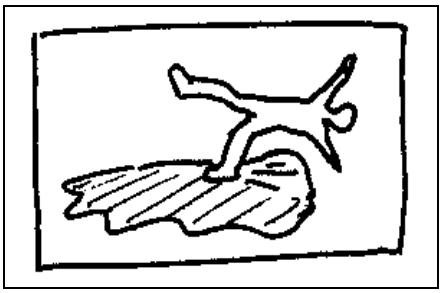


FIGURE: "OIL SLICK"

An oil slick shrinks at a constant rate, eventually vanishing. Victims trapped in the oil slick are freed when the oil slick shrinks out from under his feet, and all victims are definitely freed when the oil slick vanishes.

K.8.H. GLUE PUDDLE

The "Glue Grenade" creates a glue puddle when it explodes. This glue puddle is extremely sticky. Any body part or object that comes in contact with the glue puddle can not escape. Victims stuck in the glue puddle are easy targets.

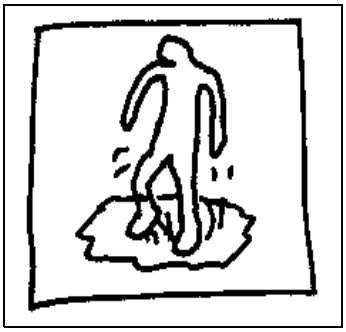


FIGURE: "GLUE PUDDLE"

A glue puddle shrinks at a constant rate, eventually vanishing. Any player stuck in a glue puddle can escape when the puddle shrinks out from under him, and surely when the puddle has completely vanished.

K.8.J. LASER PISTOL

The LASER pistol has a laser pointer spot (red) that can be turned on and off, allowing the player to aim accurately and allowing enemies to know that someone has a LASER pistol. When the LASER pistol is fired, there is a sound emitted at the pistol (with small radius), and a soft but distinctive sound (small radius) at the target. The lasers make a high-pitched whine during recharging, and continuously while in hand, so people know that a laser is around! The laser fire is nearly invisible. The effect of the laser is to make a perfect cut, with no damage. Many objects are completely unaffected by the laser, because it just makes a tiny hole or cut.

The shooter can cut off a victim's arm and head without leaving any marks and with very little sound.

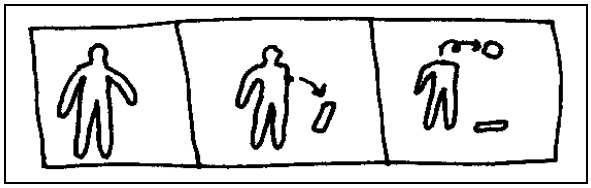


FIGURE: LASER cuts off body parts at joints. No damage to parts; they're just cut off.

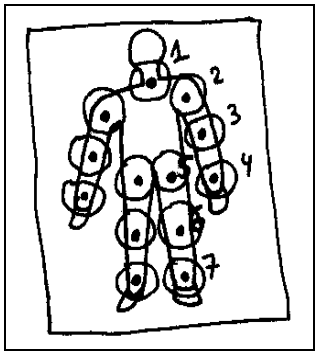


FIGURE: The LASER only cuts the joints shown.

(1) Neck: Head falls off;
(2) Shoulder: Arm falls off;
(3) Elbow: Lower arm falls off;
(4) Wrist: Hand falls off;
(5) Hip: Leg falls off;
(6) Knee: Lower leg falls off;
(7) Ankle: Foot falls off;

There are thirteen (13) LASER targets on the body, each located at a joint. Each target has a large radius that makes the target hard to miss. If a laser blast hits a target, the joint is broken, and body parts fall off or are separated. Laser blasts can hit multiple targets on the same body, if the angle is right. Body parts, like arms and legs, can be further split at their joints by more laser blasts. So, an arm or leg on the ground can be blasted in to smaller pieces.

The victim knows what hit him by the characteristic sound (vaporizing puff sound). Or, a person knows that a botched laser attack occurred by a similar sound nearby, like on a wall.

Laser blasts can be transmitted, reflected, redirected, or absorbed. Almost any object absorbs a laser. Players, however, do NOT absorb laser blasts. Special mirrors can reflect laser blasts. Transporters can redirect laser blasts, moving them to entirely new starting locations.

K.8.K. FREEZE GUN

The Freeze Gun freezes the victim in his exact pose. The victim may be frozen in midair (falling, jumping, or flying), but will nonetheless be frozen in an exact pose and will tumble to the ground.

Frozen players are rendered by taking the existing geometry (which may include skin, organ, and skeleton model parts) and making all of it very transparent (alpha blending so that it is only 30% opaque). Furthermore, all vertices are strongly biased to a sky-blue color.

Some objects, like boxes, crates, or grenades, can be frozen. They cease to operate normally and can be pushed or shattered with sufficient impact.

A frozen object or player can be shattered by sufficient impact. Smaller impulses or impacts will cause the frozen object or player to skid on the ground without breaking. Types of impact include: the initial fall of the frozen player, bullets, grenades, etc. Players who are walking, running, or standing will remain upright if frozen, unless impact tips them over.

