

Spatial Principles of Level-Design in Multi-Player First-Person Shooters

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Abstract:

This paper outlines the basic spatial principles of level design in multi-player first-person shooters with special reference to Counterstrike, basing itself on experiment, analysis, and theoretical discussion. In this manner, the paper addresses the following questions: What characterizes good level design in first-person shooters? Which criteria are necessary in the level-design process in order to obtain quality? The thesis of the paper is that a consistent examination of a game's gameplay, its agents, and spatial components is necessary for the development of a design method that would lead to ultimate level design.

Setting off from a theoretical discussion of the terms gameplay and emergence, the paper starts by establishing the basic characteristics of multiplayer shooters. The concept of emergence leads to a distinction of the unique features of multi-play and teamplay, and concepts of gameplay helps us map out the basic spatial properties of the game environment and its staging of player strategies and tactical choice. The key concept in the principles of spatiality in level design advanced here is the so-called collision point; the location that marks the clash of players and hence the set of relevant tactical choices to be made by the teams.

To demonstrate the empirical basis and possible application in practical level design, the paper provides an analysis of a design and a re-design of a Counterstrike

map (de_ type). These experiments demonstrate the pros and cons of various design solutions and point at the basic spatial principles outlined above.

The paper affirms that it does make sense to regard level design as tool for controlling the gameplay and the game's progression. Also it affirms that it is possible to distinguish between good and bad level-design. Five heuristics are suggested as a set of guidelines that could lead to better level-design for practitioners.

Keywords:

Gaming architecture, level design, gameplay, emergence, multiplayer

Introduction

Multi-player first-person-shooters (FPS) such as *Unreal Tournament* and *Counter-Strike* (Sierra) have gained a tremendous popularity in the recent years. This type of games are dominating the variety of the games played in the Internet cafes and are played frequently on local networks or in private homes via the internet. Like other first-person shooters such as *Doom* (Id Software, 1994) and *Quake* (Id Software), multi-player shooters consist of a virtual 3D environment with a first-person-view character that is equipped with a weapon, a mission to accomplish, and an armor to defend oneself against gunshots, knives, and grenade explosions. But compared to

other known shooter games it is not the computer that here is up as the opponent, but other people with skills and intentions like one self.

This simple condition has proved to have numerous considerable consequences. First of all is it now noticeable that the computer game is moving slowly away from its traditional musty image in the private homes and back to the social life where games with no doubt are originated. The fact that multi-player shooters are played with other people as opponents had called for establishments of tournaments with huge awards, in such a degree that the game genre has developed an elite-player level, as was it a sport.

This development has given birth to game cultures where dedicated players compete, watch others compete, and exchange information on tactical and strategically maneuvers to optimize the winner odds.

Secondly—and that is this text's approach – is Multi-player FPS a fundamental different type of game than single-player games. Where single-player shooters are structured as often a predefined number of serial challenges (“monsters”) to which the player is confronted through an organized spatial route (through corridors, hallways, shafts etc.) is the multi-player game much more unpredictable. The task here is not to accomplish a course of events, but a mission and attacking enemies that aren't preprogrammed challenges but actual opponents with own goals and tactical competence equal to one self. In that sense, the goal is no longer an optimal completion of the game (according to time, killed “monsters” etc.) but simply to *win the game*, which in this case means defeating all the opponents in the played game. Further, the task in for example Counter-Strike is to fulfill the mission as a team, partly because the individual player is to join a team when the game starts and partly because assistance from team members is absolutely necessary to win the game. This team-orientated structure has naturally contributed to the establishment of unique player environments outside the game.

The fact that the player is not dragged from one event to the other but is offered a game environment that supports teamplay and different play styles, states that the principles for level-design (the creation of playable virtual game environments) are quite different from the single-player games.

