Fallout 4 Deconstruction

Analyzer: Tianze Wu

Table of Contents

Description

High Concept

- Fallout 4 is a 3D open world role-playing game set in post nuclear-apocalypse Boston where the players choose their own playstyles including but not limited to shooting and conversing with NPCs to explore the world and complete quests to find the player character's missing child

Narrative Setting

- The story is set in year 2287, 210 years after the great nuclear war between U.S. and China. During the two hundred years, people are rebuilding the world where many things and creatures turn radioactive. The game is set in Boston where four major factions divide the land: Minutemen, Brotherhood of Steel, the Railroad, and the Institute. The player takes the role of the only survivor from vault 111 where he/she saw his/her own child abduction over 200 years ago. In the game, the player's main goal is to find his/her missing child, Shaun. The game features different endings based on the faction player joined as well as choices the player made throughout the game
- Major races include human, robot, synth, super mutant, ghoul, and other radioactive creatures

Action/Verbs

- Look around (**Move mouse around accordingly**)
- Variant of this action:
    - Aim (at NPCs or shootable game objects)
        - Move the aim to align with NPCs or shootable game objects, so that the projectile will hit them when shooting
- Move (on ground or in water)
    - **Press [W]/[A]/[S]/[D]** on the keyboard to move the player forward/left/backward/right
    - Player cannot run when overweighted
    - Variants of this action:
        - Fall
            - Walk/run/jump to a place where the ground/water is lower
            - Fall damage depends on the fall distance
        - Sprint
            - Move at a faster speed than normal run
            - **Press [Shift]** to start sprinting
                - Sprinting consumes stamina
                - **Press [Shift]** again to switch back to running
        - Walk
            - Move at a slower speed than running
            - **Press [C]** to start walking
                - Walking makes less noise, which is good for stealth
                - **Press [C]** again to switch back to running
        - Stand (on ground)

- **Not press [W]/[A]/[S]/[D]**
  - Variant of this action:
    - Hide
      - Stand behind a cover to avoid projectiles or enemies' detections
- Jump (through gap/to a higher place)
  - **Press [Space]** to jump
- Crouch (on ground)
  - **Press [Ctrl]** to move the player upper body down
  - The player crouch to pass through narrow spaces
  - Player enters hidden mode, and is less likely to be detected
  - Player moves slower while crouching
  - Player can only pocket pick while crouching
  - Player can move even slower by **toggling with [Caplocks]**
- Interact (with interactable objects or NPCs)
  - **Press [E]** to interact with interactable objects or NPCs
  - Variants of this action:
    - Talk (to NPC)
      - Available when an NPC is nearby
      - Player is able to choose at max of 4 dialogue options to converse with an NPC
        - Pressing arrow buttons or using mouse to make the choice
          - Convince/Charm
            - Different colored option may pop up during conversation. Choosing this special option allows the player to convince the NPC
              - The success rate depends on player's charisma
                - Yellow easy, orange medium, red hard
    - Take (items)
      - Available when the player is looking at an item that can be put into inventory or at a container, such as drawer, cabinet, and corpse
      - Variants of this action:
        - Steal (items)
          - When the item name is in red
            - This action would result in bad reputation and NPCs may attack when finding out
        - Relocate (items)
          - **Holding [E]** instead of pressing
        - Harvest (plants)

- Take plants' fruit when nearby
- Activate (objects)
  - Including buttons, levers
  - Variants of this action:
    - Deactivate (objects)
      - Available when the object is already activated
    - Disarm (traps)
      - Available when looking at a trap nearby
- Open (doors or other objects)
  - Variants of this action:
    - Unlock (a door or a terminal)
      - Require specific skill proficiency
  - When water is available including water fountain
- Use
  - Bed
    - To sleep
      - Sleep regenerates health
        - Enough sleep provides well-rested status which provides extra XP
  - Terminals
    - To read document
    - To unlock door
    - To play minigame
    - To hack robot
  - Power armor
    - To wear power armor
    - Press again to exit power armor
  - Weapon station
    - To scrap weapons in inventory
    - To modify weapons
  - Workshop
    - To scrap objects for materials
    - To build objects with materials
    - To Assign workers for settlement works
    - To place build objects/plant crops
  - Chem station
    - To scrap chemicals for materials
    - To make chemicals with materials
  - Cook station
    - To make food with different ingredients
    - Foods provides various temporary status buffs

- Power armor station
  - o To place power armor
  - o To repair/modify power armor
  - ▪ Command (Companion)
    - To make companion stay
    - To make companion follow the player
    - To make companion trade with the player
  - ▪ Trade (with NPCs)
    - Buy items with caps
    - Sell items for caps
- Switch (view)
  - o **Press [V]** to change between first person view and third person view
- Adjust (view)
  - o Scroll with mouse wheel
- Attack (NPCs or objects)
  - o **Press [Left Mouse]** to attack
  - o Melee when not holding a gun
    - ▪ Might stomp with feet
  - o Shoot bullet/projectiles when holding a gun
    - ▪ Hitting weak spot deals extra damage
    - ▪ Variants of this action:
      - Eliminate (NPCs)
        - o Attack the NPC till the NPC is dead
      - Cripple (NPCs)
        - o Attack the NPC's limbs to break their limbs to slow their movement
- Power Attack (NPCs or objects)
  - o **Press [Left Alt]**
  - o Slower but more powerful than normal attack
  - o Can be used while holding a gun
- Block (attack)
  - o **Press [Right Mouse]** to reduce damage from incoming attack
- Throw (grenade)
  - o **Hold and release [Left Alt]** when the player has grenade equipped
- Aim (while holding a gun)
  - o **Press [Right Mouse]**
  - o Provides better accuracy
- Pick (from favorite items)
  - o **Press [F]**
- Use (favorite items)
  - o **Press [1-9], [0], [-], [=]** accordingly
    - ▪ Equip (weapons)
      - When the chosen item is a weapon

- ▪ Consume (aids/potions)
  - • When the chosen item is an aid/a potion
- Reload (gun)
  - o **Press [R]** while holding a gun
  - o **Holding [R]** to hide the gun
- Transfer (items)
  - o **Press [R]** with an open container to transfer items to nearby workshop inventory
- Targeting (with VATS)
  - o **Press [Q]** while holding a gun
  - o **Press [Tab]** to exit
  - o **Use [W], [S]** to select body part to aim
  - o **Use [A], [D]**, to select target NPC
  - o **Press [Space]** when the crit gauge is full to execute a critic hit for 100% hit and higher damage
- Open (Pipboy)
  - o **Press [Tab]** and press again to exit
  - o **Press [I]** to navigate to inventory quickly
    - ▪ **Press [R]** in inventory to drop item
  - o **Press [J]** to navigate to quest log quickly
  - o **Press [M]** to navigate to map quickly
    - ▪ **Press [Left Mouse]** at target location that has been visited before to fast travel
- Switch [flashlight]
  - o **Hold [Tab]** to use Pipboy as flashlight
  - o This makes player more susceptible to enemy detection
- Enter (workshop mode)
  - o **Hold [V]** near a workshop
- Lockpick (locks)
  - o Available when something can be unlocked with bobby pin
  - o This action requires bobby pin, and costs bobby pin on failure
  - o Difficulty depends on player's lockpicking skill
  - o **[Move the mouse around]** to turn the bobby pin
  - o **Press [A]** to crack
- Hacking
  - o Available when a terminal is nearby
  - o Have multiple attempts before locking out the player for 10 seconds
  - o Difficulty depends on player's hacking skill
  - o **Press [Left Mouse]** to select password

Core Game Mechanic(s)
- Movement
  - o **Press [W]/[A]/[S]/[D]** to move the player forward/left/backward/right
  - o **Press [Space]** to jump
  - o **Press [Ctrl]** to crouch
  - o This is what allows the player to explore the vast world

- Pick up / inventory system
    - Player can pick up various items to put into the inventory
    - Each item has a weight, and the player have an upper limit of how many items that the player can carry
    - Weapons and apparel could be legendary, which are dropped from legendary enemy
        - Those items generally provide better stats as well as special buffs while equipped
    - There are several categories of items
        - Weapons
            - Weapons provides player different approach for combat
                - This category will be analyzed deeper in the later section
        - Apparel
            - Apparel provides the player different types of protection
                - There are two types of protection stats
                    - One provides physical protection, and reduce damage from shots and melee
                    - One provides radiation protection, and reduce the effect of radiation on the player
                - Some apparel covers certain parts of the body whereas some cover all parts
                    - Each part of the body's damage received is calculated individually as different parts may have different level of protection
                        - Parts includes head, four limbs, chest, and accessory
        - Aid
            - There are various types of food, drinks and medicines that the player can take to recover health or temporary buffs
            - Meats
                - Amount of health recover generally depends on the size of the animal
                    - Bigger animal provides greater health recover, but also causes more radiation
            - Fruits/Snacks
                - Generally, recover a small amount of health and causes small radiation
            - Nuka-Cola
                - Recover medium to great amount of health depends on the type of Nuka-Cola
                    - (Ice) Nuka-Cola is most common; Nuke Cherry is less common; Nuke-Cola Quantum is the rarest

