



Half-Life 2 Deconstruction

Analyzer:

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Description

High Concept

- Half-Life 2 is a 3D first person shooter with narrative elements where the player uses a variety of different weapons to defeat a wide range of different enemies and solve some puzzles with emphasis on physical interactions to complete the game

Action/Verbs

- Look (at game objects, enemies, environment)
 - **Move the mouse around** to look around accordingly
 - Variant of this action:
 - Aim (at enemies or shootable game objects)
 - Move the aim to align with the enemies or shootable game objects, so that bullets will hit the enemies when shooting
- Walk (on ground)
 - **Press [W]/[A]/[S]/[D]** on the keyboard to move the player forward/left/backward/right
 - Variants of this action:
 - Fall (to ground)
 - Walk/run/jump to a place where the ground is lower or no ground below
 - Run (on ground)
 - Move at a faster speed than walking
 - **Hold [Shift]** while walking to run
 - Slow walk (on ground)
 - Move at a slower speed than walking
 - **Hold [Alt]** while walking to walk slower
 - Stand (on ground)
 - **Not press [W]/[A]/[S]/[D]**
 - Variant of this action:
 - Hide
 - Stand behind a cover to avoid enemies' projectiles or sights
 - Pick up
 - When move close to pickups, the player will automatically replenish health and ammos, accordingly
- Jump (through gap/to a higher place)
 - **Press [Space]** on the keyboard to jump
- Crouch (on ground)
 - **Press [Ctrl]** to move the player upper body down
 - The player crouch to pass through narrow spaces or avoid enemy projectiles
- Interact (with interactable objects)

- **Press [E]** to interact with interactable objects
- Variants of this action:
 - Press (button)
 - Pull (lever)
 - Enter (vehicle)
 - Use (health, armor charger)
 - Grab grabbable objects
 - when using gravity gun
- Shoot (enemies or other shootable game objects with a gun)
 - **Press [Mouse 1]** to shoot with the current gun in hands
 - Variant of this action:
 - Eliminate (enemies)
 - Shoot the enemy until the enemy's health reaches zero
 - Trigger explosion (with explosives)
 - Shoot explosive barrels to cause explosion
 - Shoot possessed engineer's fuel canister to cause explosion
- Hit (enemies or other game objects with a crowbar)
 - **Press [Mouse 1]** to hit with a crowbar in hands
 - Variant of this action:
 - Eliminate (enemies)
 - Hit the enemy until the enemy's health reaches zero
 - Trigger explosion (with explosives)
 - Hit explosive barrels to cause explosion
 - Break (wooden barricade or boxes)
 - Hit the wooden barricade or boxes until it breaks
 - Can be used as part of a puzzle
- Throw (grenade, bugbait)
 - **Hold [Mouse 2]** to enter aiming pose, and then **press [Mouse 1]** to throw out the object when a throwable object is equipped
- Switch (general weapons)
 - **Scroll mouse wheel up/down** and then press the trigger button for the weapon to choose next/previous general weapons to equip
 - **Press [Q]** to get the previous weapon used
 - **Press [1]-[6]** to choose the first weapon in the specific weapon category
 - **Press the same number** again to choose the next weapon in that category
 - **Press [G]** to switch to gravity gun
 - **Press [F]** to switch to flashlight
- Use (alternative fire)
 - **Press [Mouse 2]** to use current weapon's alternative fire mode if available
 - Variants of this action:
 - Launch a grenade (with SMG)

- Launch an energy orb (with rifle)
- Shoot with double barrel (with shotgun)
- Zoom in (with crossbow)
- Drop the grenade (with grenade)
- Activate targeting laser (with RPG)
- Call the antlions to the player (with bugbait)
- Grab grabbable objects (with gravity gun)
- Reload (the current weapon)
 - **Press [R]** to manually reload the current weapon
 - Auto reload will happen when the player has an empty magazine but have extras
- Command (the squad)
 - **Press [C]** to command the squad to go to the location pointed by the player
 - **Double tap [C]** to command the squad to return to player's location
- Zoom in
 - **Press [Z]** to show the zoom-in view

Core Game Mechanic(s)

- Movement
 - **Press [W]/[A]/[S]/[D]** to move the player forward/left/backward/right
 - **Press [Space]** to jump
 - **Press [Ctrl]** to crouch
- Shooting
 - Using different weapons against different enemies to create various gameplays
- Gravity gun
 - Could launch different game objects to hit enemies in combat
 - Some objects create new gameplay
 - Such as throwing explosive barrels and saws
 - Could grab and relocate game objects for puzzle solving
- Interactable
 - Buttons/levers
 - Allows player to open locked door or trigger certain game objects



Figure 1: Fan Trap. [1]

- Explosive barrels
 - Explodes and deals damage to everything around
 - Also damage the player if nearby



Figure 2: Explosive Barrel. [1]

- Health charger
 - Restores player's health by a certain amount
- HEV suit charger
 - Restores player's armor by a certain amount



Figure 3: Health & Armor Charger. [2]

- Pickups/supplies
 - Supply Box



Figure 4: Ammo Supply. [1]

- Med kit
 - Restores health



Figure 5: Med Kit. [2]

- Battery
 - Restores armor



Figure 6: Battery. [2]

- Ammo
 - Appearance differs by weapon types



Figure 7: Ammo. [1]

- Ammo Crate



Figure 8: Ammo Crate. [2]

- Hazards
 - Water
 - Player will lose health and die under water after a period of time
 - Player can move up and down in water but at a slower speed
 - Fire
 - Prevents player's from entering certain places
 - Deal damage to the player in contact
 - Height
 - Player takes fall damage over a certain height
- Gate
 - Block player's path
 - The player needs to traverse to find a button/lever to make it open
- Door
 - Block player' sight if closed
 - The player needs to press [E] to open it
- Barricade
 - Temporarily block player's path
 - The player needs to shoot or hit it until it breaks



Figure 9: Barricade. [1]

- Air boat



Figure 10: Air Boat. [2]

- An important vehicle in canal area
- Allows the player to traverse on water
- May get stuck on shore
- Got a weapon attachment in the later appearance
 - Used in canal combat
- Using it as a part of the puzzle
- Scout car
 - An important vehicle in coast area
 - Allows the player to traverse fast and certain otherwise unavailable area
 - Got a weapon attachment in the later appearance
 - How to move the car around in certain area is part of a puzzle