For some time level-design have interested players of first-person shooters, not just because the level-designs with their possibilities, secrets and potential errors in nature have fascinated the dedicated players, but also because it has been possible through relatively simple software for the players to design their own levels. This possibility did already exist with single-player games as for example Quake, but became much more attractive in connection with the multi-player genre. The highly popular and properly most played multi-player first-person shooter, Counter-Strike, contains in that way a variety of levels, so called “maps” developed by the players themselves. Counter-Strike was actually created as a MOD (modification) to the single-player FPS game Half-Life (Sierra, 1998). The modification Counter-Strike consisted of changes of the rules, characters etc. with the intention to create a team-based multi-player game with an anti-terror plot. Counter-Strike later became a part of the retail Hal-Life game but is also available for free download at the publishers website¹

The reason why applied level-design in that sense is much more interesting for the players of multi-player games is first of all that it is relatively easy to distribute and in that way to expose to other players. The levels (maps) are just compressed and uploaded to a network, the same network that the players uses for playing the game. The development of Counter-Strike maps had become an open source initiative where not only maps but also experiences and opinions are exchanged with no consideration to copyright etc. Secondly is design of good levels for multi-player FPS a far more complicated matter than levels for single-player games, because the player is a part of a team-based gameplay.

¹ URL: <http://www.Counter-Strike.net>

Because the game here only consists of units controlled by humans in real time and that the levels as a minimum must provide possibility for the players to make choices through the game session according to own and common tactical considerations, has it shown it quite difficult to predict the progression of the game session on the different levels. The number of variations of the game sessions is theoretically infinite and the single session is in itself total unpredictable as well – the game emerges which means arises unpredictably out of the united system of rules, level-design, player behaviors etc. The same occurs in the game Chess, among other games, except that the level-design as such here is a great deal less interesting. It doesn't make sense to rearrange the design of the chessboard.

Though level-design for multi-player FPS is somewhat complicated, are players able to work out tactics that would make it easier to win a game session on the specific level. At the same time do designers of levels for multi-player shooters seem to have some sense of what is working and why, in matters of spatial structure in this type of game. The conclusion must be that designers as well as players share the same notion of how to create a good level and how the game is won. Notions that might be more or less aware to them and probably are dictated by diffused principles. Even though some texts are available on this subject doesn't it seem succeeded for anyone to clearly deduce these principles and explain them, that is establish a theory that would be able to clarify these design principles. The mission is to give it a try in this text. The ambition is not to embrace all the spatial aspects of multi-player shooters, but to set up the essential principles (heuristics) for spatial design of good multi-player shooter levels. The main aspect of this work has been a series of experimental level-designs for Counter-Strike as well as a theoretical and analytical framework with the computer game field and virtual spaces. Both aspects have been carried out as research, teaching and student assignments at The IT University of Copenhagen.

As an opening will two terms be introduced, *gameplay* and *emergence*,

which seem useful in the understanding of level-design and the gaming experience. Hereafter follows a short description of the game Counter-Strike, the game rules, level-design structure and clarification of the spatial problematic elements that faces the level-designers as well as players. In this light the self-conducted level-design experiments for Counter-Strike are brought forward. These two level-designs are based on analyses of existing Counter-Strike maps, which lead to the creation of these levels that later on was tested and evaluated by Counter-Strike players. These level-design experiments did finally lead to a line up of heuristics for level-design to multi-player FPS.

The term *gameplay*

The term *gameplay* is often used to judge and describe a computer game's qualities. The meaning of this term is discussed since it first appeared, but it seems that a agreement is reached that the term judges the game's ability to offer the player qualified choices and options, how these are accessible to the player and in what degree they are relevant to the player's in-game situation.

According to level-design in the FPS genre the term can be translated to in what degree the player can make use of the level and the rules, in a sense that seems meaningful compared to what the game's concept is suggesting. Hereby means how the player is able to seek cover, if it is possible to carry out strategic and tactical solutions in the game session, if the game goal is at all accessible or if one of the teams is favored as a result of a poorly designed game architecture.

In single-player games in the FPS genre, this is noticeable in terms of what possibilities the player is given, to confront and defeat the ongoing challenges. Or whether the player is given possibilities to think and act in a creative way and in that sense solve the problems in better ways, or to what extent the game is reduced to monotonous conceptions, in which the player just has to improve his skills. Shortly is *gameplay* about which challenges meet the player, confronted to the player's ability, given by the game, to

solve these problems. The greater freedom to act, and thereby opportunity to solve problems in a creative way according to the game universe, the greater gameplay value is offered the player.

In Counter-Strike it can be argued that the gameplay term is divided into two terms. First there exist the possibilities to the individual player, but since the game is team-based is it meaningful to state that there exist separate possibilities for the players regarded as a team. The individual player is confronted, in his way around the level, to more or less usable opportunities, which influences the ongoing tactical decisions. Different spaces, distances and possibility for cover, generate different tactical decisions.