- The rarer Cola recovers more health
- Medicines
  - Generally, provides temporary buffs
    - Including stat buffs, invisibility, damage resistance, attack boost, slowing down time
  - Consuming too much alcoholic results in addition, which provides stats debuff that can be cured
- RadAway
  - Recover 30% of max health
- RadX
  - Gain great amount of radiation resistance in several minutes
- Stimpack
  - Recover 30% of health
  - Also remove cripple status from the player
  - One of the major ways to recover health in the game
- Misc
  - Items that are not included in other categories
  - Some are quest items and keys
  - It also includes bobby pins, caps, models, and magazines
- Junk
  - Their main use is generally to be scrapped into materials that can be used to craft other items
- Mods [2]. (https://fallout.fandom.com/wiki/Fallout_4_weapon_mods) (https://fallout.fandom.com/wiki/Fallout_4_armor_mods)
  - They are attached to weapons or amors to provide buffs
    - Weapon mod effects generally include increase damage, increase accuracy, increase range, increase fire rate, increase ammo capacity, better recoil, provides night vision, better aim, reduce AP cost, and other more specific effects
    - Armor mod effects generally include increase damage dealt, reduce damage (physical/radiative) received, reduce weight, increase weight capacity and other more specific effects
- Ammo
  - Different guns require different ammos
  - There are generally three types of ammo
    - The normal type of ammo used by standard weapons
    - The cells type ammo used by energy weapons
    - The explosives ammo used by explosive launchers like Fat Man
    - There is also weapon need specific ammos like the junk shooter

- S.P.E.C.I.A.L
    - This mechanics includes 7 character stats, and this is how the game makes the player unique through customization and specialized skills
        - (More) Strength
            - (Increase) Weight capacity, melee damage
        - (More)Perception
            - (Better) Ability to obverse the environment with extra info
            - (Increase) Accuracy in V.A.T.S
        - (More) Endurance
            - (Increase) Max health
            - (Less) Action Point spent for sprinting
        - (More) Charisma
            - (Easier) Persuasion
            - (Better) Discount for shopping
        - (More) Intelligence
            - Gain (more) XP
            - Unlocks (more) crafting skills
        - (More) Agility
            - (More) Action Points in VATS
            - (Better) Stealth ability
        - (More) Luck
            - Finding (more) items
            - (Better) critical hit chance
- Perk
    - S.P.E.C.I.A.L perks [2]. (https://fallout.fandom.com/wiki/Fallout_4_perks)
        - These perks can be gained by spending level point in the perk chart
        - These perks correspond to a specific stat in S.P.E.C.I.A.L
            - These perks generally have a stat requirement and sometimes a level requirement to be unlocked
            - Perks in strength generally increases melee power, heavy gun power, power armor strength, provides access to better armor mod, and increases weight capability
            - Perks in perception generally increases pickpocketing skill, lockpicking skill, armor penetration, V.A.T.S. power, explosive power, energy resistance, sniper power
            - Perks in endurance generally increases damage resistance, radiation resistance, max health, health and radiation recovery
            - Perks in Charisma generally increases trade power, damage output, relationship with animals and companions,
            - Perks in intelligence generally provides access to better gun and high-tech mods, increase chem and medicines' effectiveness and duration,

radiation weapon power, robot hacking power, and power during low health

- Perks in Agility generally increases gun's range, damage, and accuracy, stealth skill and damage, AP regeneration, power while sprinting, damage output in V.A.T.S.
- Perks in Luck generally increases treasure finding skill, damage output, critical damage, critical chance and extra help in V.A.T.S., and XP earning

  o Collectable Perks
    - Collecting certain special items like bobble heads and magazines provide permanent perks
      - They are many collectible items, so each individual perk is generally less powerful than S.P.E.C.I.A.L perks

- XP
  o Player levels up by gaining XP
  o Higher level requires more XP
  o Leveling up gives the player a level point which can be spend in stats or perks
  o Quest is the main source of XP
  o Defeating enemies, crafting items, discovering new areas provide XP as well

- Quest
  o This is what the player spends most time doing in the first playthrough in the game
  o Quest generally provides XP and sometimes caps or other rewards upon completion
  o There are several types of quests
  o Main quest
    - Quest that the player must complete to finish the game
  o Side quest
    - Quest that are optional, but used as content filler and usually provides more narrative to the game
  o Faction quest
    - The quest assigned by a specific faction in the game. Generally, important to complete in order to achieve that faction's ending
    - Sometime generic quest like killing raiders in an area are repeatable

- Action Point (AP)
  o Actions in V.A.T.S requires AP
  o Sprinting depletes AP overtime
  o AP regenerates over time

- V.A.T.S
  o This system allows the player turns the combat into slow motion, so that the player can plan and aim for a specific target's specific part of the body
  o Different part of the body and different target have a different chance to be hit, and the probability is shown to the player on screen
  o The player can fire multiple shots in a single session as long as there are enough AP left
  o Fire a shot costs AP, and the amount of AP costs depends on the weapon

- - - ▪ Generally, a more powerful ammo requires more AP
      - A sniper shot generally costs more than a pistol shot
  - o Cric chance Stacks when hit
- Body Parts
  - o NPCs/Creatures in the game have certain body parts as their weak spot
    - ▪ Damaging their weak spot does more damage
      - Headshot on a human does much more damage than shooting feet
    - ▪ Weak spot various on different creatures
  - o NPCs in the game can be crippled by shooting certain body parts, which may result them have a harder time to attack or to move
  - o Player's body part can be crippled as well
    - ▪ A damaged head results in blurry vision
    - ▪ Crippled limb results the player have a harder time to move
    - ▪ Player can immediately cure the cripple by using stimpack
- Stealth
  - o Player's main approach to move through places undetected by enemies and to pickpocketing items from NPCs
  - o Player enters hidden mode while crouching if not detected by hostiles
  - o Player moves slower and makes less noise during stealth
  - o Player does more damage during stealth
  - o Excess amount of noises, lighting makes the player more easily to get exposed from hostiles
  - o When detected, the player exits the hidden mode and enemies will target at the player
  - o Pickpocketing
    - ▪ The player can put or take item from NPC while crouching behind the NPC
      - Each action has a chance to succeed or fail, which relies on player's pickpocketing skill level as well as the weight of the item
- Lockpicking
  - o Player can lockpicking a lock with bobby pin
  - o This action requires bobby pin, and costs a bobby pin on failure
  - o Difficulty depends on player's lockpicking skill
  - o Player receives XP when success
- Hacking
  - o Player can unlock a terminal nearby
  - o Player has multiple attempts before locking out the player for 10 seconds
  - o Upon each answer, the system gives a percentage of how many characters are contained in the actual password compared to the given answer
  - o The player can find "[]" to replenish attempts
  - o Difficulty depends on player's hacking skill
- Settlement
  - o In the settlement, the player can use workshop to build improve the settlement
  - o There are several stats for settle

- Food
  - Planting crops provide more food
- Water
  - Pumps provide water
- Power
  - Some structures in the settlement requires power to work, so that the player needs to build generators to power them
- Defense
  - Each defense structure provides defense point to the settlement
- Happiness
  - The overall assessment based on previous criteria
- Population
  - Settlement can attract settlers, and settlers can be assigned to work to improve the settlement

- Workshop
  - Workshop
    - Allow player to make structures, defenses, and furniture
    - Can be used as a container to store items
    - Allow player to scrap surrounding items for crafting materials
  - Weapons workbench
    - Allow player to scrap weapons in inventory
    - Allow players to create mod for weapons
    - Allow player to rename the weapon
  - Armor workbench
    - Allow player to scrap apparel in inventory
    - Allow players to create mod for apparels
    - Allow player to rename the apparels
  - Chem station
    - Allow player to scrap certain items for aid materials
    - Allow player to craft aids
  - Cooking station
    - Allow player to cook food
      - Food restores health and provides temporary buffs
  - Power armor station
    - Allow player to place power armor
    - Allow player to repair and modify power armor
- Dialogue
  - Player often speak with NPCs to progress through quests, and, thus, the whole game
  - When given opportunity to speak, the player has at most four options
    - The upper one usually means more questions
    - The left one usually means a neutral response, and sometimes a sarcastic one
    - The bottom one usually means positive/acceptance
    - The right one usually means negative/decline

- o Different dialogue choices may lead the quest/story to a different branch
- o Player can opt into the dialogue playstyle by leveling up charisma
- o Occasionally, the player is given a special charm dialogue option
    - ▪ Choosing this option, the player has a chance to succeed or fail at convincing/charming the NPC, which results in different responses and sometimes a different story branch
    - ▪ Yellow means high success rate, orange means medium, and red means low
- Power armor
    - o Acquired in the first Minutemen mission, "When Freedom Calls"
    - o While equipped, reduce damage taken, prevent fall damage
    - o Powerful with the minigun
    - o Needs to be repaired in power armor station if broken
    - o There are different types of power armor with different stats
    - o They can be crafted
    - o Mods provides different buffs
    - o Power armor requires power to function
    - o Fusion core is the common source of power for the armor, which can be picked up in certain places, but relatively rare
- Companion
    - o There are multiple companions that the player can meet in the game, including Dogmeat, Preston, and Piper
    - o Many of them are optional
    - o They can search items in an area for the player
    - o They attack enemy automatically
    - o The player can trade with them to let them carry items
    - o They can be healed with stimpack while bleeding out
    - o The player can command them to follow or unfollow the player
    - o The player can only have 1 companion at a time
    - o When switching companion, the player needs to send the previous companion into a settlement
    - o Player's action will affect companion's likeness towards the player
        - ▪ Actions including what dialogue to say, what NPC to fight, and what items to take
        - ▪ Upon on reaching a high level of likeness, the companion unlocks special perk for the player
        - ▪ At a high level of likeness, the player may romance with certain companion
        - ▪ If the companion dislikes the player, the companion may refuse to travel with the player
- Faction
    - o There are four major factions in the game
        - ▪ Minutemen, Brotherhood of Steel, The Railroad, and the Institute
        - ▪ Each faction has their own faction quest