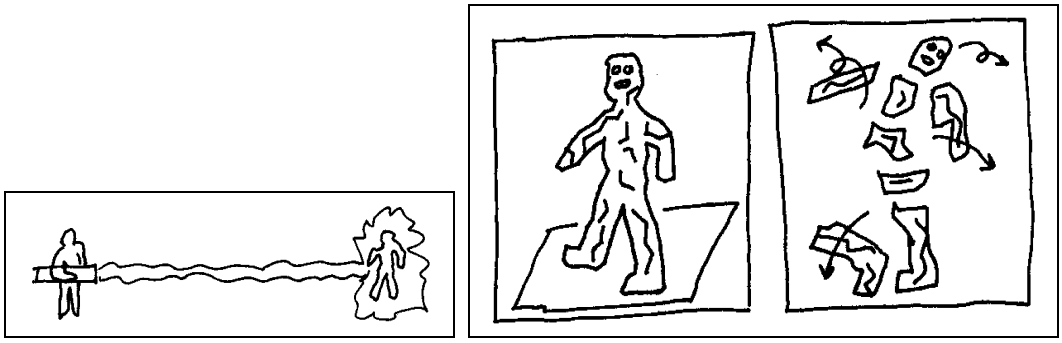


FIGURE: Freeze ray is a sky-blue, thick, wavy beam. Any damage or impact can cause shattering.

When a frozen object is shattered, it breaks up in to large frozen chunks. These large frozen chunks can be further shattered by more impact. Thus, a tumbling object that strikes the ground might shatter in to several large pieces, but these pieces may continue falling with high speed and shatter in to even smaller pieces when they strike the ground.

There is a limit to how small fragments can become. If fragments are smaller than a certain size, they can not be shattered any more. However, all fragments can always bounce, skid, or be transported.

Player bodies can fragment at hit zone boundaries. The connection between adjacent hit zones has "bond points" which can be reduced by impact on that part of the body. When "bond points" between particular adjacent hit zones drop below zero, the bond is broken, and a fracture forms. If all bonds between a given hit zone and all other adjacent zones drop below zero, the given hit zone drops or flies off as a fragment.

Frozen objects, players, and body parts, all completely thaw after six seconds of being frozen. Players who still have most of their body parts after thawing, including their head, are essentially back to normal. Frozen fragments thaw at the same moment, and once the fragments are thawed, they begin the process of vanishing.

Thawing is "rendered" by rapidly making the object opaque again, and simultaneously diminishing the sky-blue vertex coloring bias.

K.8.L. ACID BURNS

When an "Acid Grenade" explodes near a victim, various hit zone receive differing amounts of acid exposure, or "acidity".

Acidity decreases at a fixed rate over time. At each moment, damage done to a hit zone due to acidity is proportional to the acidity level. So, most damage is done in the moments immediately after initial acid exposure, but the damage continues to increase over time, until the acidity is completely neutralized.

Each hit zone can independently emit acid burn vapor clouds, at rates proportional to acidity. These are white clouds with significant transparency, transparency increase rate, cloud size growth, and slow cloud floating.

Each hit zone has its own 3D sound management, so that individual body parts, even when blown apart and scattered, can continue to have acid burn sizzling and hissing sounds.

Acid damage can, like all types of damage, cause a hit zone to fall below a health threshold, making skin degrade to organs, or organs degrade to skeleton. If a joint is sufficiently weakened, it may be severed, and limbs may fall off. If the shoulder zone is eroded enough, the arm may fall off.

In general, body part degradation may occur over a period of roughly ten seconds. So we can see gradual changes to the victim, as he emits acid burn clouds.

FIGURE: Acid damage.

K.8.M. ELECTRICAL DISCHARGE

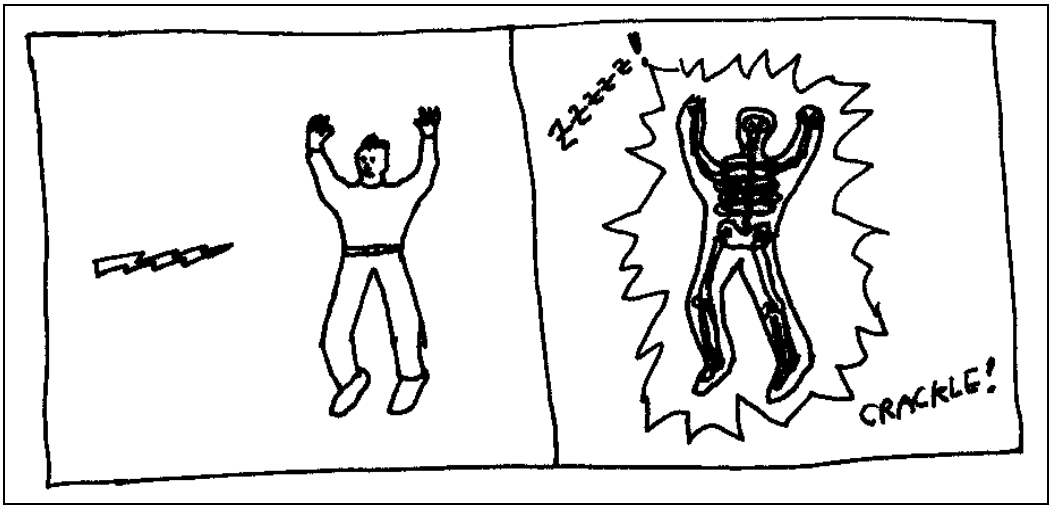


FIGURE: Before and during an electrical discharge.