Furthermore is the individual player a member of a team to which the player has obligations, but from which he also can benefit. To play as a team engages therefore not only decision making that concerns the individual player alone, but also decision making that involves the entire team. The player is therefore forced not to play for his own victory alone, but also for the success of the team. This does not indicate however that the player finds himself in a non-authoritative position, but that different strategies and lines of action refers to different social player hierarchies. More clearly does the individual player has possibilities of his own, but these are limited/displayed by the interaction with the team members and by the possibilities offered to the team as a group. In that sense is it, at the same time, important that a Counter-Strike level makes such a strategic planning of the *team's* actions possible, since the game session otherwise is characterized by decisions made individually, which ends up eliminating the team based structure of the game.

Gameplay in Counter-Strike therefore engages to what extend the players are capable of playing as a team and in that sense believing that this teamwork is essential for winning the game. Simply, that the game is allowed to emerge by virtue of the teamwork.

Counter-Strike: game structure and maps

In contradiction to almost every other multiplayer-shooters, Counter-Strike is developed especially for multiplay and not as a singleplayer game with multiplayer facilities.

The game is, as mentioned, a team based battle swept in an anti-terror theme where two teams fight each other, from this the title "Counter-Strike". The player chooses to play either as a "terrorist" or an "anti-terrorist". According to which kind of game session is played, the anti-terror corps task is to try to rescue a few hostages, protect and escort VIPs (very important persons) or preventing the terrorist team from placing and detonating a bomb at a specific target located at the level. The terrorists' tasks are, on the other hand, to prevent the anti-terror team from fulfilling any of their goals, or in the case of the bomb game session, to fulfill their own mission. The game can also be won by simply exterminating the opponent team. If the team holding a mission is wiped out, is the mission then obviously unable to fulfill. At the same time is the mission to the mission holding team easy to fulfill, if the opponent team is wiped out, and therefore meets no resistance.

One game session lasts for three minutes and if the mission given one of the teams is not fulfilled within this period, the team holding the mission has lost the game session. The three different game sessions don't have actual names, but the level names are initiated either by "cs_", "de_" or "as_" corresponding to either a hostage-, bomb- or VIP- game session.

As the game session starts the players are to choose an avatar to play on one of the two teams. The avatar can be chosen manually or automatically. Each team starts (spawn) at a specific location in the level and the mission bound to the level is restricted to the location as well: a bomb that is to be planted on one of two targets, hostages that is picked up and rescued from targets located at the level or the VIP that must be escorted to a specific area in the level. A level is therefore connected to numerous starting and mission locations. At the start of each game session weapons can be bought for the money won by the team or the individual player earned by

winning previous game sessions. The players can choose between several weapons, which are simulations of weapons used by topical terror forces or are common in the NATO and Warsaw-treaty countries. As the players win a game session they are given points (money) according to how well the mission is fulfilled or how great a loss the opponent team had suffered. The winning team is given more points by fulfilling the mission than by exterminating the opponents. In addition is each player awarded for every opponent he has killed. If hostages are killed points are subtracted from the score. The points won are immediately converted into money from which the players can buy weapons for the next game session and so forth.

In Counter-Strike is the rigid game structure containing missions, starting points etc. incorporated in the level-design. The by designers used term “map” for the level, can therefore be seen as inadequate in that sense that a Counter-Strike map not is a “map” in the common sense, but a file containing a code that renders the level. So when the game’s spatial structure with the missions and starting points etc. is incorporated in the CS map and as the map is not just the virtual environment alone, but the file used for producing the environment with data about light, sound, polygons, entities, scripts etc. is it more adequate to see the term “map” as a spatial abstraction of the level that in that sense can be seen more as a actual map than a continues 3D-invironment. From a visual point of view are the most played levels for CS characterized by an adapted realism, at least compared to the environments seen in the *Quake* and *Doom* games. Carefully chosen lights, textures, proportions and modeling etc., create this realistic impression, a realism that only limited is connected to the actual terror-theme of the game. Cut-scenes are not used (narrative non-playable movie clips) or other attempts to attach the game to a narrative structure. On the contrary is this (anti)terror-theme rather thinned out by the strong structure of repetition as the game with its short duration, fast pace, weapon-buy-system etc. provides for. Besides from

being “non-fantastic” contains the visual realism also a thematic homogeneity on the individual level. The choice of light, textures etc. seem to be motivated by a unique level-style in architecture and atmosphere, for example “a desert fortress” (de_dust), “an Italian mountain village” (cs_italy) or “an oil plant” (as_oilrig). According to discussions in the CS game-environment does this thematic homogeneity in the visual style seem to have a significant importance to the players, though most discussions concerns the game rules, strategic issues and how to get from A to B without getting shot. Though the stylistic aspects of the audiovisual expression are interesting is the chosen focus in this text on the spatial and structural aspects of level-design alone, in this game genre.

