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**GATE**

**2013**

**GAME AESTHETICS**

**GATE 511**

**GAME ANALYSIS REPORT**

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# 1. INTRODUCTION

In this report one of the successful games, Limbo, is examined in terms of game aesthetics. As a visual art game, it is analyzed in respect of visual elements like color, tone, light-shadow, space, screen division, movement, contrast-affinity, lighting, placement, user interface, interaction and narration. In addition to visual elements, game features and game play is explained to analyze the connection between the art style of the game and game itself.



Figure 1- Limbo special edition set

## 2. ABOUT THE GAME

Limbo is a single player, puzzle-platform video game.

### 2.1. PRODUCTION

It is developed by a Danish independent game developer company Playdead. The game firstly was released in 2010 for Xbox platform. PlayStation and Windows (Steam) support were added one year later. Then Mac OS X version was released in December 2011, while a Linux port was available in May 2012.

#### 2.1.1. SUCCESS OF THE GAME

Limbo was the third-highest selling game on the Xbox Live Arcade service in 2010 with \$7.5 million in revenue. The game won several awards from industry groups after its release, and was named as one of the top games for 2010 by several publications. Here are some of these awards:

- Gameinformer's "Best Downloadable"
- Gamespot's "Best Puzzle Game"
- Kotaku's "The Best Indie Game"
- GameReactor's "Digital Game of the Year"
- Spike TV's "Best Independent Game"
- X-Play's "Best Downloadable Game"
- IGN's "Best Horror Game"

## 2.2. DEVELOPMENT

Limbo is a 2D side scrolling video game. Box2D physics engine is used to govern environmental objects and the player character. The developer built the game's puzzles expecting the player to fail before finding the correct solution. The developer company, Playdead, called the style of play "trial and death", and used scary imagery for the player character's deaths to steer the player from unworkable solutions.

## 2.3. STORY

The player guides an unnamed boy through dangerous environments and traps with more decapitations, brain-eating slugs, gigantic spiders and hair-trigger traps as he searches for his sister. In fact, the story is not obvious in game play at first glance. Because at the beginning of the game no information is given about the game, and throughout the game there is no storytelling. So till the end of the game, the player character doesn't know what the aim of the game and what is the ultimate target. However, while the boy continuous in game by solving the puzzles on his path, some objects in the game environment tells about where he is (can be). Throughout the game, there is a smell and vision of death, so the player can guess that, he tries to escape from the "Limbo". However, as indicated by the development team, the player can't predict that it is related to finding his sister. The entire game and ending are fairly obscure and leave only subtle, ambiguous tidbits for the player to infer from.

## 2.4. CHARACTERS

**Nameless Boy:** The primary character in *Limbo* is a nameless boy who awakens in the middle of a forest on the "edge of the hell" (the game's title is taken from the Latin *limbus*, meaning "edge"). He is a small boy. There is no known background for him, so it's a mystery. His appearance is also unknown, for during the entire game he is only a silhouette. All that is known is that he had a strong attachment to his sister. He is presumed dead as due to the main screen images of the same treehouse at the end, and two swarms of flies circling two lumps on the ground (possibly meaning that his sister is dead as well). From the outline of the silhouette, we can conclude that he wears a sweater, shoes, and shorts.



Figure 2 - Main character of the game, the Boy

**Scary Animals:** While dealing with the traps and puzzles scary animals like giant spiders or brain-eating slugs are encountered. The Spider is a creature mainly encountered during the Forest section of the game and is considered the main antagonist of the story. Representing a typical arachnid (albeit much larger), the creature continually follows the Boy throughout the Forest. It is an

opportunistic killer, impaling the boy whenever one of its eight legs is within range. The Spider's motives for attempting to kill the boy are unknown; some argue that the spider is simply hungry, or that the Spider represents Death (or the Grim Reaper). One particular theory states that when the Boy was alive, he suffered from arachnophobia (the fear of spiders.) The arachnid would be the manifestation of his fear.



Figure 3 - Giant spiders as enemies in the game

**Malevolent Children:** While seeking his missing sister, he encounters only a few human characters who either attack him, run away, or are dead.



