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Arcade chopper defender cobra shoot em up

The following blog, unless otherwise stated, was written by a member of the Gamasutra community. The opinions and opinions expressed by those of the writer, not Gamasutra or his parent company. In 2003, I started researching on my PhD topic. As part of my research, I began researching the family tree of the Shmup genre, the oldest and most professional genre of games (in the context of the arcade environment). Using MAME, Yahoo Auctions Japan Account & Sega Astro City Arcade Machine I began to trace the origins of this genre, playing over 3,500 arcade games. This blog is an excerpt from the final dissertation that explores the origins of the Shmup genre and examines games that set the standards we accept today. I thought it would be appropriate to publish this work as a blog now that it is decades old and use this to reflect on the research and how it was conducted. I present a section in its admsies as it was published and then provide some quick reflection on the process at the end. The definition of Shmup Although controversial, it is widely believed that the first published instance of the word Shmup was in Commodore 64 magazine, Zzap!64 Issue 3, July 1985. The word was originally mentioned in an editorial section written by Chris Anderson (1985) Some things you think are unpretentious comments, but actually quite deliberate are a few strange new words scattered around the page, such as Shmup, aardvark and wimp out. You'll find a complete explanation for all of these on the last page, so don't panic. (p.5) As promised, the back of the release contained the definition of the Shmup Term, come up with a Zzap, to replace the long-screwed shoot-em-up. Any game involving stacks of explosives and zapping. The term Shmup was also used in the Drop Zone review (UK Gold/Arena Graphics, 1985)[1] written by Julian Riegnoll in the same issue of Zzap!64. Even though Zzap!64 claimed credit for inventing the term, it is believed that the shoot-em-up cuts first appeared in western arcades around 1978, at the same time as space invaders (Taito, 1978) dominated the arcade market. By 1985, the Shoot-em-up family tree had spawned many new branches and there were many variations in the genre. Within western culture there was a need to classify all these subgenre and to this day Schmups was the term of choice. On the contrary, in Japan, the genre is still known as shooters; it would seem peculiar that a Western magazine specializing in computer games ultimately duplicates the Japanese genre of arcade play. It could be argued that the term Shoot-em-up is a highly advanced mentality of Western gamers Country and Western. The culture of Western films and related folklore shoot first, ask questions later reflects the machismo and bravado behavior commonly played in popular video games such as Grand Theft Auto III (Rockstar, 2002). In addition, a more muted and aloof term or STG used by the Japanese gaming population offers a less personal approach to playing these games, with less emphasis on the successful extermination of an imaginary enemy, and with much less fun derived from the final act of execution. A parallel exists in karaoke in Japan, where it is participation and effort that counts, while Westerners see karaoke as a kind of talent contest, with one, the ultimate winner. In itself, this proposal creates as problematic when trying to extract the subtleties and nuances that make for such different and clear interpretations of the same material. The contrasting names given by these identical games by these two cultures can be interpreted as very suggestive of appropriate, but varied, basic societal mentalities. Even though the term shooter is synonymous with a wide range of games, Schmups make up a separate category in the family of great shooters. In many ways, Schmups is also the genre responsible for the development of contemporary shooting genres such as First Person Shooter (FPS). To distinguish Schmups from the larger body of shooters in general, there are a number of rules that can be used to distinguish Shmup. The following section defines the Shmup genre based on discourse in modern user groups. Defining the rules In recent years, Schmups and their genre classification have become a hotly contested topic within Schmups.com community. As the name suggests, Shoot-em-ups are targeted at a player who destroys an overwhelming number of enemies, and what sets Schmups apart from Shoot-em-ups is the way a player has to do it. Schmups are defined by certain unique elements of game mechanics,[3] including aspects of player perspective, game world, control, goals and themes. Starting with control, the player takes control of his avatar from the third person's point of view. Using directional controls, the player can move freely along the X and Y axis of the screen. The orientation of the players is fixed on the main scroll axis (fig. 1). Figure 1 The player does not control the point of view of the game. The game will scroll automatically along its main motion axis at the speed determined by the game, out of player control. The player watches his ship from a fixed third-person perspective, above or toward his ship depending on the type of Shmup. In most cases, the player's orientation is fixed in such a way that their craft faces the main axis of movement. However, the most notable exception to this can be seen in Zero Gunner and Zero Gunner 2, where the player has the ability to control the direction of their ships without affecting the speed or direction of scrolling. The movement of the craft player in Schmups is fixed mainly on X and Y movements. Movement on the Z axis, if present, is almost always controlled by a predetermined scrolling game. However, if the movement of the Z axis is controlled by is usually implemented as a button, not as a directed control panel function. In addition to directed control, Schmups control