Figure 11: Scout Car. [2]

- Blue barrel
 - Float on water
 - Putting it under other objects to make them float is part of a puzzle



Figure 12: Blue Barrel. [1]

- Saw
 - Can be grabbed by gravity gun
 - Can be shot by gravity gun to deal massive damage to enemies
- Fan Trap
 - Can be activated and deactivated with a lever pull



Figure 13: Fan Trap. [1]

- Fire trap
 - Can create or put off fire



Figure 14: Fire Trap. [1]

- Electrical Trap
 - Deal damage to those in contact
 - Block player's path
 - Need to be turn off with a lever



Figure 15: Electrical Trap. [1]

- Car Trap
 - Can be pulled down to crush enemies under it
 - Automatically return to max height
 - Can be used as an elevator

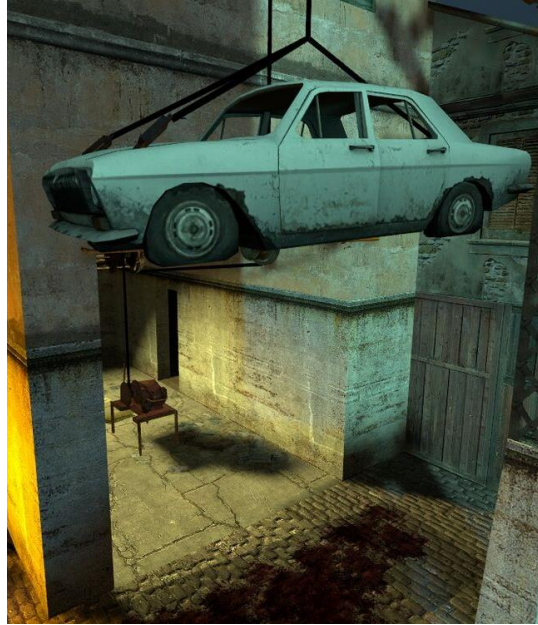


Figure 16: Car Trap. [1]

- Energy orb
 - Explosive upon on contact with enemies or the player
 - Deals massive damage
 - Can bounce around on surfaces
 - Can be grabbed by gravity gun

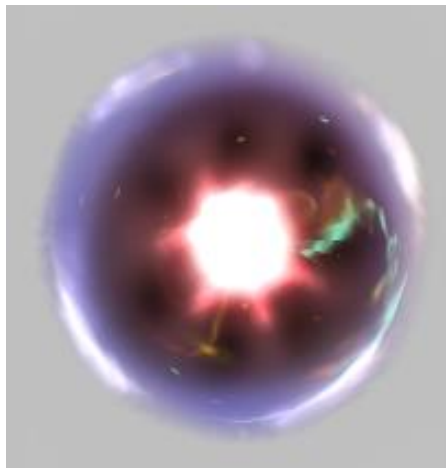






Figure 17: Energy Orb. [2]





- Squad
 - Player can recruit NPCs to fight alongside
 - NPCs can provide med kits to the player
 - Player can command squad to move to a specific location or call them back to player's side






- Weapons (data from strategywiki.org [3])

Name	Image	Damage	Effective Range	Magazine Size/Total Capacity	Notes
Crowbar	 Figure 18: Crowbar. [3]	10 (Low)	Melee	N/A	Good for saving ammos, and destroy barricade Can kill headcrabs easily
9mm Pistol	 Figure 19: 9mm Pistol. [3]	15 (low)	Medium	18/150	Good for early game and shooting explosive barrels
.357 Magnum	 Figure 20: .357 Magnum. [3]	40 (relatively high) Headshot 80 (high)	Relatively long	6/12	Good against single enemy with high health High damage Ammo is limited and hard to find, use sparingly
SMG	 Figure 21: SMG. [3]	4 (low)	Medium	45/255	Very fast fire rate Damage per second is not high Good for shooting explosive barrels Alternative fire mode <ul style="list-style-type: none"> • Launching a grenade <ul style="list-style-type: none"> ○ 3 total ○ Good against crowds
AR2	 Figure 22: AR2. [3]	8 (medium)	Relatively long	30/60	Decent damage output Good overall Alternative fire mode <ul style="list-style-type: none"> • Launching an energy orb <ul style="list-style-type: none"> ○ 3 total ○ Good damage ○ Can hit self by accident
Shotgun	 Figure 23: Shotgun. [3]	8-48 (relatively high)	Close	6/30	Relatively long reload time Good against melee enemies Alternative fire mode <ul style="list-style-type: none"> • Shooting with double barrel <ul style="list-style-type: none"> ○ High damage
Crossbow	 Figure 24: Crossbow. [3]	100 (high)	Long	1/10	High damage Limited ammo No sound Good for stealth kill Hard to hit moving target Need to reload often Alternative fire mode <ul style="list-style-type: none"> • Opening a scope

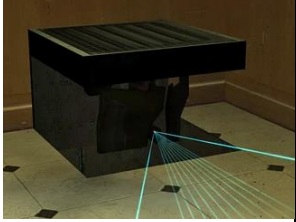


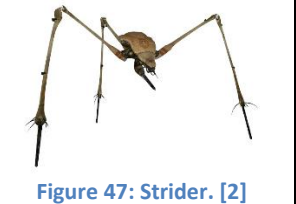
Grenade	 Figure 25: Grenade. [3]	125 (high)	Relatively long	5	High damage Good against crowd Could harm the player Alternative fire mode <ul style="list-style-type: none"> • Dropping the grenade • Can use gravity gun to pick it up again and throw at target
RPG	 Figure 26: RPG. [3]	200 (very high)	Long	3	High damage Limited ammo Good against vehicles, striders Alternative fire mode <ul style="list-style-type: none"> • Activating target laser
Bugbait	 Figure 27: Bugbait. [3]	0	Medium	Infinite	Attract a group of antlions to attack enemies nearby Just use when available Distract the enemy from focusing on the player Alternative fire mode <ul style="list-style-type: none"> • Calling antlions to back to the player
Gravity Gun	 Figure 28: Gravity Gun. [3]	Varies on grabbed objects	Medium	N/A	Can grab objects nearby and launch them at enemies Certain objects, like saws, deals more damage than normal objects Can grab explosive barrels, and throw to cause explosion Used for puzzle solving Upgraded in later game <ul style="list-style-type: none"> • Can grab larger objects • Can grab large objects to block enemy shots • Deals more damage • Can grab energy orb

