

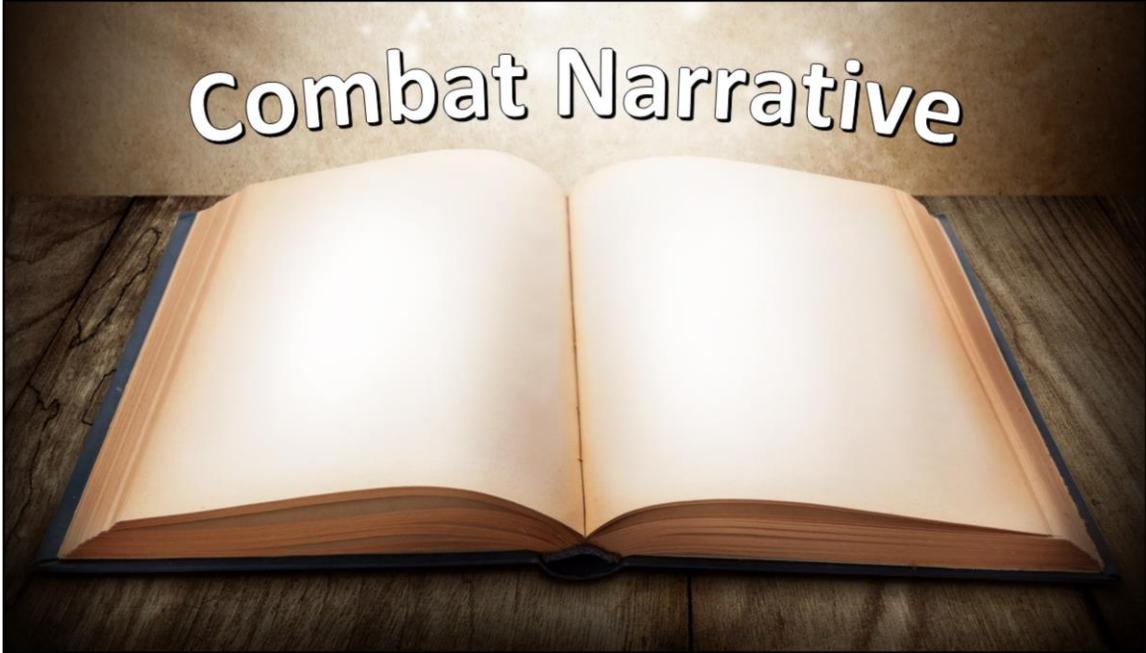


Hello GDC thank you very much for having us here. We're excited to talk to you today about creating combat encounters in action games. This talk is largely focused around story driven games, primarily shooters, but we'll be dipping into storytelling techniques and general game development processes that might be useful for other titles.

My name is Michael Barclay and I've been a level designer for 9 years and I've worked at companies like Free Radical, Crytek and I'm now working at Cloud Imperium Games.

With me today are Pete Ellis from Guerrilla Games and Sam Howels from Deep Silver's Dambuster Studios.

Combat Narrative



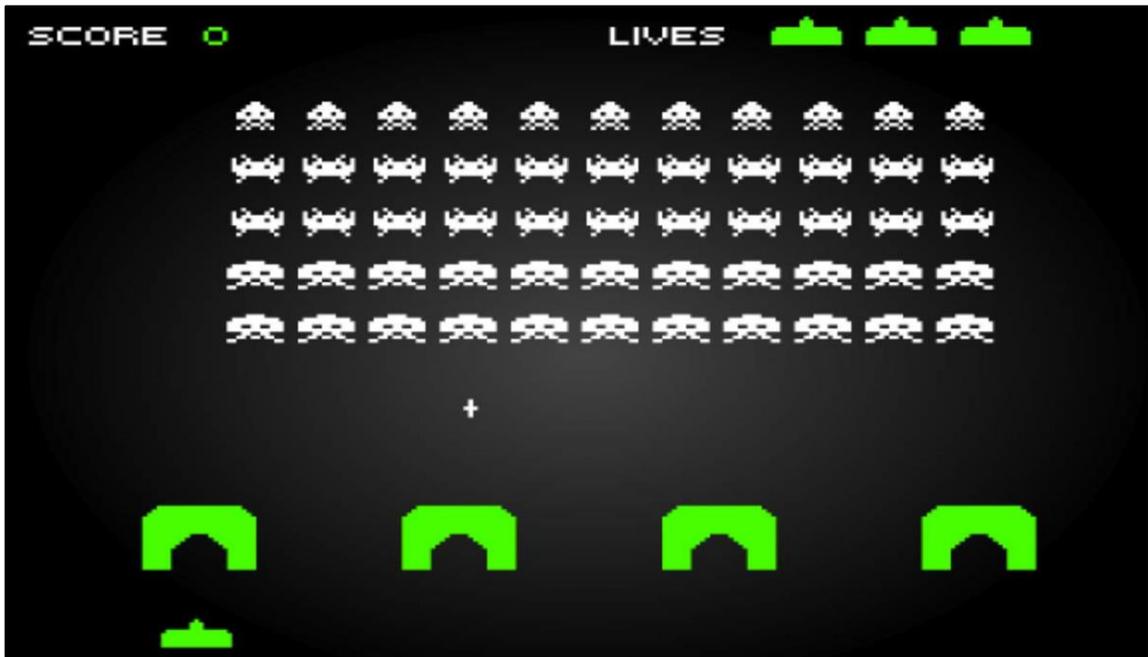
I'm going to kick things off by talking to you about Combat **Narrative**. So, what do I mean by that?

A lot of you will know already about the core elements of storytelling, about pacing and peaks and troughs and how to keep the audience i.e. the player engaged without fatigue.

If we consider the main story, the overarching narrative, to be the macro-story then combat narrative is a kind of micro-story. It's the events that pepper the landscape of action games where the player is fully engaged specifically in conflict. While it's certainly possible to create a fun combat encounter just by relying on the mechanics of a game alone, it's with the addition of a narrative flow or context that we can truly engage players in exciting, dramatic scenarios.



If movies, television or even pro-wrestling (yup!) have taught us anything it's that conflict itself can and should tell a great story. This principle permeates all mediums of entertainment, particularly films, as is exemplified in scenes such as Rocky Balboa fighting Apollo Creed or Luke Skywalker fighting Darth Vader. The action in these classic duels has pacing, flow, back and forth advantage and most of all it evokes emotion in the audience.



Well when it comes to games, quite often combat is placed against the backdrop of a setting or story to give it context and then executed by the player at a purely mechanical level. For example...

Space Invaders is set within the context of defending against an extra-terrestrial invasion.



Call of Duty: Modern Warfare 3 is set within the context of World War 3.



Duck Hunt is, quite simply, set within the context of hunting ducks. Video games have never lacked “setting”. So, what is the difference between these combat *settings* and combat *story* or “narrative”?



Well, combat stories are the events that transpire during any prolonged conflict in a game and, like most stories, have a beginning, middle and end and also follow a kind of story arc. Here's an example of what's considered a traditional story arc that outlines a common example of a story flow via tension over time. Combat stories also have a set-up, pacing, flow and resolution. They make combat more than simply a mechanical challenge and turn it into an emotional experience. Combat story can also be considered as the events that transpire organically via the mechanics of the game as it is played. We obviously have to consider player agency within our combat story and that is key as to how it unfolds.



To reconsider the *Space Invaders* example, the combat story in a typical play session might be the players continued survival during the deterioration of their defences as they fight off each wave. As the defences provide less protection, the emotional state of the player becomes more anxious and each enemy kill or round victory provides a bigger relief. The emotional flow of each play session is affected by the mechanics of the game, and each play session has the potential to deliver a different, organic story thread within the confines of those mechanics. Good combat design will utilize those mechanics to create and recognise emergent events then capitalize upon them to produce much more meaningful experiences for players.



We can observe such mechanics being explored in games like the *Batman: Arkham* series where the skilful execution of the games mechanics can translate into story by affecting NPC emotional states. Enemies will become more terrified over time as the player sneaks around taking them out through stealth. This leads to an emerging narrative over time that enhances the immersion of “being Batman”. The players combat story may evolve differently than had they been spotted straight and went into an all out brawl. These types of mechanics, that recognise and promote combat story, can drive games to deliver deeper emotional experiences and more believable worlds, but that is not to say combat story has been perfected with *Space Invaders* or *Batman: Arkham Asylum*, simply that they help us recognise where the potential lies in enhancing storied combat.

- **Engage**
- **Pace**
- **Challenge**

When it comes to building these encounters, we should remember that each encounter within a story driven title serves several purposes:

To **engage** the player with something interesting (note: maybe not fun)

To **pace** a games in such a way as to keep things interesting.

To **challenge** the player and create a sense of accomplishment.

- **Engage**
- **Pace**
- **Challenge**

On engaging the player; by leveraging the narrative we can develop encounters that the player cares about. Rather than seeing conflict as simply an obstacle to overcome or merely as a set of game mechanics to interact with, players should feel invested in the outcome of an encounter. One way to achieve this is by reinforcing goals and allowing players to more easily understand why each encounter is connected to that goal. How many games have you played where you felt that sense of engagement in every combat encounter? Not as many I'd wager as those where combat is thrown in haphazardly.

- **Engage**
 - **Relationship**
 - **Reinforce**
 - **Resolve**

So, in order to **better** engage the player we should be considering what the player's relationship to the objective or goal at this point in the story?

How can we meaningfully reinforce that relationship and how do we let the player resolve the conflict in a satisfying way that also furthers our narrative?

As an example of a game that I feel does combat narrative extremely well, Metro 2033 managed to leverage its narrative consistently in its encounters.



In that game, which sees humanity trying to survive in the metro tunnels of post-apocalyptic Russia, the player must try to traverse across the city, battling mutants and fanatics both, to reach a nuclear bunker. In Chapter 4 of the campaign the player comes across a regiment of survivors outside a safe area, who must hold off a wave of mutants while the civilians in the safe zone evacuate.



Relationship

So the player's **relationship** to the goal is twofold: one, the player is faced with a gate they cannot progress through until they resolve the situation and they have also been made aware that the lives of other survivors are at stake. This is something you can appreciate slightly more in a game like Metro as you spend several levels interacting with the people living underground living day to day lives. The player is faced with literal and figurative gates.



Reinforcement

The player's goal is constantly **reinforced** by the allies also defending the gate as well as in the environmental storytelling around it. Defences are clearly visible, a warning bell can be heard in the distance presumably urging civilians to evacuate behind the gate. There is also a "calm before the storm" moment leading up to the battle to defend the gate. This small dip in pacing adds a weight to the upcoming battle and makes it seem more important than a typical encounter. As the battle progresses, your allies begin to despair shouting things like "We're all deadmen". This raises the tension and anxiety of the encounter making it feel even more desperate. The player is drawn in to the encounter narrative.



Resolution

The way this encounter is **resolved** makes it even more interesting. After the player has fought against a swarm of mutants, spending valuable ammo and medkits, they eventually collapse by way of a scripted event. Slightly controversial design choice I'm sure but in this case it sets up a scenario where the player is the only one left standing. This narrative choice, to make the player feel vulnerable and alone and barely surviving by the skin of their teeth, is a more powerful benefit than simply outlasting several waves of enemies and moving on.

As a player I feel invested in the outcome of the encounter, not just because of the sense of survival in the mechanics but in the way the goals are clearly indicated, and each encounter is not just an impediment to the my progression but also has a clear place within the **context** of the world. I am a survivor.

- Engage
- Pace
- Challenge

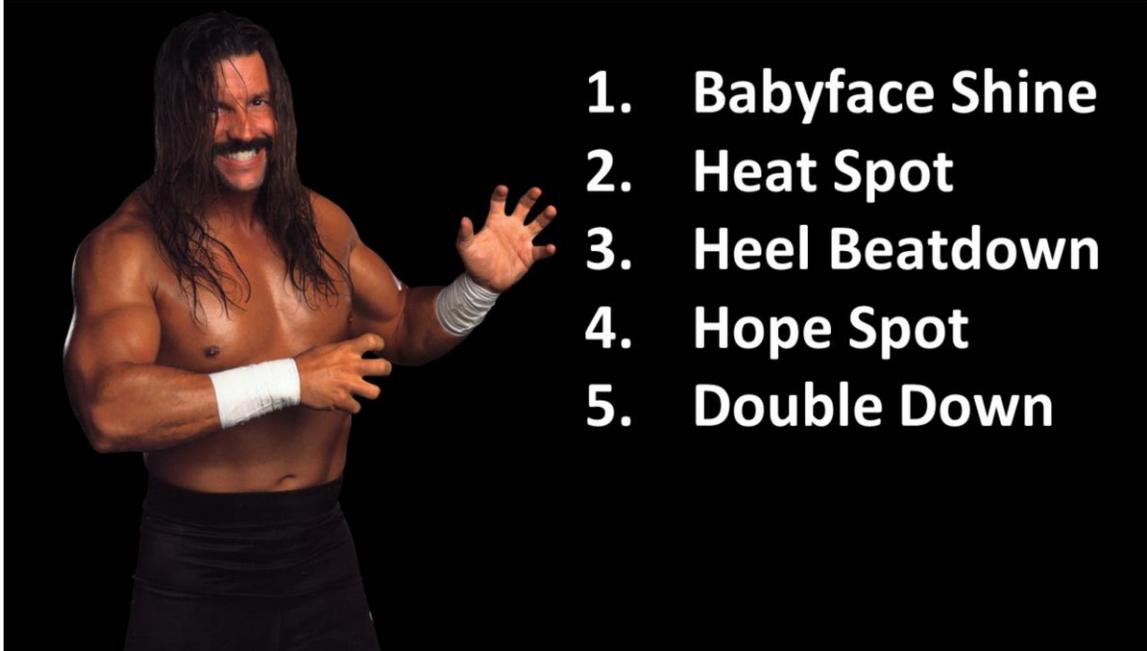
This combat encounter is a typical example of a micro-story I mentioned earlier. Like all stories, it also has a sense of pacing and flow, which are very important concepts within our combat narrative. To give you an example of combat *flow or pacing*, I'm going to reference someone who has extensive knowledge of fight choreography and pacing:



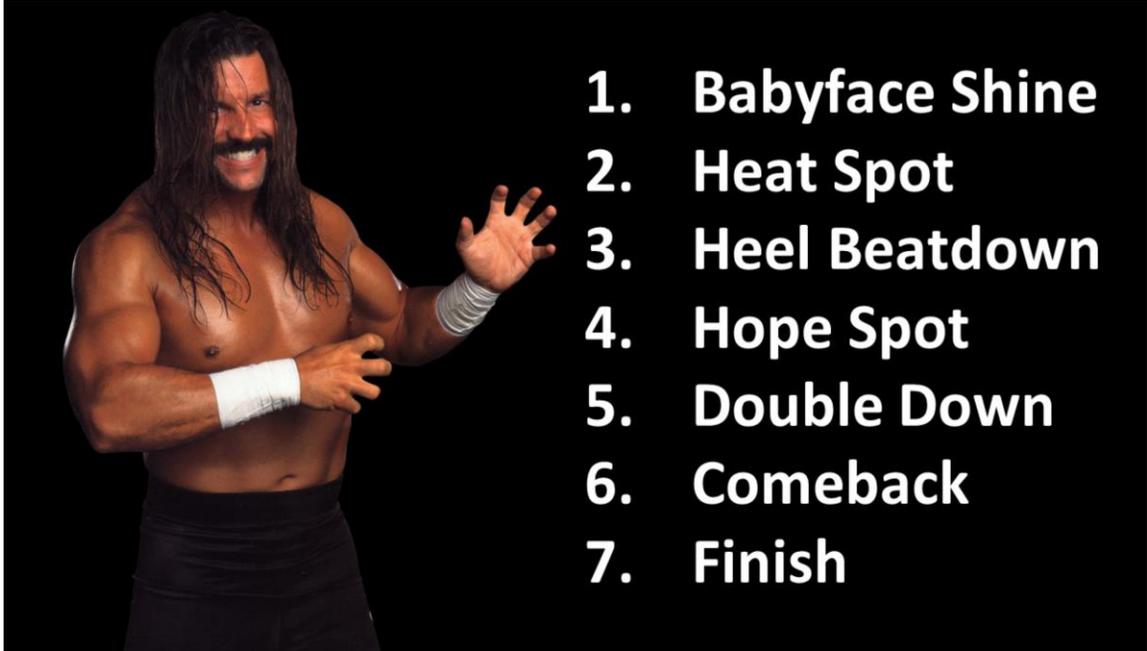
Professional Wrestler Al Snow. Now, besides the fact that I secretly always wanted to come to GDC and talk about THE ART of professional wrestling on the big stage, Mr Snow does have some good insights about fight choreography. Here's what he has identified as a typical flow in a wrestling match:



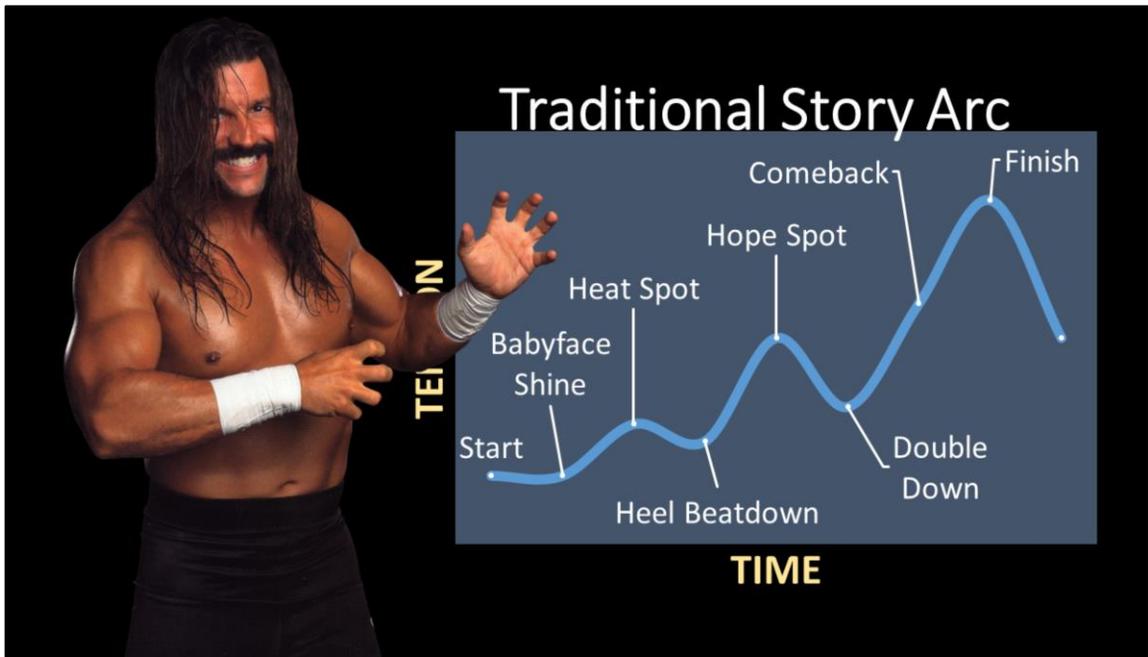
1. Babyface Shine – The good guy, otherwise known as the “babyface” in pro-wrestling terminology, starts off looking good by doing a few moves to the bad guy, known as “the heel”.
 1. It is here on our flow chart or pacing chart that we can see they’re engaging the audience with something they really want to see right off the bat. Their excitement is high, assuming they are on the side of the babyface/good guy.
2. Heat spot - Heel cuts the face off with some big impressive moves.
 1. The audience is plunged into peril. Their beloved babyface is under attack and they become anxious, the tension is raised.
3. Extensive Heel Beatdown – The bad guy is drawing out the length of the match
 1. Really not letting the match get any momentum. The audience are desperate for something exciting to happen and then...



1. The Hope Spot -It looks like the face will bounce back and the heel cuts him off.
 1. Just when it looked like the bad guy was dominating, the good guy came back. The audience are re-engaged with the match but it is short lived as the bad guy regains the upper hand. The audience however have been teased with something they really wanted to see to stop them becoming fatigued.
2. The Double Down - Where both guys will take a hit and sell for a long time.
 1. Basically this is a dramatic point in the match where either combatant could gain the upper hand. It's a tense moment and the excitement begins to rise.



1. The Comeback - The face fights back against a heel that will stop defending himself.
 1. The good guy gains the upper hand and the audience are ecstatic. The excitement in the crowd continues to rise and then...
2. The Finish/False Finishes
 1. The match reaches its apex, the good guy either wins or gets royally screwed over. Either way the audience should be at fever pitch.



Now this was used just as a typical example of a common wrestling match flow, but you see even here how pacing is important and considered in building a story in the ring.

The same principles apply to any conflict in a game, and can be viewed in all of our favourite encounters, including the metro example I gave earlier.

It's important in any conflict that we can either produce a satisfying pace or help the player in telling a story with a satisfying flow. You don't want anything to drag on or lag, you want to keep the player on their toes and you want them to hopefully come away with a great story.