When electricity, or an electrical projectile, makes contact with a player's body, or a detached body part in isolation, we have an electrical discharge. During an electrical discharge, all body parts at the skin and organ level become very transparent (alpha blending), and all body parts at the skeleton level are given a light yellow bias and are highly opaque.

Thus, we should see the bones through the skin. If a person's body already has exposed bone (due to previous injuries), the bone still glows with a light yellow color.

Electrical discharges always damage the entire body. All body parts are affected "equally" – that is, the damage to a hit zone is proportional to the original, full health points of that hit zone. For example, if a hand hit zone starts with 100 points, and the electrical damage percentage is 5%, then we always have 5 points of hand damage during an electrical discharge. Even when the hand is almost destroyed, with a hit zone point value of 15 for example, we still have 5 points of damage per electrical discharge.

All hit zones are given additional "smoke points". Smoke points decrease over time at a particular rate. Smoke particle effects, and corresponding 3D audio effects, are in proportion to the "smoke point" value. Smoke points control the density, size, growth, and frequency of smoke clouds.

There is a characteristic crackling and zapping sound associated with the "ELECTRICAL DISCHARGE" effect.

K.8.N. NUCLEAR GRENADE

The NUCLEAR GRENADE operates just like a regular hand grenade, but it contains plutonium and creates a small nuclear event, complete with a bright flash and a miniature atomic mushroom cloud.

Anyone witnessing the nuclear explosion sees a bright white flash that washes out the entire screen. Amazingly, only people within five or ten yards of the explosion are killed. But they're not just killed; they're completely vaporized.

Another creepy property of this device is that the victim's shadows are burned in to the walls or any other surfaces near the nuclear event – a spooky reminder of what happened recently.

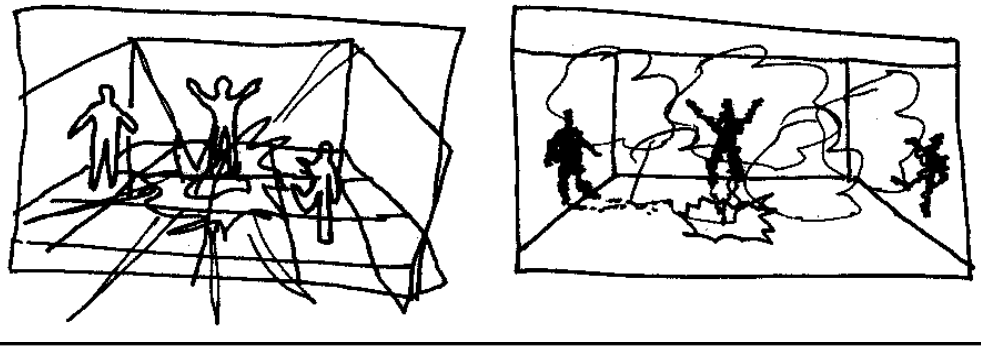


FIGURE: The moment during and after a NUCLEAR GRENADE blast. The shadows are burned in to the walls for about fifteen seconds before fading out, or longer if we don't need to recycle the shadow polygons as quickly.

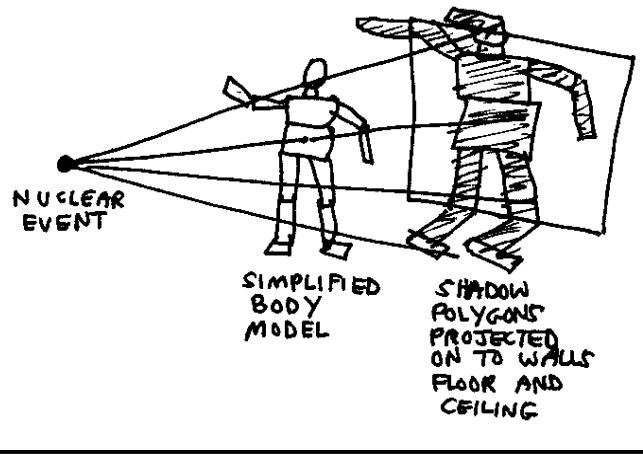


FIGURE: The projection of the NUCLEAR GRENADE victim on to walls, etc, for the nuclear shadow.