schemes must also use at least one shoot button that controls the player's main fire mode. In terms of multiplayer management, Schmups can only be played cooperatively with a second player. Enemy control is strictly generated by the Shmup program itself without the interaction of the second gamer. Schmups' goals also include certain gameplay elements related to the successful completion of the game. Specifically, Schmups primarily score driven and rely on the player's ability to use this Schmups gaming system to their advantage. Shmup's main goal is to progress through a level linear manner, destroying or removing an enemy ship from the screen through directed control and basic fire mode. The destruction of enemy crafts leads to an increase in the evaluation of players. Clearing the level also leads to the continuation of the game to another level, which further allows good players to increase their score to increase the level of difficulty. Game AI (artificial intelligence) The main distinctive feature of Schmups is the inclusion of a gaming world that has no real enemy artificial intelligence. For example, the game world often follows predetermined patterns and dictates the movement of a game player rather than responding to a player's movements. Certain exceptions to this exist and can be considered mainly in targeted bullet samples and some boss attack strategies. Most often Schmups relies on predetermined, static patterns of enemy movements. So the player's ability to finish certain Schmups relies largely on their own ability to remember movement and placing enemies at different levels in Shmup. The only non-static element of VM Schmups is the movement of bullet patterns. While some bullet patterns remain the same, most of the movement of the bullet in Schmups is programmed to house on the player's ships at different screen coordinates. However, this heming is mostly limited to single coordinates and does not have the ability to constantly at home on the player's craft. What about games that don't meet all these criteria? As with all types of genre classification, there are certain border cases that require special consideration in the classification process. In cases like these, it's sometimes easier to look at what elements are completely alien to Schmups to eliminate certain border cases. Players cannot have control over the movement of the Z axis. The player's main fire mode should not move along the Z axis, such as Space Harrier. Vertical and Schmups Two commonly used subcategorizations: Vertical Schmups and Horizontal Schmups are further used to determine the genre. Both of these subcategorizations are based on which axis (X or Y) scrolls through von Schmups. In the first of two subcategories, Vertical Schmups, the background scrolls from top to bottom along the screen's Y axis. Vertical Schmups reproduce from a third-person perspective, as shown below in a screenshot taken from Icarugy (2001) (Fig. 2). The orientation of the player's craft is also associated with the way the background scrolls. For example, in the vertical Schmups, the front of the player's ship is directed at the top of the screen; so, to move forward (on the Y axis), the player must press up on the directional controller (fig. 3). Figure 2 Figure 3 In the Horizontal Schmups subcategory, the background scrolls along the X axis of the screen. Horizontal Schmups play from a third-person perspective, similar to looking at the intersection. In most horizontal Schmups, the right-to-right and front scrolls of the players are ahead to the right of the screen, as seen in Figure 4.[5] taken from Border Down. Thus, in order for the player to move forward with a horizontal Shmup (along the x-axis), the player must press directly on the directional controller (fig. 5). Figure 4 Figure 5 Depending on the vertical or horizontal Shmup, the orientation of the screen must be adjusted accordingly. For example, most vertical Schmups use a screen orientation ratio known as 3:4 (three to four). This means that either the screen must be orientated on its side (like normal 4:3 television) or the game plays with large black borders on a regular 4:3 monitor. However, Horizontal Schmups use regular screen orientation (4:3) (Fig. 6). Figure 6 As always, exceptions should be made: some vertical Schmups use the usual 4:3 screen orientation, although the side effect of this is that the player's visibility along the main scroll axis is limited. This feature is mostly retained for the home console only Vertical Schmups, as most people didn't want to turn their TVs to their side just to play one game. Despite the encompassing nature of the aforementioned two Schmups sub-ups, some games in the genre do not fully meet the above definitions. For example, some early Schmups, such as Viewpoint (1992), scroll isometrically along the screen. More recently, however, a Shmup named Zero Gunner (1996) gave players the chance to rotate their ship variably through a full 360 degrees. Zero Gunner also introduced a variable scroll axis, so combines a number of scrolling techniques - vertical, horizontal and diagonal. Zero Gunner, however, is still classified as an unrighteous Vertical Shmup as the player watches the game in terms of over the third-person head. Zero Gunner, however, is still classified by the non-orthodox vertical Shmup as the player watches the game from the third person's point of view. Schmups such as Icaruga (2001), Radiant Silvergun (1999), R-Type (1987) and Raiden DX (1994) are zeitgeists of the genre; games that are synonymous with the time and environment for which they were created. These games are iconic representations of the genre and are testament to how common and successful the Schmups genre has been over a long period of time. If Schmups is a constant by which one checks variables, the variables therefore need to be identified and tested. Examples of Schmups in the analysis section represent only the genre at its height, and subsequently