- Engage
- Pace
- Challenge

Of course, the best-laid schemes o' mice an' men gang aft agley and we must always consider the final yet most important aspect of combat narrative : the player and the players **agency** within the scenario. So, how do we create effective combat narrative while keeping the player **challenged**? The player has the ability to turn any scenario on its head and we must always be aiming to put the player as the star of the show front and center. They are the director and they are telling their story at the end of the day. Therefore, we must also design our scenarios to be reactive.

Reactive Narrative

Reactive Narrative is the ability to subtly craft story arcs through game mechanics that pace combat as well as trigger dynamic events that create almost-organic setpieces or watercooler moments during play. This can come as a result of multiple systems speaking to one another or scripted scenarios that are set up with specific inputs to react to player agency.



As an example of the latter the AI director in left for dead reacts to player progression to affect the challenge of each level.



We can observe similar systems in games such as Dead Space, The Last of Us or, again Metro, where the amount of ammunition or med packs is balanced around the players current inventory and place in the story. The designer can empower or disempower the player using this method depending on what the pacing requires. Very effective if the player never notices it and it's with the ability to react to the player in an "under the hood" way that we can subtly carve an experience without being heavy handed or unfair. If you have played either of these games and been in a scenario where you witnessed your resources depleting and felt like you were desperately pushing through, it's likely that this was a subtly intended situation created through under the hood manipulation. If the player doesn't notice and if they are fully engaged in that experience, then we can say we have been successful in this endeavour.



So to close, I'd like to tell you recent encounter I had in Uncharted 4 that really captures how reactive gameplay systems can achieve watercooler moments.



I was hanging from a window ledge with an enemy above and an enemy below in a lower window. Uncharted 4 offers the player the ability to grab an enemy from above and drag them off ledges or out of windows. However, enemies also have the rare ability to hold on to Nates legs and “dangle” while you kick them off. You can probably see where this is going. After I grabbed the enemy above me, the enemy below starts patrolling back! The below enemy sees his buddy hanging off some guys leg outside the window, being kicked in the face, and enters alert mode. I didn’t feel cheated here as a player, this organic scenario occurred like something straight out of Indiana Jones and I loved it.



It organically delivered on the fantasy of being Nathan Drake, just like the systems in Batman make me feel like the bat or how even Space Invaders, for a brief moment, made people feel like they were defending the world. With the power of combat narrative, executed fully, we can help players continue to tell these stories in epic games to come. Cheers.

Pete Ellis
Designer



CAMBRIDGE

Hi I'm Pete Ellis and I am a designer at Guerrilla Cambridge

I have been a designer in the games industry for nearly 8 years, and the last 5 and a half have been at Guerrilla Cambridge.

In my time at Guerrilla I've worked on:



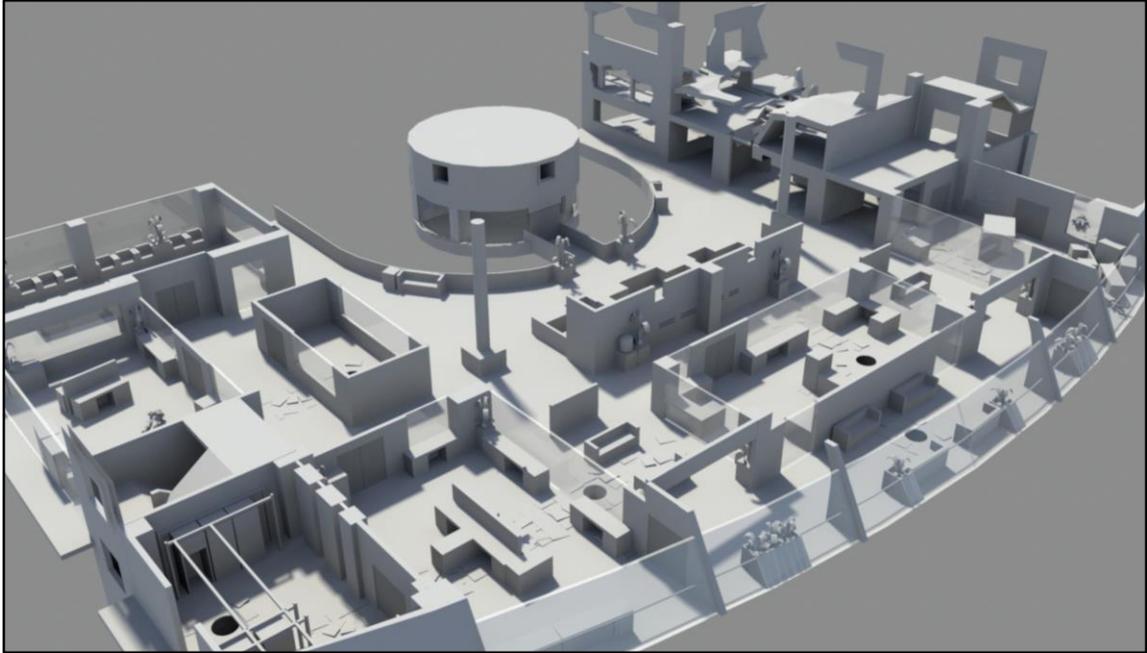
Killzone **MERCENARY** for the PS Vita
Doing single player levels



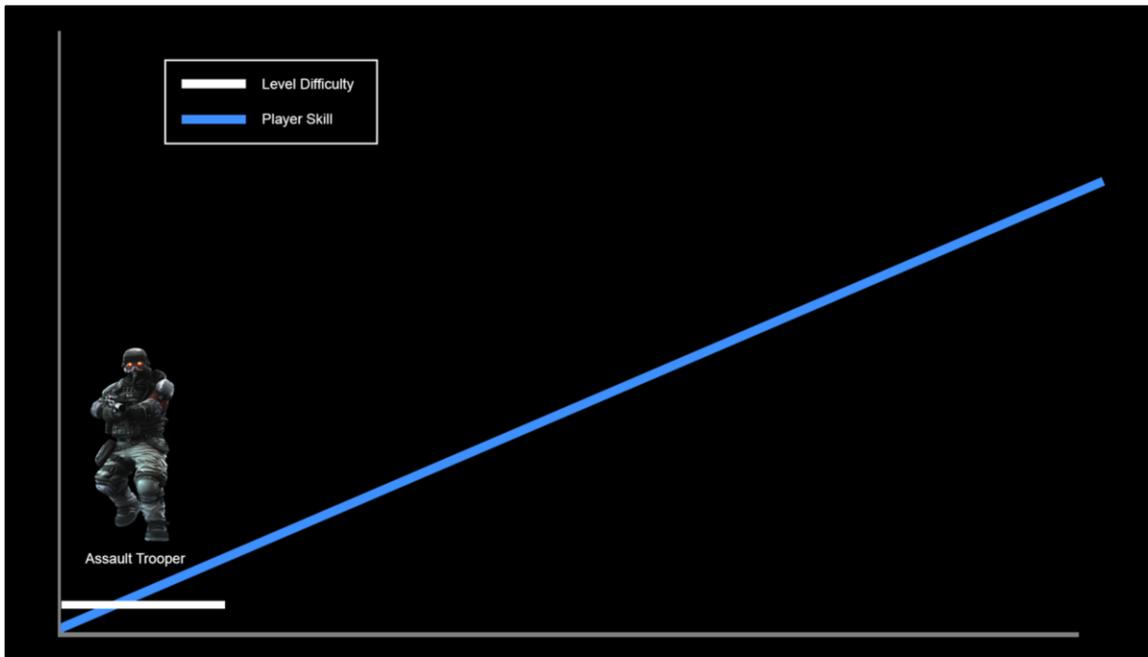
Killzone Shadow Fall for PS4
Doing multiplayer levels



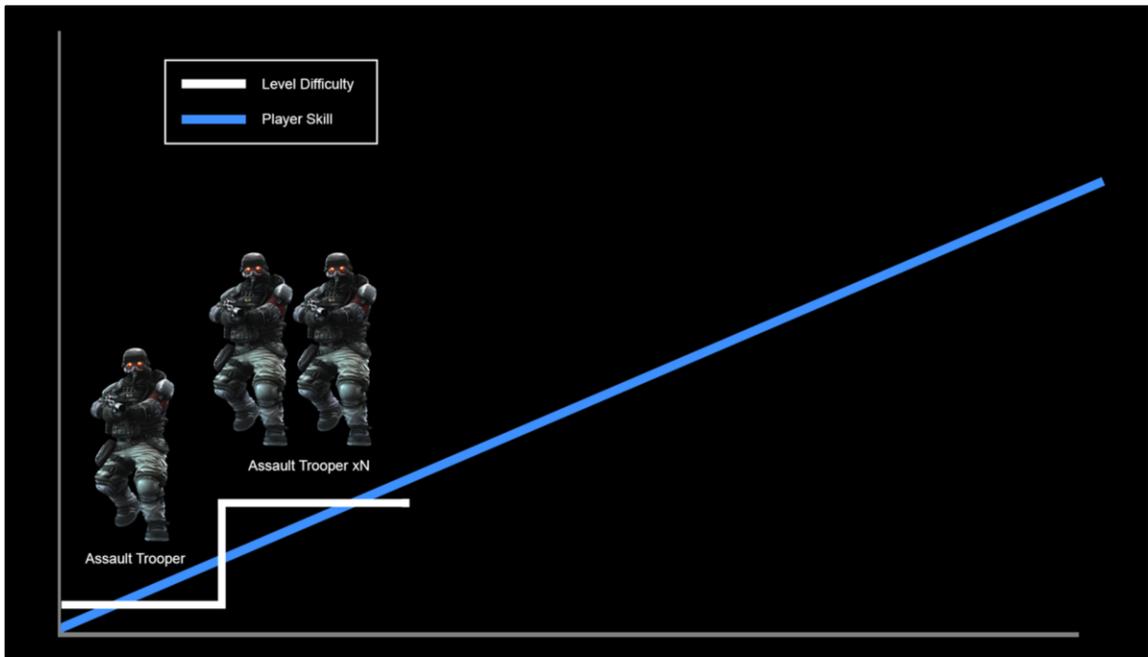
And right now I'm working on a RIGS: Mechanised Combat League, for PlayStation VR



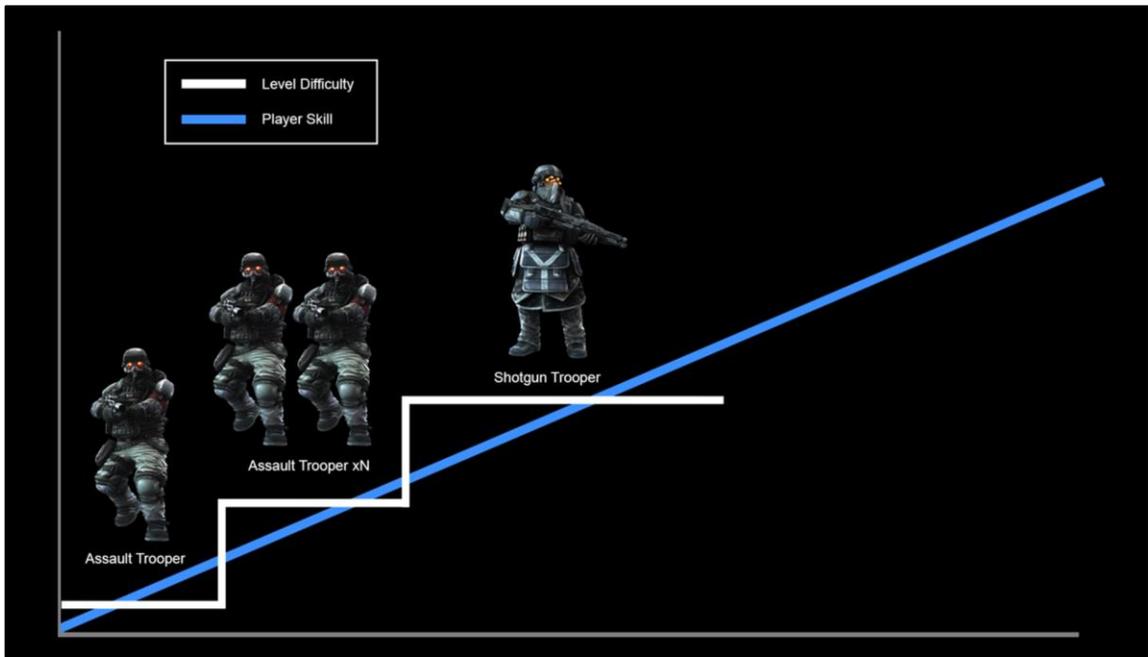
Following on from Mike and narrative in combat encounters,
I'm going to take a look at how we go about creating the **actual arrangement** of
geometry
With how the environment informs the **difficulty** of your encounter.



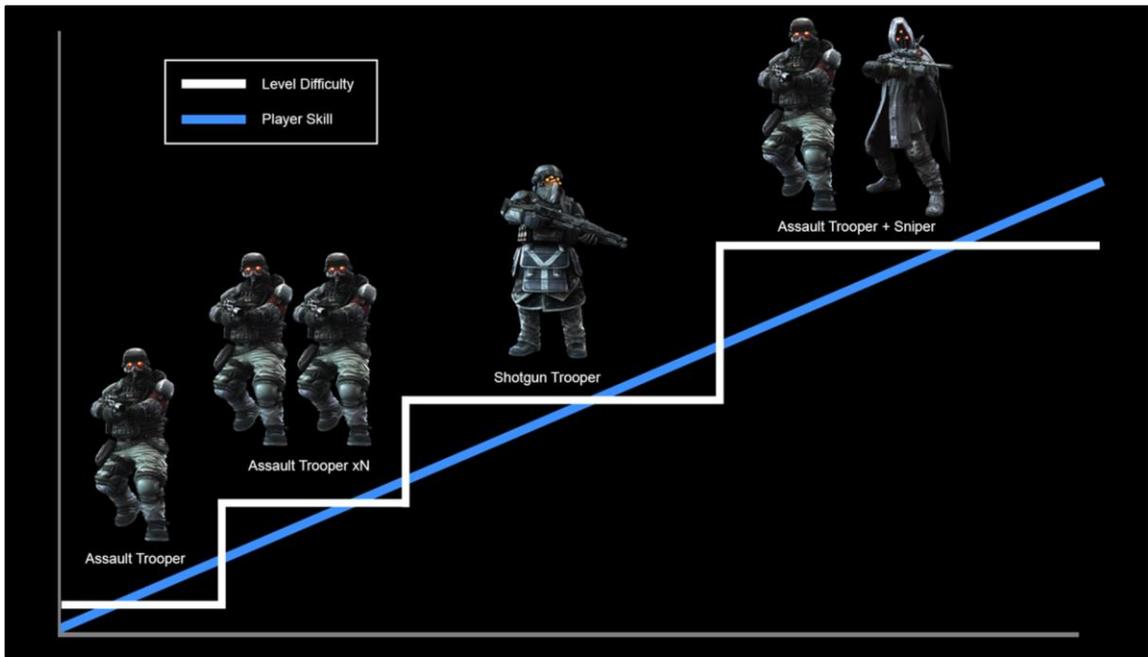
Now, we know the standard and most basic way of changing difficulty is by adding and layering in different enemy types
These are **macro** changes; bigger increases in difficulty that make noticeable steps up for the player



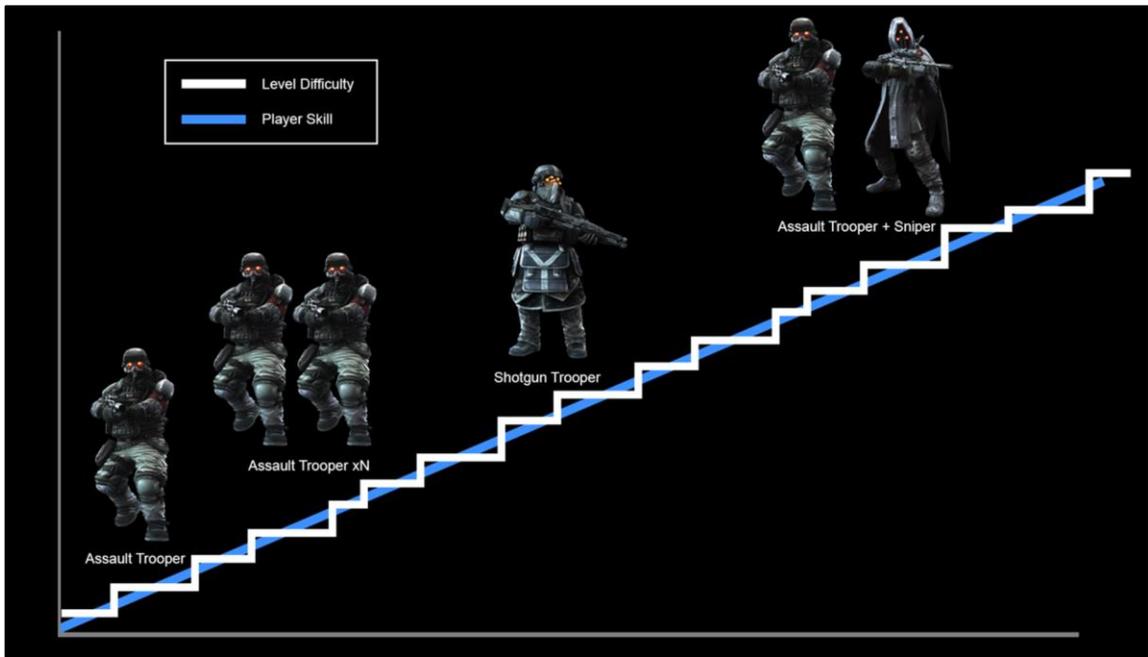
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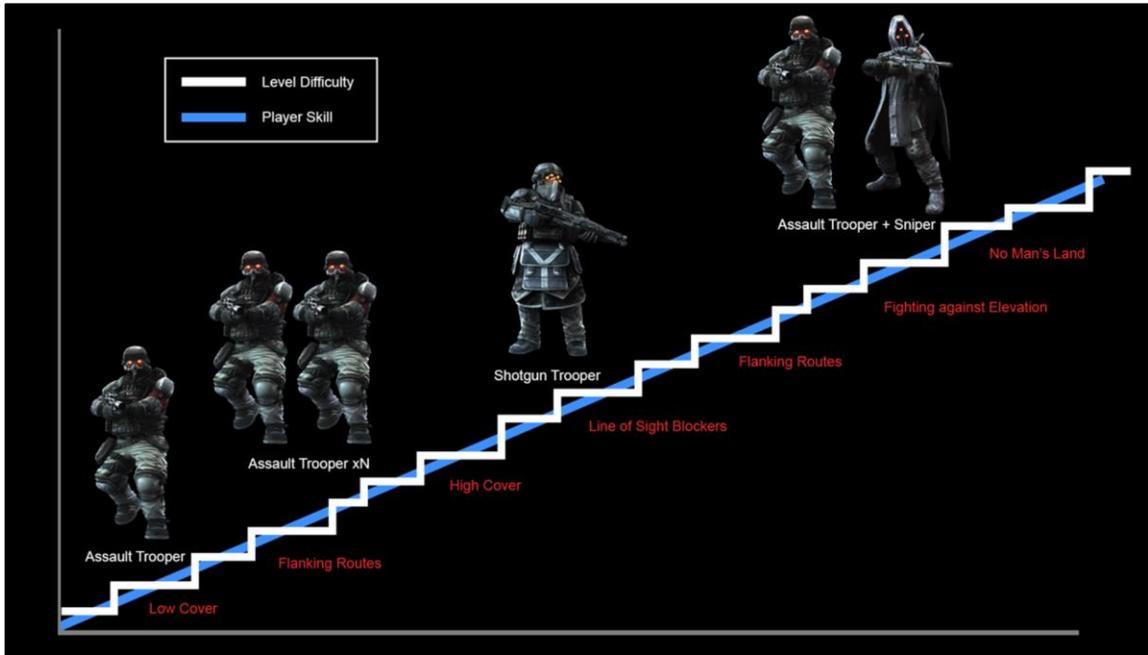
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Now, we know the standard and most basic way of changing difficulty is by adding and layering in different enemy types
 These are **macro** changes; bigger increases in difficulty that make noticeable steps up for the player



But what about **micro** increases in difficulty, rather than just big sweeping changes?
Balancing difficulty without relying on AI numbers or character types?
As you may be restricted to certain character types for your narrative



This can be done by using the environment to **influence** the behaviour of the AI and how the player combats them

This is good for maintaining that the difficulty raises as the players skill level increases
 This allows us to closely match the challenge to the player's skill

To ensure levels don't become stale until new character types are introduced

- How is this done? What am I going to cover? -

FORM FOLLOWS FUNCTION



- How is this done? What am I going to cover? -

This is achieved through the design mantra 'Form follows function'

- That a shape of a building or an object should be primarily based upon its **intended function** or purpose-

In our case, that a level's arrangement of geometry needs to support and influence **AI behaviour**.

And different arrangements inform different outcomes.