- - - The player may choose to join the faction after the first quest to obtain more faction quest and get that faction's ending
      - Some faction quests are repeatable
  - o There are minor factions, like the raiders or a certain type of animals
    - They don't attack each other and help each other during combat
- Currency
  - o The main currency in the game is cap, which is used to buy and sell items
  - o Player gains 1 cap by consuming drink with cap
- Radiation
  - o Many environments and items in the world are radioactive. Contacting with them will result the player getting radiated, which reduces player's max health
    - Environments include radiative water and gas
    - Most consumables in the game are radioactive in different extents
  - o The player needs to use RadX to strengthen radiation resistance, and RadAway to remove radiation from the body, which recovers the max health
- Map
  - o Player can access the world map as well as local map through Pipboy
  - o Player can only fast travel to places that the player has discovered
- Traps [2]. (https://fallout.fandom.com/wiki/Fallout_4_traps)
  - o Most traps can be disarmed when getting close to it before triggering it
  - o There are several types of traps
    - Environmental traps
      - Certain plants emit radiative gas which gives player radiation upon contact
      - Car will explode upon taking a certain amount of damage
    - Damage traps
      - Upon trigger, those traps will do direct damage at anyone nearby
        - o Including Tesla arc and various mines
    - Noise traps
      - Upon trigger those traps will make noise so that enemies may be alerted, such as chimes
    - Activator traps
      - Upon trigger, those traps will activate connected mechanisms such as a turret to shoot at the player

- Weapons [2]. (https://fallout.fandom.com/wiki/Fallout_4_weapons)
  - o Chart
    - ▪ L for Low, M for Medium, H for High, S for Super
  - o There are several categories of weapons in the game. Within the category there are a lot of variants, and some may differ from the standard stats in the chart for the category
    - ▪ Ballistic Weapons
      - Common Standard Weapons

Name	Image	Damage	Accuracy	Effective Range	Magazine Size	AP Cost	Notes
Pistol	Figure 1: Pistol. [2].	L-M	M-H	M	L-M	M	Quite common
Rifle	Figure 2: Rifle. [2].	M	H	H	L-M	L-M	Relatively common
Shotgun	Figure 3: Shotgun. [2].	M-H	L	L	L	M	Relatively common
Pipe Weapon	Figure 4: Pipe Weapon. [2].	Low	M	M	L-M	M	Allows most modifications
Heavy Weapon	Figure 5: Heavy Weapon. [2].	S	M	H	L	M-H	Good with high Strength

- ▪ Energy Weapons
  - Consumes fusion cells or cores
  - Generally, are institute weapons

Name	Image	Damage	Accuracy	Effective Range	Magazine Size	AP Cost	Notes
Laser	Figure 6: Laser. [2].	L-M	M-H	M-H	M	M	Light weight
Plasma	Figure 7: Plasma. [2].	M	S	M-H	M	M	Projectile travels fast, light weight

- ▪ Radiation weapons
  - Deals radiation damage

Name	Image	Damage	Accuracy	Effective Range	Magazine Size	AP Cost
Gamma	Figure 8: Gamma. [2].	M-H	M-H	M-H	L-M	M

- Explosives
  - Grenades
    - Player throws it out
    - Deals high damage

Figure 9: Grenade. [2].

  - Mines
    - Player places it on the surface
    - Deals massive damage

Figure 10: Mine. [2].

  - Faction Grenades
    - Player throws it out
    - Calls reinforcement to help in the combat from a specific faction
- Melee
  - Bladed weapon can break limbs more easily

Figure 11: Bladed Weapon. [2].

  - Blunt weapon staggers enemy more easily

Figure 12: Blunt Weapon. [2].

  - Low Damage
  - Medium to high AP cost
- Enemies [2].[3]. (https://fallout.fandom.com/wiki/Fallout_4_creatures)
  (https://fallout4.wiki.fextralife.com/Enemies)
  - Enemies could be legendary which will always drop legendary gear
    - Legendary enemies are stronger than normal ones
  - There are various enemy types in the game
    - Each type of enemy has several variants, which may be stronger, weaker, or has a special effect than standard generic enemy of that type

Name	Image	Health	Damage	Note	Strategy
Feral Ghoul	Figure 13: Feral Ghoul. [2].	M	L-M (Melee)	Does radiation damage, melee attack Sprint at the player Usually in groups	Keep distance, shooting while drawing distance

Raider	Figure 14: Raider. [2].	L-M	L-M (Melee/Ranged)	Tend to be in groups Some of them are melee only Some of them prefers to throw Molotov Cocktails	Keep distance with melee ones, and take cover for ranged ones
Super Mutant	Figure 15: Super Mutant. [2].	M-H	H (Melee)	Some will explode when near the player deals huge amount of damage	Keep distance
Behemoth	Figure 16: Behemoth. [2].	H	H (Melee/Ranged)	Big in size	Dodge ranged attacks while keep distance
Synth	Figure 17: Synth. [2].	M	M (Ranged)	Similar to other human enemies, but uses cell weapons	Take cover

| Triggerman |

Figure 18: Triggerman. [2]. | M | M (Ranged) | Uses submachine gun | Take cover |
|---|---|---|---|---|---|
| Gunner |

Figure 19: Gunner. [2]. | M-H | M-H (Ranged) | Hard to hit
High priority to kill | |
| Courser |

Figure 20: Courser. [2]. | H | M-H (Ranged) | Uses cell weapon, can be invisible | Taker cover. Wait for invisibility to expire |

Bloatfly	Figure 21: Bloatfly. [2].	L	L (Ranged)	Does radiation damage Can fly	Take down quickly Use V.A.T.S.
Bloodbug	Figure 22: Bloodbug. [2].	30	L (Melee)	Cause bleeding Can fly Moves fast	Use V.A.T.S.
Deathclaw	Figure 23: Deathclaw. [2].	H	H (Melee)	Can throw cars at player	Belly is weak spot Minigun is effective
Attack Dog	Figure 24: Attack Dog. [2].	L-M	M (Melee)	Chases the player down Moves fast	Use V.A.T.S.
Mirelurk	Figure 25: Mirelurk. [2].	M	L-M (Melee)	High damage resistance except face and belly Can swim	Use V.A.T.S. to aim at weak spot

Molerat	Figure 26: Molerat. [2].	L	L-M (Melee)	Can tunnel in direct	Use V.A.T.S.
Mutant Dog	Figure 27: Mutant Dog. [2].	M	M-H (Melee)	Run fast Chase player down	Use V.A.T.S.
Radroach	Figure 28: Radroach. [2].	L	L (Melee)	Does radiation damage Can sometimes fly	Use V.A.T.S. or just use pistol to aim
Radscorpion	Figure 29: Radscorpion. [2].	M	M (Melee)	Run fast Can tunnel High energy resistance	Don't use cell weapons
Stingwing	Figure 30: Stingwing. [2].	L-M	M (Melee)	Does poison damage Can fly	Use V.A.T.S.
Mongrel	Figure 31: Mongrel. [2].	L-M	L-M (Melee)	Chase player Usually in group	Single out and fight

Yao Guai	Figure 32: Yao Guai. [2].	M-H	M-H (Melee)		Use minigun
Sentry Bot	Figure 33: Sentry Bot. [2].	H	H (Melee/Ranged)	Can use rocket launcher Moves fast High damage resistance	Avoid direct confrontation
Assaultron	Figure 34: Assaultron. [2].	H	H (Melee/Ranged)	Uses energy attack Needs to charge attacks High damage resistance	Avoid direct confrontation
Protectron	Figure 35: Protectron. [2].	M	L-M (Melee/Ranged)	Can self-destruct	Keep distance
Turret	Figure 36: Turret. [2].	L-M	H	Cannot move Auto attack in range	Take cover