- Enemies (Data from half-life.fandom.com [2] & IGN [4])

Name	Image	Health	Damage	Note	Strategy
Scanner	 Figure 29: Scanner. [2]	30	Melee: 25 (attack when heavily damaged)	Usually attack the player by flashing light and blind the player, which does no damage	Taking it done fast, which makes combat against other enemies easier
Civil Protection	 Figure 30: Civil Protection. [2]	26 (early)/ 40 (late)	Melee: 40 (medium), ranged attack various on weapons (low)	Standard human enemy spawn manhack	Aim for head Use grenade with there is a crowd of them
Manhack	 Figure 31: Manhack. [2]	25	Various on weapon (relatively low)	Can fly Melee attack only Move fast	Keep distance
Standard Headcrab	 Figure 32: Standard Headcrab. [2]	10	Melee: 5 (low)	Small volume Hard to hit One variant of them moves fast	Most times, it is just easier to hit it with crowbar than to shoot
Barnacle	 Figure 33: Barnacle. [2]	35	Melee: 50 (relatively high)	When it contacts with the player, it pulls the player up for a bite	When taken by it, the player can shoot at it, so it will release the player. Player can also avoid it by observing carefully. Also, the player can feed it with random objects, explosive barrels could be especially effective

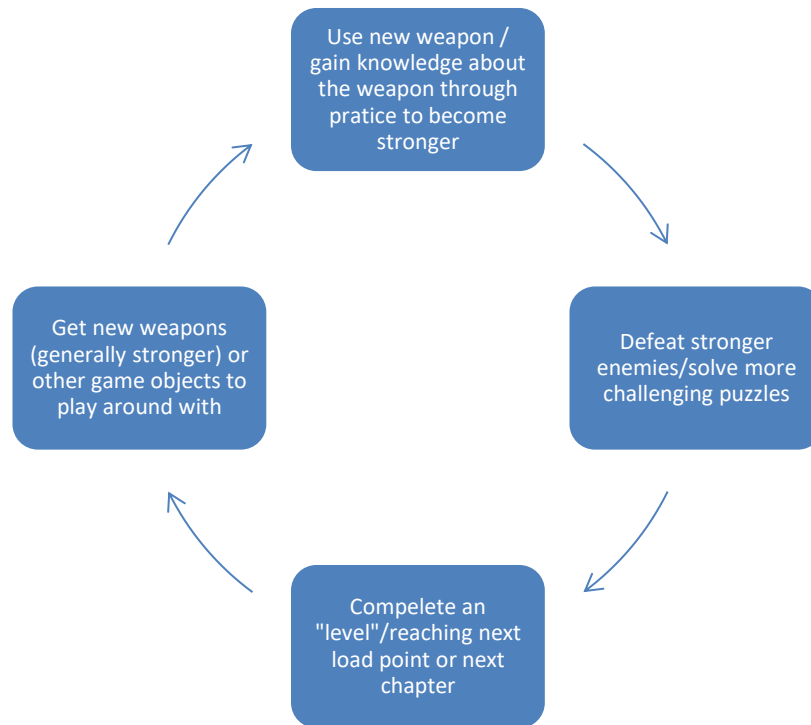
Zombie	 Figure 34: Zombie. [2]	50	Melee: 10/20 (low)	Walks slowly Throws arms up when attacking The headcrab may detach from the body	Aim for the head Keep moving for distance
Poison Headcra b	 Figure 35: Poison Headcrab. [2]	35	Melee: reduce player's health to 1 then slowly regenerates	Hard to hit High priority to kill	Keep distance Use guns (shotgun preferred)
Fast Zombie	 Figure 36: Fast Zombie. [2]	50	Melee: 10/12 (low)	Moves and attacks faster	Keep moving Aim for head
Overwat ch Soldier	 Figure 37: Overwatch Soldier. [2]	50	SMG: 3, Shotgun: 21, Rifle: 3, Grenade: 75, Melee: 10 (Medium)	Enhanced version of civil protection	Take cover Shooting or getting closer when it is not firing
Antlion Soldier	 Figure 38: Antlion Soldier. [2]	30	Melee 5	Spawn in crowds	Use grenade or other weapons with AOE damage

Antlion Guard	 Figure 39: Antlion Guard. [2]	500	Melee: 10/20	A lot of health Can launch objects	Use high damage single target weapon
Roller Mine	 Figure 40: Roller Mine. [2]	N/A	Melee: 10 (low)	Chases the player Can only be destroyed by explosives or being underwater	Player can pick it up with gravity gun and launch it back at the enemies
Overwatch Elite	 Figure 41: Overwatch Elite. [2]	70	Rifle: 3, Rifle secondary: 15, Melee: 15 (Medium)	Enhanced version of overwatch soldier	Take cover Shooting or getting closer when it is not firing
Armored Personnel Carrier	 Figure 42: Armored Personnel Carrier. [2]	750	Rifle: ? Rocket: ? (relatively high)	Carries soldiers	Take cover Weak against explosives
Combine Sentry Gun	 Figure 43: Combine Sentry Gun. [2]	N/A	Ranged: 3 (fire rate fast) (relatively high)	Does not move Only watches one side	Can approach from other direction Can throw explosive Can grab with gravity gun Can use gravity gun and grab things for cover Can be knocked over easily

Combine Ground Turret	 Figure 44: Combine Ground Turret. [2]	N/A	Ranged: 3 (fire rate fast) (relatively high)	Limited vision Only detects laser's range	Avoid step into its range or destroy it with grenades
Hopper Mine	 Figure 45: Hopper Mine. [2]	N/A	Various based on distance at least 65 at close range (high)	Green is friendly Blue is neutral Red is hostile	Can only be disarmed by gravity gun By dropping it after grab, the mine become friendly
Combine Gunship	 Figure 46: Combine Gunship. [2]	1000	Cannon: ? (medium)	Fly in the air	Use RPG Take cover
Strider	 Figure 47: Strider. [2]	1400	Cannon: ? Melee: ? (high)	Huge	Use RPG Take cover Keep moving