- **Movement**



- **Cover**



- **Positioning**



I will be talking about:

- how an environment can be built to encourage or suppress movement,
And how that effects difficulty

- How manipulating cover can effect difficulty
Without artificially altering AI behaviour

- And how an arena layout can affect the positioning of the enemy
And what this means for challenge



So the first topic - how an environment can be built to encourage or suppress movement,
And how that effects difficulty

- Firstly, **why** would we want to affect the movement of enemies? -

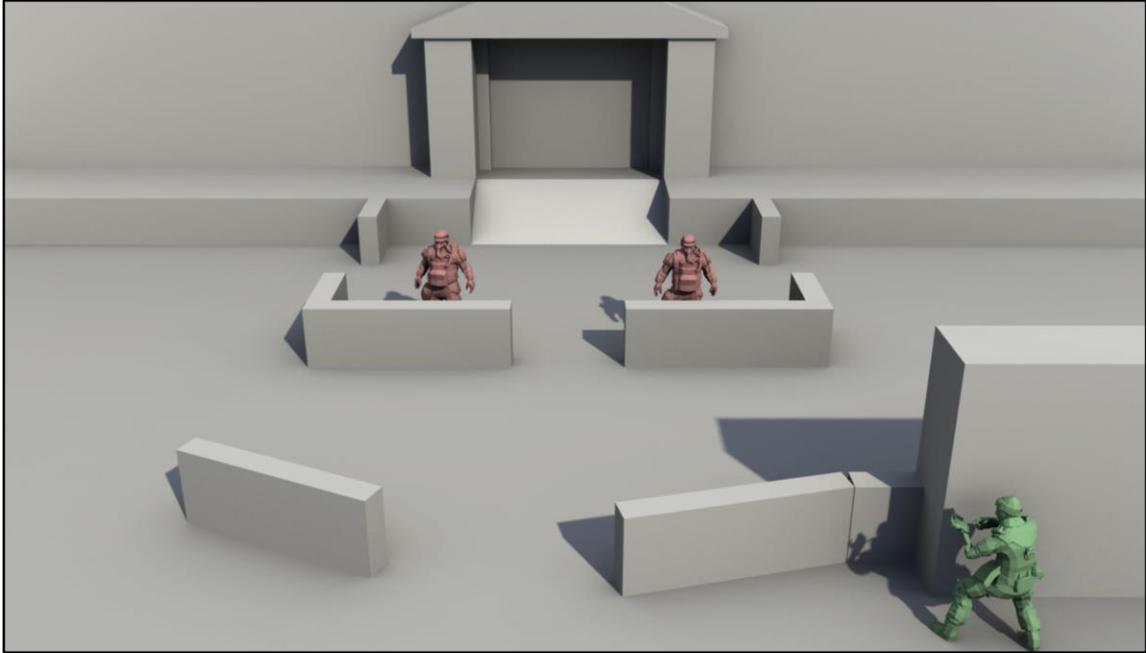
Simply put
Moving enemies are harder to hit.

In our case, its far easier to hit a static enemy, than one who is running around the environment.

So suppressing enemy movement is useful for creating easier encounters
Such as at the start of the game when the player is getting used to the game's mechanics

And allowing them to run around a lot means the player has a lot more of a challenge to deal with

Say if narratively you wanted the player to feel overwhelmed



---And so why can we not just artificially restrict AI? -----

Good to not do this so you don't have strange behaviours that go against what the player has already learnt

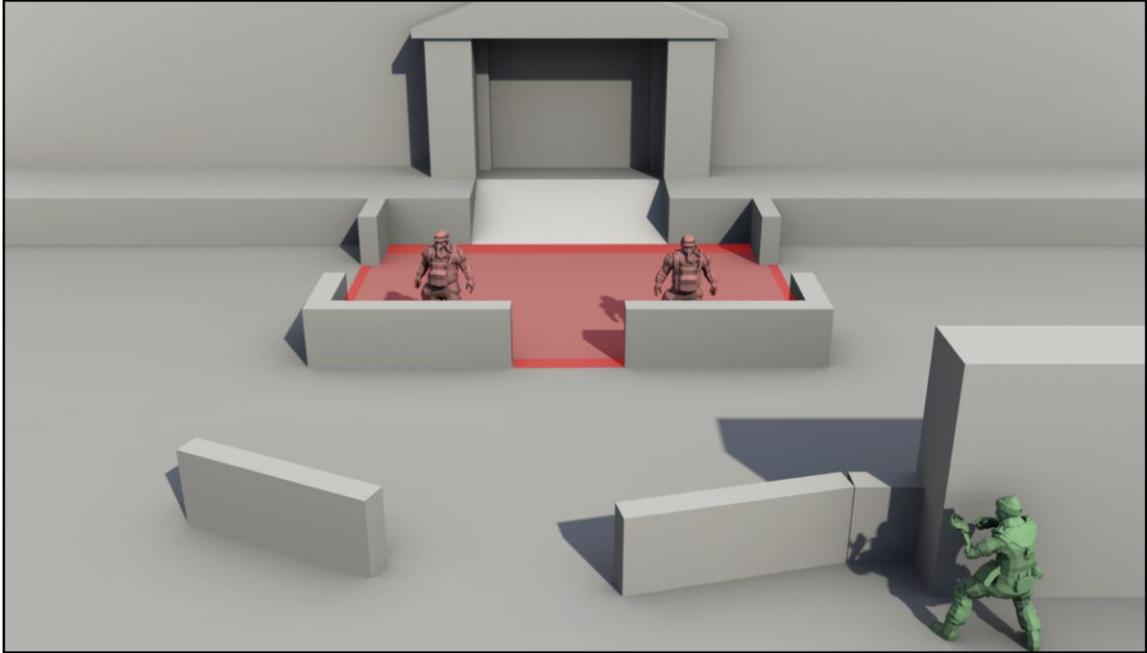
-Its important to not **break patterns** of AI behaviours

So that its easy for the player to read and plan against

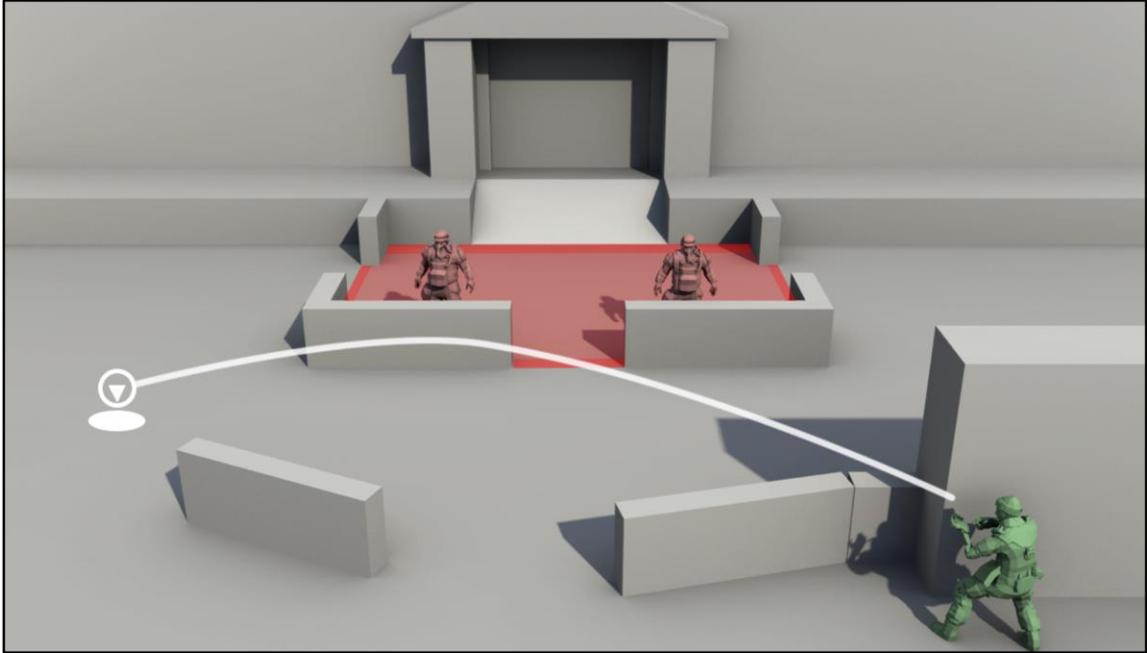
If you had created a refuge space that you populate with enemies

Perhaps because they guard the exit of the area

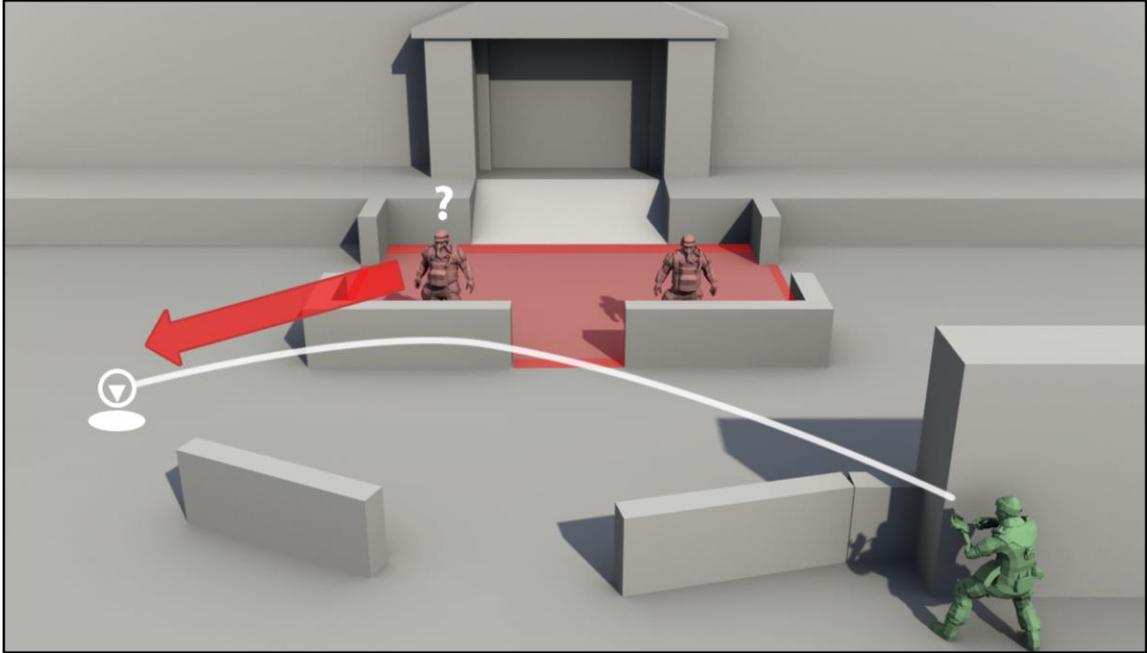
Or you didn't want the player to be able to leave without conflict



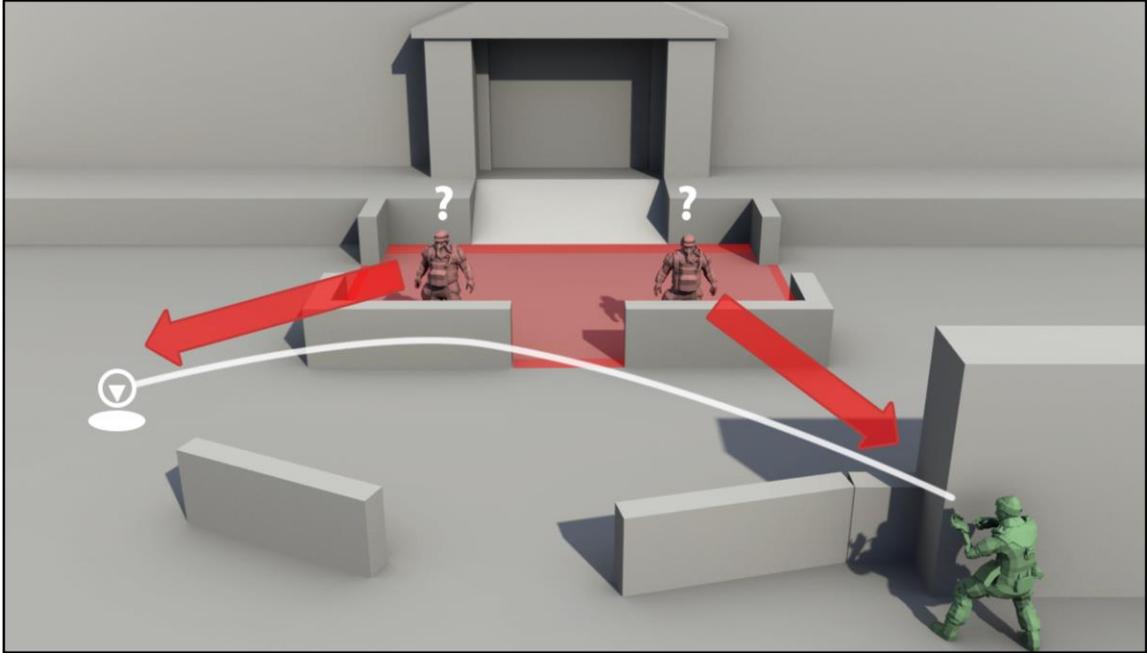
If they are not allowed to leave the area
then you can risk muddying the understanding of the combat situation for the player



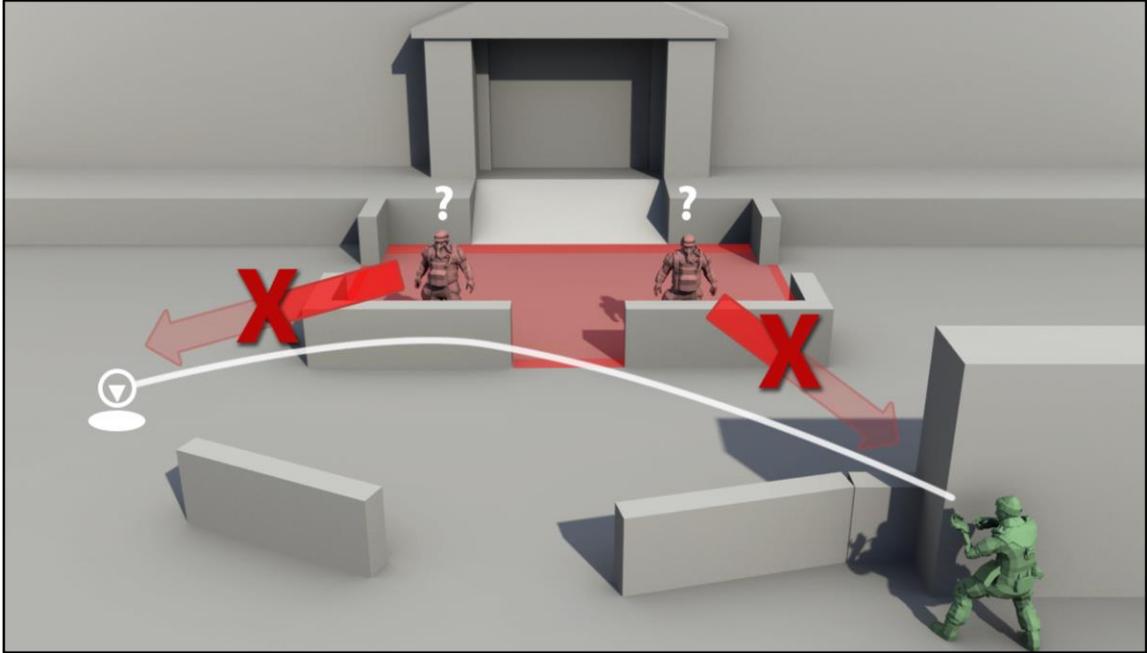
If the player has a 'go there' mechanic,
like throwing a rock or other item for the enemy to investigate



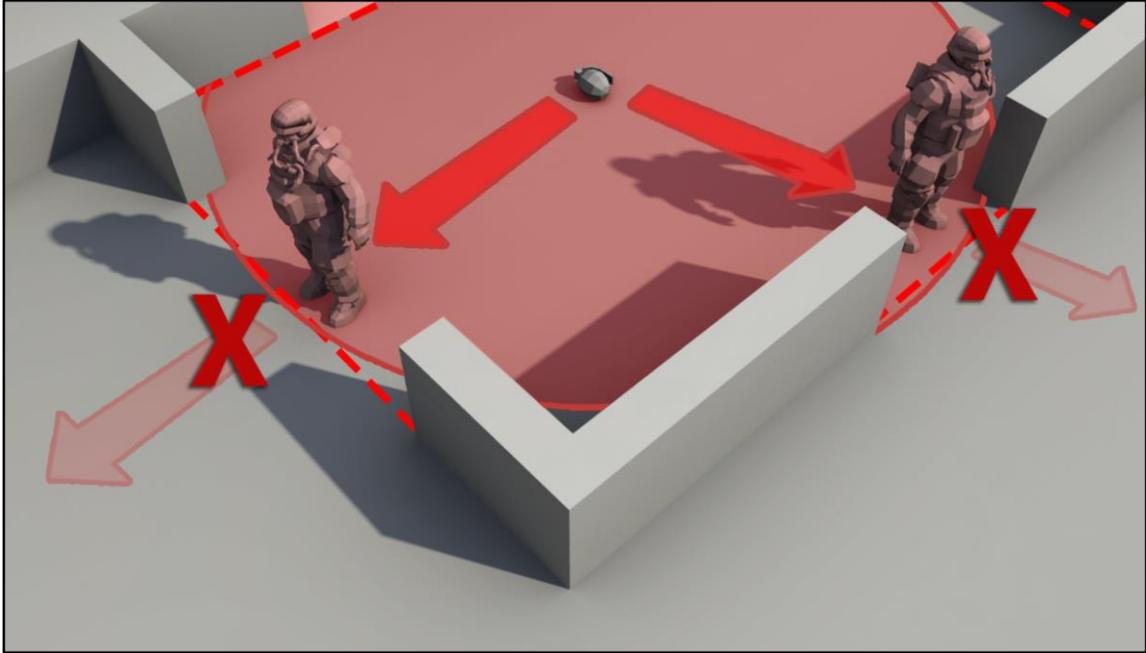
If the player has a 'go there' mechanic,
like throwing a rock or other item for the enemy to investigate



Or even if the NPCs investigate areas they thought they saw an enemy



Then it breaks the gameplay pattern (and the use of any mechanics themselves) if the AI don't react accordingly
In this situation the player can feel cheated



In extreme edge cases you could also end up with situations where AI won't be able to run away from grenades or other danger areas
And break the illusion of artificial 'intelligence'.

---- So how do we restrict or promote movement by using the environment? ----



Assault Trooper

- Moves between cover, max distance
- Mid-range
- Melee at short range
- Needs cover for movement

---- So how do we restrict or promote movement by using the environment? ----

We have to arrange the environments to **support** which AI classes are being **used**

For example, the assault trooper in Killzone, when in a combat state, moves between cover positions

And will only pick other positions that are within a maximum distance.