Game Loops

- Core Loop
  - Shooting and eliminating enemies
  - Talking with NPCs
  - Exploring and finding items
- Secondary Loop
  - Defeating an enemy to earn XP
  - Completing an encounter to explore the area and loot the corpses
  - Exploring the world to find more quests
  - Completing a quest to learn caps and XP
  - Leveling up to get more perks
  - Collecting caps to buy better gears
  - Collecting materials to build better items
- Tertiary Loop
  - Complete the game by completing all quests required to reach an ending

```
                    ┌─────────────────────┐
                    │  Use XP to get perks,│
                    │  Use caps and materials
                    │   to get better gears│
                    └─────────────────────┘

  ┌──────────────────┐                    ┌──────────────────────┐
  │ Gain caps, XP,   │                    │   Defeat stronger    │
  │ special items by │                    │ enemies/complete an  │
  │ completing the   │                    │ harder encounter with│
  │ quest            │                    │ better perks and gears│
  └──────────────────┘                    └──────────────────────┘

                    ┌─────────────────────┐
                    │  Complete the quest │
                    └─────────────────────┘
```
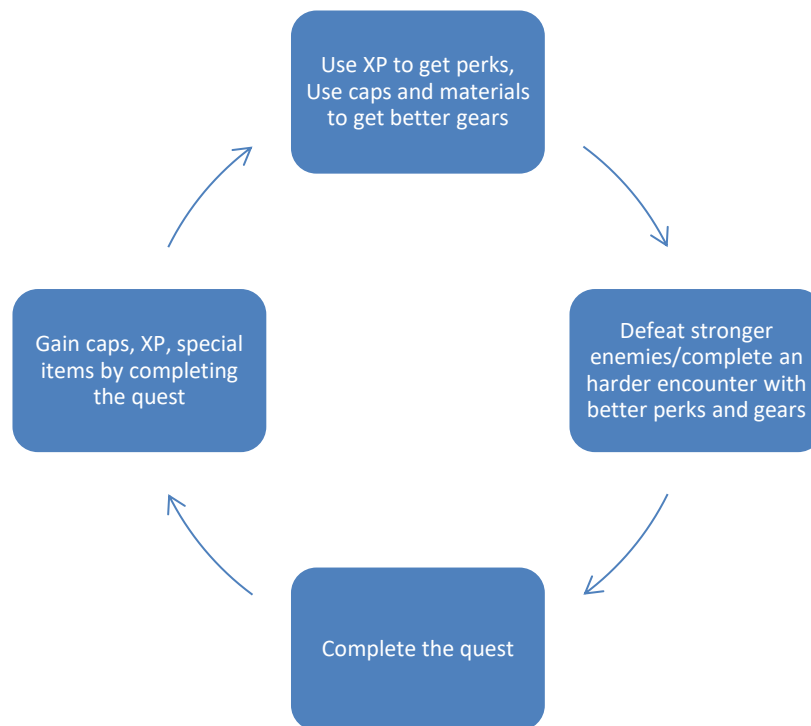
Conveyance/Affordances

- Consistency
    - Game objects with the same look have the same function throughout the game
        - E.g., The big blocky red machine is always a Nuka-Cola Machine, so that the player has the expect that there might be a bottle of Nuka-Cola in it

Figure 37: Nuka-Cola Machine. [1].

- Color
    - Each color has certain implication
        - Green
            - All UI in the game is green, and few objects in the actual game object are green. Thus, green is related to technology
        - Red
            - Important, requires player's attention, but not necessarily dangerous
                - Nuka-Cola Machine
                - Exit sign
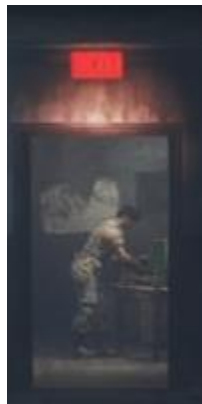
Figure 38: Exit Sign. [1].

- Dangerous, requires attention
    - Blood
    - Decrease in HP in V.A.T.S.
    - Damaged parts while in power armor
    - Max health Reduction
    - Items that could be stolen

o   Enemy stats

Figure 39: Enemy Stats. [1].

▪   Greenish Yellow

•   Radioactive, anything causes or exposed to radiation in long term
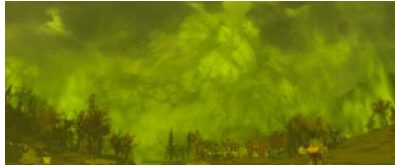
Figure 40: Radstorm. [2].

•   Lines
    o   Lines guide the player where to go
    o   Lines show the player the connection between two objects

Figure 41: Leading lines. [1].

•   Framing
    o   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 42: Framing. [1].

- Form follows functions
  - The form of a game object suggests its function
    - E.g., Bigger guns are generally more powerful than smaller ones
- Motion
  - Moving enemies are easier to spot
  - Direction of motion may suggest where the player should go next
- Light
  - The game use lights to guide the player
    - Often uses light in a room in a dark fore/background to attract the player

Figure 43: Light. [1].

  - Light on objects sometimes suggests it is interactable
    - E.g., an openable door, an operable elevator

Figure 44: Light on Elevator Platform. [1].

- Openings attract
  - The game uses a lot of opening doors to show the player where to go next
  - Created opens, like broken walls, or natural opens, like caves work as well

Figure 45: Open Attract. [1].

- Gates & Valves
  - There are shortcuts that are only openable in one way
    - However, they are generally not noticed when they cannot be opened to reduce player's mental load
  - When backtracking those gates are unlocked, for a fresh route
- Audio
  - There are satisfying sound effects/dialogues when the player does something good
    - Drink Cola, execute a critical hit, succeed at persuasion, completing a quest
  - There are negative sound effects/dialogues when the player faces something bad
    - When player gets detected, hurt, or killed
  - In the dialogue, NPCs provide potential navigation information, and player may tell their location through their sounds
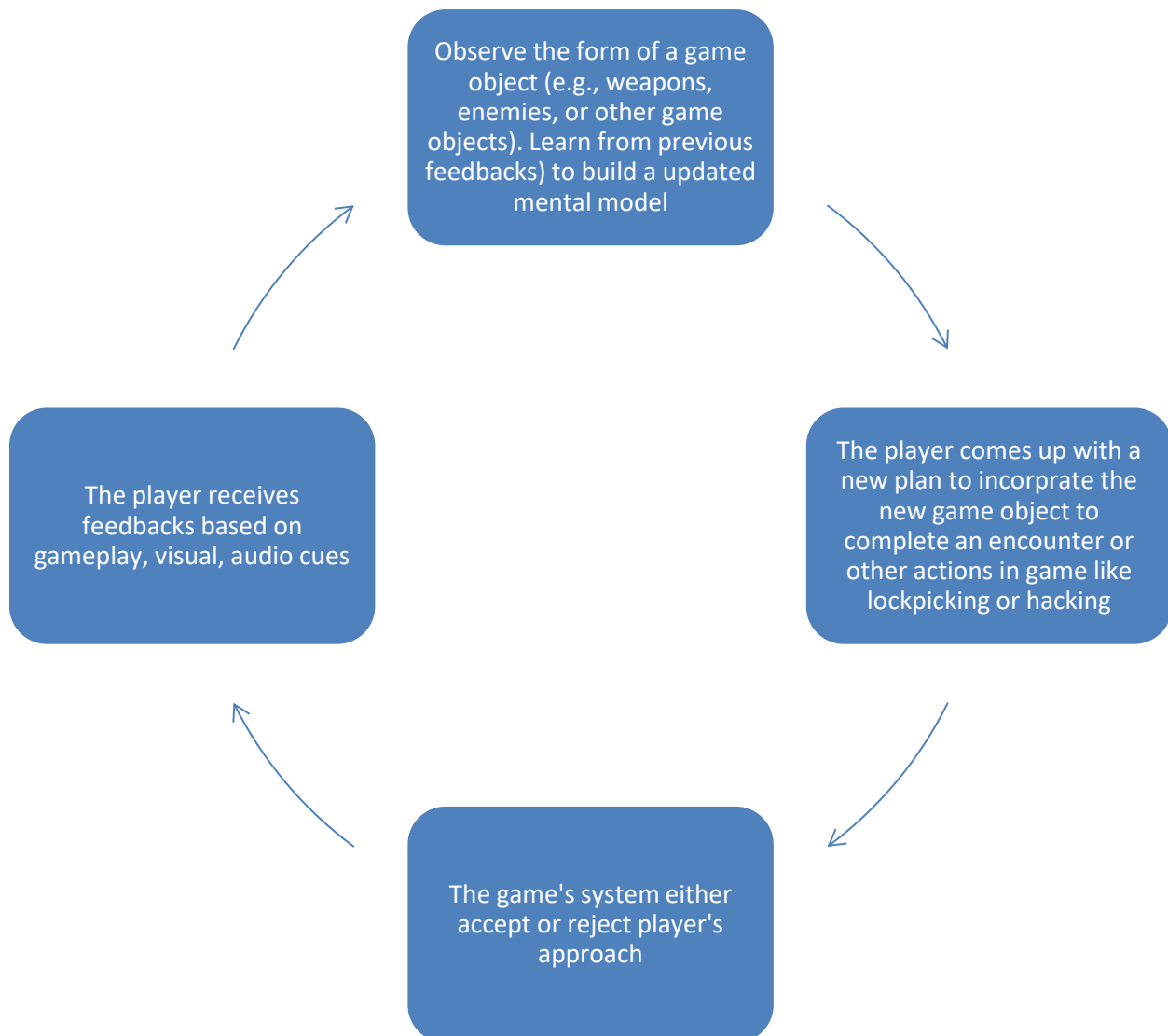- Weenie
  - Fallout 4 world is based on real world Boston. Thus, there are many iconic landmarks the player may be able to identify from a long distance away to tell the relative location
- Narrative
  - NPCs, documents just tell the player what to do and where to go next