Game Loops

- Core Loop
 - Shooting and eliminating enemies and manipulating physics to find the path forward
- Secondary Loop
 - Getting ammos, armor, health pickups from supplies
 - Solves a puzzle to find the path forward
 - Completes an enemy encounter to continue forward
 - Completing a level (chapter) by reaching the next load point in the chapter
 - Collecting different weapons, mastering those weapons to face stronger enemies and various puzzles
- Tertiary Loop
 - Complete the game by clearing all “levels” /chapters



Conveyance/Affordances

- Consistency
 - Game objects with the same look have the same function throughout the game
 - E.g., The painted lambda symbol always accompanied by secret supplies nearby



Figure 48: Lambda Symbol. [1]

- Color
 - Each color has certain implication
 - Green
 - Safety
 - Med kit



Figure 49: Med Kit. [2]

- Ammo/Ammo crate



Figure 50: Ammo Crate. [2]

- Friendly hopper mine



Figure 51: Friendly Hopper Mine. [2]

- Red
 - Important, requires player's attention, but not necessarily dangerous
 - Supply box



Figure 52: Supply Box. [1]

- Secret supply symbol



Figure 53: Lambda Symbol. [1]

- UI
 - Require player's attention at all time
- Antlion

- Antlion
 - The only yellow enemy
 - It is relatively weak
 - Player will have control over them
 - So, they should be noticeable but not threatening



Figure 54: Antlion. [2]

- Red
 - Danger
 - Blood
 - Monster type enemies



Figure 55: Zombie. [2]

- Thrown grenade



Figure 56: Thrown Grenade. [1]

- Player death screen
- Hostile hopper mine

- Explosive barrels



Figure 57: Explosive Barrel. [1]

- Black & White
 - Serious, Oppression
 - Most combine enemies
 - Provides player with tension
 - Suggest the style of the government narratively



Figure 58: Combine. [2]

- Color contrast
 - Combine enemies are black and white, which always stand out, especially their heads
 - Helps the player to aim for the head
- Lines
 - Lines guide the player where to go
 - Lines show the player the connection between two objects



Figure 59: Line Showing Connection. [1]

- Framing
 - Mainly use doors for framing
 - The view of the inside or outside is always at the center of the screen outlined by the door, which draws the attention from the player



Figure 60: Framing. [1]

- Form follows functions
 - The form of a game object suggests its function
 - E.g, the turret/combine sentry gun
 - Gun on the turret's head shows that it can shoot bullets
 - Red dots suggest that it aims, and it is dangerous
 - The three pointy legs suggest that while it may not move by itself, it can be easily knocked over with some external force

- With all information combined, the shape already informs the player how to approach this type of enemy



Figure 61: Combine Sentry Gun. [2]

- Smaller enemies tend to be more flexible but has less health
- Huge enemies tend to have high damage output and health but may not move continuously or have slow speed
- Motion
 - Enemies that seem static moves when it is about to deal damage to the player
 - E.g, Roller mine and hopper mine
 - While they look static, they use motion to draw player's attention when damage is about to be dealt
 - The hopper mine will hop up to do the explosion
 - So, the player still have time to react and minimize the damage



Figure 62: Motion. [1]

- Enemies that are small are hard to see
 - So, they tend to move constantly that the player can notice and deal with them
 - E.g., headcrab
- Light
 - The game use lights to guide the player in almost every step of the level
 - Often uses light in a room in a dark background to attract the player

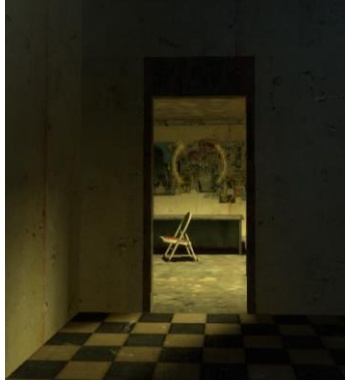


Figure 63: Light. [1]

- Even though a door that can be opened looks the same as a door that cannot be opened, the light around the door enables the player to tell what types of doors it is
 - If strong light surrounds the door, it must be openable



Figure 64: Light. [1]

- Important environmental narrative and gameplay hint are also lighted



Figure 65: Light. [1]

- Openings attract
 - The game uses a lot of opening doors to show the player where to go next
 - It still works even though the door is not completely open

- Player can see through the barricade and see the light inside since there are gaps between barricade, which are the openings



Figure 66: Open Attract. [1]

- Gates & Valves
 - Sometimes the game just closes the door for the player
 - Other times, between levels, almost the entrance door is not closed
 - The player could not return because there is an air wall preventing the player from leaving
- Audio
 - There are sound effects when some explosion is about to trigger
 - There are even sound effects when getting close to a dangerous zone to a hopper mine
 - There are sound effects when the player picks up health, armor, and ammos
 - So, the player is updated with the current status as the pickups sometimes happen automatically
 - There are sound effects and audio to report player's current health
 - So, the player is updated with the health status without looking at the UI during a combat
 - Different enemies make different noises, which informs the player which enemy will the player encounter and its direction without even seeing one
- Weenie
 - The player can see citadel very earlier in the game
 - When the player returns to the city, the player knows that it will be final destination
 - Thus, the player will have an easier time to find the path by using it as a landmark and more informed about what will happen next