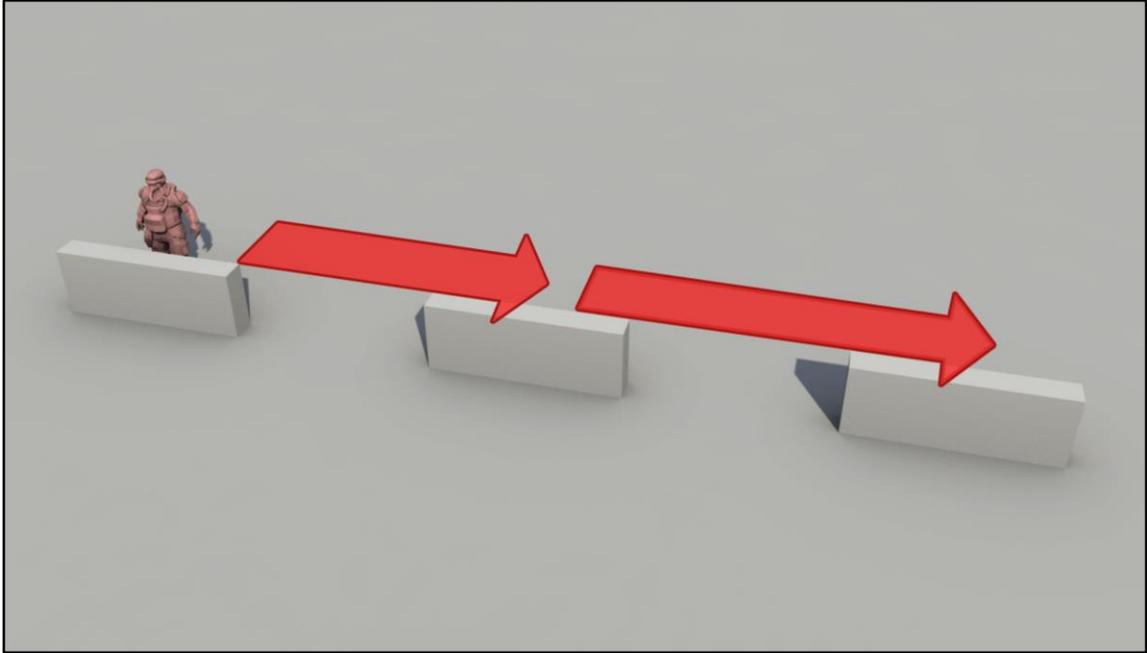
There are also distances from the player that they will try to maintain so that they can try and occupy a mid-range

As this is the type of enemy class they are,

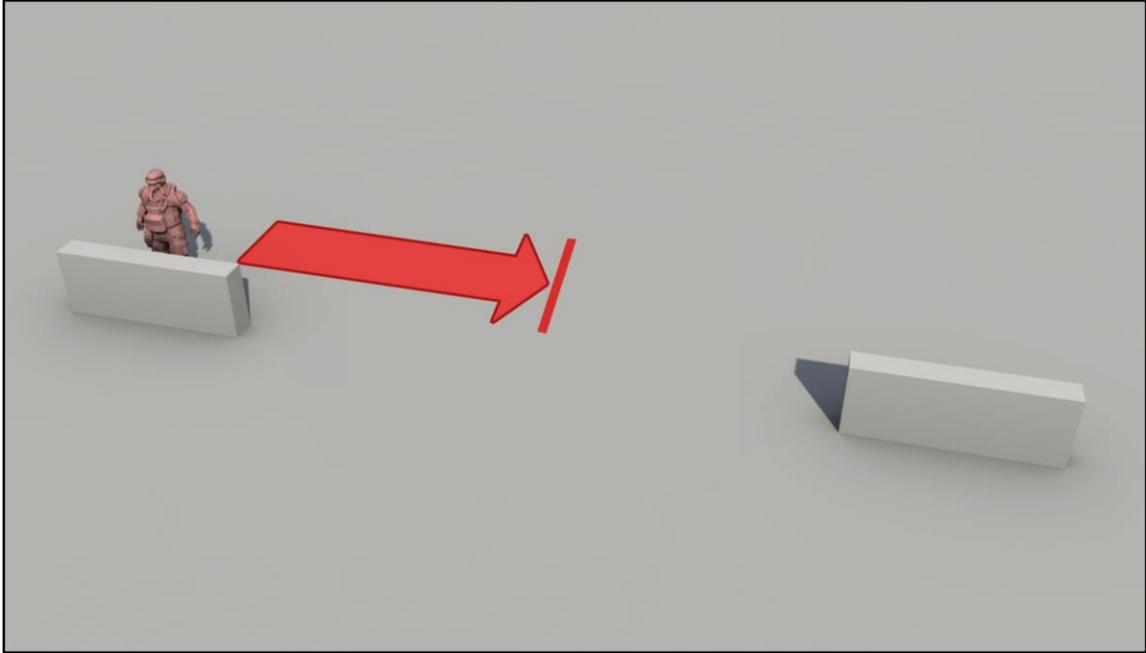
Compared to the short range of the shotgun trooper, and the long range of the sniper

They will only engage in melee combat if the player has closed in to within a short enough distance

Otherwise they will always try and move away into mid-range cover, should there be any available



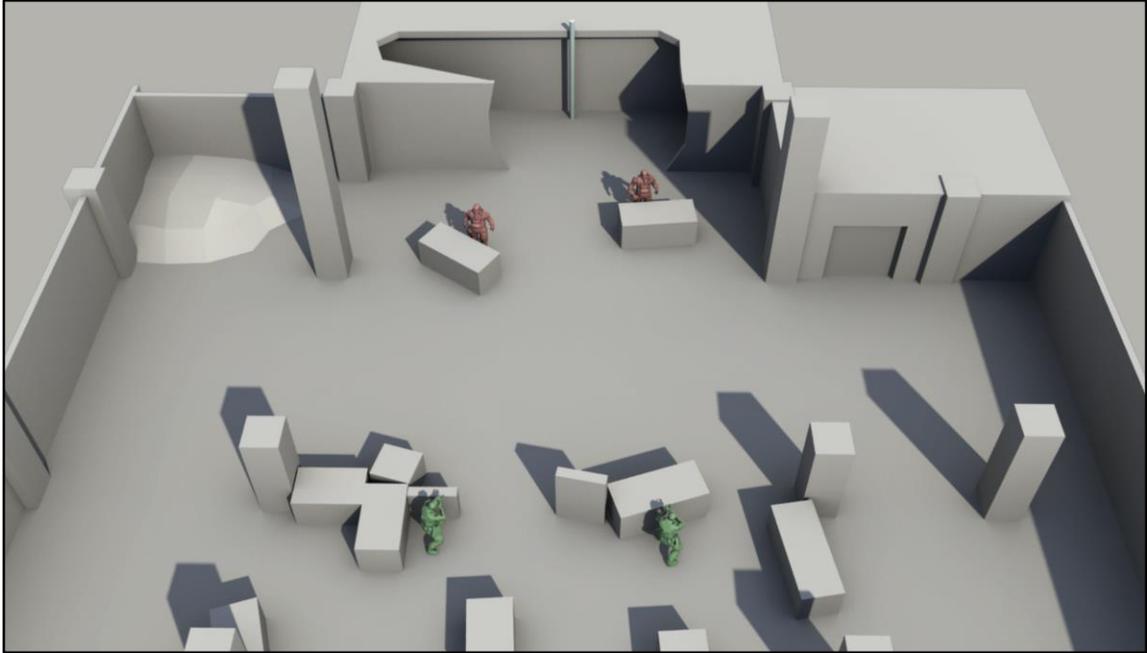
So if you want the enemies to be able to traverse smoothly you would position cover within the movement ranges



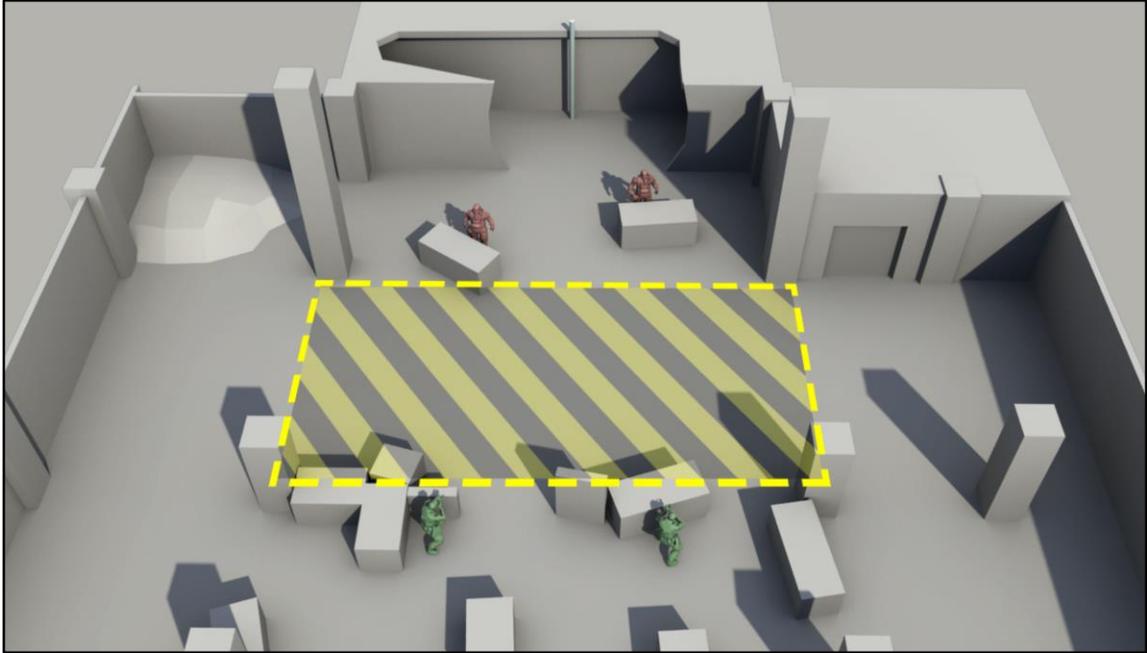
Or if you wanted to **discourage** movement you would not place any cover here
And the troopers would have no other choice but to occupy one area of cover

However, should the player either close in, into melee distance, or throw a grenade to move them,
them they will react normally and as their standard behaviour dictates,
So they don't break any **behaviour patterns**

Level layouts and cover arrangements will be influenced by **your** game's AI **metrics**



Another way to **discourages** movement and progression both for the player and the enemy is to use a '**No man's land**'



This is an open area devoid of cover so it's a dangerous place for players and the enemy to cross

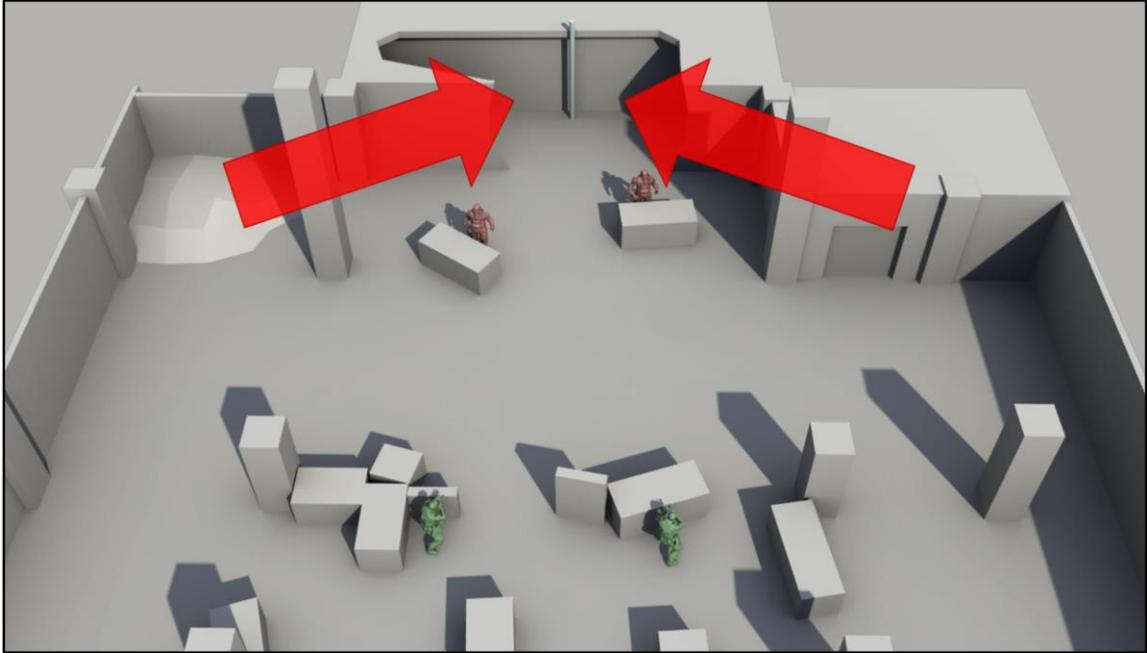
As they are completely open and easy targets

This psychologically makes people refrain from moving through it until the area is clear and its safe to do so.

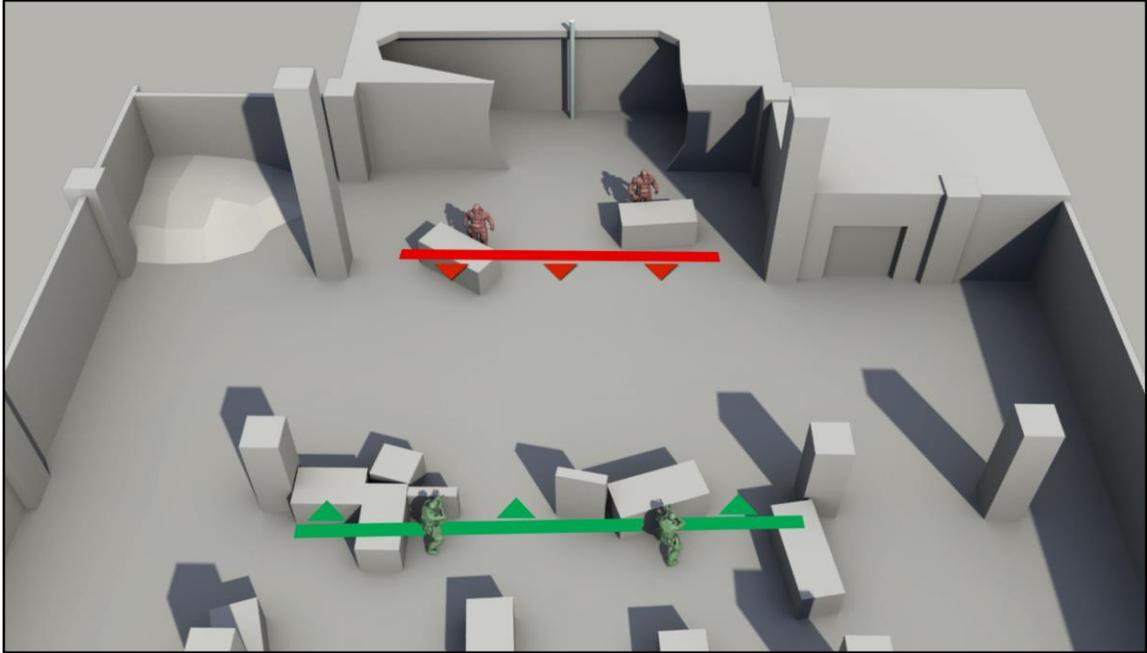
In terms of AI these no mans lands will be further than their cover movement distances

When using AI classes that use cover

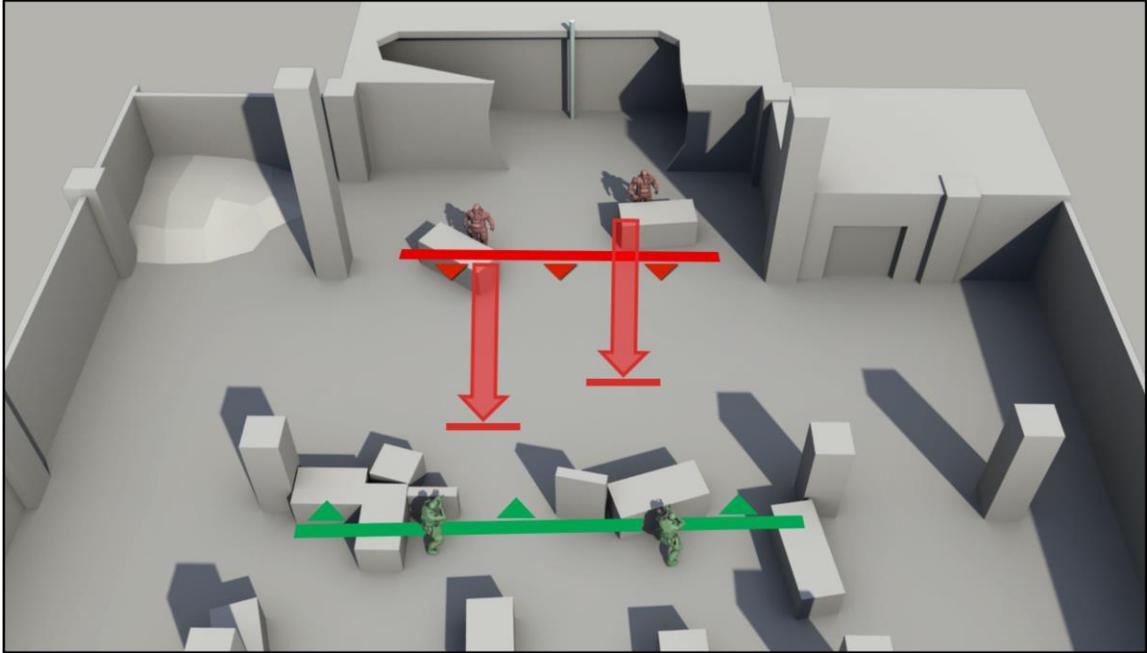
It's a way to stop the player from moving onwards through the level, without artificially restricting them or holding them back in a noticeable way.



For example here in the first encounter of the opening mission of Killzone Mercenary
The player's immediate goal is the climbable pipe at the back of the arena



To stop the player from dashing on ahead
I used a small no man's land between the player's front and an enemy front



This was deep enough to be longer than the distance an assault trooper would **seek a new cover position within**

And it encouraged the player to stay at the current cover positions until the enemy were defeated

To ensure they were facing towards the climbable pole behind the enemy at the end of combat, which was the next part of the tutorial



The troopers movement was reduced by not giving them any **flanking routes**. This also ensured it was an easy battle for the player to have at the start

If we provided routing and cover within the movement distances according to the metrics

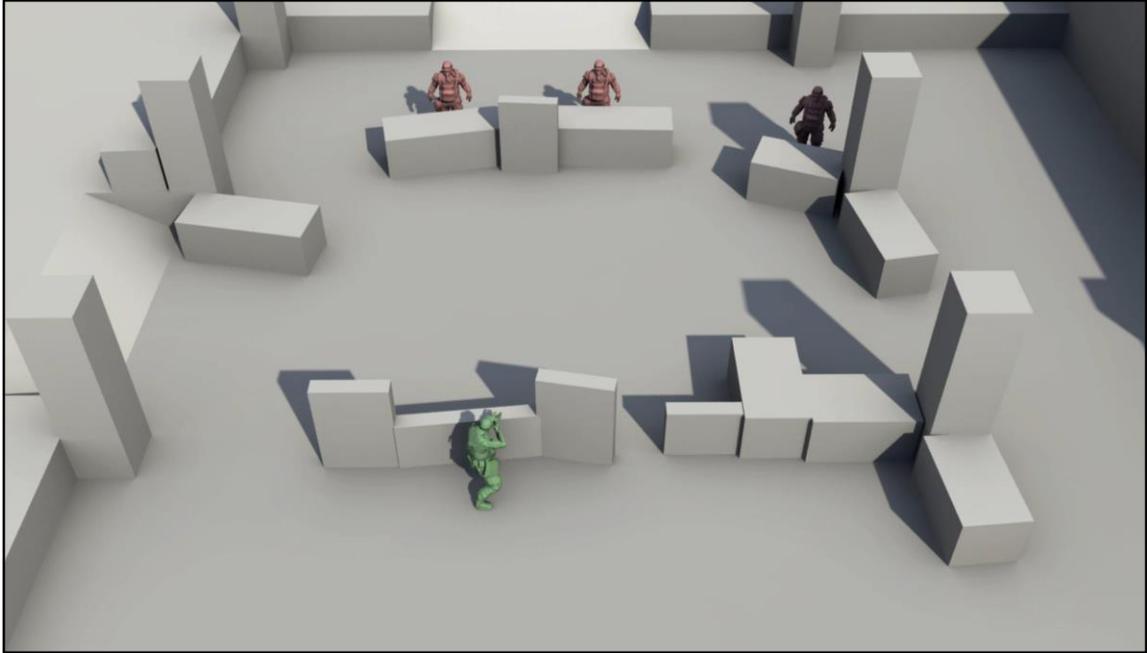
Then this would encourage the troopers to have more movement (and thus be harder to hit than a static target)

And they would have been able to move to more advantageous positions Potentially where they could surprise the player with attack

If an enemy can get to a closer position to the player its assumed their accuracy and damage is increased

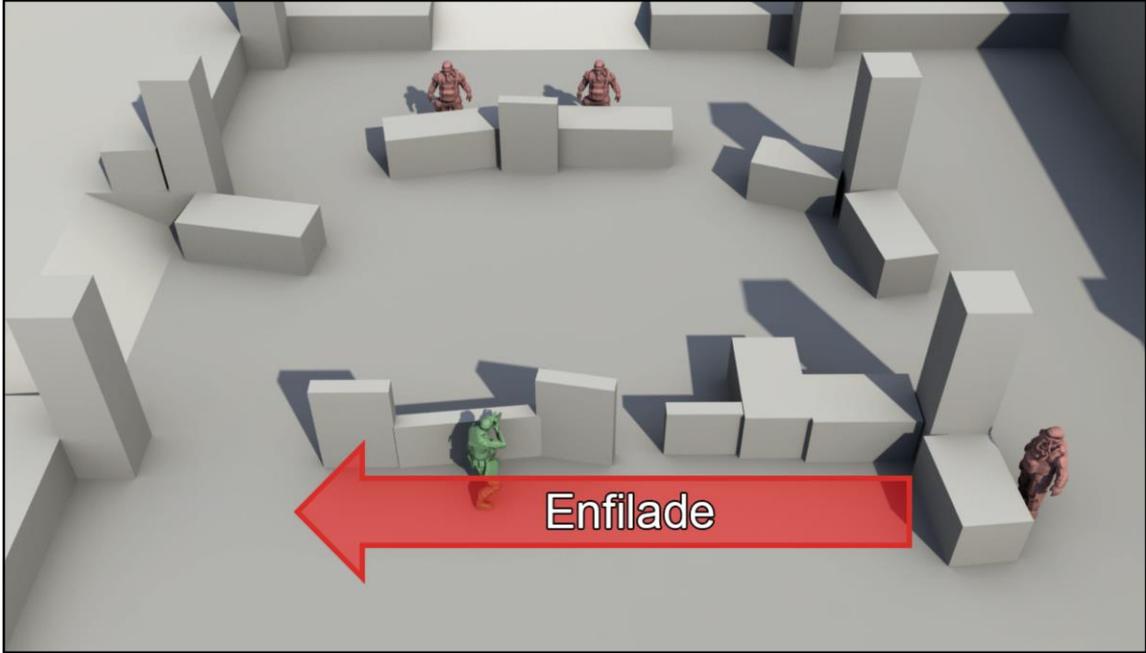
Depending on their weapon of course

Allowing for the enemy to **flank** the player is a **harder case** then remaining in one position.