do not cover information that provides contextual reference to the genre as a whole. Therefore, before moving into the analysis of Period One here will be presented a concise overview of the development of the genre. This debate also shows the importance that familiarity has played in the development of the genre. To understand this evolution of gaming, you need to track back through the gaming landscape of nearly 3,500 unique games to expose the roots of the genre. Even the most gaming illiteate reader can immediately establish a link between the above genre definition and one particular zeitgeist game Space Invaders, but can the genre be traced even further, and can the genre be traced back to its paraigm roots? This brief overview of the genre provides an important context for future analysis. The information below is not a comparative analysis, but rather an overview of the evolution of the Schmups genre. This Shmup development section will be called Proto-Shmups because these particular games, although similar to the later Schmups, do not adhere to all the established Shmup standardizations presented in the introduction. Prehistoric versions of the shmup genre year of invasion In 1978, only a few arcade games were publicly released. Consumption and development of arcade games mostly remained outside the public consciousness, but in this market increased presence. The home console market was in a similar state, although things were not so optimistic on the home front. Even after the arcade success of Pong (Atari, 1972), Atari had no fault of its own set in driving the course of events that would eventually lead to the financial collapse of many companies in 1977. It seemed that Pong's success in arcades created a need for a market for home consoles to play; the need that too many companies were very happy to fill. Pong clones flooded the home console market, and by 1977 the market was unable to support all companies interested in cashing in on Atari's success. The result was the financial demise of many of these companies. Even though the home video game market was still active with consoles such as the Magnavox Odyssey, the technology behind these machines was expectations - the expectation that more advanced arcade technologies have promoted. With the advent of the microprocessor first used in Gun Fight (1975), game developers have begun creating more ambitious games. Graphics, sound and game elements were all to take advantage of the new technology. Combined with consumer dissatisfaction with the home console market, these two elements have led to the beginnings of the arcade's popularity. However, the mainstream assimilation of video games has yet to come. During 1977, at least thirty-six digital arcade games were released in both Japan and North America, and by 1978 that number had risen again to forty-three games, most of which were released by Atari or Midway. By 1979, that number had doubled to at least 96 games, and by 1980 the number of arcade games had nearly doubled again to 167 releases. From 1978 to 1981, Midway, Atari, Taito, Data East and Nintendo created some of the first arcade games, and with the rapid growth of the arcade industry came public awareness. Games such as Space Invaders (1978) caused currency shortages and legal battles. PacMan (1980) inspired popular music by Buckner and Garcia called Pac-Man Fever and Pac Man went on to become the most recognizable arcade game ever created (Lindsey, 2002). However, it was the space invaders who planted the seeds from which the Schmup family tree grew. Space Invaders Though not Schmup by today's standards, one of the oldest games for the initial development of the Schmups genre is Space Invaders (1978). Space Invaders was first released in 1978 by Taito in Japan and then licensed to Midway for release in the United States. The release of space invaders in Japan was such a success that caused a shortage of yen across the country, an event only corrected when the Japanese government quadrupled production of 100 yen coins (Bousiges, 2004). Many small grocery stores and markets in Japan got rid of their products and turned into Space Invader Parlours or Space Invaders Houses overnight (Bousiges, 2004). The music of Thump, Thump, Thump space invaders echoed across Japan as loud speakers distinguished themselves with the menacing, atonal noise of invading aliens. Later that year, space invaders began their assault on the

United States. The game was one of the first to break out of arcade and milk bars and into the minds of blacks. The effects of the phenomenon of space invaders were felt so widely and deeply that worried residents of Mesquite, Texas, took the machine ban to the Supreme Court in order to stop illegal machines from souring the wits of their young men (Bousiges, 2004). Space invaders have brought two major technical innovations to the world of video games. Space Invaders was the first game that could keep players high scores, and secondly it was the first game to have a soundtrack, albeit a formidable, atonal aural assault comprising a few notes and mostly noise. Along with space technical innovations have come in the field of play. Space invaders lay in place a framework for all vertical Shmups to come by introducing three main game criteria: Fixed Overhead Third Person Camera Perspective (Fig 7) Static Player Orientation (Fig 8) Directed input schemes that allowed movement along one axis Another feature of Space Invaders is that it was the player's first truly immersive single gaming experience. Jørgen Kirksæther (Kirksæther, 2004), in a radio game with Halvard Jacobsen for Norwegian radio station NRK had the following to say: it took the Japanese to figure out how to make a satisfying one-game game. The key is that you should never be able to win. Americans could never create this game, he says, because the idea of a game that cannot be won is unthinkable within American culture. The Japanese Samurai code, on the other