The Spatial Structure of the Game: Collision Point and Tactical Choice

Game environments for multiplayer-shooters like Counter-Strike can be seen as disconnected from a narrative and thematic context; a context that is more easily established with cut-scenes and a pre-defined series of tasks and challenges. In multiplayer games is it more adequate to see the environment as a kind of virtual football court or paintball court where two teams meet and only one of them wins the game. On singleplayer game levels, where the events arise in series triggered by the player, is the multiplayer level in contrary a far more static environment where the player is to use and benefit from the game environment in a creative way. And where many singleplayer levels try to have an opening in both ends as gateways to other levels, are the multiplayer levels completely confined. The player can only exit from the level when the game is over.

Multiplayer game sessions seem to be connected to one or several *collision points* where the game often is being settled. This (these) point(s) involves a series of *tactical choices* by which the team and the individual player can prepare themselves for the collision in the best way. This series of tactical choices is initiated by a choice of weapon and is

typical ended with a choice of way of confrontation: should you hide as a sniper in the central narrow hallways, should you run quickly across the level avoiding getting hit etc. And finally must the “law” of the gun be respected: to see others without being seen yourself and shoot others without being shot yourself.

Collision points

Levels for Counter-Strike are made to be played over and over again and it is obvious how, with this frequent use, a pattern of interaction becomes visible. The same patterns are visible on maps showing tactical strategies exchanged between hard-core Counter-Strike players. The patterns are formed as a result of the spatial design and the players’ behavior. The players use tactical maneuvers that already had led to success on this level, which rely on more or less intentional theories on how the game is won. These tactics are all formed by the level’s collision points, points that are products of the teams mission based routes intercepting each other one or several times on the level. This interception is of course necessary if the team, which task is to prevent the other team from fulfilling their mission, should have a fair chance of winning the game. The fact that the two teams routes intercept is therefore exactly what is necessary for the actual game to be created. It is not in principle necessary for the two teams to meet, but in case they don’t, the game will be reduced to a race against time, which the mission-holding team soon will learn how to win.

The collision points do not exist predetermined on the level, but are created as a consequence of the tactics the individual players and teams chooses to use in the individual game session. The point’s location is furthermore also a result of the distance between the two teams’ starting points and the location of hostages or bomb targets, which are the goals of the missions. In that way is it in some degree possible for the experienced player and designer to predict where the collision points will occur, and further on, how the game session in a big scheme will progress. An example of this can be seen

on this schematic plan of the place-the-bomb level *de_dust*

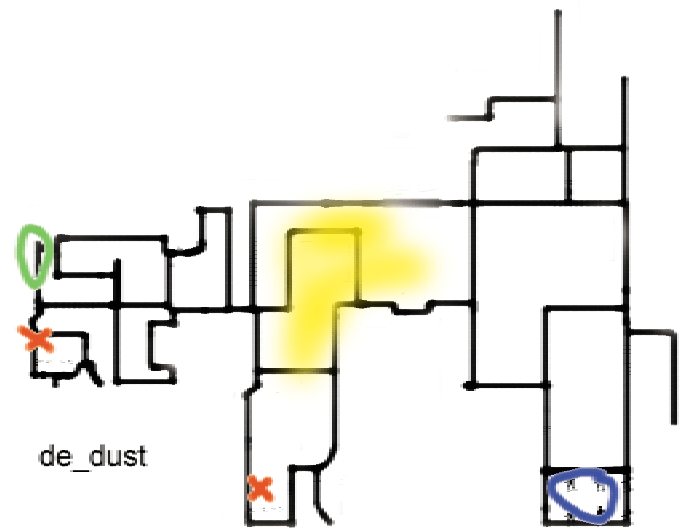


Figure 1: The collision point is marked with yellow, terrorist starting point with blue, anti-terrorist starting point with green and the two bomb targets with red. The black lines indicate primary access roads.