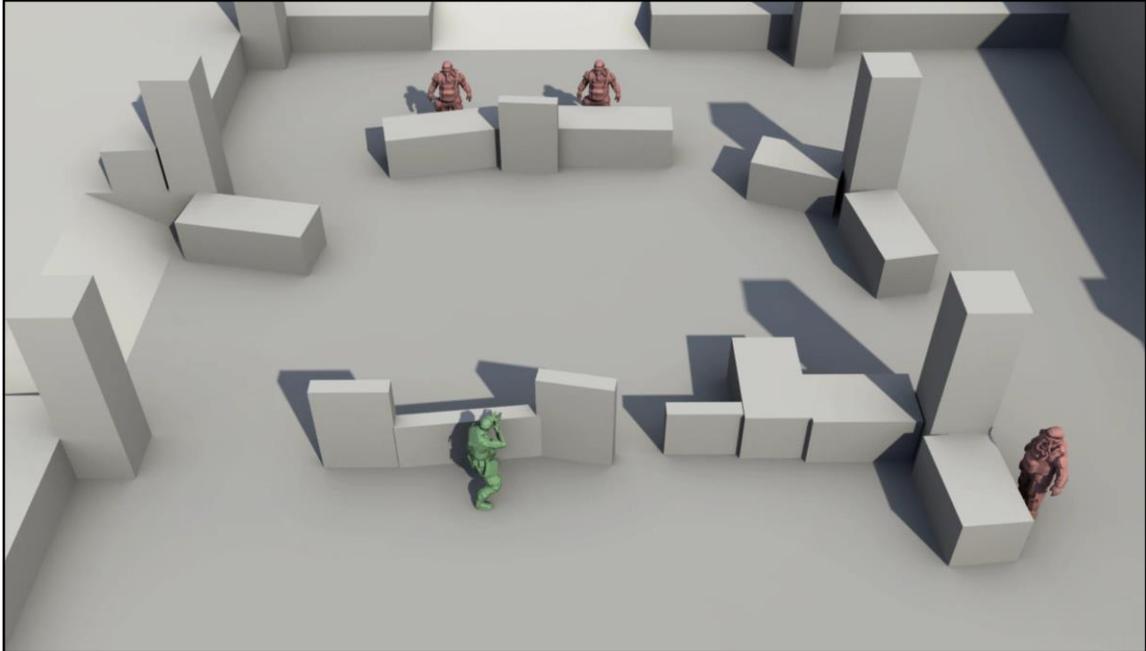
Further to this, an even harder case is allowing the enemy to '**enfilade**' the player.

Enfilade is a military term that refers to flanking an enemy so they are positioned to have no cover from the side and are thus exposed and vulnerable



Further to this, an even harder case is allowing the enemy to 'enfilade' the player.

Enfilade is a military term that refers to flanking an enemy so they are positioned to have no cover from the side and are thus exposed and vulnerable



If this is done to the player, this causes them to have to **move** from their current position so they can get to a safer position they can defend from. They are often **ruled** into a new position that they haven't necessarily planned out first. And this scenario can be quite panicky, so coupled with receiving fire whilst exposed it makes this a very hard case.

It is good to encourage the player to move though so that they don't experience the entire combat sequence from just the one position. As this stops it from becoming repetitive.

Reversing these roles would make it an easier case for the player. Where the player has a flank route that they can enfilade the enemy from. An easy case and a satisfying one when you are able to cut down the enemy without them being able to defend it.

- **—Movement**

- **Cover**

- **Positioning**



-So we can see how movement within an arena can be considered for effecting difficulty-

Now we can look at how to manipulate difficulty through shaping of cover elements



The thing to consider with cover, and one of the fundamental thoughts behind its form

Is that KNOWLEDGE IS POWER

If you as a player know the movement and position of the enemy you have an advantage

For example, providing only low cover options allows the player to **track** enemies within the environment

This is because enemies are generally fully upright when running between cover islands



In this example from Gears of War as the enemies run into the arena from the side they run behind predominantly low cover. This allows the player to **track** them all as they cross the area to their cover positions. The player knows where all the enemies end up and can **strategise** their plan of attack accordingly – Knowledge is Power>

Additionally, for enemies moving forward in this arrangement there are long avenues they must take if they are to try and get into melee range of the player. This lacks any cover positions on the way and leaves the enemy completely open to undefended attack making this specific scenario an easy case.



And when in low cover, enemies tend to be at a height where the player can see the **top of their heads** whilst they move

This means that when enemies move to a new position **whilst still in cover**

The player is able to see and track this movement

Meaning the player is not caught in a situation where they don't know the location of the enemy

And thus won't get flanked or surprised with an attack

When player uses low cover, both in 3rd person and 1st person they can see over the top and track the enemy from a safe and, depending on how your game's rules work, a hidden position



Low cover is a harder case for targeting the enemy, as they generally only **expose less** of their body when they attack.

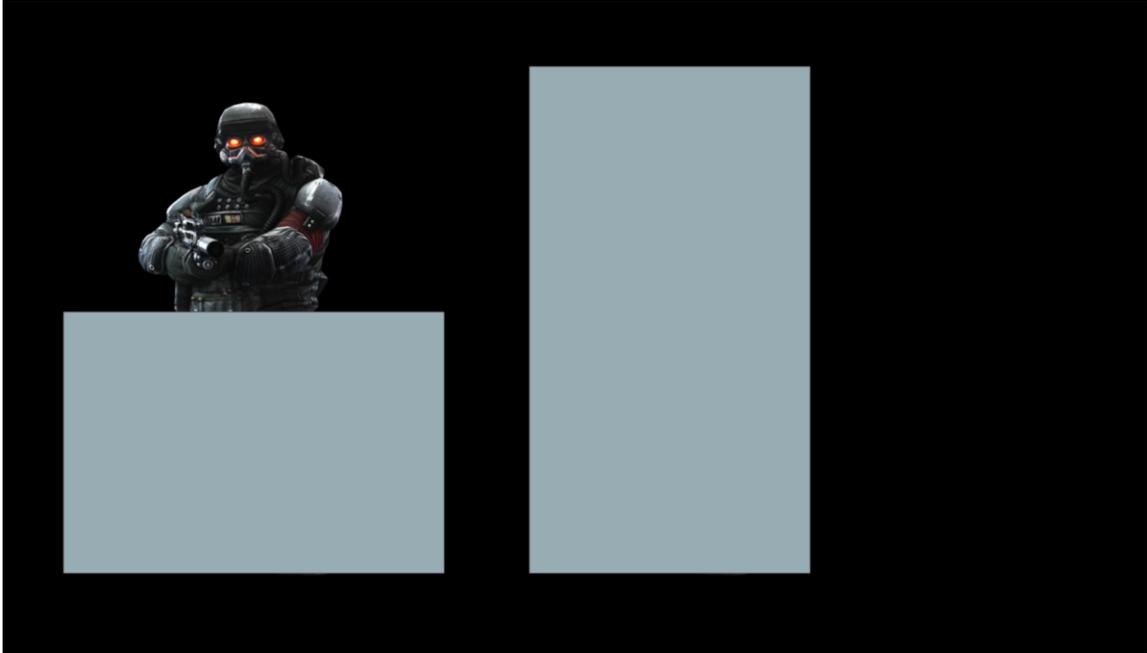
Whether they peek over low cover or do blind firing

Or if they stand up to take a more accurate shot

They only expose half their body, as the lower half is blocked by the cover

The upside, meaning its not too tough to combat, is that the area that the player is targeting includes the head,

Which traditionally is the 'one shot kill' location on the targets body.



High cover, on the other hand, doesn't reveal **any** of the enemy to the player - you won't be able to see their heads moving as the taller cover will block their entire body

This means the player either has to move to another location to get a better angle on them

Or wait for the enemy to expose themselves out of cover when they try to take a shot at the player

This inherently is more risky as it means the player has to **risk exposing themselves** to fire at the enemy

Whilst the enemy is firing at them.

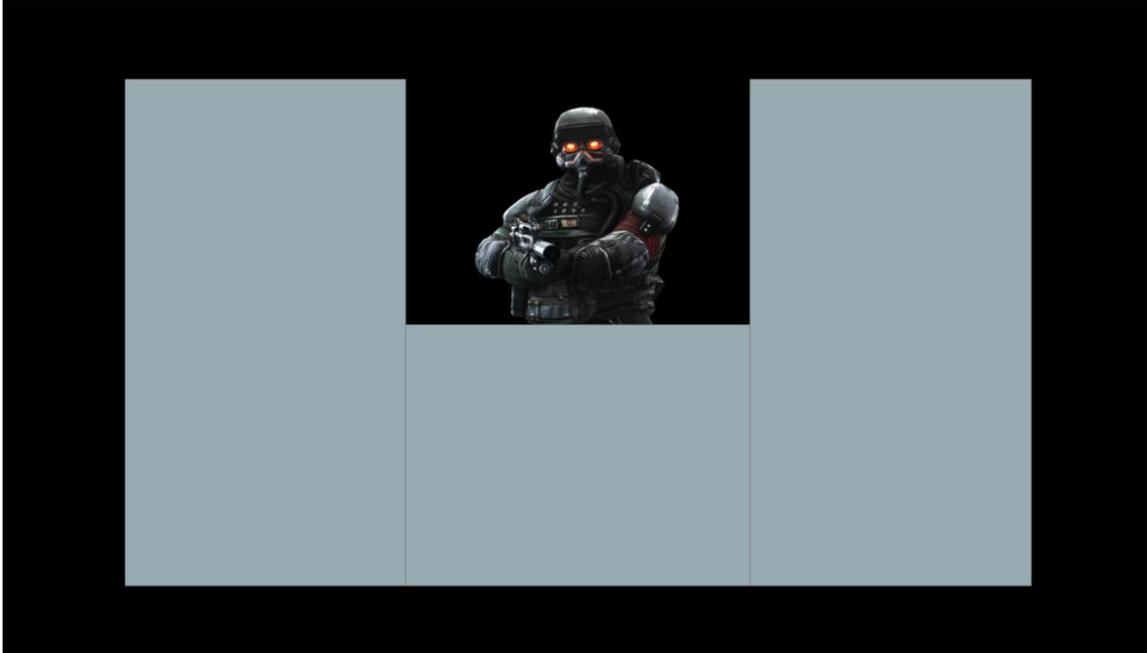
However, in comparison to low cover, when an enemy leans out from the side of the high cover, they show their full profile,

Or if they step out of the cover completely they reveal their full body, which is an easier case than only showing their heads

The balance here is that although the enemy is hidden when not firing,

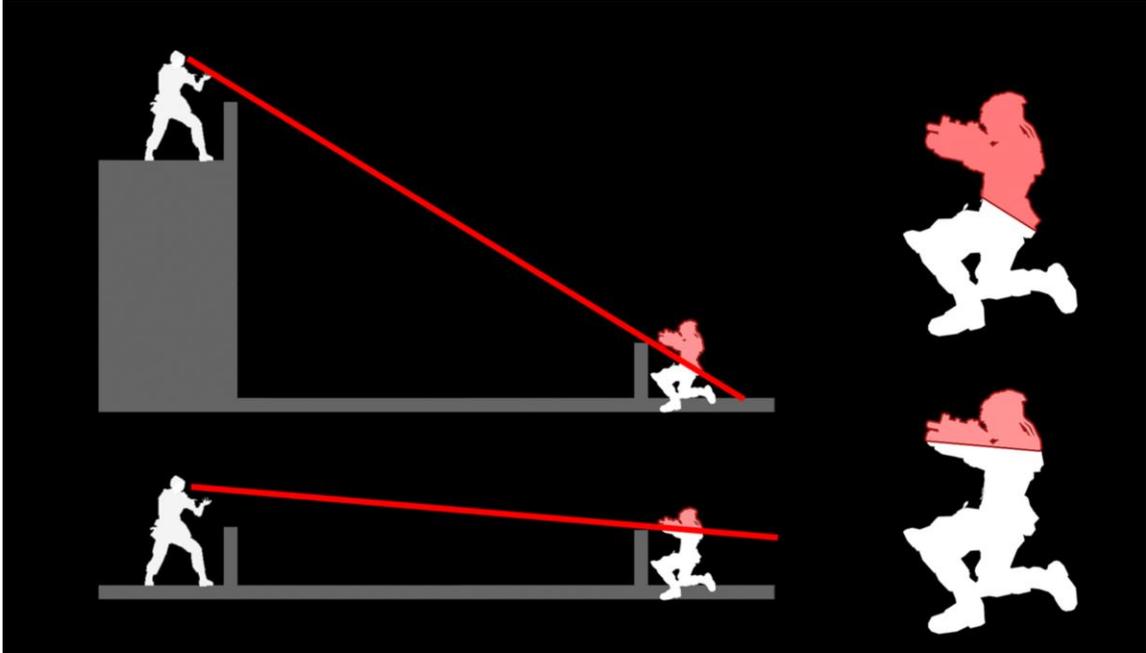
When they do attack they are **fully exposed** and are a larger target to attack

High cover as line of sight blockers are also beneficial for enemy types that don't use cover
As when they move behind it they can't be shot at, and can potentially be lost



These considerations also go for the player as well, and additionally how we can layer them together;

For example, how castle crenellations work; providing low cover next to high cover is a much more protected and safe cover arrangement for the player than having to either step out from high cover to reveal their full body, or only having low cover which isn't as fully protective as full cover – especially for 1st person shooters



How much of an enemy is revealed from cover is also effected by the **elevation** of the player

Fighting down towards an enemy will reveal more of the enemy from the height advantage, and make them **easier to hit**

Additionally less of the player can be hit from the enemy fighting **upwards**

From this elevated position the player can also see and understand more of the arena layout

if the player can see more they have a combat advantage - Back to knowledge is power

<PAUSE>

- **Movement**



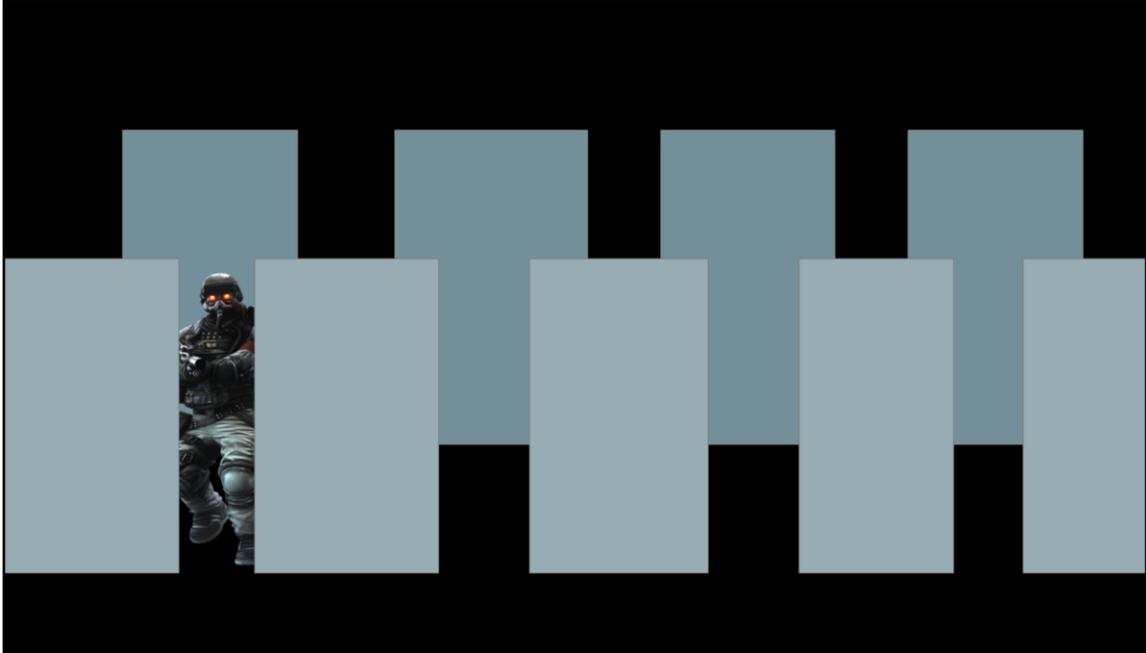
- **Cover**



- **Positioning**



So that was looking at some of the considerations for



One of the fundamental thoughts for enemy positioning,
Like an eye gouged in a fight
<What you can't see, you can't hit>

So in games

Losing sight of the enemy means you're not able to shoot them and thus defeat them

Having line-of-sight blockers in the environment not only mean its more **effort** for the player to track enemies

But they can also **stop** enemies being tracked all together.

Enemies can get closer to the player more easily (so you're an easier target to hit for them),

Or into more advantageous positions for themselves that make it tougher for the player, such as flanking



As you can see here in this example from The Last of Us after the hunter ambush, You can just see this enemy run across the central view to the left

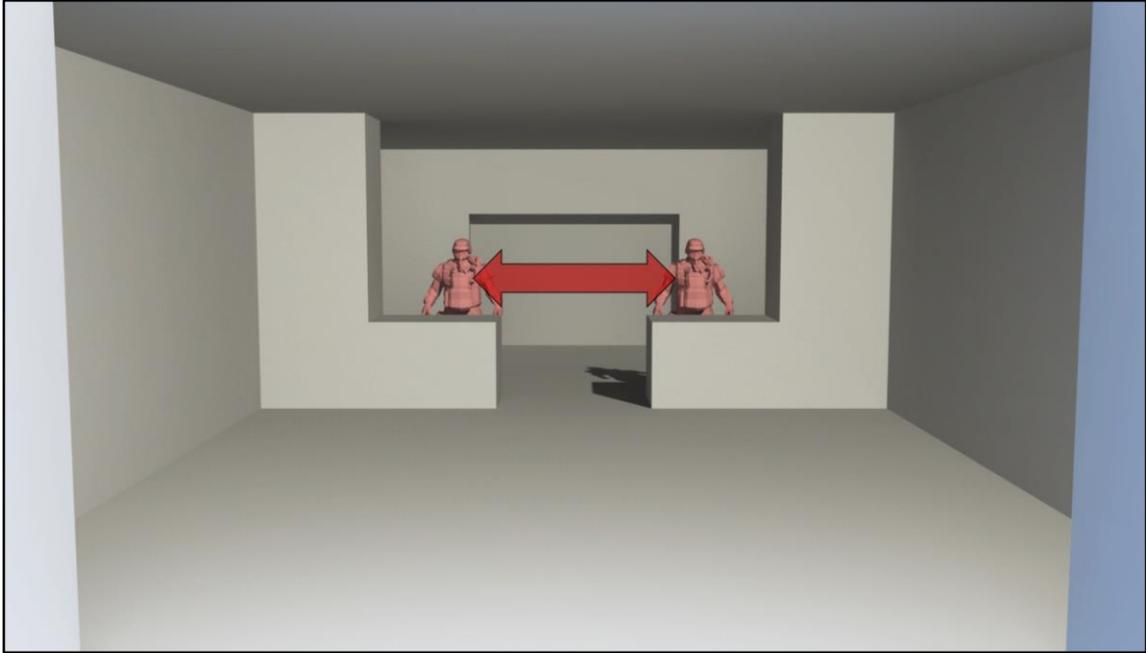


The enemy with the plank of wood
That's who we are going to be tracking



The tall cover on the left, with the car and pillars, and the line of sight blockers across the windows
blocks the player from tracking that enemy,
Allowing him to get **close** to the player and flank them,
Whilst the player is occupied with shooting the enemies they can see behind low cover

Even if the player has a radar, or in this case a 'listen' mechanic that reveals enemies **locations**
The line of sight blockers stop the player from shooting the enemy to stop them from progressing any closer