This is a tricky effect. Fortunately this is nothing like "real-time" shadows; we just calculate shadow polygons ONCE, at the time of the blast. Also, the shadows really are burned in to the objects, like bullet scars or explosion marks, so we don't have to worry if the objects move. In fact, it would be cool if the shadow were burned in to a moving truck and we see the shadow stuck on the truck as it drives away. After ten seconds have elapsed we begin a five-second fade-out process to remove shadow polygons.

K.8.P. HOLOGRAM

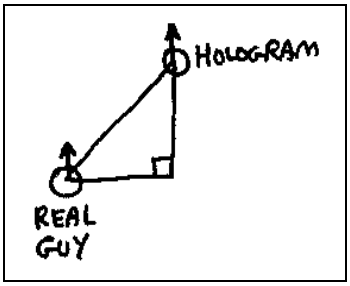


FIGURE: Location of the hologram is fixed relative to the player as he walks, jumps, etc, but the relative offset can be adjusted.

The hologram is partially transparent, but this transparency is hardly noticeable unless a person is looking for it. The hologram makes a faint buzzing and crackling sound, which also may go unnoticed unless a person is listening for it.

The hologram mimics the real player's actions exactly. In fact, to render the hologram we merely render the player model at the hologram's offset from the player's location, with the appropriate level of transparency.

The real player is within 20 feet. Opponents do not know the actual angle to the real player, and the real player can adjust the angle at any time.

The real player is INVISIBLE when the hologram is activated. This is a unique added feature compared to other hologram features found in other games. Basically, the sum of the opacity of the real player and the hologram is conceptually conserved at 100%, so that any increase or decrease in the opacity of one entity results in a corresponding compensation in the other.

The invisible real player does, however, emit a loud, characteristic humming noise. People will know that an invisible player is nearby, but will not be able to tell exactly where he is – even though the 3D audio will be accurate.

Whenever the space that the HOLOGRAM is being projected in to has a disturbance, like bullets or explosions, the hologram becomes temporarily weakened, and hence more transparent! Also, the real player becomes correspondingly more visible. Thus, by shooting the hologram, you get a brief, faint hint of the true location of the real player. However, ordinary bullets may not be enough of a disturbance of the hologram to even let you know that it's a hologram, unless you're really paying attention. Only very strong blasts, like grenades, will give you a 50-50 split of visibility of the hologram and the real player simultaneously.

Players using holograms can continue to use their weapons while invisible, but their weapons will NOT be invisible! So you will see a floating pistol or rifle at the real player's location. The only way for a player to be really invisible is to not have a weapon drawn (i.e., holster them all).

If a real player happens to be damaged (by any means, like falling or accidental encounter with crossfire, or a wild guess by an opponent) while invisible, he becomes visible in proportion to the damage rate, and the hologram becomes accordingly more transparent.

K.8.Q. UNCONSCIOUSNESS POINTS

A player can be knocked out temporarily. This is somewhat rare, and always very brief (like a few seconds). Players who are punched or electrocuted, or jolted by a fall or blast, may be knocked unconscious.

A player has "unconsciousness points" that diminish continuously at a fixed rate. Thus, regardless of the magnitude of unconsciousness, the player will eventually regain consciousness – unless something happens to his body while he's unconscious.

There is a threshold of "unconsciousness points" required before a player actually becomes unconsciousness. This reduces that number of cases where the player becomes unconscious for very short amounts of time. So we require a minimum of three seconds of unconsciousness points before we make a player unconsciousness. Once unconscious however, we wait until the unconsciousness points falls all the way to zero before regaining consciousness.

If a player is standing when he becomes unconscious, he loses all balance and falls to the ground. The player sees the fall through his eyes, but the screen fades to black and a big word "UNCONSCIOUS" appears in red letters in the center of the screen. The S.U.I.T. system repeats the phrase "User unconscious" with urgency every two seconds, and there is a slight red brightness pulsing of the word "UNCONSCIOUS" on the screen.

There is a countdown timer next to the word "UNCONSCIOUS" that indicates the amount of time, in decimal tenths of a second, of unconsciousness remaining: "UNCONSCIOUS [07.3]".

When the player regains consciousness, the screen fades back in, and the player attempts to stand up automatically. The player can override standing by asking to duck or crawl, etc.

K.8.R. IMBALANCE POINTS

A player has "imbalance points" that diminish at a fixed rate. A player who is somehow thrown off balance, from shoving, slipping, or falling, can receive a burst of new "imbalance points". An oil slick can override the normal "imbalance points" and force a player's imbalance points to be at a maximum anywhere within the oil slick.

There are only a few categories of imbalance states, based on the "imbalance points" value.

For a low amount of imbalance points, the player is not affected.

For a medium amount of imbalance points, the player is unstable, and tends to drift and sway while standing, walking, or running. There is a fair chance that the player will fall.

For a large amount of imbalance points, the player is totally unable to stand. He will be able to get up from the ground, but the moment he stands upright, he will fall to the ground again. He may fall in any direction.