Figure 4 - Attacking, escaping or suiciding human characters in the game

**The Sister (Emma):** At one point during his journey, he encounters a female character, who abruptly vanishes before he can reach her. The forest eventually gives way to a crumbling city environment. On completion of the final puzzle, the boy is thrown through a pane of glass and back into the forest. He walks a short distance until he again encounters a girl, who, upon his approach, stands up, startled. At this point, the game abruptly ends.



Figure 5 - The sister (seen at the end of the game)

## 2.5. GAME PLAY

The player controls the boy throughout the game. As is typical of most two-dimensional platform games, the boy can run left or right, jump, climb onto short ledges or up and down ladders and ropes, and push or pull objects. The general dark visuals hide numerous environmental and physical hazards, such as deadly bear traps on the forest floor, or lethal monsters hiding in the shadows, such as a giant spider. Among the hazards are glowing worms, which attach themselves to the boy's head and force him to travel in only one direction unless bright light comes in contact with it, which changes the direction of the player until it is removed by static NPCs.

The game's second half features mechanical puzzles and traps using machinery, electromagnets, and gravity. Many of these traps are not apparent until triggered, often with deadly consequences. The player is able to restart at the last encountered checkpoint, with no limits placed on how many times this can occur. Some traps can be avoided and used later in the game; one bear trap is used to clamp onto an animal's carcass, hung from the end of a rope, tearing the carcass off the rope and allowing the branch and rope to retract upwards and allow the boy to climb onto a ledge otherwise out of reach. As the player will likely encounter numerous deaths before they solve each puzzle and complete the game, the developers call *Limbo* a "trial and death" game. Some deaths are animated with images of the boy's dismemberment or beheading, although an optional gore filter blacks out the screen instead of showing these deaths. Game achievements (optional in-game goals) include finding hidden insect eggs and completing the game with five or fewer deaths.

Other obstacles besides from the bear traps and contraptions are the water itself. Because the boy cannot swim, the puzzles including water can be hard to achieve. Even in two seconds, the boy can be drowned if he couldn't find an object to hold on over the water.

Besides from the traps there's plenty of variety in *Limbo*'s puzzles, and even those that appear similar initially are invariably quite different. The early puzzles are single-step affairs that require you to move a bear trap out of the way or cross a river. But later puzzles are much more complex, forcing you to use objects, flip switches, and perform perfect jumps in order to come out on top.

The obstacles in the game play can be used as an escape method which is also a part of puzzles in the game.



Figure 6 - Bear traps and water as obstacles in the game

### 3. VISUAL ELEMENTS

*Limbo* is presented through dark, grayscale graphics and with minimalist ambient sounds, creating a haunting environment. The game is presented in shadows and silhouettes, an endless array of grayscale, using lighting, film grain effects and minimal ambient sounds to create an eerie atmosphere often associated with the horror genre. Journalists praised the dark presentation, describing the work as comparable to film noir and German Expressionism. The game's art style and presentation have been consistent through the game's development cycle.

The first goal of the creator of *Limbo*, Arnt Jensen, was to create a specific mood and art style. Jensen wanted to create an aesthetic for the game without resorting to highly detailed three-dimensional models, and instead directed the art towards a minimalistic style to allow the development to focus its attention on the game play. So, every inch of the visual elements is kept simple and limited.

#### 3.1. COLOR

In horror movies, the scariest scenes all take place in a dark environment or at night. That's because dark colors convey a feeling of unease. So, mainly monochromatic black and white colors are used in the game. Around these hues, fully saturated states are avoided. To convey the mystic and frustrating effect of the game to the player, vivid colors or colorful palette are not used. Brightness of the black color is smoothly changed throughout the game path. By this way, the attention of the player is kept high for solving puzzles. The slight saturation changes do not distract the player's visual concentration.

#### 3.2. TONE

All the tones of gray scale are used in the game from vivid black and white. In some scenes light tones of black hue are dominated, while in some scenes dark tones of black hue are. Moreover in some scenes the overall environment gets darker or lighter. So, while controlling the gray scale, instead of real reflective control, incident control and exposure are used. In addition to tones, film grain filter and some flickering effects are added to the game scene to supports the overall mood. Tonal separation is used to convey the feeling of depth.