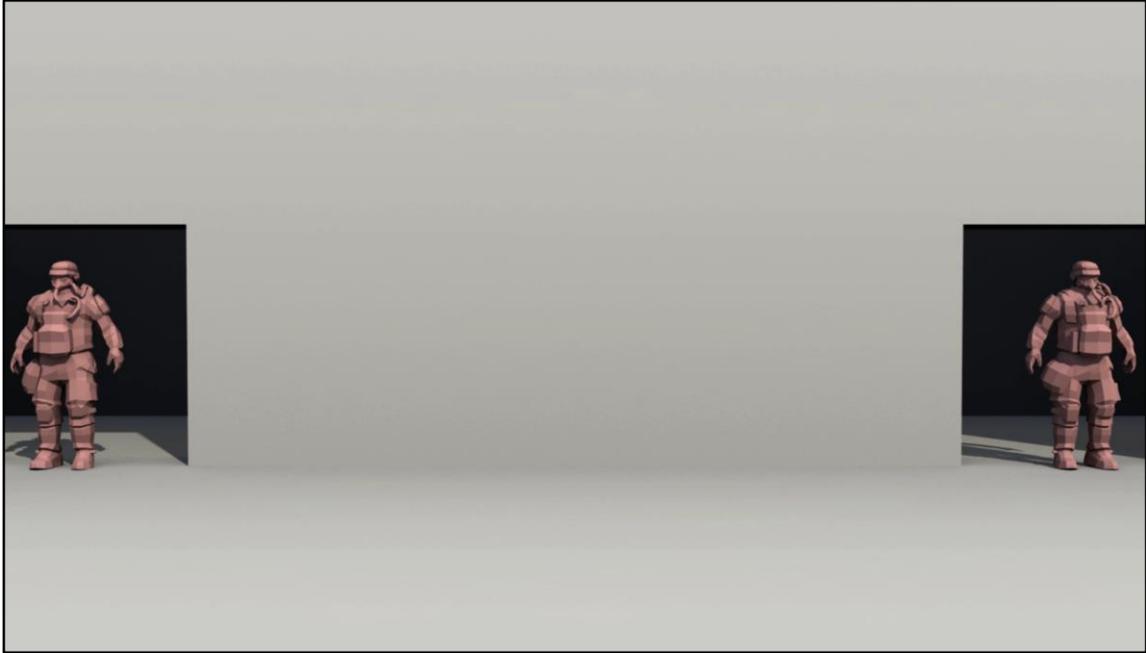


If lines of sight blockers funnel enemies into a chokepoint
This is an easy case for positioning

Imagine one corridor, even if you used the harder case of cover;
the high cover mixed with the low cover for revealing the least amount of the enemy

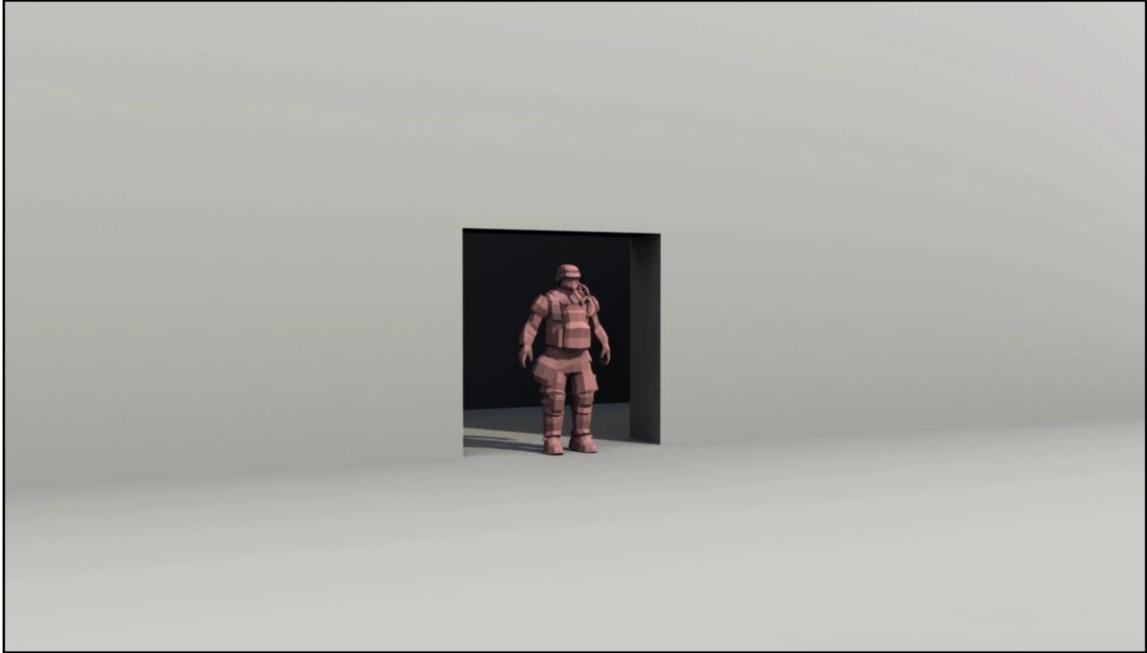
This is an easy case in terms of 'aim movement' as the player has everything in this
one window and doesn't need to move the reticule much to defeat the enemies

When developing Killzone Mercenary we created arenas, rather than being a corridor
shooter
So we had to consider avenues of fire

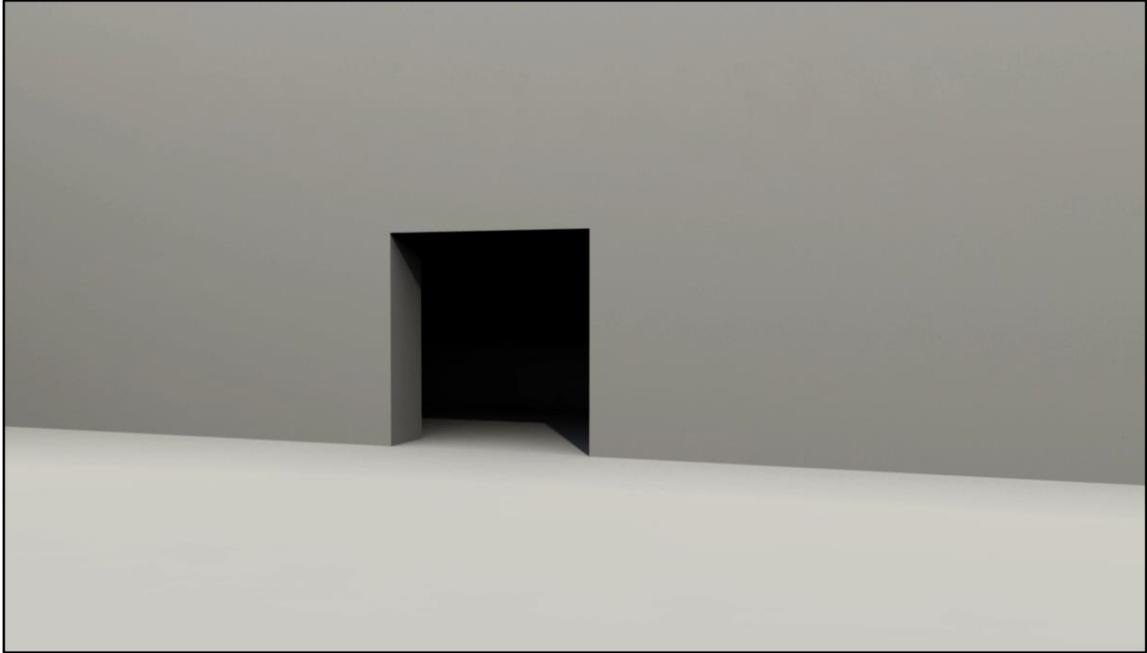


But imagine if you had this situation,
With **split** enemies
so the avenues of fire are more than a screen width apart

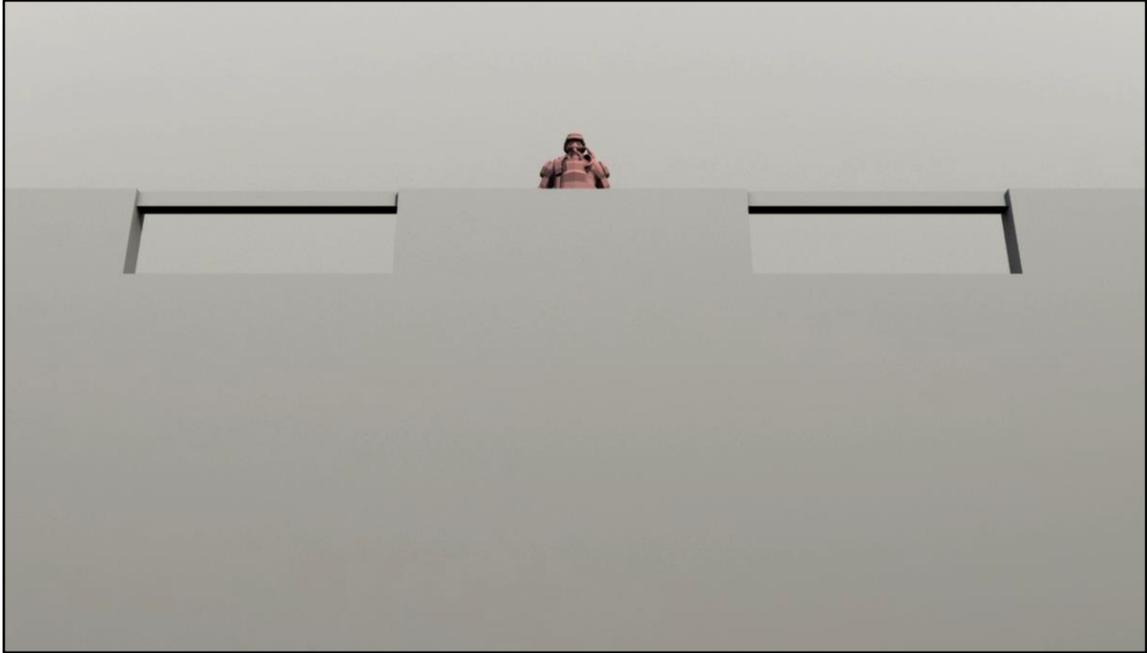
Be it because the wall; the LOS blocker, in the centre splits the enemies
Or there are spawn points behind each of these doors



This is much harder to tackle as the player has to divide their attention and balance their focus between two fights
allowing the 'unseen' enemy to do what they want,
Such as fire at you unhindered,
Or advance towards you without you knowing
Or move position all together so when you look back they've completely gone
(and now you've turned your focus away from an enemy you could see and where shooting, to an empty space,
now facing away from 2 enemies who can shoot at you unhindered now)



Further more, off screen enemies are a hard case
Especially if they are above the player



And the hardest example? If you want to be nasty you can spawn enemies in behind the player!

(But doing this sparingly!)

As it can feel unfair

The further apart the avenues of fire, the greater the difficulty

• **Movement**



• **Cover**



• **Positioning**

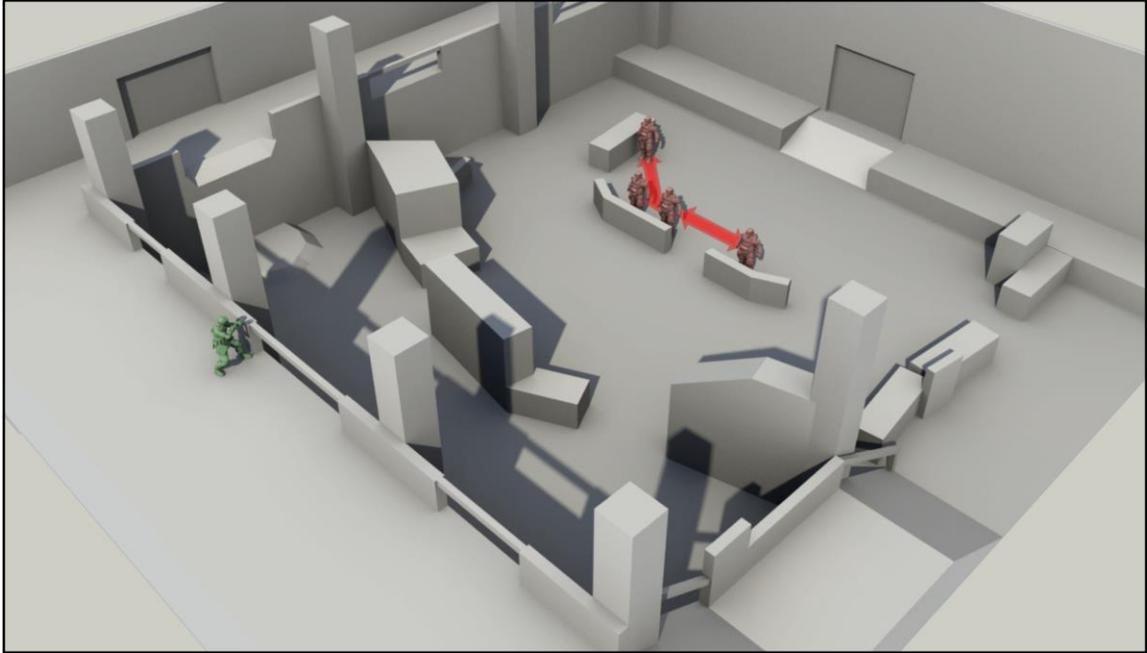


So that was how positioning effects the difficulty

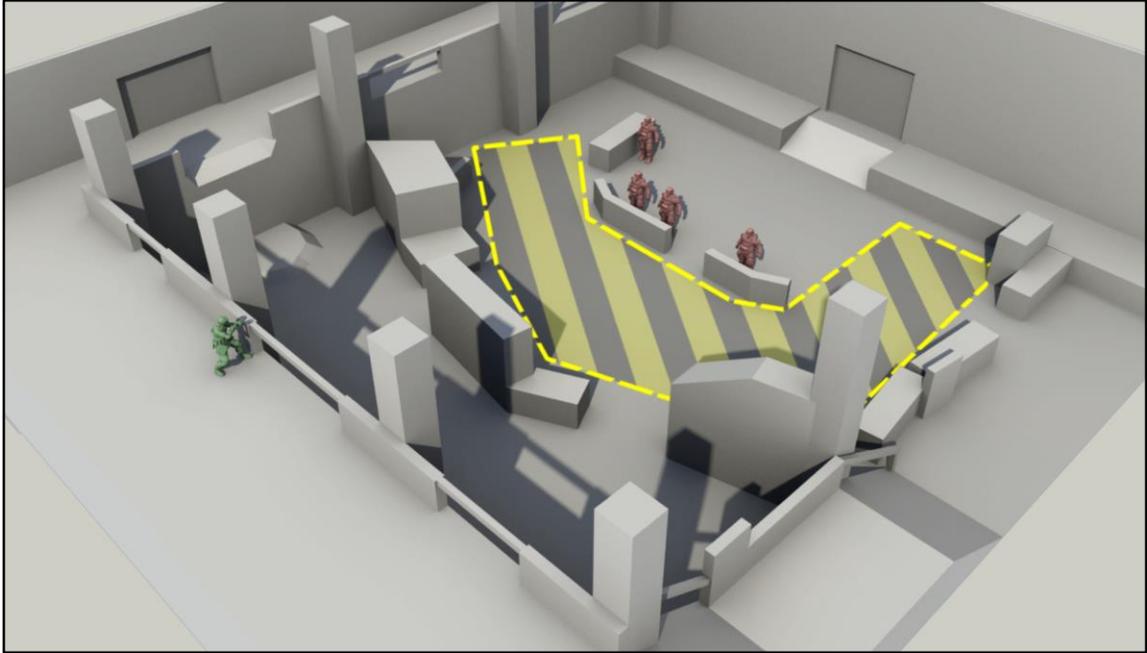
So to summarise we can take a look at an example of setting up a simple combat arena



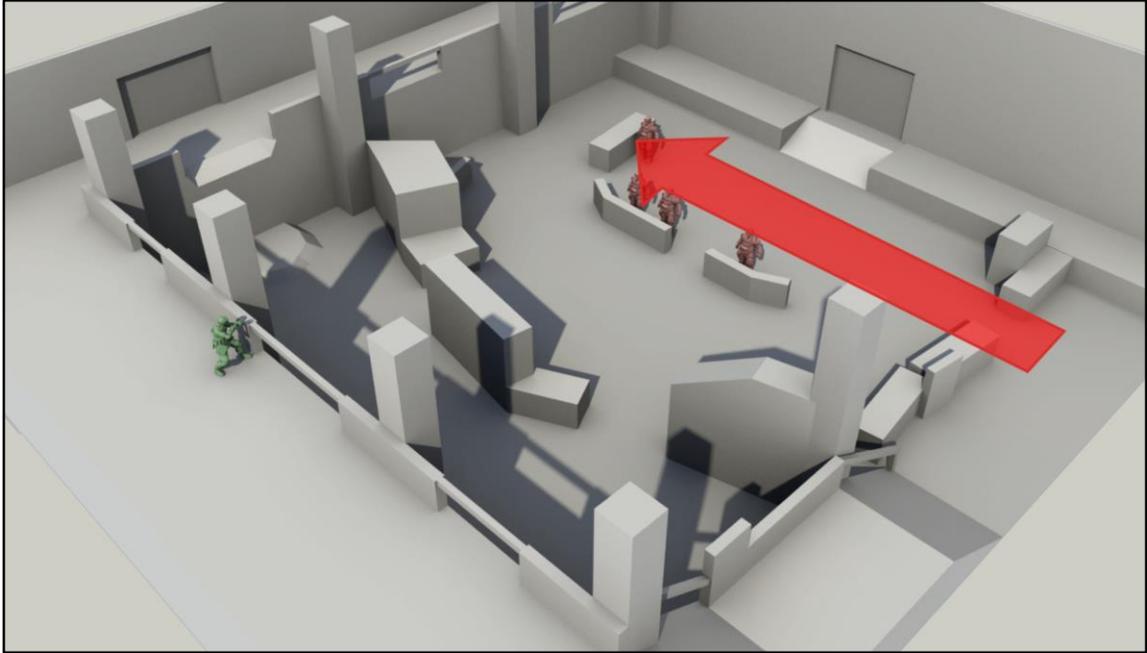
So if you had a narrative where you wanted the player to hunt out a unit of enemies and get the drop on them
Launching a surprise attack on them.



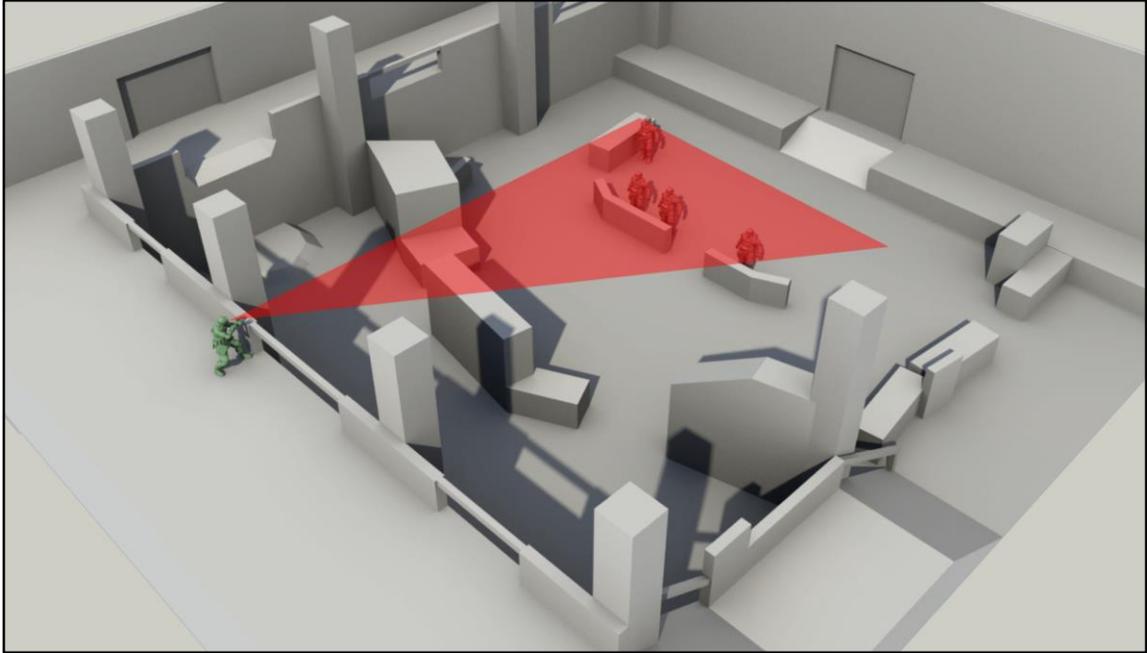
- The enemy doesn't have many movement options, so they will move less and be easier to hit