K.8.S. STICKY WALLS

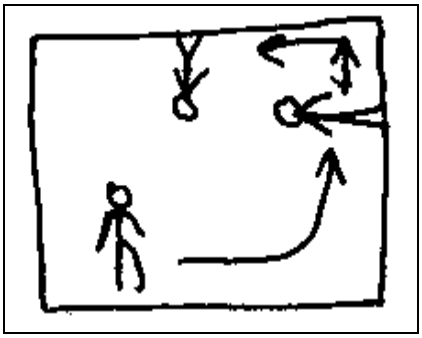


FIGURE: "Sticky Walls" are specially marked walls that players stick to, so they can run up vertical walls, or even upside-down on the ceiling.

Players can stand, walk, or run up and along specially marked "sticky" walls. These "sticky" walls will have a characteristic texture, so that a player will know immediately that he can use their sticky properties. Players can be perpendicular to the ground, or even upside-down.

Jumping will always detach the player from the sticky wall. However, this may be dangerous for the player if the wall or ceiling is very high from the ground, because the fall may be fatal. Impulse from explosions (grenades, rockets, etc) can shake a player from a sticky wall, but the impulse has to be fairly strong. If we didn't have a high impulse threshold for falling off, players would fall off too often.

K.8.T. STROBE LIGHT

Somewhere in some level we should have a large area with a strobe light, so that players only see other players when the strobe light is flashing. There should be very little ambient light in this area. The flashing should be rapid, maybe five times a second.

Players will be caught in funny poses, and it will be very disorienting and scary.

K.8.U. MISCELLANEOUS

(1) JETPACK: Has a limited altitude. See "Duke Nukem" for behavior.
(2) TRANSPORTER PORTALS: See "Duke Nukem" for behavior.
(3) FLAME THROWER: See "Deus Ex" for inspiration, or "Shadow Man" for burning body effect.
(4) MACHINE GUN with GRENADE LAUNCHER: See "Half-Life" for MP5 weapon.
(5) GRENADE: See "Half-Life" grenade.
(6) PISTOL: See "Half-Life" pistol.
(7) ROCKET LAUNCHER: Okay, see "Half-Life" for this one, too…BUT! VARIATION: The rocket follows whatever target you were aiming at when you fired the rocket, instead of being laser-guided or whatever in "Half-Life". The rocket will not be smart enough to avoid walls in its "line of sight" pursuit of the enemy. Still, the rocket will be hard to avoid when the victim is falling, jumping, or running out in the open. But ducking under a wall, or closing a door, makes for an easy escape. The rocket operates on SIGHT, so a hologram WILL FOOL the rocket. Also, a mirror or other visual problem, like fog, will confuse the rocket. Rockets that lose sight of their targets will continue in a straight line until a direct visual sighting of their target is reacquired. Rockets will not turn on a dime, and have a maximum turning rate, and fly at a fixed speed, so fast-moving targets may yet avoid the rocket. Still, this smart rocket will be easy to fire and hard to escape.

K.8.V. PLAYER MOVES

Most first-person shooters drastically reduce the hand-to-hand combat options. In fact, most first-person shooters expect that you will never get within twenty feet of your opponents! Quake III Arena makes fun of this fact by announcing to a player killed by a gauntlet weapon that such a death is a cause for "HUMILIATION!"

However, "BODY COUNT" will provide a few hand and foot options that can be used for any purpose, including combat. We make these moves unusually effective so that players are encouraged to try these moves as often as they'd try conventional weapons.

A player is considered SURPRISED by an action, if that action occurs outside of a 120-degree spherical segment centered along the axis of his vision. This is not quite as large as a full 180-degree range that would include everything in front of the plane on the player's face. But we want to allow opponents to surprise a player from the side, which might not work if our logic accidentally threw out side surprise attacks that were slightly in front of the player's face plane.

Players who are not SURPRISED by an attack are considered PREPARED for the attack. Prepared players are not affected by the attack in the same way; they are not as thrown off balance or launched in to the air as a surprised victim, but they are still damaged by the attack.

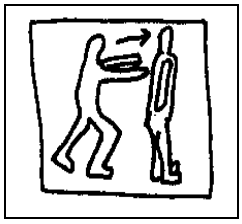


FIGURE: PUSHING, SHOVING
The player raises his arms and pushes or shoves whatever is in front of him.
SURPRISED VICTIM: If he pushes or shoves a player, the victim is thrown across the room, flat on his face, making him an easy target during the moments it takes for the victim to climb to his feet. Also, you can shove a player off a cliff, or in to a vat of plutonium, etc.
PREPARED VICTIM: A prepared victim simply gets shoved away from you. He may remain standing if his balance is sufficient. If would be cool if rapid repeated shoves could knock a guy to the ground (cumulative loss of some abstract "balance" factor). Also, heavy guys should knock down really lightweight guys.