hand, allows the idea to be lost with honor, Says Jorgen. After space invaders, that was a huge success, both the Americans and the Japanese did and still make popular, unspoke games. Toshihiro Nishikado, creator of Space Invaders argues in a BBC documentary I Love 1978 that he himself can only get to the level of three space invaders (I Love 1978, 2002). Figure 7 Figure 8 While these features have appeared in video and arcade games before, the combination of these elements was something new. Space Invaders also brought with it a new theme for video games, probably best appeared in the game's title and most likely inspired by the abundance of sci-fi movies produced at the time. This topic has thrown itself into countless Schmups, even to this day. However, there is some controversy as to whether space invaders were indeed the original game. Two reputable internet sources, Zubene (2004) and Williams (2004), point out that space invaders were heavily influenced by a previous Game of Taïto called Space Monster (1972) (Fig 9). Williams (2004) states that Taitotronic's Space Invaders were based on the mechanical game Space Monster, released by Taïto Trading Co., in 1972. Despite this, Space Invaders designer Nishikado refutes these claims. Zue (2004) later stated: (On the other hand,) Toshihiro Nishikado, a space invaders designer, gave an interview in November 2001 to Electronic Gaming Monthly (EGM), and he made no mention of playing [Space Monster]. David S. J . Hodgson, who interviewed Mr Nishikado, claims he was NO WAY (Hodgson's words) influenced by the game. (p. 4) Regardless, Nishikado makes two controversial comments in later interviews. In a BBC documentary about popular culture in 1978 called I Love 1978, Nishikado argues this: The original idea was to create a kind of shooting game with multiple on-screen goals for a player to shoot. I wanted to have human purposes, but we saw that might be a bit too cruel, so we decided to use aliens instead (I love 1978, Nishikado's reference to creating the kind of shooting game is just speculation when comparing space invaders to space monsters, interviews in the release of three Retro Gamer magazine are more specific. In an interview about the origins of space invaders, Nishikado claims that I wanted to create a salon shooting game... and when asked about whether he was satisfied with the title of Space Invaders, he stated that he originally wanted to call the game Space Monster, but a Taïto official advised him to change the name. Figure 9 Space Invaders to this day are yet to make money through licensing deals that have seen it released on next-generation mobile phones around the world. The Computing Journal Museum estimates that by 2003 Space Invaders had made a staggering US\$500 million for Taïto, making it one of the highest grossing games of all time (Waddell, 2003). While space invaders may have been condemned by a Texas right-wing Christian group, the game received positive reviews from the 1980 issue of The Christian Science Monitor. Article from this issue of Aliens in a Pizzeria! staff writer Peter Greer (1980), praised the game while shed light on the game's consumption this year: it has since become the most successful coin-driven game ever sold in America. The average video game or pinball machine is produced just 90 days before production moves to the new model, but Space Invaders is still passionate about amusement arcades and burger joints after 22 months on the assembly line. Even Midway can't understand why it's so popular. Sometimes we hear our heads and go: Why did it last so long? Sighs Stan Yarotsky, Vice President of Midway Marketing. But there is no end in sight. I think it's just an exemption from tension. No matter what your score is, you enjoy it, and want to play again. (19 December 2018, Greer (ibid) also continues to arduard, That Space Invaders machines in good places brought as much as \$1,000USD to their operators. Space invaders were revolutionary, and although there were Shoot-em-Ups before it, no one managed to successfully combine elements of the game quite successfully, that there are not many analog gaming devices from this era survived, and unlike digital games, emulation has never been able to save them. However, Nishikado gives some insight into the impacts behind the creation of space invaders. In Retrogamer magazine (2004) and the BBC documentary series I Love 1978 (2002), Nishikado references several up-to-cursor concepts he wanted for a game that later became Space Invaders. Initially, Nishikado wanted to either use tanks or people as a target. As discussed earlier, Taïto and Nisikado decided that shooting people would turn out to be too cruel, while inhibiting the approach of tanks will require too much expensive equipment. Ninety-eight digital arcade games pre-release space invaders: Five of these games have game elements similar to space invaders, and they all have a military theme. A similar layout to space invaders, but enemies did not attack the player; instead, the player had to accumulate the maximum number of points during a predetermined period by firing on enemy ships. Depth Charge (Gremlin, 1977) The player attacks enemy units from the top of the screen, and although enemies shoot in response, they do not converge on the player's position. Similar to depth charge, but the player has no control over his movement. The player controls the firing of depth charges and the depth at which they explode. Guided Missile (Midway, 1977) The player fires a missile across the screen (Y) and then controls their descent into an enemy ship, played against the time limit. M79 Ambush (RamTek, 1977) The player fires projectiles from the base of the screen at an enemy ship moving on the X axis; the player must accumulate points against the clock. The seeds, which were planted by space invaders in 1978, grew at a frenetic pace, inspiring numerous copies, modifications and hybrid variations on their game. A combination of new