As marked on the figure does the collision usually occur on the middle area of the level in the zone that divides the two teams’ “half’s of the field”, which is the half’s that surrounds the two teams’ starting points (the anti-terror team on the left hand side, the terrorist team on the right hand side). It is the terrorists’ task to pass this dividing zone to reach the two bomb targets. This fact is often obvious to the anti-terror team and *their* best tactical disposal is therefore to try to prevent the terror team from passing this area. In that way are the collision points occurring in the zone where the anti-terrorists await the terrorists. As the terrorists have to pass this area to be able to fulfill their mission, within the three minutes, is a confrontation of the two teams therefore inevitable.

As seen on the figure, is the level designed in such a way that the two teams are able to reach the collision zone almost simultaneously, as the distances from their respective starting points are

approximately equal. The collision zone is equipped with fairly many objects usable for affording cover to the players, as well as the area provides differentiated height of terrain and projections in walls and barricades that in the same way is suitable for momentarily protection.

In that way is this area from a gameplay point of view the most interesting on the level. It is where the possibilities for fighting intense battles, conducting surprisingly attacks and by these means, test and develop tactical maneuvers that lead to victory, are greatest. This of course implies for both teams. The area, containing the possible collision points, is for that reason most important in the level-design context as well as to the play carried out in the level.

The collision points, as here stated, occur as a result of the players' behaviors and the level's spatial and structural design. The players are hardly aware of the points' existence – the collision point term doesn't seem to exist in the player forums on the Internet – but in this level at least, does it seem very likely that the designer did conduct the design in such a way that the action climax is meant to occur within this collision area.

It is obvious that the area containing the collision points, clearly separates itself from the rest of the level on “de_dust” and that plenty of work has been done to create a, in a gameplay context, interesting confrontation exactly in this particular part of the level.

Tactical choices

To focus on the spatial structure of the game in Counter-Strike is here three examples of fictive playable level-designs. All three designs are of the type de_ (bomb mission), which indicates that they consist of a starting point for each team and a target for placing the bomb. If the terrorist team succeeds in placing and detonating the bomb on the right place and in the right time they will win the game. On the other hand if the anti-terror team kills all the terrorists or prevent the bomb from charging will they win.



Figure 2: Example A

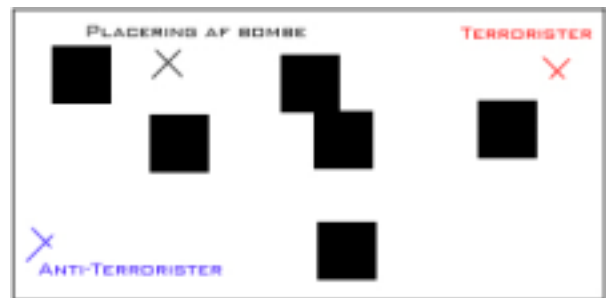


Figure 3: Example B

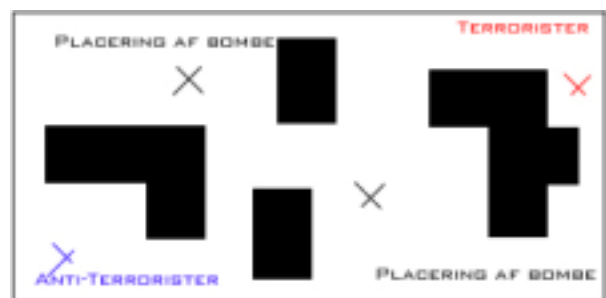


Figure 4: Example C

Example A is a highly simplified level-design. Four walls define the borders of the level and in that way also the play's limitations.

The two starting points are furthermore marked as well as the mission-related target for placing the bomb, which the terrorists need for fulfilling their mission.

A played game session at this map example, will of course last for quite a short while, as both teams are able to see and hit each other at the very beginning, since no cover or tactical choices are possible. This level will generate a game session that according to the Counter-Strike game rules:

1. is winnable.
2. is quickly played through.
3. needs possibilities for the players to make tactical decisions in order

to fulfill the mission. The only possibilities the players are given are to shoot and move.

4. renders the mission superfluous as a tactical opportunity: it will be impossible to place the bomb before getting shot by the opponent. The only possibility is to shoot the opponent before getting shot yourself.