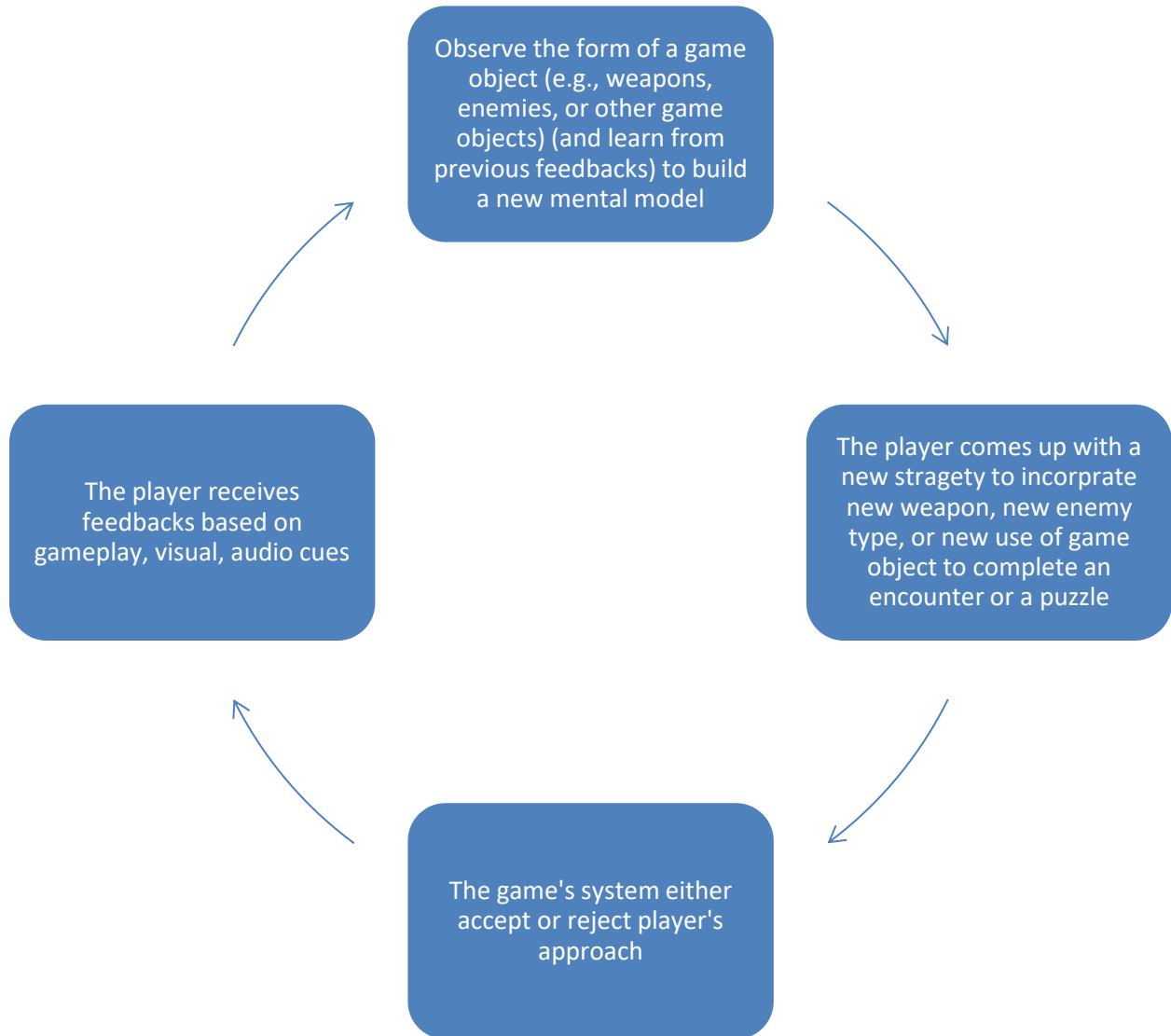
Figure 67: Weenie. [1]

- Narrative
 - Some NPC just tells the player where to go next
 - E.g., Father Grigori

Feedback Loops

- The player has a mental model about the functionality of a certain game object (weapons, enemies, or other game objects) by observing its form, and then the player will perform an action based on that mental model with a desired outcome in mind
 - E.g., The strider is huge, and, thus, it should be very powerful enemy
- The player performs the action
 - E.g., the player shoots the strider with normal weapons
- The game system either accepts or rejects the player's understanding of the game object with feedbacks
 - If rejected
 - Negative feedback
 - Gameplay
 - The player has trouble to take the strider down, die, or fail to complete the encounter
 - Visual
 - Screen flashes red
 - When health is low
 - When player gets hurt

- When ammo is low or completely out of ammo
 - Audio
 - Alerting or discomforting sound
 - When the player is hit by the strider
 - Health status audio alert
 - If accepted
 - Positive feedback
 - Gameplay
 - Player picks up RPG and take down the strider
 - Shows that the player's approach works
 - Visual
 - The strider falls part
 - To notify that the player wins
 - Audio
 - Satisfying sound
 - When the player hits the strider with RPG and when the player takes it down
- The player will incorporate the feedbacks, and build a modified mental model, and repeat this cycle
 - E.g., after the encounter with the strider, the player knows that strider is powerful, and that RPG is the most effective way against it



Deconstruction (Chapter 6 Level 1- d1_town_01)

High Concept of Level

- The player will reach the end of the level by practicing with grabbing and launching objects with new weapon - gravity gun, along with traps involving puzzle solving
- In the level, the player is introduced with following mechanics
 - Saw (interactable)
 - Fan trap (interactable)
 - Fire trap (interactable)
 - Electric trap (interactable)
 - Car trap (interactable)
 - Poison headcrab (enemy)

Reinforced Mechanics

- Grabbing and launching objects with gravity gun

Introduced Actions/Verbs

- Destroying barricade with gravity gun
- Grabbing and launching saws
- Grabbing and launching barrels
- Combating against poison headcrab
- Pressing button/lever to activate/deactivate different traps