technologies and variations to the already successful space invaders recipe has developed the first fork in the branches of the Schmpu family tree: Vertical and Horizontal Schmups were born. Space invaders; However, it is not solely responsible for the events of the game that were to follow. The Proto-Schmpu period is a time of massive experimentation and growth in the shoot-em-up genre. Many developers based their designs on the successful Space Invaders model and then began experimenting with the game's ideas. The period between 1978 and 1983. Family Tree Figure 10, though illustrated in a linear way, is the backtrace product of the Shmpu game to identify games that have set key genre elements in front of others. Figure 10 Of Figure 10 shows the perceived development of the Proto-Schmpu genre, looking at the elements of the actions of players in the gaming world. Freedom of movement on different spatial axes and other management interfaces is fundamental. Proto-Schmups's next examination delves into this initial family tree to try to explain why certain games have expanded on others and ultimately why games such as Mission X and Battle of Atlantis have grown into a playing base for Shmups. Sky Raider After just after the release in 1978 of Space Invaders, Atari released a little-known game called Sky Raider (1978). Sky Raider was not just another clone of space invaders, but a new style of play Shoot-em-up. Unlike space invaders, Sky Raider has put a player at the helm of the bomber plane responsible for deploying its bombs. In addition, unlike space invaders, the player does not Because the player was not represented by the on-screen avatar, the player was unable to be damaged by the opponent, that Sky Raider doesn't seem to represent modern-day Shmups, it has contributed two very important factors to what we know today as Shmups. First, Sky Raider was the first game to constantly scroll through the background (Bousiges, 2004). Arcade Flyer Games is expanding on this fact more: A unique new engineering concept presents a player overlooking the bird's eye of continuously moving video terrain passing by. The simulation of the flight is realistic and magical! (Skye Raider, 1978). Sky Raider was supposed to be a realistic flight simulator, although the player only controlled dropping bombs on enemy targets. To help this heard realism, Atari decides not to use the traditional directional pad and adjust the buttons of other arcade games of the time. Instead, Atari used a traditional air flying yoke for the input device. Sky Raider also provided another key game feature for the vertical scrolling Schmups created afterwards. The weapon system used in Sky Raider counted targeting ground objects using separate weapons aimed at using cross hair. Sky Raider, like space invaders, offered the player movement one axis; however, the player's speed (represented by the background scroll speed) can be controlled either by pulling back or by pushing forward on the flight yoke (fig. 11). [8] Figure 11 Of Phantom II, Midway and 8080 Ironically, one of the most important developments in Vertical Shmups is developed on the same hardware booster as space invaders' initial innovator. Based on the same 8080 processor design as Space Invaders, Phantom II took pre-Proto Shmups military themes and placed them in one of the earliest instances of continuous scrolling, direct fire shooters. HeliFire, Radar Scope and Nintendo Six months before Williams released what was supposed to be one of shmups' most influential, Defender (1980), Nintendo released a game that is a stepping stone between space invaders and the quarterback. HeliFire (1980) is a combination of space invaders-style play combined with the game's first ever vertical scrolling elements. In HeliFire, the player was put in charge of the submarine. Enemy aircraft will fly vertically over the player and try to drop bombs on them. At the same time, the player had to fire projectiles from his submarine on the above enemy aircraft. (Figure 12) [9] Figure 12 One of the most striking features of HeliFire is that the game scrolls unlike the vast majority of vertical Schmups, which scroll in the opposite direction. HeliFire also included the same fixed scrolling speed as Sky Raider and Astro Fighter. Even though the game scrolled through the horizontal axis, the screen orientation was still set to vertical, demonstrating the impact that space invaders had on all the Schmups eras. HeliFire was the third last Schmpu that Nintendo created for the arcade. The last ever arcade Shmpu, Space Firebird (1980) was released just five months after HeliFire in November. Before HeliFire, Nintendo created only three arcade games, two of which were clones of space invaders: Space Launcher (1979) (Fig. 13)[11] and Space Fever (1979). Nintendo's change of direction may be due to the release of Shigeru Miyamoto's Donkey (1981). Figure 13 Before the release of Nintendo's famous donkey, Nintendo produced another Shmpu-style space invader called Radar Scope (1980). Radar Scope, though based on the same style of play mechanic as Space Invaders, used a different visual perspective and gaming features. The thought that the player had the game was still an overhead third person, however, the player viewed the game from a third-person overhead, depth (a technique that creates visual depth by shifting the size at the bottom and top of the screen) (Fig. 14). [12] The game's own flir describes this technique as 3D Vectors. This type of visualization was not seen again in the game until silpheed's release in 1993. Figure 14 radar Scope was the first Shmpu to allow the player to release several projectiles at once. Before that, the player could only shoot one projectile at a time and was only allowed to shoot again once the previous projectile came off the screen or got in touch with the target. Radar Scope was also unique because instead of giving out a player with a number of lives, it used a damage system by