Example B is a somewhat different type of level. The most significant and visible difference compared to example A is that the empty space now is prepared with a number of static objects. The primary function of these objects is to afford the players full cover. This indicates that the objects cover an upright player completely. The objects are in this way useable in a tactical planning and thereby contributing to enhance the chances of winning the game through consideration and creative solutions. But when it comes to the level's mission objectives is this type of level still insufficient. The level does, as before, only contain one target for placing the bomb. This indicates that the opponent team, the anti-terrorists easily can predict how the terrorists will move about, which again will result in a massive cover and defense of the bomb target. The final outcome is that the terrorists are unable to fulfill their mission in any way. This level will generate a game session that according to the Counter-Strike game rules:

1. is winnable.
2. is quickly played through.
3. does in some degree contain possibilities for the players to make tactical decisions in order to fulfill the mission.
4. does in some degree render the mission superfluous as a tactical opportunity: as only one bomb target exists are the chances for the terrorists winning the game quite minimal. In that sense are the anti-

terrorists favored on this type of level structure.

In example C is the new type of level enhanced by several objects that in different ways are organized according to each other. Each team starts, as in the two other examples, as far apart from each other as possible. The new objects forms an inner-zone that provides cover in the starting phase. In addition to more objects and one more target for placing the bomb are added in the middle. The scenario with now two places for placing the bomb has the consequence that the terrorists now can to fulfill their mission in two ways and thereby obtain actual chances for winning the game. The anti-terrorists therefore now need to come up with a strategy to prevent the terrorists from fulfilling their mission.

A minimum of choices valuable to the players has in that way been added to the level, which increases the quality of the level from which both teams will benefit. By deliberately making creative use of these choices and possibilities can all players contribute to making the game both entertaining and winnable for both teams. The design of the level is now a part of the game, a part of the gameplay, where it, in the previous examples, was a playground where upon the play took its place. This last type of level contains, compared to type A and B, more options and possibilities for making consistent and qualified choices during the game session, that again results in a better gameplay. To summarize generates this last type of level a game session that according to the Counter-Strike game rules:

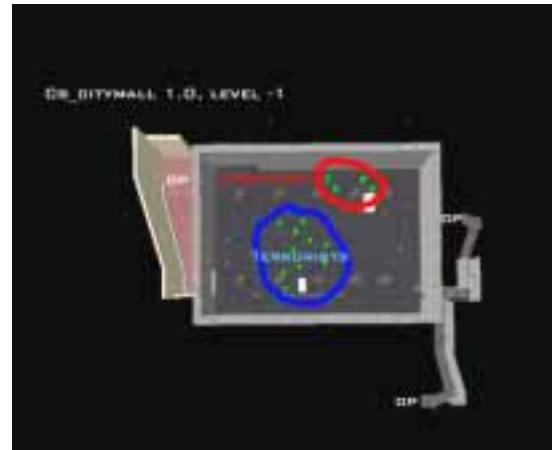
1. is winnable
2. can last for quite some time
3. does in some degree contain possibilities for the players to make tactical decisions in order to fulfill the mission
4. enables and motivates the terrorists' desire to place the bomb on one of the targets and thereby win the game

Level type C is, as stated above, a fictive and very schematic example of a level-design and it is therefore not guaranteed that the level actually is fun playing in this state. Absent is information about relations to the space such as scale, colors, number of players, size etc. Here is though given schematic examples of what elements can lead to an entertaining and good gameplay on a Counter-strike level. Elements that make it possible for the players to *use* the level's design and in that way feel more in control of the game session's progression and outcome.

Level-Design Experiments

During the work on level-design it was evident to put the theories into practice. It is not always sufficient just to evaluate the existing material to clear out strengths and weaknesses. By producing different types of level-design for Counter-Strike oneself, is it possible to a higher degree, to investigate what specific problems will occur during the design process and what problems these would lead to in the finished design. Shortly follows a description of two self-produced levels to show how complex a design a Counter-Strike level is and how few elements determine whether the level turns out to be a success or failure.

The first level is of the type cs_, where, as mentioned, the anti-terrorists task is to rescue a number of hostages. The theme of the level is a city-mall, therefore the level name cs_citymall. The core idea was to develop a level that was quite big and had a lot of varieties concerning light and spaces, as well as distributing the atmosphere of being in a city-mall. In addition was the intention to emphasize the quality of a vertically orientated design instead of a horizontally as most of the official levels for Counter-Strike use. The design was hereafter developed with this very architectural approach in mind. The following pictures show screenshots of the in total four levels the level-design consisted of.