Figure 7 - Gray scale tones used in game



Figure 8 - Lighter tones used in some scenes



Figure 9 - Darker tones used in some scenes

### **3.3. MOOD**

The mood of the game is a little frustrating and mystery. The player sometimes feels horror when encounter with the death. The dying scenes includes some visual animations and sound effects which are kind of scary, the player can feel fear and panic at these times. Moreover the smoothness in the movement animations of the characters is the completing factor of the mood. There is no sound of the Boy, so the ambient atmosphere of the environmental elements and the colors of the scenes are the completing factors for to suck the player in as completely as the protagonist child who is mercilessly trapped here. Thoughtful puzzles with lots of variety will increase the bind for the Boy's abilities to do rescue his sister. These puzzles also increase the enjoyment. You walk through dense forests, decrepit towns, and abandoned factories, all of which feel confining and desolate, creating an ominous sense of entrapment. There is a hazy flicker at all times, a film-grain grit that makes the world of Limbo feel tarnished and unclean.

### **3.4. LIGHTNING**

Because the general mood in the game is mystery and little horror, the light dominancy differs throughout the scenes. Generally affinity, desaturated gray tones and little light are used. To represent the depth feeling, the gray scale is expanded and blur effect is used. One of the obvious lighting usage example is the Boy's lone distinctive characteristic, his shining, white eyes. These flashes of light are always visible, making it the one part of his body you can recognize even when the rest of the screen is completely black.

#### **3.4.1. LIGHT-SHADOW**

At some scenes like forest, the sun light is let to goes in to the environment, so different lines of blocks and density of lights are used. The reflections over the environment elements except for the Boy, are well showed with some shiny effects. The nearer objects are always all black as the light-shadow difference is not applicable for them.





Figure 10 - Light - Shadow - Shine usage in the game



Figure 11 - Lighting of the objects or environment

### 3.5. CONTRAST-AFFINITY

Because the color palette is limited to simple hues as black and white, there is no need to reveal the color differences by using high contrasts. To keep (preserve) the middle gray tones, contrasty tones and affinity for black and white are avoided. So instead of using contrast of brightness, contrast of desaturation is used in scenes. However, in some scenes, only the purity of black and white hue is used as the contrast is used.



Figure 12 - Low contrast, desaturated tones



Figure 13 - High contrast, saturated colors(black and white)

### 3.6. SPACE

Because it is 2D side scrolling flat space in the game environment, we cannot mention about perspective or size differences. The quality of the screen surface is used by means of:

- Constant Size
- Aerial Diffusion
- Overlapping
- Parallel Movement
- Pan View
- Color Limitation

**Constant size:** Objects are kept at constant size to avoid size difference which can give a 3D look and to give a realistic 2D effect.

**Aerial diffusion:** Aerial diffusion is also used by means of silhouettes, blurring and sometimes fog to erase the hanging on the air effect created by texture and size difference and creating a flat space. Moreover, because mainly dark tones are used and the character is moving among the ground, the background objects are placed onto the ground by just using overlapping and using dark colors, so the player cannot visually distinguish the integration lines easily. In fact, the blurred backdrop gently teases players with the solid foreground and also increases the sense of depth in 2D environment.



Figure 14 - Depth feeling with saturation levels and diffusion

**Overlapping:** Because overlapping is unavoidable in this 2D side scrolling environment, the depth differences and distinction of the environment elements are provided by using different tones, brightness or saturation levels of the gray scale color palette.

**Parallel Movement:** In game play the Boy moves only in parallel direction to screen. This creates a 2D effect too.

**Pan View:** The camera moves only parallel to the screen making pan view to emphasize the 2D look of the game scene. In addition to the horizontal movement of the camera, sometimes zoom in and out functions are used.

**Color limitation:** Only black and white and their middle warm tones are used in the game scene to create a 2D and flat screen look.

### **3.7. SCREEN DIVISION**

Because of continuing game path in side scrolling 2D environment, there is no static screen division in game scene.

#### **3.7.1. PLACEMENT**

The placement of the Boy is mainly in the middle of the scene horizontally. Sometimes camera gets relative movement and the Boy moves at the left down corner of the rule of thirds. The vertical position of the Boy is generally lower one of the thirds.



Figure 15 - Screen division in thirds

### **3.8. USER INTERFACE**

The user interface is the game scene itself and it has no additional labels, text or buttons. To access and switch the menu interface, player use “ESC” button.