which the player did not suffer a single hit, a one-kill system used by many similar games (Fig. 14). Despite achieving the game according to the already established Space Invaders formula, it sold poorly, although Nintendo star Shigeru Miyamoto (Mario Bros., Donkey Kong) worked on the game. Of the three thousand Radar Scope machines manufactured, about two thousand of them were converted into Donkey Kong machines (Bousiges, 2004). Defender In 1980, the introduction of Defender (1980) would literally turn schmups's embryonic genre into its side. Defender was the first in Shmpus's history to scroll horizontally and also has a screen orientation set horizontally (unlike HeliFire). The player was put in control of a ship called Defender and set a task to protect the citizens of the Earth from the abduction of aliens. Responding to the question of what ideas led to the birth of Defender in the September issue of Joystick Magazine (as quoted in RecRoom Amusements, n.d.), the game's creator Eugene Jarvis said: Steve Ritchie and sat in the room playing with concepts and game ideas. Steve said: Wouldn't it be neat if you were flying over the planet on screen. And we were trying to figure out what to do with it. You can fly over the planet, you can go up and down in any direction you want... Eventually I said: We can't do it yet, but what we can do is fly left and right and so on. (p. 8) The game is unique even at today's standards, as the player can both scroll from left to right and incomprehensible right to right. This innovation, however, came at the price of gaming affordability. For that time, Defender used a five-button recording and a directional pad to control it. Bousiges, (2004) claims that Due to intimidating control, no one played the game, and there were even rumors that Pac Man and Defender would bomb and Rally-X would be the next hit (from Atari). Defender brought with him a lot of innovation, especially in graphics and play. Defender was the first game to use the escape bomb technique, where the player has the ability to clear the screen of both enemies and enemy projectiles with a single button. This game feature gives the player an escape when things happen a little tough. The defender also used a primitive form of artificial intelligence that allowed the game's events to take place outside the player's sights. These events, such as enemy movements and placements, were portrayed using radar. In the center of the radar screen was what the player could see at their current position. To the left and right of this central position where events took place outside the player's sights; Later this technique was attempted in space adventures (1981). The defender, along with Space Invaders, created a spirit of competition within these hardcore elements of the gaming public. This spirit of competition also made news in Time magazine in 1980. In the article Games played by people found out a gamer named Steve Jurasek, who played Defender non-stop for 16 hours in one credit. After the release of defenseman Eugene Jarvis broke from Williams to form his own company Vid kid. After Jarvis' absence, Williams became desperate for a new game and later took Vid kidz under his wing as the official developers of the second batch, ordering the development of further ones to Defender. Even though Jarvis was against the idea of creating sequels, Larry DeMar (co-founder of Vid kidz) talked to Jarvis about creating an enhanced Defender game. The result was a game called Star Gate (1981). Jarvis was determined to make the game that The Defender could have been. In an interview with Halycon Days (The Hague, 2002), he stated this: It may not just be an ordinary cosmetic work, but a really cool enhancement. We got real excited about tweaking the code and programming scours of new and cool enemies and getting better performance in real time, so more things could be packed on the screen without blowing a silky smooth sixty Performance. Stargate's deformed feature was just the icing on the cake. (14). The result was a more lackluster game, only because a record six buttons as well as a directional pad were now controlled by the game. The game was completed at a frantic pace in order to meet Williams' deadline. The game was completed four months later and was programmed into a split shift. Jarvis, (as quoted in The Hague, 2002) states: on a dual 8-floppy drive 1MHz 6809 Motorola Exorcisor-development system. Because computers were very expensive in those days - about \$30,000 - we worked on the same system in Larry's spare bedroom. I programmed the system by day and it worked through the night. And in four months it did. (p. 15) The release of Defender in 1980 forced Williams' nine-month gross sales to increase from \$83USD million in 1980 to \$126USD million in 1981. Williams moved to capitalize on Defender's success and therefore decided to build a new facility in Gur Nee that was capable of producing 600 to 700 Defender units a day. Scramble (Konami, 1981) Scramble (1981) was only the sixth arcade game to be released by Japanese company Konami. The game was released in February 1981 in Japan and was later licensed by Stern for american release in May of that year. Because of Scramble's resemblance to Defender, he became known as the poor man's advocate because he doesn't have the same graphic flash as the later name. However, graphics alone don't make the play. With the creation of Defender, a new genre of games was created - horizontally scrolling Shmpu. The impact that Defender had on the arcade industry was not fully evident until the following year in 1981. Here, nine more vertically scrolling Shmups were only released in the arcade, making 1981 a very popular vertical species for Schmups. Wrestling was an influential game at the time, so much so that other similar games were called fight clones, much like the term or genre space invader clones dubbed. This situation is complicated by the fact that Scramble did not use