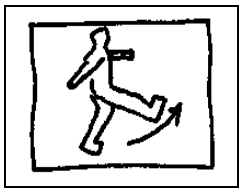


FIGURE: KICKING
Kicking is very similar to pushing or shoving, but the foot is involved.
SURPRISED VICTIM: Kicking also differs from shoving in that the object or player who is kicked has a tendency to rise up in the air in addition to flying across the ground. Small objects can be kicked very high in the air. The kick angle is 45 degrees. Kicking can be done while shooting weapons.
PREPARED VICTIM: The lift and horizontal impulse of a kick is greatly diminished for the prepared victim. However, there is significant damage to affected hit zones. Small victims will be lifted significantly if the kicker is very large, etc.

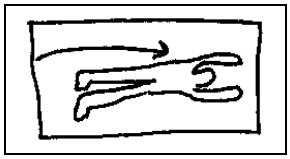


FIGURE: DIVING, TACKLING
A player can dive on the ground. If he is running and takes a dive in to another player, it does significant damage to the victim. Players can dive for other reasons, like dodging missiles, or diving in to air ducts, etc.
SURPRISED VICTIM: The victim of a dive tackle falls to the ground. A player who dives and does NOT touch another player simply lands on the ground, and is relatively helpless during the moments it takes to get back on his feet. However, a player who dives and DOES touch another player not only tackles the victim, but also snaps to his feet very quickly.

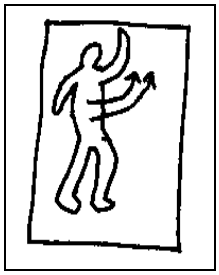


FIGURE: PUNCHING
Players can punch anything, but most often this will be part of hand-to-hand combat.
Punching a player does not usually affect a victim's body position and orientation in a dramatic way, surprised or not. However, we might knock a player out briefly.

SURPRISED VICTIM: A punch to a surprised victim does double the damage of a punch to a prepared victim.

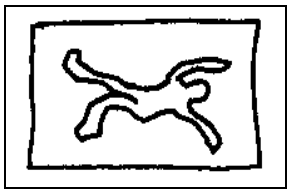


FIGURE: PLAYING DEAD (Fall and land like a corpse)

This is a totally unique death match move! A player can spontaneously fake his own death!
The player chooses a moment to "die", and some random, realistic death animation is played. The player's fake death animation is indistinguishable from a real death animation; his body will flop to the ground lifelessly.

The player loses all control of his body during the death tumble, but continues to see through his own eyes. The player can get out of the fake death by jumping, or some other action, like aiming and shooting.

Players will eventually regard corpses as dangerous! They'll blow them apart with grenades just to be sure they aren't still alive. Players are alerted about "fake corpses"; their S.U.I.T. system announces "CORPSE EYE MOVEMENT DETECTED!" when close to a "fake corpse".

K.8.W. KILL RATE METER AND BODY COUNTER

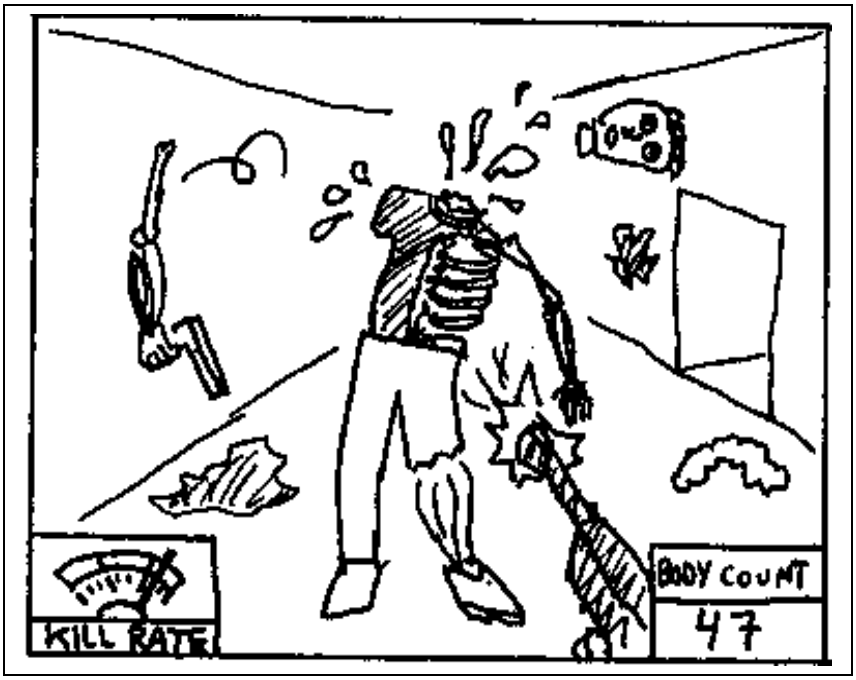


FIGURE: The "KILL RATE" meter and "BODY COUNT" counter.