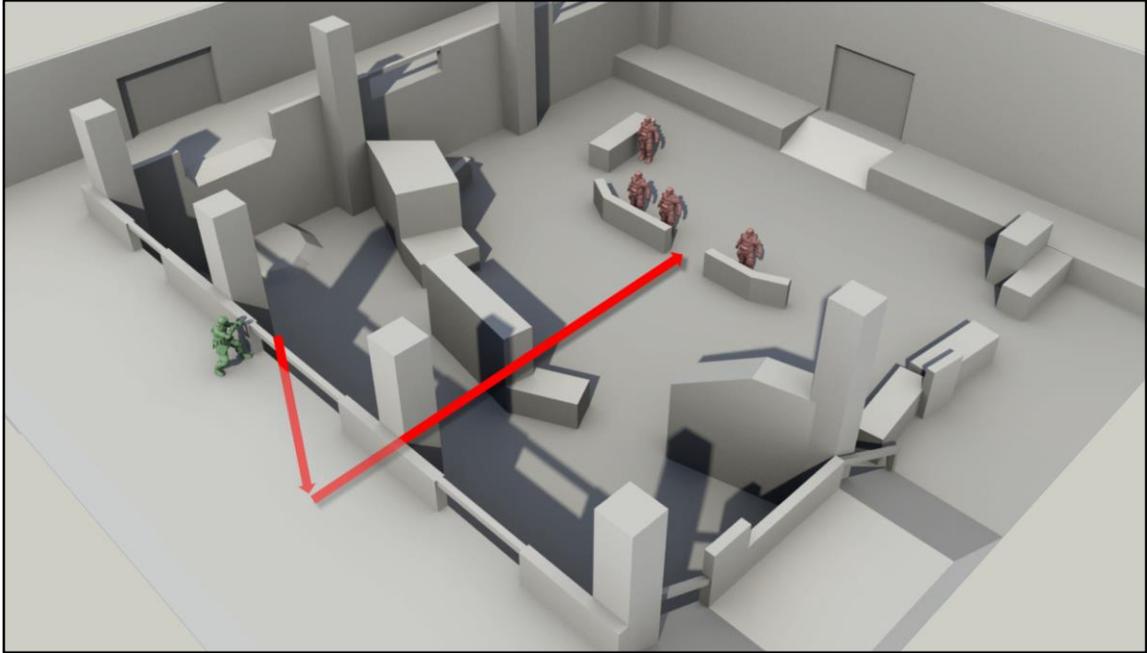
- A no mans land around the enemy area to stop them from moving



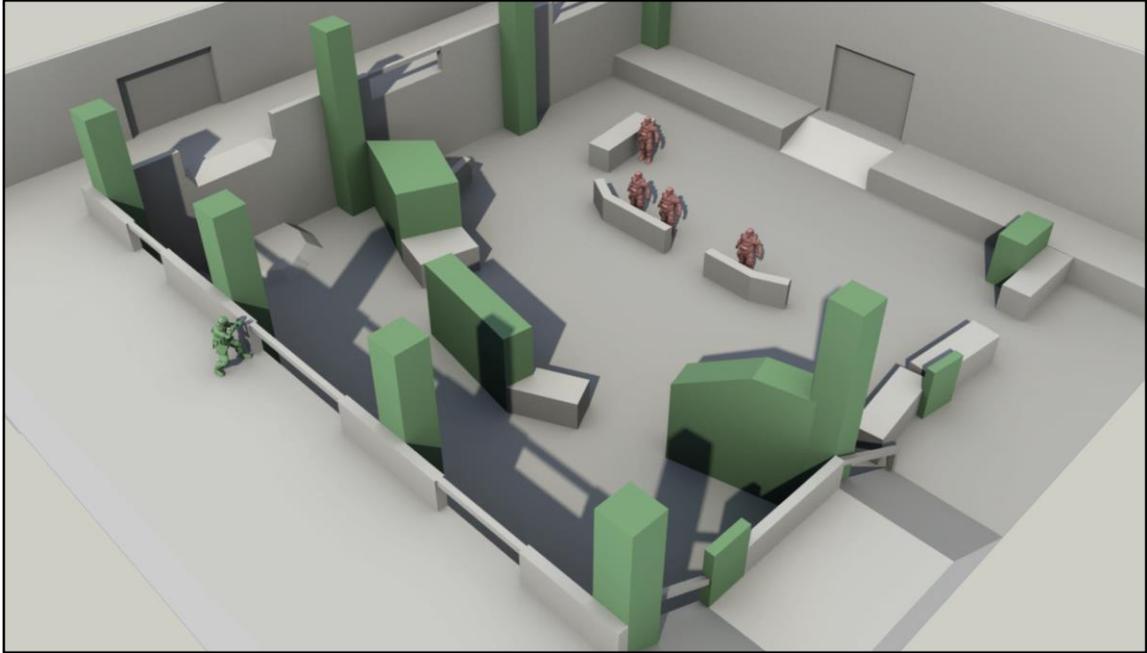
- Can enfilade the enemy



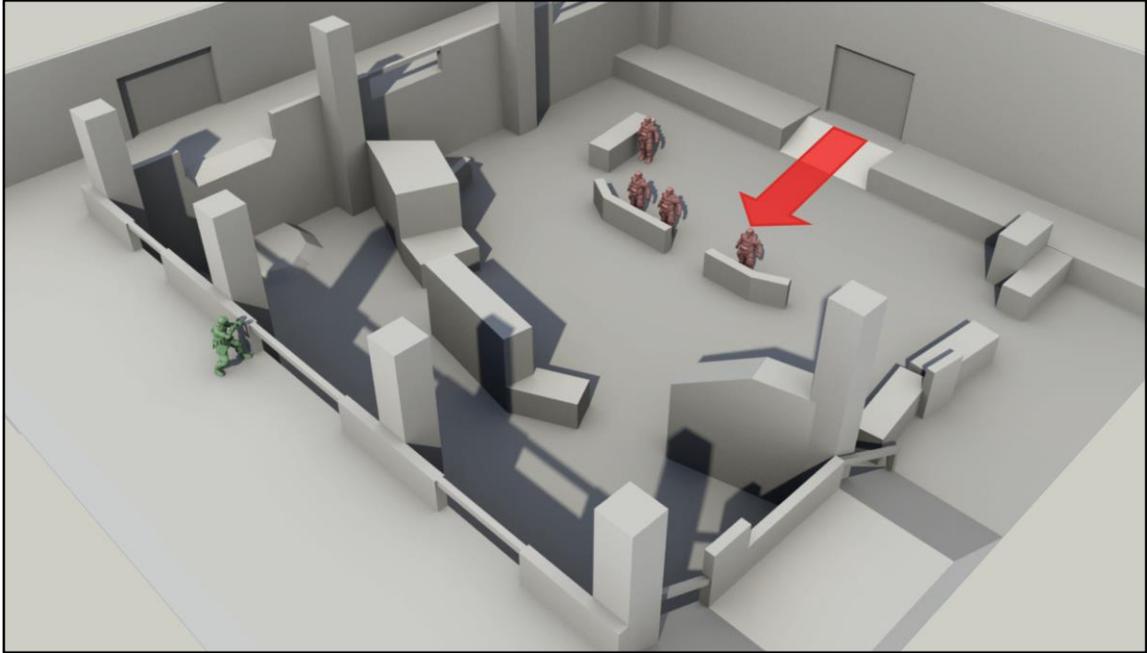
- Small avenues of fire allow the player to track and target all the enemies without losing sight of them



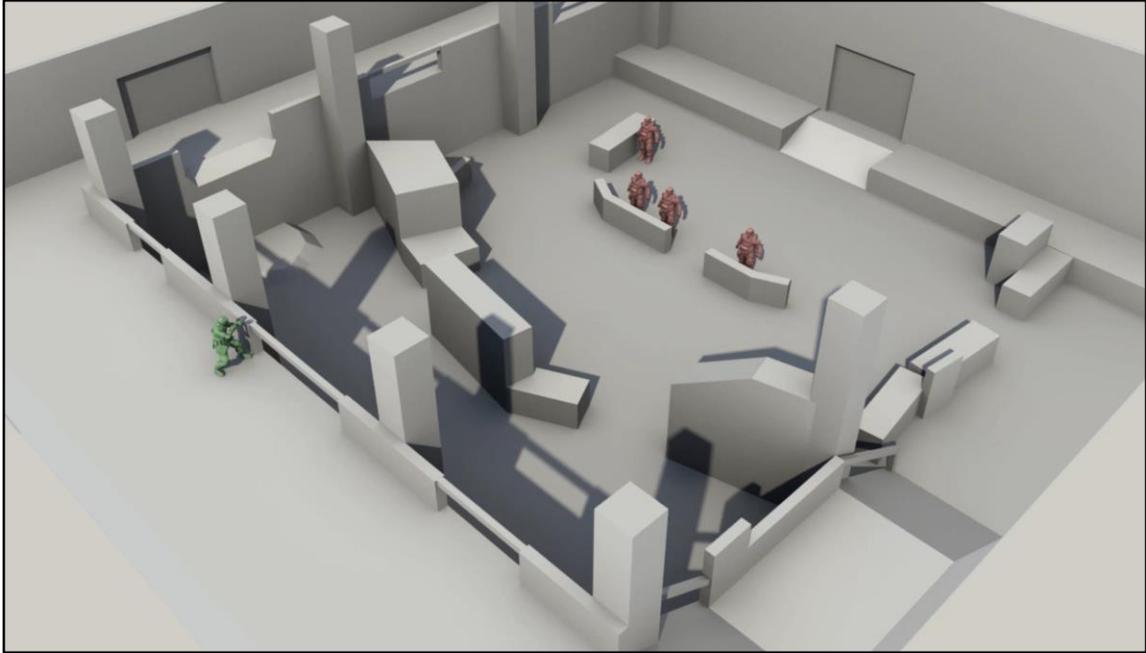
- Lower enemies so the player can shoot down at the enemy and see more of them exposed



- LOS blockers in favour of the player to allow the player to 'disappear' and break lines of sight from the enemy



- Only 1 spawn point at the back (in the field of view) where enemies can be tracked entering



And what's great about this is whatever you do to make it and easy for the player

You can **invert** these tools to make it difficult for the player

Now we have

- many movement options for the enemy, making them harder to hit
- A no mans land around the player, discouraging them from moving
- The enemy enfilade the player, forcing them out into this no man's land
- And there's multiple spawn points on opposite sides of the map, off screen from each other
- As well as multiple avenues of fire that means the player has to balance many focus points
- The enemy has the height advance on the player
- LOS blockers break lines of sight to the enemy, allowing them to be lost

Thank you very much

That was my part on how the environment informs the difficulty

Now I will pass you to Sam Howels who will discuss
Combat in Open World Games

COMBAT DESIGN IN AN OPEN WORLD



- Hi I'M SAM, going to talk about open world.



- Last decade, open world games become huge part of AAA – RDR, Skyrim, AC, many more engrossed players, gives them freedom to craft own experiences
- This freedom is interesting as its presents its own challenges for combat design, which normally sees more analytical focus in linear titles
- I want to explore how these concepts translate to OW where player in control of experience



LOW FREEDOM

HIGH FREEDOM



- What do we mean when we throw around terms like “**OPEN WORLD**” and “**LINEAR**”?
- “Open world” was subject of talk for simplicity, but in reality is reductive for all to be open world OR linear..
- Ultimately, every game has differing amounts and types of player freedom. This should really be represented as more of an analogue “**Freedom Scale**”.
- From “on-rails” to “sandbox” games, wealth of terminology to describe freedom a game offers.

- In this presentation, will talk about how games at the more “free” end of the freedom scale (i.e. open world games) can approach the design of combat encounters.

VARIED +
INTERESTING
ENCOUNTERS

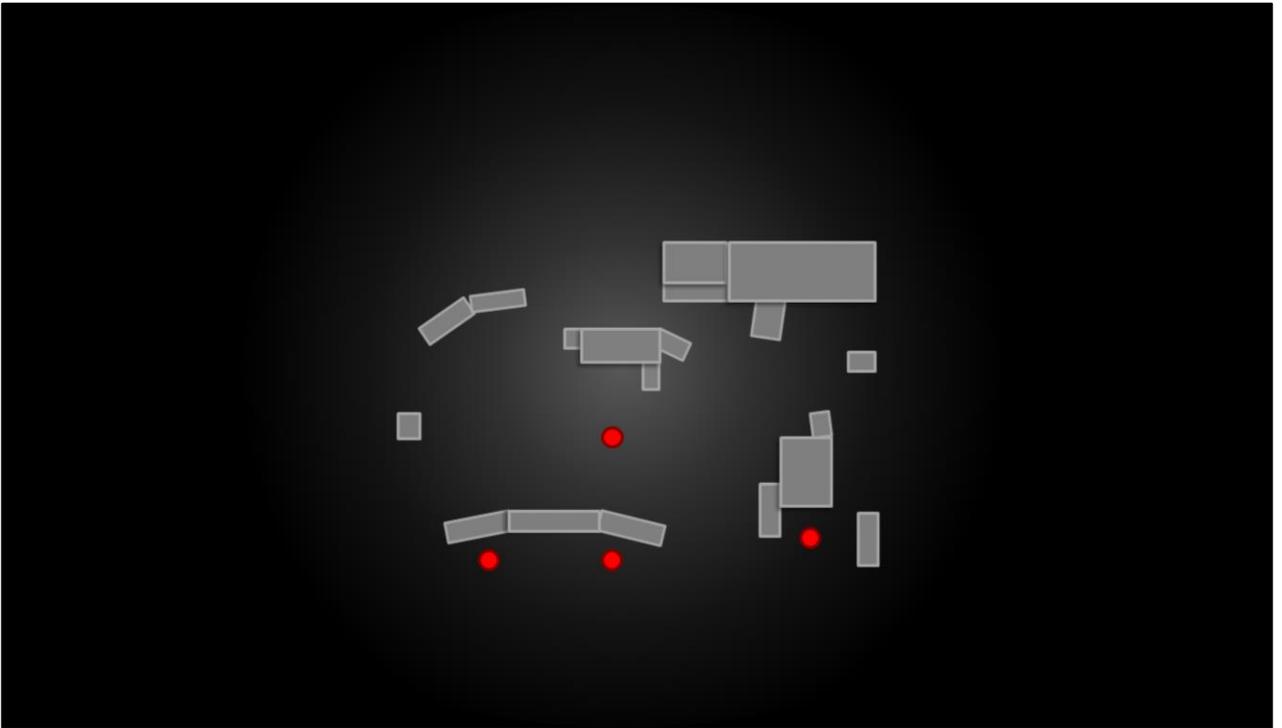
ENGAGING +
REACTIVE
NARRATIVE

- So what are some goals we could have for open world combat design? Actually pretty similar to linear games that Pete and Mike have already talked about.
- We want players to experience encounters that vary in challenge and difficulty, keeping the experience fresh and allowing players to engage with the environment.
- We want players to be able to engage with our combat experiences narratively, delivering a compelling story experience that pulls players through our worlds while letting them create their own unique stories.
- Pete and Mike just talked about this in context of linear games that craft the minutiae of an encounter.
- How do we take these concepts and apply them to worlds where **players govern how they interact with the content?**

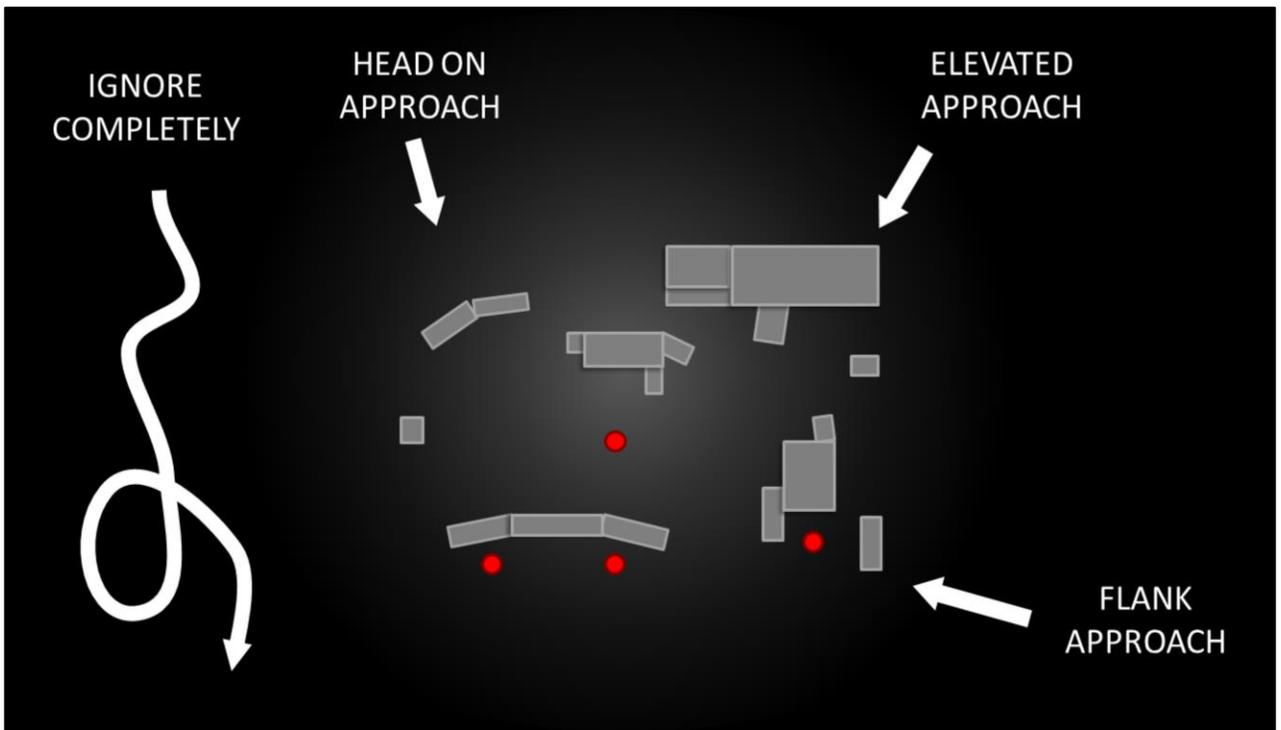
ENVIRONMENT



- First, lets look at environments in an open world.
- Pete just talked about ways physical arrangement of combat space impacts challenge + mood of encounter.
- How does this play in to the different types of encounters players will have in an open world?
- In general there are 2 types of these encounters – DEFINED encounters and EMERGENT encounters – lets take a look at these.



- So, starting with defined encounters.
- Defined encounters are simply encounter instances built for express purpose of combat within open world.
- They give us a chance to create interesting combat spaces for the player whilst still retaining freedom that an open world provides
- Example here is simple topdown of a combat space with some of the elements Pete discussed such as no mans land, flanking options etc.
- Despite structure of open world games varying drastically from linear games, these same core concepts apply to constructing combat environments in any game on the freedom scale.



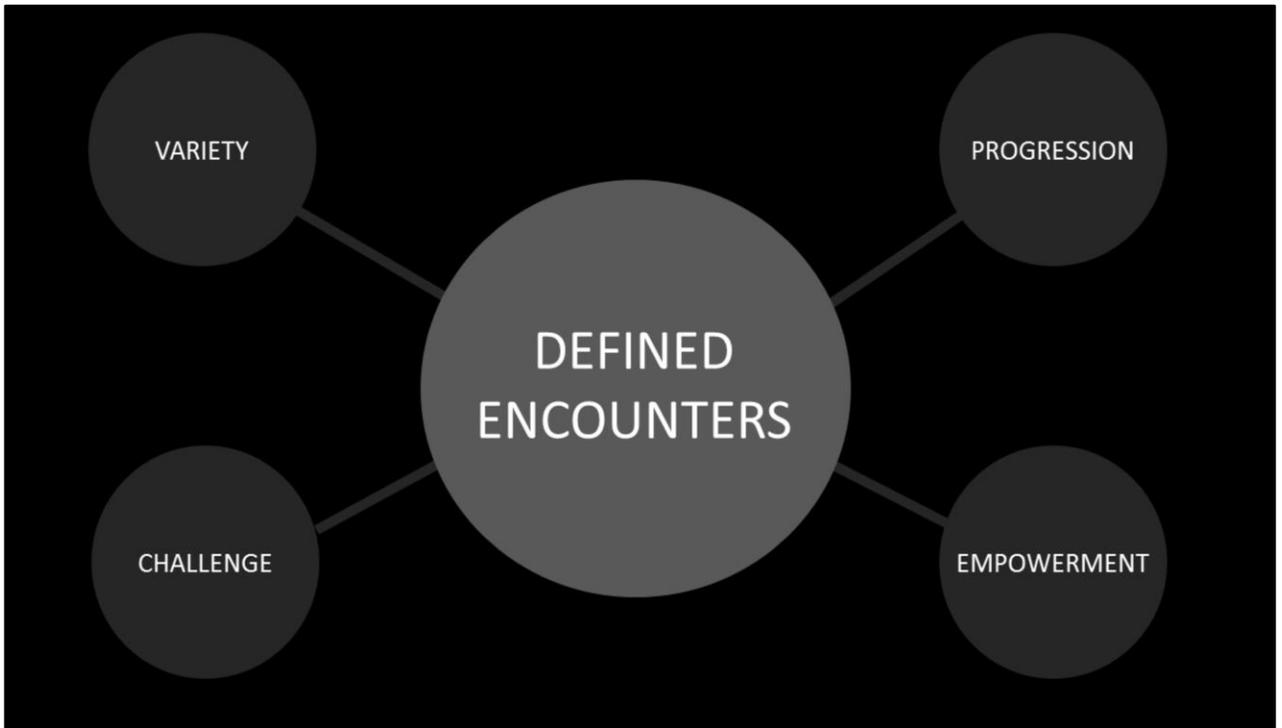
- Key difference for high freedom games is that the player decides arrangement of their encounter.
- This might seem counter-intuitive given that we build envs, but one of key open world strengths is that player has SPATIAL FREEDOM and EXPERIENTIAL FREEDOM – players pace their experience.
- This is 1 of key diff between high and low freedom games – players have freedom to interact with either low/high intensity gameplay, ultimately they craft own experience depending on playstyle and mood.
- Offer players a chance to engage in combat at own pace from approach of choosing (essentially selecting arrangement of combat space).