Feedback Loops
- The player has a mental model about the functionality of a certain object in the game (weapons, enemies, certain settlement structures, 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., Deathclaw is big, and has an aggressive and dangerous outlook
- The player performs the action
  - E.g., the player attacks Deathclaw with a baton
- The game system either accepts or rejects player's understanding of the game object with feedbacks
  - If rejected
    - Negative feedback
      - Gameplay
        - Deathclaw takes little damage from the baton strike whereas its attack devastates player's health
      - Visual
        - Health bar reduces
        - Player getting pushed back
      - Audio
        - Player generates hurt sound, like groaning or yelling
  - If accepted
    - Positive feedback
      - Gameplay
        - Player wears the power armor and uses minigun to hit Deathclaw, and takes it down without too much challenge

- Shows that the player is on the right track
  - o Play can loot Deathclaw's corpse
- Visual
  - o Deathclaw spills blood, and falls down
- Audio
  - o Bullet hitting sound
  - o XP gaining sound
- The player incorporates the feedbacks, and builds a modified mental model, and repeat
  - o E.g., after combating Deathclaw, the player knows that Deathclaw is very powerful in melee range, and it is better to fight it using powerful range weapon, like minigun

Observe the form of a game object (e.g., weapons, enemies, or other game objects). Learn from previous feedbacks) to build a updated mental model

The player comes up with a new plan to incorprate the new game object to complete an encounter or other actions in game like lockpicking or hacking

The game's system either accept or reject player's approach

The player receives feedbacks based on gameplay, visual, audio cues

Deconstruction ("Unlikely Valentine")

High Concept of Level

- The player completes the level mainly by combating with triggermen, other skills such as stealth, lockpicking, hacking, persuasion also help the player to reach the final goal – get Valentine out of Skinny Malon's base
- In the level, the player is introduced with following mechanics
  - Triggermen (enemy)
    - A type of generic human enemy with guns
    - Most of them are level 7, a few of them are level 1
- In the level, the player is introduced with following characters
  - Ellie Perkins
    - Valentine's assistant. She informed that Valentine is gone missing and gives the player's the quest
  - Nick Valentine
    - The target of this quest, and the player needs to make sure he is saved
  - Skinny Malone
    - The major enemy/boss of the quest. The leader of triggermen, and lives in Park Street Station
  - Darla
    - Valentine's investigation target. A potential enemy depending on choice.
  - Dino
    - Skinny Malone's follower. Talking to Valentine in front of Valentine's prison
- Objectives
  - Find Nick Valentine
  - Free Nick Valentine
  - Talk to Nick Valentine
  - Follow Nick Valentine
- This is an early-middle stage quest, the player is about 10 hours into the game, and has a level around 10

Narrative Setup

- The player is informed that Valentine could help the player to find Shaun, but, in Valentine's office, his assistant tells the player that Valentine has gone missing investigating a girl in Park Street Station involved with Skinn

Reinforced Mechanics

- Combating with human enemies
- Stealth (optional)
- Lockpicking (optional)
- Hacking (optional)
- Persuasion (optional)

- Activating (objects)
- Handling traps (optional)

Introduced Actions/Verbs

- Leaving a place with time limits (optional)

Flow & Pacing

- Flow & Pacing Summary
  - The quest is immediately followed by "Jewl of Commonwealth"
  - After talking to Perkins, the player is informed that Valentine has gone missing when investigating in Park Street Station. Perkins gives player the quest
    - The first objective is to find Valentine
  - The player travels to Park Street Station
  - The player enters the station hearing Triggermen talking to each other
  - The player will be greeting with 3 Triggermen on the left and 1 on the right
  - After defeating enemies in the lobby, the player can enter the room in the left with a terminal to learn more information, and lockpick the door inside to gain access to some aids and valuables
  - The player will go downstairs
    - There is a mine trap on the stairs, could hurt the player if triggered
  - On the lower level, the player sees a lot of triggermen on both side of the rail
    - The player has the initiative for the combat
  - The player is likely to see the big red cover. The player takes the cover, and start shooting at enemies
    - There are 8 triggermen in total spread across the combat zone, which makes finding a perfect cover hard
  - After dealing with the enemies, the player turns right and move forward
  - The player will see the elevator platform to the vault lit up, and the player will take the elevator to enter vault 114
  - Inside the vault, the player encounters a triggerman. Upon turning left, there is another one.
  - The player overhears the conversation between two triggermen about the true nature of the construction. The player can take them down from behind
  - Entering the huge stair structure, there are a total of 6 triggerman, some of them coming from the room inside
  - After defeating the enemies, the player enters the room inside, and drops down to the lower floor where another terminal with information locates at
  - Leaving the room, the player hears and sees Dino talking to Valentine at the upper floor.
  - The player could reach Dino from behind and take him down
  - There is terminal password in Dino's corpse which the player can use to unlock the terminal to free Valentine. Alternatively, the player could just hack it
    - After unlocking the door, the objective is updated to talk to Valentine
  - The player talks to Valentine about the situation
    - After talking to Valentine, the objective is updated to follow Valentine
  - After talking to Valentine, player leaves the room with him
  - Upon confronting 3 triggerman, Valentines gives the player a choice to fight or sneak
  - When reach to the other side, Valetine unlocks the shortcut

- o Then the player encounters 1 triggerman on stair, 1 triggerman in each of the 2 bedrooms, 1 in hallway, and 2 more in the transition rooms
  - ▪ This section is full of staircases
- o Valentine unlocks the second shortcut, and then they meet Skinny Malone, Darla, and two triggermen
- o The player could kill them all and leave or the player could convince Darla to leave Skinny Malone, which makes him sad and lets the player and Valentine leave in 10 seconds before they start shooting
- o During backtracking, Valentine tells the player that there is a ladder nearby, and then the player and Valentine get up with ladders
  - ▪ Then the objective of following Valentine is completed
- o In the end, Valentine inquiries about why the player save him and let the player to come to his office to help the player to find the missing child
- o The quest is completed when the conversation is over, and the next quest "Getting a Clue" starts immediately
- Flow Analysis
  - o Main quest area flow
    - ▪ The player starts at the entrance of the station, and move to the entrance of the vault
    - ▪ Inside the vault, the flow is kind of circular
      - During the stage of finding Valentine, the player goes deeper and deeper into the vault
        - o The flow literally forces the player to drop down to the lower floor
      - However, once the player found Valentine, the player and Valentine talks a different route to return to the entrance of the vault
        - o This is achieved by Valentine unlocking shortcuts by hacking doors and a series of staircases to connect the spaces
        - o Since, the player takes a different route out, the player feels the game to be less repetitive
      - Upon exiting the vault, Valentine tells the player about the ladder, which is another shortcut that saves the player from boring backtracking
    - ▪ Combat flow
      - Most places have more than one path to move forward
      - Most places have covered that the player can take. The player is generally discouraged to move out of covers when there are multiple enemies shooting
        - o The player may reach for a new cover after taking out a certain amount of enemies
- Pacing Analysis

- The level lasts around 20-30 minutes, contains 3-4 major encounters, and a lot of smaller encounters
- Narratively, the quest introduces the gang and its leader at the beginning, so that the player has a grasp of about what to expect and curious about what to find out
- Major encounters are usually separated with smaller encounters, areas for exploration, and dialogues (between NPCs or with player)
  - E.g., the player hears some information about the gang right after entering the station, and, after the combat, the player gets to read terminal and unlocks door to find valuable items before entering the next major encounter that contain 8 enemies
- In addition, going into the station to find Valentine feels different from escaping with Valentine, which is not only a result of the directionality but also having a powerful ally on player's side
- The starting quest dialogue, middle quest dialogue, and the end dialogue all set the player up for what to expect next. While the dialogue with Skinny Malone and Darla provides a lot of narrative contexts to the quest along with player's freedom of choosing what to do with those NPCs
- Furthermore, the quest allows different approaches to the problem, which provides the player with freedom. Valentine even reminds that the player could do different playstyles
  - E.g., the player could just hack the terminal to save Valetine or pick up the password from Dino's corpse. The player could sneak through the enemies or take them out on the way out
- Progression-wise, the enemy encounters do not get obviously hard over time as their levels stay the same. However, during the first part, the player generally has the advantage of initiative whereas, in the second part, the player loses the advantage immediately after getting detection while trying to sneak out. Also, it is important to note that player consumes ammo and aids during the quest, which makes the later stage a bit harder naturally

Conveyance

- After entering the station and going downstairs, the player finds a door
  - Use framing, lighting, open attraction to inform the player at the beginning of the level
  - In addition, the player can hear Triggermen talking to each other, which confirms the existence of enemies nearby
  - During the combat, most enemies are coming from the left, which informs the player where to go next

Figure 46: Station Entrance. [1].