Flow & Pacing

- Flow & Pacing Summary
 - The player will start in a safe room
 - The player will see the light to guide the player into the house with light
 - The player will learn the knowledge of using gravity gun to destroy barricade when trying to enter the first room (**Intro** to destroying barricade with gravity gun)
 - The player will learn the knowledge of using gravity gun with saw blade in the first room
 - The player will practice the knowledge right after entering the second room (**Intro** to launching sawblade with gravity gun)
 - 4 zombies
 - One appears right after the previous one is taken down to keep up the tension
 - After exiting the hallway, in the third room, the player will face 3 zombies
 - The player will learn the skill of launching explosive barrels at enemies (**Intro** to launching explosive barrels with gravity gun)
 - The player will enter another hallway, and exits to the outside
 - When exits, Father Grigori starts speaking, and the player sees the new mechanics - fan trap
 - 2 zombies will appear, and the player will learn that fan trap can kill enemies and the trap can be turned on and off (**Intro** to fan trap)
 - The player will enter another building, in the first room, the headcrab will attract the player to the blocked exit, and 3 zombies appear from behind
 - There is a fan in the room, and the player gets the practice with the fan
 - After exiting the building, 1 zombie appears, the player will take it down and enter the building it came out of
 - Father Grigori speaks again
 - Entering the third building, 3 zombies appear, there are both explosive barrels and fan in the room, the player could decide the approach to take down the enemy (**Reinforce** for launching explosive barrels with gravity gun and **reinforce** for fan trap)
 - Exiting the third building, 1 zombie appears in front of the player, the player will take it down
 - Turning around, 1 zombie caught on fire running at the player and dies, and then Father Grigori helps the player to take down other 2 zombies
 - The player will know that fire can kill zombie and Father Grigori is friendly
 - The player will face a group of fire blocking a building
 - If the player continues walking, 2 zombies will break the barricade in another building as they come at the player
 - After taking down two 2 zombies, the player will enter the room
 - After replenishing, the player will see a valve and a button and experiments with the trapped zombie (**Intro** to fire trap)

- The player will learn that the valve and the button can cause fire, and that by using the valve again, the fire can be put out
- The player will continue move forward, and find a narrow hallway with fire
- The player will use the knowledge learned, and put out the fire
- Then a zombie will appear on the hallway, which encourages the player to turn on the fire again to kill the zombie, and then turn it off (**reinforce** for fire trap)
- After entering and exiting the hallways, 3 zombies appear
- But there are no objects for player to grab in this space, so the player will retreat and kill the zombies with fire trap, and master the skill
- The player will then find the electrified gate. After touching it, the player will learn that it deals damage to the player and the path it blocked off (**Intro** to electric trap)
- The player will see a wire connected to the gate, and leading into a room in a building
- The player will notice that that building is the building with fire in front of it
- The player will backtrack and apply the knowledge learned and put out the fire with the valve and enter the building (**reinforce** for fire trap)
- There are 4 zombies in the first room, and there are sawblades and explosive barrels
- The player can further practice with the gravity gun skill (**reinforce** for launching sawblade and explosive barrels with gravity gun)
- The player will go up stair, find a headcrab and a zombie, the player will take them down
- The player will then find a shelf blocking the exit, and use gravity gun to push it away (**reinforce** for destroying barricade with gravity gun)
- In the next two rooms, a zombie and 2 poison headcrabs appears, which is an intro to the new enemy type, the player will learn its behavior and its threat (**Intro** to poison headcrab)
- In the last room, the player will find the wire and the lever connected to it
- The player will pull the lever to disable the electricity, and backtrack to the gate
- During the backtracking, 1 poison head crab followed by 2 poison headcrabs will appear, to reinforce the new enemy type threat (**reinforce** for poison headcrab)
- The player will enter the gate, climb up the ladder, and jump to the other side
- Father Grigori will start speaking, and then the player will drop to the plank and enter another building on the second floor
- After entering, the player will find 1 zombie and 4 headcrabs on the lower level
- The player will find a lot of canisters around, and the player will launch canisters on the enemies from above with gravity gun and take them out
 - The player will learn that canister can also put enemies on fire with gravity gun (**intro** to launching canisters with gravity gun)
- The player will break the barricade with gravity gun and exit to the outside where the player will find a car trap (**reinforce** for destroying barricade with gravity gun)
- By pulling the lever, the player will learn that it can crash down and crush enemies below it by crushing 4 zombies in the meantime (**Intro** to car trap)
- The player will find the second car trap and pull the lever to make it go up

- After going through the path, 3 zombies appear and the player find out it is a dead end and retreat, and then practice the car trap skill by crushing those zombies (reinforce for car trap)
- The player may realize that the car trap also acts as an elevator, so the player will pull the lever and get on top to carry the player to the top
 - (Optional) the player can jump in the midair to enter the building with lambda symbol on it to get hidden supplies
- The player will go through the planks and enter another building, and Father Grigori will talk again
- By opening the door and entering the hallway, the player completes the level
- Pacing
 - The level lasts around 10-15 minutes, but it introduces a new enemy type, four interactions with gravity gun, and four different types of traps, which seems like an overwhelming amount of new mechanics
 - In a more abstract level, the level purely a tutorial that introduces 4 types of traps in a linear order (1 intro and 1 reinforce challenge, except electric trap) with 4 interactions with gravity gun (1 intro and 1 reinforce challenge, except the canister one) and 1 new enemy (1 intro and 1 reinforce challenge)
 - During the play, the player may not actual felt overwhelmed by the mechanics as they are easy to understand and connected by theme: one about using gravity gun (grabbing and launching), and the other about using traps (pressing buttons/levers), which are essentially two actions showcased in different ways to keep player feel fresh
 - If the player did not get stuck on any part of the level, the pacing feels good as the enemies gradually increase in number and the puzzle increases in difficulty as well
 - One potential problem with the pacing is that the player could enter the building and pull the lever without even go to the electric gate because the player can decide where to go at that point, which means the player could potentially skip a puzzle

Conveyance

- At level start, the player is inside a dark room, and the door forms a frame, and letting the player focuses on the light, showing a moving hanged lower body, which suggests the existence of saw blade and the creepy atmosphere
 - Use framing, lighting, motion to inform the player at the beginning of the level



Figure 68: Level Start. [1]

- The light lit up the broken sign on the ground
 - This does not only inform the player about the place's name but also suggests that it is a broken town with creepy atmosphere



Figure 69: Sign. [1]

- First zombie's groan lets player to notice the zombie in darkness
- The room at the end is lit up and has some openings, which attracts the player



Figure 70: Open Attract. [1]

- In the first room, there are a lot of canisters and sawblades which may attract the player and let the player experiment with them
 - But more importantly, the light in the middle highlights the upper body and the sawblade on the wall, letting the player making a connection with the lower body previously saw
 - In addition, the player may assume that the sawblade is effective against zombie and then realizes that the player can grab the sawblade with gravity gun, and then launch it at enemy



Figure 71: First Room. [1]

- At the entrance to the second room, the entrance is blocked off by the saw blades, forcing the player to notice them, and potentially pick them up with gravity guns



Figure 72: First Room. [1]