Figure 16 - Simply designed main menu

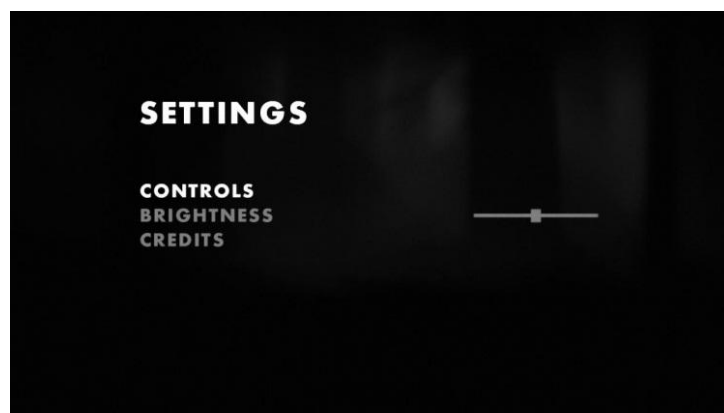


Figure 17 - Simply designed settings menu

### 3.8.1. FONT

The game has simple font for the game menu which correspondence with the minimalist approach of the game. The title font of the game on the other hand, **LIMBO**, is a product of unique design. It conveys a little bit of horror feeling with irregular and sharp corners.

## 3.9. MEDIA ITEMS

### 3.9.1. COVER EXAMINATION

The PC,Xbox Arcade and Playstation version covers are as belows. In three of them, a simple scene from the game is used. In these scenes, the mystic and minimal approach of the game is represented to the players. The tonal choices of the game can be concluded from them as using gray scales and lightning effects. The naïve and nipper appearance of the character give us the despair and effort of the Boy character to reach the light (or relief) in the game. The title of the game is placed at the bottom with contrasted white color in large fonts and style that symbolizes the little horror included in the game and emphasizes on the overlapping with its verbal meaning. In PS3 cover, including hanged human and rain elements, the feeling of frustration is conveyed to the players.



Figure 18 - Limbo PC, Xbox Arcade and PS3 product covers

### 3.9.2. GAME SCREEN

In game screens, only game play is available. There are no other distraction elements like buttons or labels etc. The player is wanted to be fully focused and concentrated on the visually well designed environment (and puzzles) and be immersed with the Boy character in his mystery adventure.



Figure 19 - Limbo game play screen

### 3.9.3. TRAILER&TEASER

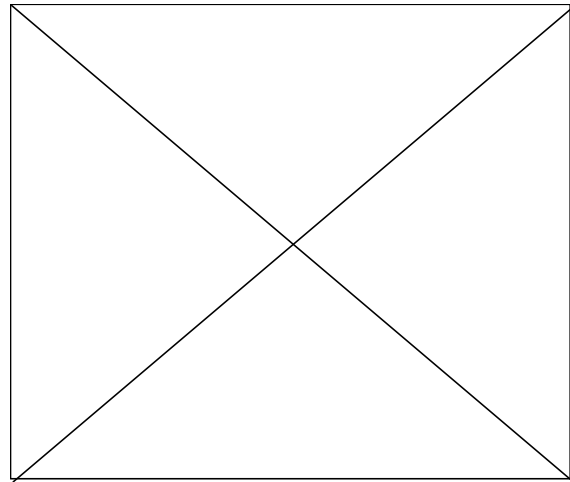


Figure 20 – Limbo Trailer and Teaser

In these video media items, the general mood and aesthetic visual elements of the game is presented. However, the story and narration of the game is not mentioned still. The synchronization of the cut scenes with the sounds are really impressive.

## 4. DYNAMICS OF THE GAME

### 4.1. CAMERA

Because Limbo is a 2D side-controlling game, the camera is always following the Boy at the side view. The camera is like attached to the target (the Boy). The following distance to the target can be extended, but not exceeds the rule of thirds at the scene frame. Moreover, the side view camera sometimes get close to the Boy, sometimes go away from the Boy including more wide perspective especially there is nothing important to occur on the path.

### 4.2. MOVEMENT

Only the Boy and so the attached camera to him, moves in game scene. The Boy's movement is parallel to the movement of the camera. Other dynamic objects like spiders or other children also move parallel (left to right or right to left) to the camera. However, in some scenes, other humans in the game can move upward or downward directions.