- The player sees the stairs after taking down the enemies
  - The pipes form lines to suggest to the player about where to go next
  - The opening itself is also an attraction to the player
  - There are lights in the middle of the staircases and the end of the staircases to attract player's attention
  - The stairs as a guide is a recurring technique throughout the level
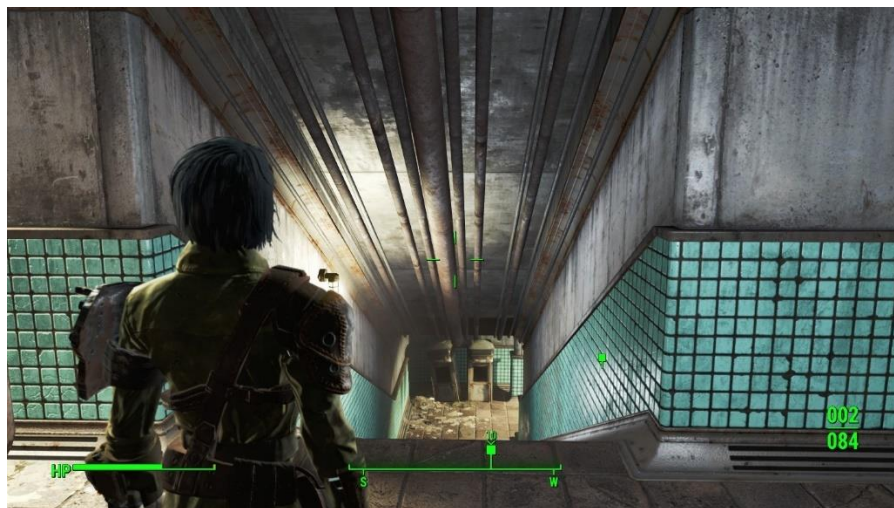
Figure 47: Downstairs. [1].

- At the end of staircases, the player can observe the lower level
    - While the player is in the dark, the enemies are lit up, so that the player can see them easily
    - The pillars at the lower floor form frames that highlights the enemies in the level
    - There are two red cola machines which stands out a lot due to their redness
        - Those objects are very helpful to the player as one provides potential aids (Nuka-Cola) and the other one provides a great cover, which are all essential to the upcoming encounter
            - Due to how stand out it is, the player can go and take the cover immediately without thinking much about it

Figure 48: End of Stairs. [1].

- The circular opening and the light draw player's attention about where to go next

Figure 49: Tunnel. [1].

- Nuka-Cola Quantum stands out a lot in the dark due to its color and glow, which makes it easier to be spot by the player

Figure 50: Nuka-Cola Quantum. [1].

- The platform in front of the vault is lit up to draw player's attention
    - Also, it its painted yellow, which contrasts well with the darkness

Figure 51: Lights in front of the Vault [1].

- In the hallway where two triggermen are talking
    - Player can see enemies' silhouette while seeing the goal is lit and highlighted in red
    - The door is once again used as a frame and an open attraction

Figure 52: Hallway. [1].

- During the encounter on staircases, the player sees the enemies coming out of a door of a room in the opposite end, which informs the player to be alert about enemies as well as where to go next

Figure 53: Opening. [1].

- Leaving the room with the terminal
  - The door forms a frame for the player to focus on the highlighted Dino
  - The prison's window is a circle which contrasts well with other shapes in the view
  - Dino's dialogue with Valentine is overheard by the player, which makes the player to actively look for person in the view
  - In addition, since only the middle part is lit up, the player is intuitively encouraged to sneak to Dino by sneaking through the sides
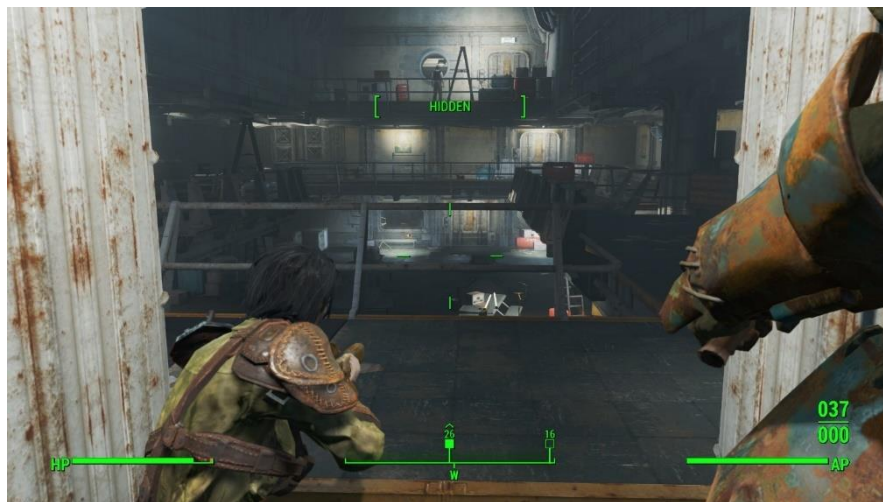
Figure 54: Dino & Valentine. [1].

- After leaving the prison with Valentine
  - The player is likely to be draw by the cola machine as it is red, and it provides aid

    Once the player enters the room with the cola machine, the player sees the window that allows the player to preview the enemies in the next area, which allows the player to plan and be prepared

Figure 55: Preview. [1].

- During the escape, the exit sign appears multiple times to show the player where to go

Figure 56: Exit Sign. [1].

Level Design Techniques

- Flow & Pacing
  - A mix of difficulty as well as playstyles
    - So that the player can rest and feel refresh when encountering the next challenge
    - E.g., after the fight on the staircases, the player performs a stealth attack on Dino, hacks open a terminal, and chats with Valentine, so that the next major encounter feels less repetitive, which is especially true when there is only one type of enemy in the level
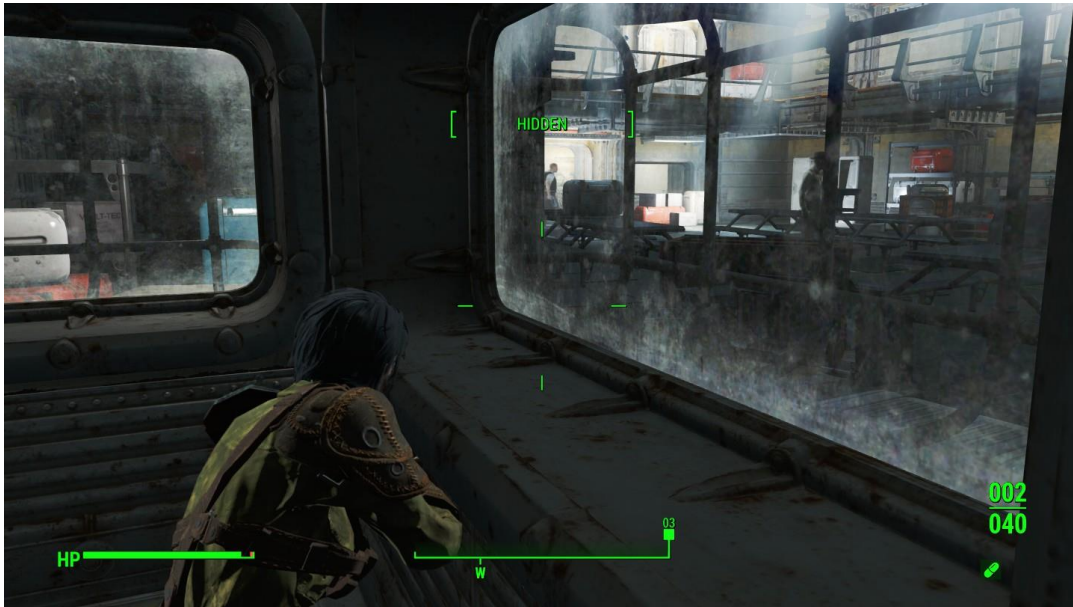 - Use shortcuts could be a good way to make the flow interesting, and make the space tight without forcing the player to backtrack, which is generally boring to the player
    - E.g., Valentine unlocks door for the player, which creates a different path during the escape
- Conveyance
  - Use light, bright yellow to draw player's attention
    - If use lighting in a consistent way, the player always knows where to go
    - E.g., the light on the elevator platform in front of the vault
  - Use door as an open attraction and a good frame
    - Player's view is restricted by the door, which forces the player to look at important things, such as goals, enemies
    - Any opening could work
  - Use NPC dialogue to help the player locate the enemy as well as lead the player where to go. In addition, it also provides additional narrative information while making them feel more alive
  - Use lengthy objects to show connection between different objects
    - E.g., Pipes
  - Game objects' forms are consistent so that the player knows how to interact with them
    - E.g., The player knows that the big, red, blocky thing is a cola machine from a distance away, and knows to pay attention to it
  - Enemies could be used as breadcrumbs for the player to trace where to go next
  - Manipulate player's engage location in a combat could affect the difficulty of the encounter
- Other
  - Multiple playstyles
    - Provides the player with multiple approaches to the same problem to provide the player a sense of freedom, and allows the player to pace themselves in a way that the player prefers
  - Choices
    - Choices like choosing stealth or combat, fighting Skinny Malone or convince him to not attack provides the player certain degree of freedom as well as the sense that the player matters in the game world

- However, considering the design and implementation cost, it is better to have choice that have bigger impact at the end, so that its effect would not branch out too much
  - The encounter with the Skinny Malone and the decision to fight him or not determined until the last section of the quest, which makes the branching outcomes cost less to make
- Dialogue
  - Dialogue between NPCs should inform the player about something either useful in gameplay or informative in the narrative
    - Usually, 1 or 2 lines between NPCs, and they are negligible, but could provide information
  - Dialogue with player should be concise while providing enough information, speaker's character, and the narrative setting. It is better to provide some of those information at the beginning, and more in pieces, so that the player could digest the information
    - Perkins tells the player a bit Valentine, the girl, and Skinny Malone. However, the player spent most time learning about those characters through NPCs dialogues before actually meeting them
- Environmental narrative
  - Objects placed around the area could tell the player something about what happened before, and what it is currently
    - E.g., Document in the terminal tells the player something about the station in the past