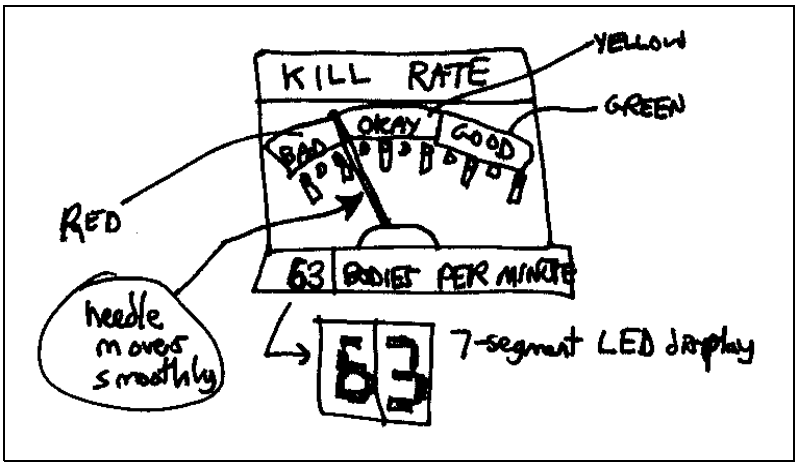


FIGURE: Details of "KILL RATE" meter.

The KILL RATE meter is an analog meter that optionally appears in the lower-left corner of the screen. It has a needle that smoothly drifts left and right. Beneath the needle is an arc with three zones: "BAD" (red), "FAIR" (yellow), "GOOD" (green). The part of the arc that the needle occupies is illuminated, so that a needle in the "GOOD" zone has a glowing green arc labeled "GOOD" underneath.
The KILL RATE meter also has a 7-segment digital display, with orange digits on a black background, that indicates the numerical kill rate in "BODIES PER MINUTE".

The BODY COUNT meter optionally appears in the lower-right corner of the screen, and indicates the total number of enemies that you have killed. It has the legend "BODY COUNT" above a numerical display, like "1234".

K.8.X. S.U.I.T. MESSAGES

The S.U.I.T. System will make announcements to the "User" throughout the game or death match.

"Left" "Right"	"Arm" "Forearm" "Hand" "Leg" "Lower Leg" "Foot"	"On Fire" "Missing" "Burnt" "Eroded" "Destroyed" "Disconnected" "Vaporized" "Immobilized" "Non-functional" "Frozen"

"Minor" "Severe" "Catastrophic" "Major" "Ridiculous" "Annoying" "Fatal"	"Acid Burns" "Fire Burns" "Blood Loss" "Organ Loss" "Embarrassment" "Laser Burns" "Fire" "Acid" "Freezing" "Glue" "Slippery Oil"	"Detected"

"User"	"Decapitation" "Head Missing" "Head Disconnected" "Head Destroyed" "Dead" "Really Dead" "Really, Really Dead" (Blown apart) "Seems Dead" (When playing dead) "Kicks Ass!" (Great shot, etc) "Is a loser!" (Really bad move) "Frozen" "Unconscious" "Immobilized" "Imbalance" "Vaporized" "On Fire" "Electrocution" "Invisible"

"Go, User, go!"

K.8.Y. PLAYER TAUNTS

The player can cause taunts to be spoken from his 3D position, with a rapid 3D drop-off so that players who are far away will not hear them. Or, optionally, the taunt can be over the "radio" on a team or global channel, for everyone to hear.

These taunts are wacky, and are clearly and unashamedly stolen (paying homage) from other games or other sources.

PHRASE	INSPIRATION
"Your song is not ours."	(System Shock 2, "The Many" members)
"We are, we are!"	(System Shock 2, "The Many" members)
"Silence the discord!"	(System Shock 2, "The Many" members)
"Go, Recon!"	(Half-Life, Marine Soldiers)
"Don't shoot! I'm with the science team."	(Half-Life, Scientist)
"Hello there!"	(Half-Life, Scientist)
"What a mess!"	(Duke Nukem)
"You got nothing'."	(Half-Life, Marine Soldiers)
"Is that all you got?"	(Half-Life, Marine Soldiers)
"Get off my land!"	(Redneck Rampage, Old Coot)
"I'm gonna getcha!"	(Redneck Rampage, Old Coot)
"That's one doomed Space Marine!"	(Duke Nukem)
"You'll pay for that!"	(Duke Nukem)
"Hail to the king, baby!"	(Duke Nukem)
"Let's Rock!"	(Duke Nukem)
"Who's your daddy!"	(classic)
"Mwo, ha, ha, haaaa!"	(classic)
"Outstanding!"	(Mortal Kombat, commentator)
"I'll be back!"	(Terminator movie)
"Terminated!"	(Terminator movie)
"That kicks ass!"	(Paul Bolton, SENNARI employee)
"That's what I'm talking about!"	(Paul Bolton, SENNARI employee)
"What a freakin' loser!"	(Paul Bolton, SENNARI employee)
"Yupper!"	(Paul Bolton, SENNARI employee)
"That's great!" (whining)	(Paul Bolton, SENNARI employee)