encryption so many different, hacked versions can be found (Scramble, 2004). Despite Defender's influence on creating vertically scrolling Shmups, he is still not representative of the genre today in terms of the game. However, 1981 introduced nine new vertically scrolling Shmups, each bringing with it variations of the game recipe that the quarterback presented. While Scramble may look similar to Defender, the two games are very different in the game. Unlike Defender, Scramble used a fixed scrolling speed, hence the player could not speed up or slow down their speed. Scramble also allowed the player to move freely across each axis using a directional panel (Y limited to 50%). Scramble also introduced several weapons systems that took into account the targeting of both ground and air separate weapons (Figure 15). The bombs were used to target ground targets and, like sky raider, the player had to account for their speed, calling the bomb some time before they were directly above their target. The laser gun was used to target the sky; However, it can also be used on ground targets if the player was at exactly the same horizontal level as the target. Fig 15 Scramble became the first game using the fuel system. The fuel system operated in a similar way to the game timer, a technique previously used in Sky Raider. As the player progressed through the level, they depleted their fuel source (represented by a sensor at the bottom of the screen). Once the player's fuel was completely depleted, their ship was destroyed. The only way for a player to replenish a fuel supply was to use their bomb to hit fuel tanks on the ground (Fig. 16). [15] Figure 16 The only other Schmpu before the Scramble to use ground objects in the game's foreground was defender. However, defender player could not face land objects and therefore it did not affect the game and was just aesthetics. Scramble took this concept further by introducing collision detection for these land objects such as hill, tunnels, etc. in the game foreground. This factor has given game designers the ability to generate levels where pilot error can be critical. Later levels in the game used this factor also by creating dense, narrow passages where player progress was hindered by huge swarms of enemies that filled these dense caves, the main characteristic of Schmups's modern day vertical (Fig. 17). [16] Figure 17 The fight game was simple and simple. The player was given the task of breaking though the enemy's light system (as quoted on the title screen). The game consisted of five different levels, each of which is more challenging than the previous one. The first level takes place in/over mountainous terrain where the player must avoid running into the ground while bombing the enemy's ground positions. This section then smoothly moves to the next level, which takes place in a dense cave. The player then emerges from the cave and has to dodge a wave of unsealed fireballs before moving to the fourth level, which runs over the big city. City level then gives way in hard machine tunnels where the player has to be vigilant to progress through them. The sixth and final level of the game is where the player must bomb an enemy base that is hidden in a crevice outside the range of a player's normal weapon. Once the player has finished the game, he then returns to the start and repeats the process, albeit at a greater level of difficulty. Two more vertically scrolling Shmups were released on the same arcade hardware as Scramble: Battle of Atlantis (1981) and 800 Fathoms (1981). Both Battle of Atlantis and 800 Fathoms are very similar in appearance and game to Wrestling, however A striking feature of the two former titles is that both games put the player in charge of the submarine, not the spaceship. The Battle of Atlantis is further built on scramble's free-moving nature, allowing the player to move 20% further down the X axis, thereby giving the player the ability to move their ship almost to the edge of the screen. Scramble also had a quasi-sequel, which was released the following month in March. Super Cobra (1981) used the same game as Scramble, but instead of the player controlling the spaceship, they played like a helicopter. Super Cobra has expanded even further in the foreground of obstacles created by Scramble. Super Cobra also have eleven levels as opposed to the six used in Scramble. Universal: Space Avenger and the Space Series Creating a new shooter genre has also prompted existing gaming franchises to adapt to the new style of play that Defender and HeliFire have created. One such gaming franchise was space guerrilla company Universal (1979), otherwise known as the Space Series, entailing four sequels, Space Alien (1980), Devil's Zone (1980), Zero Hour (1980) and Space Avenger (1981). Universal's first entry into the arcade games market was in July 1979 with the release of Space Monsters (1979), the previous cursor to the space series. Space monsters offered no real innovation to Space Invaders' proven style of play and were mostly a graphical update to the original (Fig. 18). [17] As the market began flooding with clones of space invaders, Universal needed something to disentangle itself but still stick to space invaders' very successful formula. Figure 18 Later that year in November, Universal released its next game, Space Guerrilla. Space Guerrilla used space invaders' game model, but included a new set of targets for the gamer. Instead of the player guarding his own position from incoming enemies, Space Guerrilla tried something different. The goal of the game was to shoot any enemy ship that was trying to reach the middle of the screen while dodging enemy fire that drained from above into the player's position (Fig. 19). [18] Located in the center of the screen were a number of friendly crafts that the enemy was trying to take. To make matters more difficult, there were two rows of enemies on each side of the screen. The player could only shoot at these