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 player's notice (it is all relied on player's intuition)
- Tried to create as much interesting gameplay as possible without breaking the narrative immersion
  - The narrative of the game and the quest limits what enemies the quest could have
    - As a result, the quest only has Triggermen as enemies (besides the unique NPCs), which are just generic human enemies
  - By embracing different playstyle and player agency, the quest does a fairly good job in playing the player interested
- The level creates different combat scenarios by changing player's position relative to the combat scene
  - E.g., the counter on the staircases has some verticality
- The dialogue with Valentine in the prison is not too long, so that the immersion is not broken (it would be weird that two people standing and talking for a long time right after broke the prison

Potential Improvements

- Combat difficulty
    - o Some combat in the quest feels overwhelming at times, which is especially true when the player's level is not very high and does not have a lot of combat perks
        - ▪ E.g., the major encounter at the rail station has 8 enemies shooting the player from various directions at once, which basically pins the player down from moving out of cover. As a result, the combat is hard but nor interesting as the player just takes the cover, shoots, reloads, and repeats as other actions are punished. Also, this is just the second encounter of the quest
    - o Solution
        - ▪ Make a few enemies appear at a time. Backups may come out after the previous wave of enemies are eliminated. Or more of the enemies could be lower leveled so that they could be taken down in a few shots
- Detection
    - o While it might not be a quest specific issue, the enemies tend to detect the player before the player even has a view on the enemies, which could cause a lot of frustration and discourages the player from performing stealth related actions
        - ▪ Solution
            - • Maybe just make sure that player can actually see the enemies when the enemies spot the player, which could be done by adding conveyance, such as light, near the enemy location

- Repetitiveness
    - While narrative restricts what enemy type could be in the quest, the combat with triggermen is feels repetitive at times. In addition, it seems that in order to make player's returning path connected to the entrance, a lot of staircases are used, which feels boring as they all look similar and have the same purpose
    - Solution
        - Make things more different within reasons. Add an attacking dog or two would make the combat more interesting without breaking the narrative. Similarly, different structure, such as ladders or platforms, could be used to replace some staircases to make them less repetitive
- Exit Ladder
    - While Valentine tells the player to use the ladder to leave this place, the player may miss it or that the player might still be unable to find the ladder and there are reasons for it
        - The quest marker sometimes points at Valentine instead of the exit, which makes finding the exit more difficult
        - The ladder is behind a closed room, which makes very difficult to locate
        - The quest does not update until Valentine comes up as well, but sometimes Valentine takes too long to come up, which makes player think that it is not the exit, and return to the station to find the "correct" exit

Figure 57: Exit Ladder. [1].

Deconstruction ("When Freedom Calls")

High Concept of Level

- The player completes the level mainly combating with raiders with guns, and then using power armors to defeat group of enemies including Gristle, and a death claw to help out Minutemen to transfer from the museum to the sanctuary
- In the level, the player is introduced with following mechanics
  - Deathclaw (enemy)
    - Powerful enemy, which is still deadly when the player has power armor on
- In the level, the player is introduced with following characters
  - Preston Garvey
    - The leader of the rest of the Minutemen. He calls help from the player to get Minutemen out of the museum
  - Sturges
    - The handy man at Minutemen. He suggests the player to take fusion core to take the power armor to fight a path out for them
  - Mama Murphy
    - The elder women who claimed can predicted the future and tells the player to look out Shaun in Diamond City
  - Jun Long
    - A settler traveling with Minutemen
  - Marcy Long
    - A settler traveling with Minutemen
  - Gristle
    - Raider group leader
- Objectives
  - Locate the Trapped Settlers
  - Talk to Preston Garvey
  - Get a Fusion Core
  - Put the Fusion Core in the Power Armor
  - Enter the Power Armor
  - Grab the Minigun
  - Clear Concord of Hostiles
  - Report back to Preston
  - Join Preston Garvey in Sanctuary
- This is an early-stage quest, the player is about 2 hours into the game, and has a level around 2-3

Narrative Setup

- The player goes to Concord to find Shaun, and a group of trapped settlers asked for help to fight with raiders in a museum

Introduced Mechanics

- Power Armor
  - The player can wear the powerful armor which prevents a lot of damage and deals a lot of damage
  - The player moves slower with power armor
  - Power armor prevent fall damage
  - Power armor can be damage, and need repair to be used again
  - Power armor requires fusion core to power
  - Actions in power armor consumes power
- Deathclaw
  - Powerful enemy, which is still deadly when the player has power armor on
  - Prefers to melee and charge to do massive damage
  - Need to keep distance with it
- Faction
  - Only introduced that the player has the option to join a faction

Reinforced Mechanics

- Shooting
- Raiders (Enemy)
- V.A.T.S (optional)
- Lockpicking (optional)
- Hacking (optional)
- Stealth (optional)
- Persuasion (optional)

Introduced Actions/Verbs

- Wearing/combating with power armor

Flow & Pacing

- Flow & Pacing Summary
    - To complete "Out of Time", the player comes to Concord and enters the museum where a group of settlers look for help
    - The quest "Out of Time" completes when the player enters museum meanwhile this quest starts
        - The first objective is to locate the trapped settlers
    - In the museum, the player sees two raiders on the upper floor shooting other NPCs
    - The player can take the initiative and take them down
    - The player realizes that the front gate is locked
        - If the player is expert lockpicker, the gate can be unlocked
    - Unable to open the gate, the player turns right and meets and takes down 1 raider
    - The player reaches the other side of the gate, and takes the stairs to go up
    - Turning left, the player overhears 2 raiders talking. The player could sneak and take them down
    - Through the broken wall, the player goes upper stair and hear another two raiders talking, and the player takes them down
    - On the other end, the player finds the settlers
    - The player has a long dialogue with Preston about Minutemen's situation and agree to help, and Sturges asks the player to grab a fusion core
    - The player goes to the lower floor to grab the core by either lockpicking or terminal hacking
    - Returning to Preston, the player needs to find and wear the power armor
    - With the power armor and minigun grabbed, the player walks forwards and takes down around 10 raiders, including Gristle, the leader
    - After Deathclaw shows up, the player has a tough fight with it and eventually takes it down
    - The player takes out the rest of raiders and return to Preston
    - Preston asks the player to join Minutemen, and the player could choose
    - After Mama telling the player to go to Diamond City to find Shaun, the player travels with the group to the sanctuary
    - During the trip, the group encounters 2 bloodbug hatchlings
    - After reaching the bridge, Preston asks about the player's background, and then completes the quest. The next quest "Jewel of commonwealth" follows immediately
- Flow Analysis
    - The flow in the museum is interesting as the player at times have different route to choose, and do the quest in slightly different orders
        - E.g., the player may be able to unlock the front gate and skip an encounter
        - E.g., the player could take the fuse core before meeting with Preston
    - The building is a multi-level structure which provides some verticality during the combat
    - Entering the museum, the player has a clear direction of going up

- With conveyance, the player does not need to backtrack to find the next objective, and could just pushing forward
- There are pillars and covers for the player to hide, and the enemies do not deal a lot of damage, which allows the player to flow between covers
- Pacing Analysis
  - The level lasts around 15-20 minutes, contains 1 major encounters, and several smaller encounters
  - Narratively, the quest introduces the Minutemen and its remaining members. The information regarding Minutemen is separated into several dialogues before and after the major encounter
    - Those dialogues also change up the pace, so that the major encounter stands out more
  - Beside shooting and sneak attacking, the fusion core objective forces the player to either engage to with hacking or lockpicking as a semi-tutorial, and to change up the gameplay
  - After shooting up the raiders, the player gets power armor, which feels awesome as it can take down enemies even faster comparing to normal weapons
  - By confronting a group of raiders and a Deathclaw, the stake and pace go up
  - Progression-wise, the group of raiders and the Deathclaw is still challenging to fight due to the number of enemies and the power of Deathclaw, which makes the major encounter interesting rather than trivial
  - The dialogue in the museum after defeating Deathclaw functions as a cooldown and a wrap up for the quest. However, the quest does not end till traveling a long distance with the group, which feels like a drag

Conveyance

- At the start of the quest
    - The player sees the bright roof and the two enemies on the upper level
    - The gunshot sounds also help the player locate the enemies
    - The locked gate in the middle also draws attention
    - At this place, the player sees the enemies whereas the enemies do not notice the player, providing the player a good chance to practice with aiming/V.A.T.S. before actually engage in the combat
        - The player will also have the initiative

Figure 58: Museum Entrance. [1].

- The door is locked
    - The player can check by moving near to the door
    - The "expert" pop-up shows the player about the skill level in the game, and suggests that another path exists

Figure 59: Locked Gate. [1].