Q. PRODUCTION ISSUES

Q.1 DESIGN

(1) Simplify the user-interface as much as possible, and try to make controls intuitive and common to all game genres.
(2) Make sure the in-game help-tip system really answers the questions likely to be on the user's minds for any given context.
(3) Figure out what users find counter-intuitive, difficult, or confusing, for the interface, game play, or the story.
(4) Allow the user to customize controls (mouse, keyboard, joystick, …), sound, graphics, etc.
(5) Provide hotkey programming (macros), and unlimited key aliases, and named configurations (including naming and saving/restoring your own configurations) for input, graphics, sound – independently.
(6) Screen-shot capability at all times.
(7) OpenGL and Direct3D support.
(8) Multi-threaded for disk access, user-interface, sound, and music.
(9) Cheat codes.
(10) Try to consciously provide several "solutions" to in-game puzzle scenarios (fight, bribe, flee, stealth, unarmed, cooperation with other NPC, etc).
(11) Profile and optimize each game mode.
(12) Easy and intelligent installation program;
(13) Comprehensive online trouble-shooting guide and other documentation, with printed versions available by mail;
(14) Significant software testing on different hardware and operating systems;
(15) Very careful and conservative specification of minimum system requirements;
(16) Simplify user-interface for all game modes and front-end operation;
(17) In-game help tips expanded based on beta-testing feedback;
(18) Solid, low-risk code; detailed debugging information upon failure, both for developer and the end-user;

S. INSPIRATIONS

The following lists various "inspirations" for the concepts of the different levels in the game. In reality, these aren't the original inspirations, but they help to sketch the idea by using familiar concepts. Also, the actual game will obviously greatly expand, warp, or exaggerate the inspirational ideas.

S.3 HISTORICAL GAMES

S.3.1 "VECTOR GRAPHICS"
Asteroids, Tempest, Omega Race, …
Vectrex™ video game system

S.3.2 "BIG PIXELS"
ATARI 2600 cartridge system
Frenzy and Berserk video games (with early speech synthesis), marginally better than ATARI 2600.

S.3.3 "TEXT ADVENTURE"
APPLE II home computer
Pure-text games: Zork (1/2/3), Hitchhiker's Guide to the Galaxy, …
Apple II graphics (green, white, violet, etc): Conan the Barbarian, Karatica, Ultima, and several split-screen (graphics and text) games ("The Hobbit"?, etc…)

S.3.4 "COLLECTABLES"
Early Nintendo games (Mario Bros.), shiny coins floating in the air, etc.
Pitfall, with shiny gold and sparkling diamonds; simple, yet very powerful impression on player.

S.3.5 "DRIVING"
Pole Position, Hard Drivin', Daytona, "Gran Turismo", …

S.3.6 "FIGHTING"
Mortal Kombat, Street Fighter, Tekken, …

S.3.7 "RESOURCE MANAGEMENT"
Isometric perspective, tedious resource management…
Primarily based on StarCraft, WarCraft, … Secondary influences include: The Sims (AI-based people)

S.3.8 "VIRTUAL CREATURE"
Primarily based on Seaman (Dreamcast), but also key-chain virtual pets, Lemmings, …

S.4 CONTEMPORARY GAMES

S.4.1 "S.U.I.T. Training Course"
Although you don't really need a training course, or even a suit, to play CRITICAL MASS™, this is a common part of complex first-person shooter games (Half-Life, System Shock 2, Deus Ex, etc).
Of course CRITICAL MASS™ training course is absurd, and the player is rarely reminded of the suit by a quick joke (In Half-Life HEV suit voice: "Warning: User unhappiness imminent. (pop!) Happy pill administered.") at random points in the game.
The movie "Back to the Future"; reference to "One point twenty-one 'jiga'-watts".
(Suit says: "(beep-beep) Power: One point twenty-one jiga-watts," after picking up a battery.)
NOTE: The suit voice is exactly like the Half-Life HEV suit voice (fragmented, monotone).

S.4.2 "SWITCHES, BUTTONS, AND KEYS"
Duke Nukem, Redneck Rampage, …

S.4.3 "AIR DUCT"
Duke Nukem, Half-Life, Deus Ex, …

S.4.4 "CRATES"
Half-Life, Deus Ex, …

S.4.5 "SEWER"
Duke Nukem, Redneck Rampage, Half-Life, Deus Ex, …

S.4.6 "TRANSPORTER"
Duke Nukem (level with sushi bar and transporters), Half-Life (levels with numerous transporters), Quake III Arena, …

S.4.7 "LENS FLARE"
Gran Turismo, Heavy Metal FAKK2, and numerous driving and sports games.

S.4.8 "BODY COUNT"
The part of the movie "Hot Shots, part deux" where Charlie Sheen (dressed as Rambo) is shooting 3rd-world soldiers running out of their huts, and a body counter at the body of the screen eventually reports: "Bloodiest Movie Ever!" [Kill meter in "BODY COUNT" level captures this insanity.]

Death-match modes of the following games:
Duke Nukem: Jet Pack
Half-Life (Team Fortress): Weapons, controls, body fragmentation, …
Quake III Arena: Announcer ("Impressive", "Humiliation", "Invisibility"), crazy intensity,…
Unreal Tournament: Taunts, body splattering, crazy intensity, …