- Great example of defined encounters that offers player options while maintaining challenge = Far Cry's outposts.
- These are bread and butter of Far Cry – the objective is simple but options many, gives players huge scope to experiment with full array of Far Cry's systems.
- From stealth to action to animal chaos to burning everything, there is wide breadth of ways players can approach combat encounters.

- 
- Ubisoft Level Design Director Philippe Bergeron (probs cant pronounce) gave talk at GDC SF, he said open world encounters are treated as **more of a circular area of possibility than** linear sequence of gameplay beats.
 - Player is free to roam around interacting with all the ingredients in a space as opposed to taking defined routes through an area.
 - As designer of a Far Cry outpost, we can infer goal is to ensure that upon approach of the combat space, player is able to understand applications of ingredients and possibilities,
 - They then decide run in guns blazing or thoroughly scope the area for tactical options (or start a fire and run away).
 - Essentially, rather than dictating flow of encounter, we create elements that **support different flows** that player then exploits as they see fit.

- 
- This philosophy applies to any defined encounter within any game on freedom scale
 - From Metal Gear with its sprawling array of enemy encampments to Batman with its dense network of thug placement, this kind of design is common with any game that gives player the opportunity to approach pre-defined encounters from any approach angle.
 - Our goals when building defined encounters should be informed by the target player experience for the game and that specific encounter.



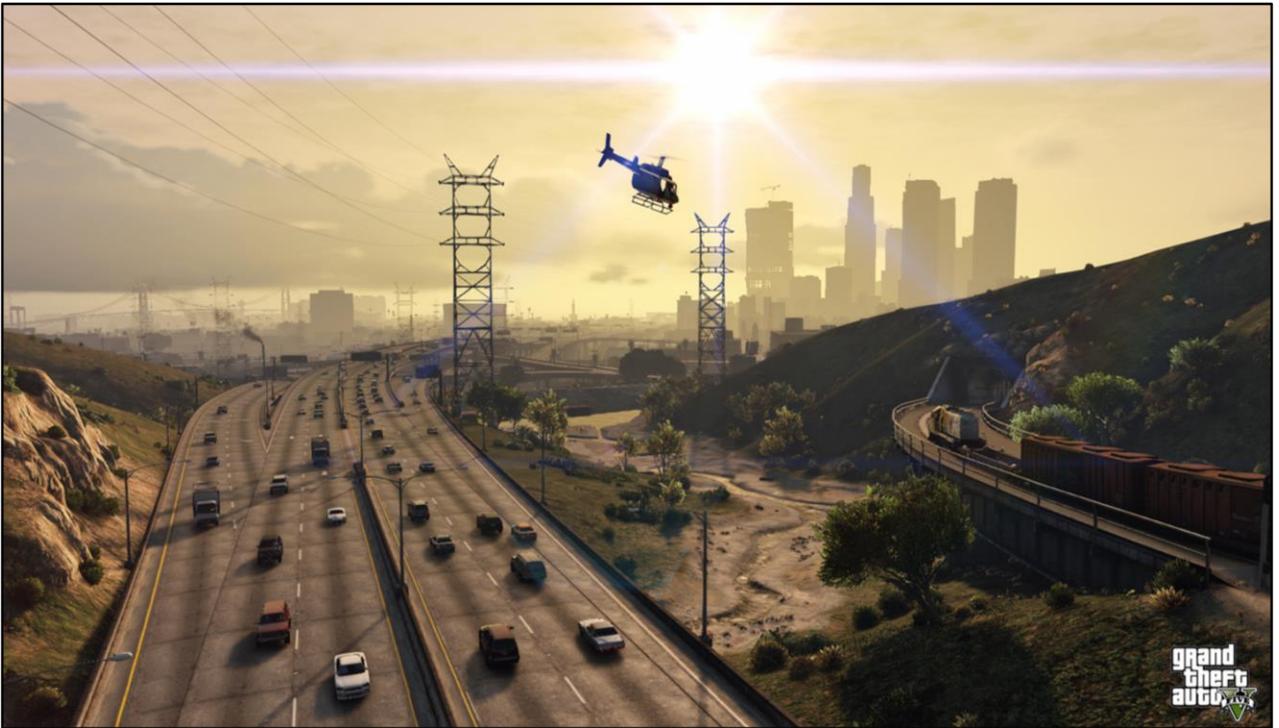
- This can generally be distilled into a few values that contribute to the overall experience of a defined encounter (which I've put up here)
- For example, Far Cry's outposts offer a strong sense of empowerment and keep the arrangement variety high, while Metal Gear puts a lot of focus in ramping up the challenge and mechanics progression as you move through the various story missions and side ops.
- Ultimately, if defined encounters are something that you feel would benefit your open world, these are some of the elements to consider when architecting them



- So on the other end of the spectrum, we also have **emergent encounters** which take place when players and enemies collide as a result of the player's interactions with the systems as opposed to designer placed setup.
- These tend to be inherently unpredictable both in location and in timing, and as such designing environments around them can be challenging. So how do we ensure that these dynamic encounters still deliver interesting gameplay?
- Main element to get right is ensuring that we build worlds with metrics in mind.



- As Pete focused on earlier, this is huge part of interesting combat + both artists and designers need to have these values in the back of their mind when populating an area with geometry.
- Open world needs to support the game's core combat mechanics where possible to ensure that combat can be fun regardless of where it occurs (The Division here is a good recent example of an open world game that supports that)
- However, as designers it is also very easy to fall into trap of chasing the “**perfect space**”, trying to make sure every environment in game has perfect cover options and routes to exploit.
- Important to remember that one of big draws of many open world games is fulfilment of visiting a place that **feels real**.
- Games like Red Dead Redemption and The Division deliver detailed and authentic representations of real life locations, and do a fantastic job of immersing the player in an authentic space.

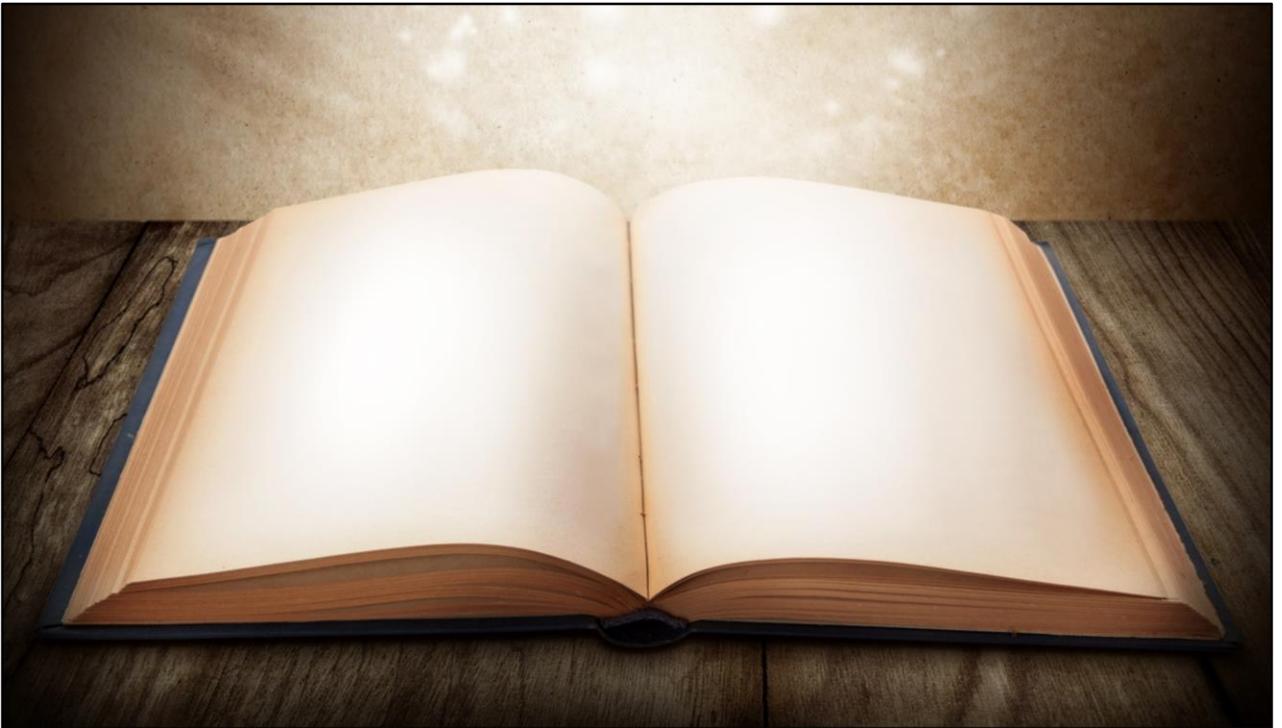


- Would a real life freeway have half height objects every x metres to ensure the player always has cover options available? No, and rather than fight this, open world games can do a great job of embracing it and **respecting player's decisions, both good and bad.**

- 
- If I bail out of a car in GTA in the middle of a freeway police chase and get shot to pieces, I made a bad choice.
 - However, if I recognise the threat and thought tactically about how use environment to advantage, not only have I made good gameplay choices but engaged with environment same way I would in real world.
 - Players happily forgive not having perfect cover and multiple flanking routes if believe in worlds – in fact, generating own combat arrangement in order to best defeat enemies is part of draw.



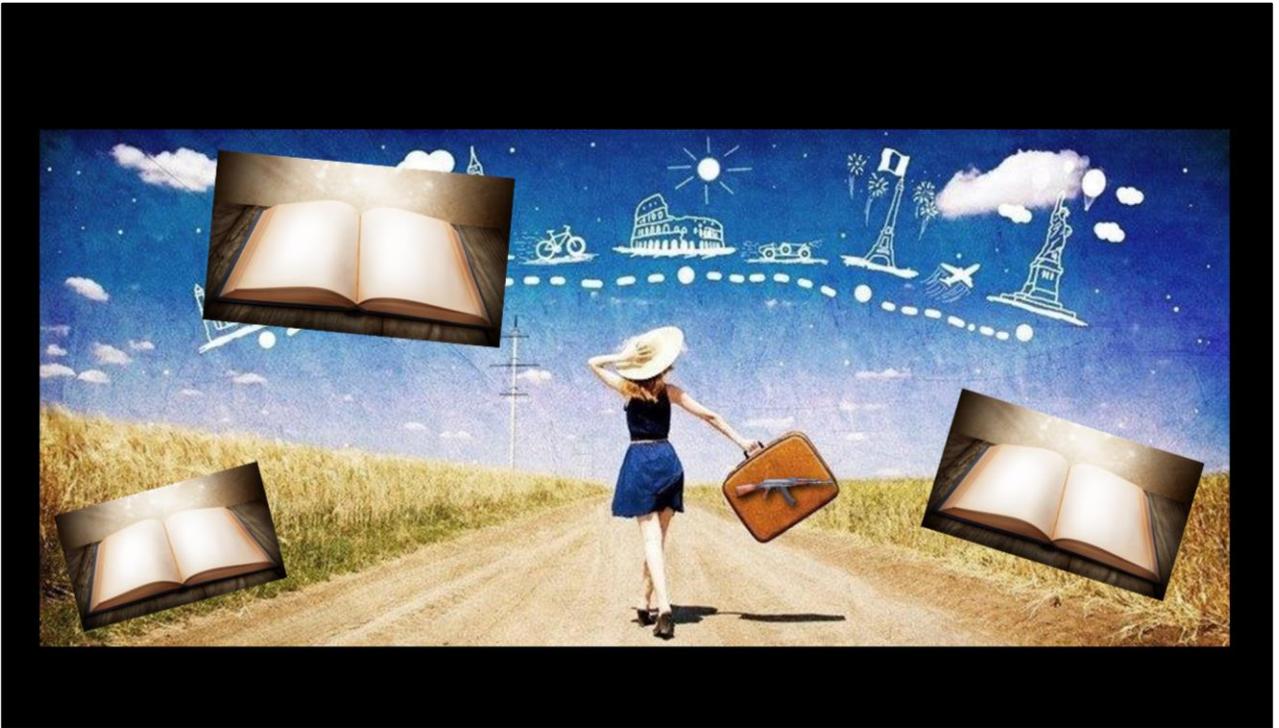
- So, as with defined encounters, we have to find balance – for emergent encounters, we have to decide what balance we want for the player **between authenticity and playability**.
- GTAV would not achieve its sense of immersion in Los Santos with cover setups on every sidewalk, and Batman would not be able to provide for its combat mechanics in a Google maps conversion of the cities used as Gotham’s inspiration.
- Each game needs to refer back to its intended player experience and decide what best suits its world construction when considering how emergent encounters can play out.



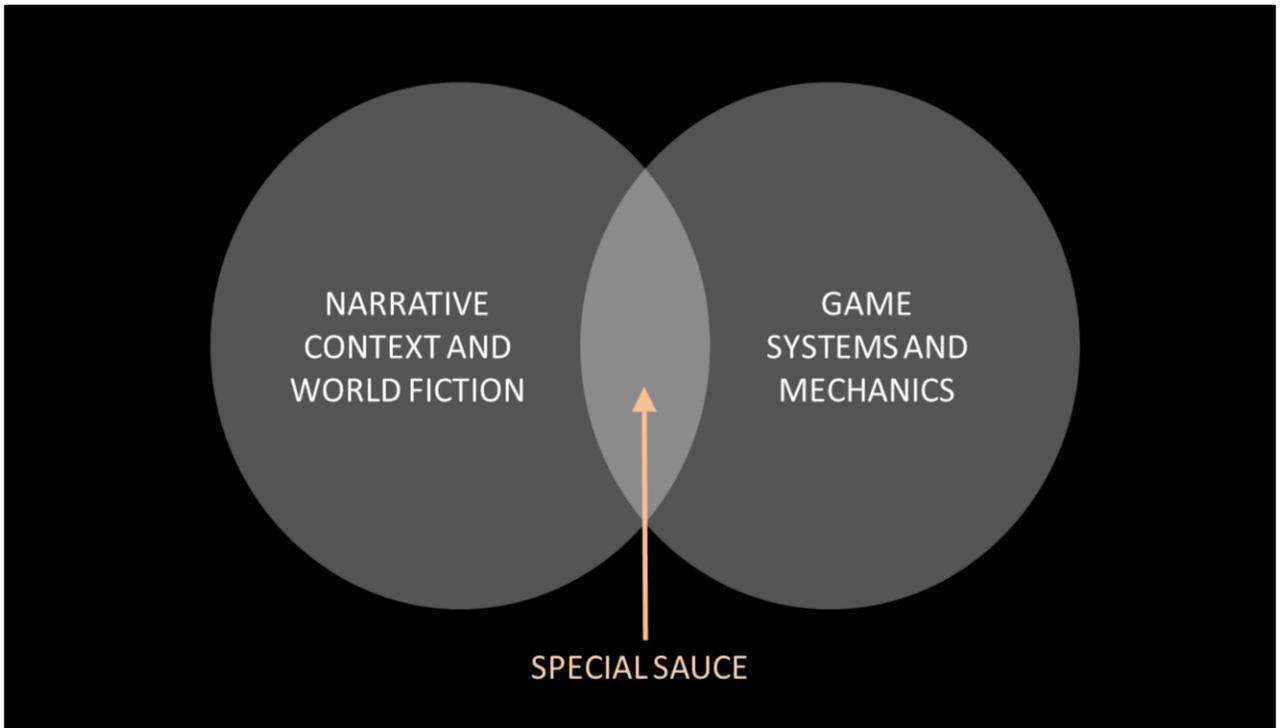
- So - our other goal for combat within our open worlds is ensure that our encounters are informed by and reinforce the narrative in the game.
- One of first things to point out is that games with high levels of freedom **still have option to create missions with combat narratives using similar devices to more linear games**. By constraining the player to scripted events within a crafted environment, story beats can be delivered in more traditional ways. This can provide a nice chunk of designer crafted gameplay to contrast with systems driven experiences.



- A great example is Party Time mission from Saints Row 3 where player is tasked to capture a penthouse.
- As the story goal at this point is to reclaim territory from rival gang, mission goals align directly with the narrative premise.
- Once in the mission, the goal is reinforced repeatedly through scripted cinematic moments that reinforce the goal, dialogue themed around the hostile takeover, and usage of licensed music (Power by Kanye West) that covers similar subject matter to the mission.
- With all these moments coming together, the final experience feels compelling and focused.
- Not only does mission tie in to game narrative, but it also introduces the systemic open world goal of retaking territory for the Saints.
- Coupled with the refreshing change of pace with focused scripted content, and this ended up being one of my personal favourite moments of the game.
- However...



- Important to remember that **strength of open world games lies within their ability to offer players freedom to explore the game's systems organically.**
- Relying solely upon linear content to deliver story within this wrapper misses an opportunity to take advantage of the most compelling aspect of the open world genre.
- The holy grail for any game with high amounts of player freedom is to create a narrative that can **exist in harmony with the game's high-freedom systems, fusing together player story and game story.**



- Games that are able to **craft their open world combat systems to contribute to the overall narrative** are much better placed to keep the player narratively engaged throughout even the most player driven combat encounters, and create truly unique experiences.
- We as an industry are still discovering ways to achieve this, and I don't think it's something that will ever be exhausted – every game is different and as such each one has its own potential to harness narrative in different ways within its simulated world.
- The example in Saints Row I just mentioned uses elements like dialogue, defined objectives and music to reinforce the narrative.
- However, if I engage an enemy patrol that's dynamically passing through the world, at that moment in time there is no important story focus– I'm just exploring the world and colliding with the systems.
- Adding heavily scripted elements like story dialogue would be out of place outside of key objective areas. So how do we create systemic encounters that contribute to our overall narrative?
- To illustrate how this can be achieved, let's look at how we can create mechanics within high freedom worlds that tell stories and reinforce the narrative through combat.



- At a base level, we need to ensure that systemic enemies **have context**. They need to feel like they fit in with the game world and are a believable agent within it.
- Beyond this base requirement, one way that open world games explicitly tie combat enemies to the game story is through **reactive narrative**, as Mike touched on earlier.
- With this we can make the world respond to the player's actions in a way that ties combat into the world and its fiction.



- A common way this is achieved is through ambient dialogue, in both defined and emergent encounters.
- Games such as Batman, Metal Gear and GTA hook the ambient NPC dialogue and radio systems into world events such as the player recently completing a combat story mission.
- Not only does this positively feed back on the player's involvement in the plot advancement, but means the NPCs in question now have THEIR place within the narrative and as such become more than just fodder for the player.



- Ambient dialogue is not the only way to achieve this. Rockstar even went one further with this kind of system and created a police radio response that dynamically calls in the player's actions while being chased by police, down to their vehicle type and location.
- This validates the player's involvement in the game world and adds extra layers of believability to the world as a whole.
- However, dialogue is not the only way we can respond to player's actions!



- Metal Gear not only has its enemies react to story events, but it also changes the loadout of enemies based on how the player has been approaching combat.
- If the player uses a lot of smoke grenades, enemies will start to wear gas masks – if the player attacks a lot at night, they'll wear night vision.
- This adds a further element of player story to the game while also painting the enemies as an intelligent force within the world.
- These are just a few examples, but its clear to see how games can take some of their strongest core mechanics and wrap them in a narrative layer that further pushes the story.



- Finally, one of my favourite examples of an open world that intertwines story goal with its combat is Shadow of Mordor.
- One of the key story goals of the game is to exact revenge on the Black Hand, but to do so the player has to eliminate the war chiefs at the top of the Orc hierarchy (hierarchy).
- The player is able to interact with this hierarchy, assassinating or converting key captains and chiefs in order to elevate allied orcs to positions of power.
- What made this system really resonate with players was the way in which it handles player death.
- Rather than simply respawning the player with the world in an identical state, Monolith designed this hierarchy to evolve as the player fails in combat, reacting specifically to the manner in which the interaction took place.
- Not only does the game promote the enemies that defeat the player, but some can survive and return to mock you, bitter about the specific war wounds you inflicted upon them.
- **This gives each player their own unique combat story and personal connection with the consequences of their failure.**
- Ultimately not only did the system reinforce the key goals of the game story in the core combat design, but it allowed players to create their own unique stories

through their actions, and is a brilliant example of how mechanics can be developed that offer emergent narratives while also telling the more linear story of the game as a whole.

Conclusion



- So to recap, we've just looked at how environment rules affect challenge, believability and player options, as well as how narrative can be reinforced and expanded upon with open world systems.
- By ensuring that we take the time as designers to explore how these elements affect the player's passage through our worlds, we can continue to create moments for players where player freedom and designer intent merge to create interesting and unforgettable experiences.
- Thanks for listening
- Are there any questions?

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UBM

Thanks!

Questions?