- If the player did not notice that the player won't be able to enter the room on the left as the saw blades block the entrance, showing at the center frame, which means the player has to pick it up
 - Also, there are lights to help the player focus on the sawblades
- Right after picking it up a zombie coming out from the right, intuitively the player will shoot out the sawblade from the gravity gun, and cut the zombie in half
 - By now, the player will realize that sawblade pluses gravity gun is effective against zombies
- Before entering the hallway, there is light at the other end, telling the player there is a path



Figure 73: Hallway. [1]

- At the fan trap, the zombies will launch a box at the player, which is destroyed by the fan; then the zombies walk into the fan and getting destroyed as well without player doing anything



Figure 74: Fan Trap. [1]

- The player may notice the lever under the fan, suggesting that it can be turned on and off
- The zombie coming out of the building suggests that the building can be entered
 - The lighting helps as well



Figure 75: Zombie Coming out. [1]

- The zombie on fire running at the player and dies reminds the player that zombie is afraid of fire
- Father's room is lit to show the player where to go



Figure 76: Zombie on Fire. [1]

- The trapped zombie allows the player to show the result of using the fire trap, so the player understands how it works
- Red button for the fire trap is easy to see because of contrast
- At the electrical gate
 - Spark is a light source in motion drawing player's attention
 - The dead body on the gate suggests its danger
 - The ladder suggests it is a potential viable path



Figure 77: Electrical Gate. [1]

- At the other end
 - The wire of the gate is connected to a room in the building
 - The room is well lit
 - There are also sparks on the room side to show the connection between the room and the gate, which suggests the player to go to the room first



Figure 78: Wire. [1]

- The wire connection between the lever and the car suggests that there are connections, and it is activatable
- The zombies enter right after the player pulling the lever, allowing the player to see that the car can crush zombies
- The wooden plank above the player shows that it is a place the player needs to get to

Level Design Techniques

- Flow & Pacing
 - Ramp up difficulty gradually
 - Always reinforce a skill after introducing it
 - However, it does not need to be immediately, more other challenges could mix in between
 - It is okay to introduce a lot of different mechanics as long as they are easy to understand and connected by a theme, so the player does not feel overwhelmed
 - Backtracking could be okay if there are differences between the trips, such as new enemy counters
- Conveyance
 - Use motion to draw player's attention
 - Use light to draw player's attention
 - If use lighting in a consistent way, the player always knows where to go
 - Use door as an open attraction and a good frame

- Use audio to help the player locate the enemy as well as lead the player where to go
- Use high contrast color to show an important object
- Use lines to show connection between different objects
- Game objects' forms are consistent so that the player knows how to interact with them
- Set up enemies in a way that they will automatically showcase the mechanics for the player for the first time, so the player will have an easier time to learn it
- Other
 - Limited player's other options, so the player is forced to learn certain skill
 - There are not enough ammo supplies in this level, which means the player has to use some other ways to take down zombies
 - In the level, there are several spaces without any objects, so that they could not even use gravity guns. E.g., the space before the electric gate
 - So, the player is forced into thinking creatively and bait the enemies into traps to eliminate them
 - Also, in the level, the saw blades block off player's path forcing the player into using them

What did they do well?

- All the level design techniques discussed in previous sections
 - Using a lot of level design techniques to guide the player without breaking player's immersion
 - Being able to introduce a lot of new mechanics without letting the player feel overwhelmed
 - Use specific enemy set up as a tutorial for new mechanics

Potential Improvements

- Issue 1
 - The player may enter the building and pull the lever first without ever checking the electric gate, which means the player skipped a puzzle (previously mentioned)
- Solution
 - Rearrange the layout, so that the player has to check the electric gate first before pouring out the fire in front of the building and entering the building
- Issue 2
 - After talking with Father Grigori on the roof, the play may not know where to go next
 - The correct path is dropping onto the wooden planks
 - However, the planks are partially in the dark, which makes it hard to see
 - The planks look very narrow, and, thus, can be easily ignored
 - In addition, the player may hesitate to jump onto the planks because of how narrow it is
 - Also, the player may have trouble to land on the narrow planks successfully

- If the player fails, the player loses health from the height, and has to climb back up and try again, which could be frustrating
- Solution
 - Add some lights near the planks so that it is visible to the player
 - Make the planks wider, so the player won't have trouble to execute this jump or questioning about whether it is the correct path



Figure 79: Planks. [1]

Deconstruction (Chapter 9 Level 1- d2_prison_02)

High Concept of Level

- The player will reach the end of the level by understanding how combine sentry gun works and practice a bit with this new enemy type
- In the level, the player is introduced with following mechanics
 - Combine sentry gun (enemy)

Reinforced Mechanics

- Feed barnacles with objects

Introduced Actions/Verbs

- Knocking over combine sentry gun
- Blocking combine sentry gun's shots with barrel

Flow & Pacing

- Flow & Pacing Summary
 - The player will start in a safe place
 - The player will enter the door with lights
 - The player will find no entrance on the current floor and go down to the next floor
 - The player will find a hole in one of the rooms and will enter to hole
 - When coming out of the hole, the player will find a couple of dead combine bodies in the room
 - After exiting the room, the player will see the combine sentry gun/turret in action, shooting at antlions (**intro** to combine sentry gun)
 - The player is now introducing to this enemy type and understand some of its behaviors
 - Then the player will exit the current room and going upstairs
 - The player will crouch to enter the gap between fence and walls
 - After exiting, the player will walk along the hallways, and get replenishers in a room with a monitor if necessary
 - The player will walk to the end of the hallways, and go upstairs
 - Moving forward, the player will see two turrets in sleep mode
 - The player can test their behaviors one step further by walking in front of them or knocking them over (**intro** to combine sentry gun)
 - The player will open the door next to the turrets and go downstairs
 - The player will walk in the water with some floating boxes
 - The player will notice that there are 3 barnacles on the ceiling, 2 of them are on player's path (**reinforce** for barnacles)
 - The player will pick up boxes and buckets to feed the barnacles to avoid their attacks
 - The player will walk to the other side
 - If the player has knock down two turrets previously, the player can just eliminate 4 headcrabs and open the door to proceed
 - Entering the large room with pillars and turrets, the turrets will start aiming and attacking the player when the player goes onto the stairs
 - The player will grab a barrel to block turrets' shots, and get close to the turrets
 - Once the player is close enough to the turrets, the player can knock them over, and then proceed into the hallway, which is where the player completes the level (**reinforce** for combine sentry gun)
 - (Optional) before the player completes the level, the player could come downstairs and find a lambda symbol on a room's entrance. The player can break barricades that block the window. Then the player can enter from the window to get secret supplies
- Pacing
 - The level lasts around 2-5 minutes
 - It introduces a new enemy type