The camera dollies in/out for the feelings of depth and tracks the Boy character. The camera also has a relative movement to the Boy sometimes. But this relative distance does not exceed the rules of thirds.

### 4.3. CONTROLS

There are main right-left direction movement controls. The creator Jensen's another goal was to only require two additional controls—jumping and grabbing—outside of the normal left-and-right movement controls, to keep the game easy to play. By grabbing ability, the Boy can pull and push some of the objects in the game environment and so the player can handle with some of the puzzles.

#### **4.4. INTERACTION**

Limbo is laid out in a linear way, with one obstacle placed after another as you dutifully march from left to right. There aren't any level breaks or partitions to separate one section from another, either. Without any load times or story segments to distract you from the gameplay, you're continually submerged in this bleak world. This unrelenting focus draws you fully into this dark place, keeping your eyes locked on the gloomy visuals and your mind keyed on the clever puzzles without any other stimuli demanding your attention. This single-mindedness makes it easy to lose track of the time and play through the entire adventure in one sitting. The interaction between the trap or other harmless objects helps the player to deal with the puzzles and continue in the game path.

#### **4.5. NARRATION**

There is no story pushing you through this quest, no signs to give you hints nor characters to clue you in on an overarching plot. Rather, this is a game about survival, where merely making it from one area to the next, surviving one obstacle after another, is what pushes you on.

#### **4.6. STORYTELLING**

Because there is no storytelling element through the game it has become a criticism issue for the game. According to the reviews, the game lacks any conviction with its storytelling and leaves the player almost braindead while playing it. Even though there aren't developed characters or a story to care about, Limbo elicits a strong emotional connection.

#### **4.7. SOUND&MUSIC**

This minimalist thematic style is further represented through the ambient sound-track. The "music" chronicles the high-storyboard nature of the game's puzzles or set-pieces with an eclectic mix of ambient sounds and deep drones or hums. This arrangement brings merit to each and every piece of Limbo's gameplay, with the stark and contextually sensitive musicality providing further depth, at least to the foreboding and ominous landscape presented. From scene to scene as the player continues in his path, the sound effects and music rhythm change accordingly to the elements in the scene. Moreover, when the camera dollies in or out, the volume of the sounds increase or decrease which enables the sense of nearness or distance.

For the majority of your adventure, there is no music to accompany you along the way. Instead, there are quiet ambient noises that slowly fade into and out of existence. A patter of raindrops or rustle of wind is sometimes cued up, or a quiet chirping from crickets. But there are moments when music does kick in. A heavy bass note will crash down or a light melody will briefly start up, and these tie in beautifully with your onscreen actions.

### **5. CRITICS**

#### **5.1. ABOUT AESTHETICS**

*Limbo's* graphical and audio presentation were considered by reviewers as exceptional and powerful elements of the game. The monochrome approach, coupled with film grain filter, focusing techniques and lighting, were compared to both *film noir* and dreamlike tableaux of silent films, allowing the visual elements of the game to carry much of the story's weight. Based on its aesthetics, reviewers classified *Limbo* as an example of "video games as art". The black and white color scheme

and foggy film grain effect combined with chiaroscuro lighting to create silhouetted layers of a haunting environment draws comparison to German Expressionist cinema. To recapitulate, there are also thematic comparisons to German Expressionism: a surreal dream state, a dreary feeling of isolation, and a pervading life-threatening feeling. Cian Hasset of PALGN likened the effect to watching the game through an old-fashioned film projector that creates "one of the most unsettling and eerily beautiful environments" in video gaming. Before its release, *Limbo* was awarded both the "Technical Excellence" and "Excellence in Visual Art" titles at the Independent Games Festival during the 2010 Game Developers Conference.

## 5.2. ABOUT GAME DESIGN

*Limbo* received positive reviews, but its minimal story polarized critics; some critics found the open-ended work to have deeper meaning that tied well with the game's mechanics, while others believed the lack of significant plot and abrupt ending detracted from the game. A common point of criticism from reviewers was that the high cost of the game relative to its short length might deter players from purchasing the title, but some reviews proposed that *Limbo* had an ideal length. Although this is a game without clear-cut answers, the lack of concrete explanations doesn't detract one bit from the overall experience. This is a delicately crafted adventure whose elements tie seamlessly together.

## 6. REFERENCES

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