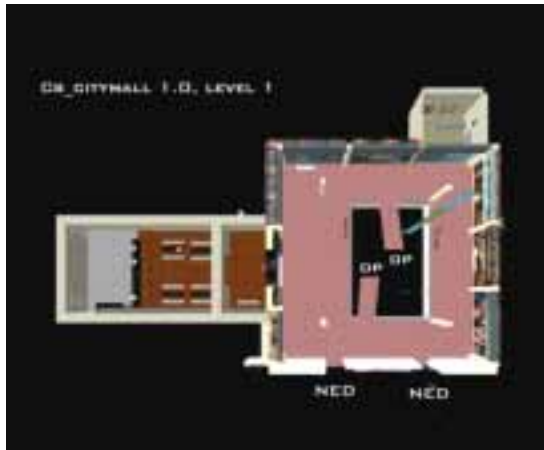


Figure 5: The four levels of the cs_citymall map

The main idea in the design was that the triple high space in the center of the level would mark the center of the player action. This wish did meanwhile not come true. Even though this room was the most evident for the center of the action concerning light, spatial qualities and cover options, did the players collide in a completely other area of the level, where almost no cover was available, because the collision points wasn't anticipated in the design phase. The end result was, from a gameplay point of view, that the most interesting rooms were used least and the less interesting the most. Subsequently did the location of the collision point had the outcome that almost half the level wasn't used with the average number of 8 players playing. Even though the level was big, visual appealing and in many ways satisfying from an architectural perspective, didn't it also automatically result in fun game sessions and good gameplay. The location of the collision points did in that way pin out very clearly, that they had a tremendous influence on the game sessions progression on this level.

The other level experiment was of the type de_, where the task of the terrorists' is to place a bomb on a specific target. This level made use of the same theme, the mall, though it here was quite smaller in size. De_shopping, as it was called, was characterized by a highly horizontal structure and did mainly consist of two

spaces, an exterior and an interior as shown below:

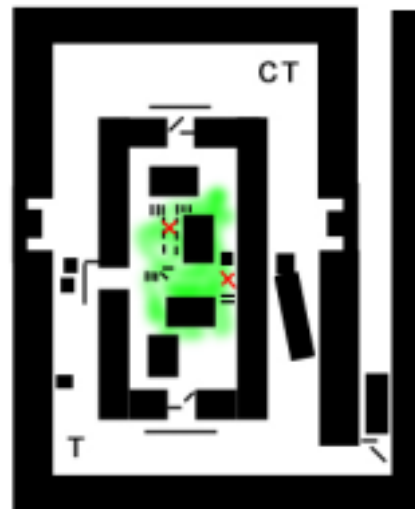


Figure 6: plan of the level de_shopping

The intention by this division was to control the progression of the game session as much as possible. Both teams had their starting point in the exterior outside the mall. The mall is marked in the center on figure 5, which contained two targets for placing the bomb, why both teams were forced to enter the interior. The result became that the collision occurred in the mall close to the bomb targets. In contradiction to cs_citymall was the center of the action now similar to the climax of the level, the bomb targets, but also where it was intended, in the area where the possibilities for cover and tactical planning were greatest. In that sense was the likely progression of the game session incorporated in the level-design. From the beginning was the intention to force the players to collide at a specific location and then design this location in a way, so the demands to this collision were fulfilled in the best ways. The design phase was, compared to cs_citymall, opposite in the sense that the design was conducted with a specific gameplay in mind, not with a specific architecture. Put in other terms, was the focus here the usability, not the visual appearance.

Design heuristics

The far greatest challenge concerning level-design in multiplayer-shooters is to create a level that is fair and entertaining to all competitors and where everybody is given the same chances to win the game. As a basis must the design make it possible for the players to meet each other and preferable within a shorter period of time. From here on can the action begin and the game can start.

To concretize what such a level-design, which facilitate these demands contains, was a few guidelines conducted, which could lead future designs to more useful and entertaining products. Especially the demand concerning equality for all opponents is far more complex to obtain than at first glance, without any previous knowledge regarding which elements influences the game session.