- There are 3 encounters in total
 - One with 3 barnacles
 - Which is a simple reinforcement that the player needs to be aware of them and can feed them with objects to avoid their bites
 - One with 4 headcrabs
 - Which is quite trivial when the player is in chapter 9
 - One with 2 turrets behind pillars
 - Which feels more like a puzzle than a combat as the player makes a smart use of barrel to get close to the turrets, and knocking them over is trivial
- Overall, it is a short level that focuses on familiarize the player with the turrets in a relatively safe environment while reinforcing some old mechanics to ensure that players do not forget them over time
- One potential problem with pacing is that, for most of the level, the player is just walking across hallways and go up/downstairs without too much happening, which may seem a little boring
 - However, given the fact that the previous level is the end of a chapter with big encounter, it is reasonable to have this level to be somewhat empty and relaxing

Conveyance

- At level start, the player stands in front of a door with a bright light next to it
 - Which is a case of using framing and lighting to draw player's attention



Figure 80: Light & Door. [1]

- Although fence blocks the player from entering a certain place directly, it still allows the player to see through it. Since the player just completes a big encounter in the previous level, it would be exciting for the player to see health and armor charger across the fence
 - Also, the player, now, would have a generally direction about where to go next



Figure 81: Chargers Behind Fence. [1]

- After going downstairs, all rooms except one are dark, and there is only one room with light, which attracts the player
 - When the player goes and check out the room, the player will find a hole on the wall and the player will be able to see light from the other side, which means it is a viable path



Figure 82: Hole. [1]

- Once coming out of the hole and enter the room, the player can hear fast speed gunshots. Following the source of the sound, the player will find the turret for the first time. The flashing spark in motion is likely to draw player's attention
- The turret is behind the bar, and not seeing or nor attacking the player, which provides the player with a safe environment to observe its behavior
 - The turret continuously shooting antlions, and the bodies piles up, which indicates two things
 - The turret has strong fire power
 - The turret and antlions are on different sides, so the player may take advantage of that to use one against the other
 - The fact that it is not attacking the player shows it has limited vision
 - The shape of the enemy also suggests that it is stationary



Figure 82: Combine Sentry Gun Behind Bar. [1]

- Use exit sign to suggest the correct path



Figure 83: Exit. [1]

- The gap between walls and fence is an open attraction for the player to enter
- When encountering the two turrets in sleep mode, the player can tell they are harmless as they are not shooting or moving at all
 - No motion
- When the player tries to enter their sights
 - The turrets will activate and aim at the player with red lights and the rotating their heads to relocate the target
 - Motion
 - Make player pay attention to their change of mode
 - Color
 - Red for dangerous
- When knocked over, the audio gradually decreases to indicates their shutdown



Figure 84: About to Fire. [1]

- There is a preview of the final challenge – 2 turrets behind pillars, when the player is behind the bar. In certain angle, the turrets can still aim and shoot the player, which indicates how far the turrets can see and shoot



Figure 85: Combine Sentry Gun Behind Bars. [1]

- Use lighting and framing again for the end of the level after the player knocked down two turrets and turn back

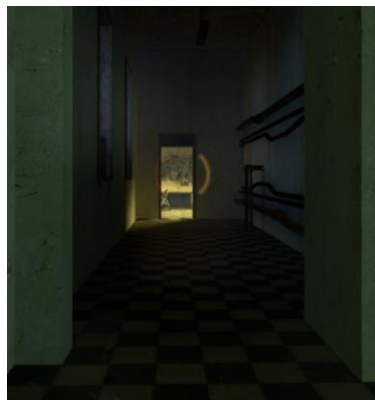


Figure 86: Exit. [1]

Level Design Techniques

- Flow & Pacing
 - Ramp up difficulty gradually in a level
 - Always reinforce a skill after introducing it
 - The progression between levels does not always have to go up
 - There can be levels that are relatively relaxing after an intense level to release player's tension
 - If the game is relatively long, some older skills need to be reinforced
 - Always create the introduction of a new mechanics in a safe and controlled environment
 - And then gradually allow the player to experiment more and take more risk to fully master the mechanics
 - Use section previews to help with the flow
- Conveyance
 - Use motion to draw player's attention
 - Use light to draw player's attention
 - If use lighting in a consistent way, the player always knows where to go
 - Use door as an open attraction and a good frame
 - Use audio and motion to help the player understand the status of an enemy
 - Game objects' forms are consistent so that the player knows how to interact with them
 - Game objects' shape should follow their functionalities
 - Set up enemies in a way that they will automatically showcase the mechanics for the player for the first time, so the player will have an easier time to learn it
 - Use sign to help the player to find the path
 - Use red to show danger

What did they do well?

- All the level design techniques discussed in previous sections
 - Using a lot of level design techniques to guide the player without breaking player's immersion
 - Introduce a new mechanic and let the player understand how it works in a very short level
 - Use specific enemy set up as a tutorial for new mechanics
 - Use this simple short level to relax the player and build up the next tension gradually

Potential Improvements

- Issue 1
 - The player spends most of their time in this level to find the path and walk on the path, which are mostly hallways and stairs, till the end. The level feels kind of empty
- Solution

- Add some interesting puzzles or encounters that do not necessarily need to be challenging but engaging in a certain way. Add something interesting narrative such as something NPC dialogue
- Issue 2
 - The level does not necessarily teach the player about using barrel to block turrets' shots
 - Which means some players might get frustrated and are not sure what should they are supposed to do. Maybe they think it supposed to be a combat between the player and turrets, which would be very difficult
- Solution
 - Add more barrels in the early part of the level, especially where the two turrets in sleep mode appears. It might be better if a barrel is placed right in front of one of the turrets

References

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