- On the other side of the gate
    - The player may recognize that gate and considers it as some kind of landmark that can help the player to determine the relative location
        - Now the player knows she is on the other side
    - The bright yellow and red light draws attention, which is where the fusion core is found
    - The broken floor reduces player's mental load by suggesting the player to go either down or up, which both can progress the quest

Figure 60: Other Side of the Locked Gate. [1].

- Going down
    - The room with fusion core is well lit to draw player's attention
    - The door has a window, which forms a frame for the player to see the fusion core
    - The terminal also emits light, suggesting that it might be important
    - The tip of the fusion core is red to signify its importance

Figure 61: Fusion Cell Room. [1].

- On the upper level
    - The paint is well lit and draws attention
        - Also suggests the path to go (the direction that the gun points at)
        - The narrow, dark part of the corridor forms a frame to contrast with the paint
    - Player can overhear enemy's conversation
        - So that the player can be better prepared for combat and decide to sneak or not

Figure 62: Lighting. [1].

- Exiting the room with 2 talking raiders
    - The light draws player's attention
    - The broken walls form an opening suggesting that the player should go there
    - The pipes also form leading lines to the next location

Figure 63: Exiting the Room. [1].

- Seeing through the door
    - The red sign draws player's attention
    - The player can see that the NPC is working rather than shooting, suggesting the NPC is non-hostile
    - The door forms a frame

Figure 64: Finding the Settlers. [1].

- During the dialogue with Sturges, the player knows where to go and what to do, so that finding the next objective would be easier
- The power armor's UI is yellow to differentiate from the normal green UI, so that the player is reminded that the player is in the power armor
    - The red part of the UI shows the player the things to be look out for, such as damaged body parts, HP left, and power left

Figure 65: Power Armor UI. [1].

- During the trip at the end, the NPCs simply lead the way for the player

Level Design Techniques

- Flow & Pacing
  - Switch between different playstyles to keep player interested and to change up the pace
    - E.g., Dialogues before and after the major combat
    - E.g., Use special skills to get the power core
  - Use section previews to help with the flow and make combat less overwhelming
    - E.g., The player can see the first two raiders before engaging, and can see some raiders before dropping down with power armor from the building
  - Provide multiple paths to the same end to create an illusion of player freedom, and create more interesting flow
  - Make player and enemies more powerful can increase the pace
- Conveyance
  - Use light to draw player's attention
  - Use door as an open attraction and a good frame
    - E.g., the open door in front of Sturges
  - Use NPC dialogues to help the player to locate enemy and prepare for combat
    - E.g., Sturges tells the player to get power armor, go out, and fight raiders
  - Use sign and color to help the player to find the path
  - Use pipes or similar objects to show connection between different objects or as leading lines
  - Enemies could be used as breadcrumbs for the player to trace where to go next
  - Block off undesired path, so that player have less mental load, and less likely to deviate from the intended path
    - E.g., this could be done in a smart way, such as the broken floor, which increases player immersion at the same time
- Other
  - Multiple playstyles
    - Provides the player with multiple approaches to the same problem to provide the player a sense of freedom, and allows the player to pace themselves in a way that the player prefers
  - Tutorial
    - If the player needs to learn something in the game, just make it part of the intended path, so that the player has to engage and learn the mechanics before letting the player loose in the vast world
      - E.g., the tutorial on hacking/lockpicking/ and power armor is part of the quest
  - Choices
    - Choices whether important or not provide the player some degree of player agency, even though the consequence may not differ much
  - Dialogue

- Make dialogue concise, while allowing the player who wants to read more have the chance to do so, so that the pace of some impatient players won't be messed up
  - E.g., the conversation with Preston could be very long, if the player wants it to be. Also, the player could talk to other NPCs in the group
- Dialogue between NPCs should inform the player about the narrative. Meanwhile, the player could take advantage of the conversation
  - o Environmental narrative
    - Objects placed around the area could tell the player something about what happened before, and what it is currently
      - E.g., Document in the terminal tells the player something about the station in the past

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 new mechanics that would be important later on in the game without breaking the quest narrative or pace and let the player understand how them in a short period of time
- Allows the player to get fusion core before asking to do so
  - Which increases player's immersion to the game as the game takes that scenario into consideration as what would happen in real life
- Make player think that their choice matters
  - E.g., There is line by Preston that mentioned the line that the player chose, which makes the player feel like the game actually remembers what the player does
    - "You said you are glad to help…"
    - This is quite important to establish early on in the game, so that the player would think about the consequences of everything in the game
- Creating an interesting level space
  - It is interesting as well as funny, and to some extent ironic to fight in a museum about starting a war at the beginning of the game about war
    - Which fits the tone of the game pretty well
  - The brokenness of the building really shows the narrative and makes the player imagine what had happened here days ago or hundreds of years ago

Figure 66: Museum. [1].

Potential Improvements

- o Blocked doorway
    - ▪ After talking to Sturges, the player is asked to find the power armor. If the player exits the room from the entrance rather than the door behind Long, the player might have trouble to find the doorway into the room with power armor as it is partially blocked by objects on the roof, making it harder to notice
    - ▪ Solution
        - • Adjust the position and angle of the objects of the roof, so that they do not block the view. Also, the light at the doorway could be brighter, so that the player could have an easier time to find it
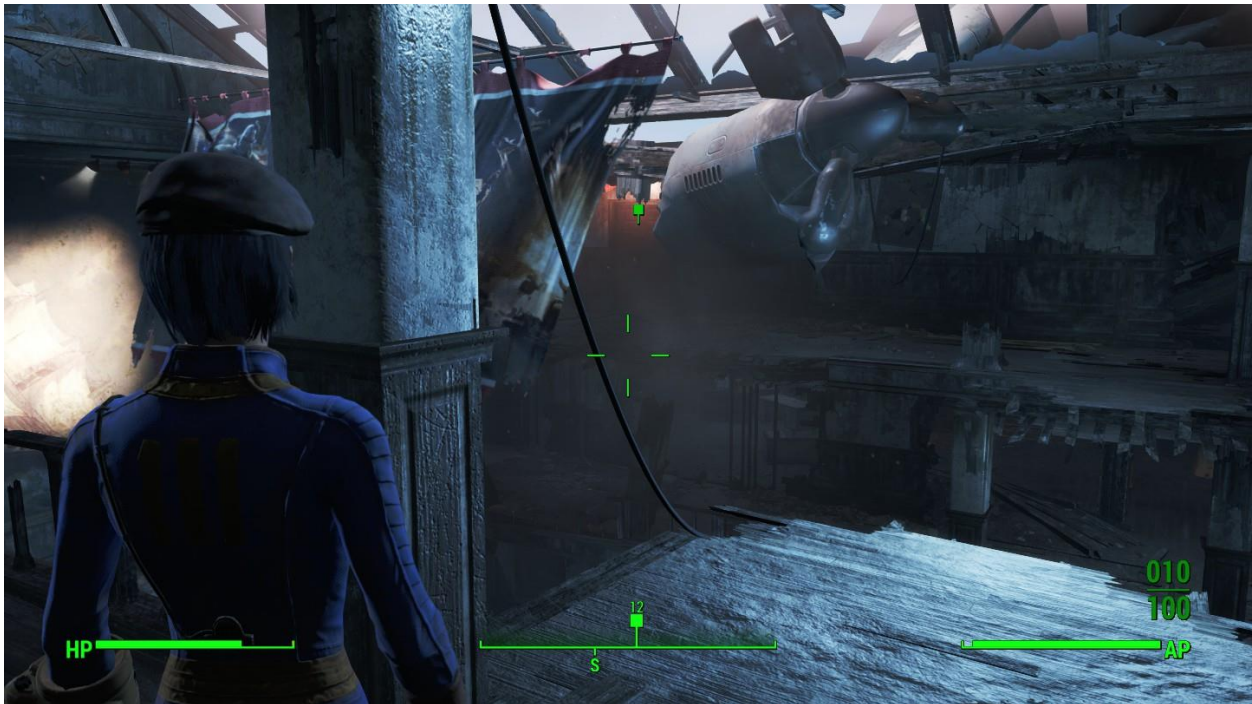

Figure 67: Blocked Doorway. [1].

- o Long trip at the end
  - ▪ After defeating the enemies with power amor and talking to Preston in the museum, the quest does not end. Instead, the quest asks the player to travel with Preston to Sanctuary, and the quest ends there. While there is a narrative reason for the section to exist, it does not have to be part of this quest, as it feels too different from the rest of the quest, and it breaks the pace. In addition, there are not a lot of dialogues going on during the trip, which makes the time spent extra boring
  - ▪ Solution
    - • Either remove the section from the quest and make section a new quest by adding some extra content or add something more interesting during the trap, such as more dialogues and some interesting encounters. Also, the trip could just be shorter in general

Figure 67: Long Trip. [1].

References

[Cover Image] *Fallout 4*, Bethesda Game Studios, 2015.

[1] *Fallout 4*, Bethesda Game Studios, 2015. Screenshots from *Fallout 4* by Tianze Wu.

[2] Fallout Fandom Wiki. Accessed on: Feb. 2, 2022. [Online]. Available:
https://fallout.fandom.com/wiki/Fallout_Wiki

[3] Fextralife. Accessed on: Feb. 2, 2022. [Online]. Available:
https://fallout4.wiki.fextralife.com/Enemies