Gameplay values

The level objectives

The objective indicates a task that one of the teams must reach and which the other team must prevent the first one from reaching. The objective consists in this matter, with two teams of players, of two tasks: one task that is dictated by the objective and one contra-task designed to prevent the first task to be carried out. This objective is the main ingredient in the level in order to motivate the players to play the game. If the objective is absent, the game will seem not to have a purpose and the dividing into teams would be needless. A level-design in this category therefore requires two teams fighting and reaching for one objective, each team given their own unique task.

The design of the level influences the ability to reach these objectives. If this isn't possible has the level failed from a gameplay perspective. As an example has a design failed if it isn't possible for one of the teams to place a bomb on a bomb target, because it either is extremely difficult to find or is located in a dead-end passage where the opponent easily can kill the player trying to place the bomb, or if the design in other ways oppose the player's intentions.

The level's collision points

By calculating where the players most likely will meet (the collision point) is it possible to predict whether the gameplay is balanced. This regards the two teams chances of winning the game that should be fair and somewhat equal. In addition does it regard the spatial design of the collision point(s) that should be carried out in a way that it complies with the expectations the players might have to such an area concerning cover options, view, choices etc.

Level-design values

Level orientation

Textures, architecture and structure can in the right mixture contribute to good orientation on the level, but moreover does the wrong mixture result in decreasing of the orientation. A limited number of large easily recognizable objects in the level, increases the orientation, whereas a lot of similar textures, poor and bad lightning, many identical objects combined with similar types of spaces, contributes to disorientation. Players need visual elements that differentiate from each other in order to orientate properly.

Level architecture

All locations and surroundings should have a purpose in relation to the game, otherwise are they not used by the players. To make a level-design that is completely dictated by an architectural idea that belongs to the real world is for that reason rarely useful. The level is a part of a game that is to be played by players. The level should in that case, as a minimum, meet the demands concerning playability. This indicates that the design should be relevant in a game context in any way. The design should be dedicated the players who wants to play a game, the visual entertainment does only contribute to enhancing the total experience, not to win the game. In that way is it important to make every aspects of the level as useful as possible and that

these aspects are able to enter a game related context. Sudden dead-ends; places where the player can get stuck, doors that can't open and total darkness are not appreciated features, as they oppose the players' intentions.

Game type

The level for multiplayer games

Counter-Strike is a game with two opponent teams. The individual team is dependent on the effort of the individual player that again affects the overall team score. If the team fulfills their goal, it is rewarded with more points than by eliminating the opponent team. The game is therefore more effectively won by a united teamwork that fulfills the team goal. An optimized level-design that provokes team play can increase the game experience as well as ensuring the team's ability to fulfill it's goal.

This is possible by creating spaces and surroundings that as a minimum can hold several players at the time, that is leaving out areas and spaces which offers the players very few possibilities for escaping, such as small and narrow spaces, dead-ends, rooms with only one entrance/exit or other types of spaces that strongly decreases the players' options.

Conclusion

To summarize is it in this text stated that a level-design for Counter-Strike and other FPS multiplayer games is composed by several factors. The completed level-design, that the players can use, contains considerations on gameplay, theme, architecture and structure that all are parameters that defines the qualities of the level. It is in that way not sufficient only to design a physical setting for the game. In other terms, levels contribute with forming the game. Through this knowledge it can be stated that it makes sense to differentiate between good and bad level-design according to this game genre.

The level-design very clearly effects the player's understanding of and interaction with the game and by this means has an huge influence on whether the overall game experience is perceived as good or bad. In that case is the overall conclusion that a carefully prepared level-design is necessary if both players' and designers' expectations to a good multiplayer game should be fulfilled. It is, in that way, by all means valuable to use different theoretical tools in the design phase when producing levels for Counter-Strike and other games in this genre. By the use of such theoretical tools and the considerations caused by this use, is it possible to control the design in a way that the intended gameplay actually becomes a reality during the game session.

The player is thereby not becoming the loser in the complex process of designing 3D environments to the multiplayer game genre. The various factors that influence the game session in this genre are, with a little help, possible to control. It though requires significantly more consideration regarding the needs of the player and how this interacts, compared to the singleplayer genre. That is though not to be recognized as an evil, since the reason for the popularity of this particular game genre probably is found here. The many options and absence of predictability are motivating the player, why the essential task of the level-design is to intensify these qualities and make them achievable in a creative and adequate way.

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