enemies once they started moving towards the center of the screen. If an enemy ship managed to take a friendly ship from the center of the screen, the player had only a limited amount of time in which to destroy an enemy vessel before losing a friendly ship. The game ends as soon as there is no more enemy ship left in the center of the screen, or when the player's missile base has been destroyed by enemy fire. Figure 19 Cosmic Guerrilla, despite its innovations, has not been as successful as Universal would have hoped. In an effort to increase revenue, Universal is back Basics and created another game in the style of space invaders, hence the disposition of the space guerrilla game recipe game. The result was the release of Space Alien in January 1980. Space alien (Fig. 20)[19] was a mixture of classic Space Invaders game in conjunction with updated graphics, star field scrolling and more sophisticated enemy attack patterns that would later be the basis for Nintendo's radar area, released in November of that year. Figure 20 Universal decided to explore playing Space Alien further, releasing a more ambitious update to the series later that year. Devil Zone (1980) was the result of more than eleven months worth of work developing a space alien game coming up. However, Nintendo had already beaten Universal to the punch, releasing radar Scope (Fig 21)[20] just a month before devil zone was released (Fig 22). [21] The two games were played and looked almost identical and ironically both sold out very poorly. Figure 21 Figure 22 The devil's zone used a more advanced set of enemy attack models than radar Scope, allowing three or more enemy thinkers to perform attack maneuvers on the screen at the same time. Space Invaders' same style of play has been maintained in both games, and both featured the use of depth bias techniques in the graphics department. However, Devil Zone has one very innovative feature: as well as keeping player rating tabs, it also used a ranking system that assessed a player's ability under system A, B, C, first for time. Before the release of Devil Zone, Universal also began working on another project based on the space series: Zero Hour was Universal's next game in the space series and was released just a month after Devil Zone. Zero Hour was a combination of many elements of the game from both games in the space series, as well as other successful Shmups of the time. This combination led to what can be seen as the first Orthodox vertical Schmpu (Fig. 23). [22] Figure 23 Zero Hour became the first vertical Schmpu to allow the player's ship to move along the X and Y axis. Despite sky raider allowing this freedom of movement nearly two years earlier, Sky Raider did not represent the player's incarnation on screen. Influences from other previous space games are present in Zero Hour, namely in the use of depth field bias game and enemy attack patterns. The Ziilog Z80 processor, the same processor used in the Scramble hardware, is powered by Zero Hours. As a result, programmers were able to combine many graphical and gaming innovations into Zero Hour that were previously impossible. The first of these innovations was animation, which was used to depict craft pitching players left and right. The next technological innovation came with the introduction of the use of many on-screen sprites. This was an important hallmark of Zero Hour, as during the start of the first level the player encountered asteroids he or she could to smaller parts in the same way as asteroids (1979). Zero Hour is a very fast pace Shmpu even by today's standards. Enemy projectiles move towards the player at an amazing speed. This is complicated by the fact that Zero Hour controls are sluggish at best. Zero Hour was also one of the first games to use levels. These levels were called screens and increased in difficulty as the player progressed through the game. At the end of each screen, the player had the ability to use directional controls to land their craft for extra bonus points. For each successfully completed screen, a star was displayed at the bottom right of the screen. Konami later developed the concept of screens, introducing games with more screens or levels in 1982 with the release of Scramble. Undoubtedly influenced by the release of Scramble in February 1981, Universal again set out for everything to recreate its space franchise in the image of others. The last game to be released in the space series was The Space Avenger (Fig. 24). Instead of sticking to the vertical orientation they pioneered in Zero Hour, Universal decided to follow in Konami's footsteps by releasing its first ever-scrolling Horizontal Schmpu. However, as Universal has done in the past, they have tried to change existing game models by adding their own unique twist to the game. Figure 24 Influenced by previous games such as Defender and Scramble, Space Avenger attempted to incorporate some features from each of these games to make a new game that would unbind them. The Space Avenger used two main aspects derived from the Defenders game: the ability to increase player speed, and the use of radar that could alert the player to enemy movements beyond their normal field of view. The player can also purchase enemy smart bombs that destroy all enemies on the screen, similar to the smart bombs used in the Defender. Since the Space Avenger is basically a Scramble clone, many of the features seen in Scramble can be seen in the use of the player's weapon system, which consists of a laser gun as well as bombs to attack ground targets. Comic Avenger also has linear progress similar to Scramble. The first level sees a player in a futuristic city not too unsmistated at what is seen at Wembley. The third level is very similar to the level of the cave at Scramble, but with one key difference: the player's ship is submerged under the water. While this element sounds new it has actually been the focus of three other vertical Shmups released in the same year: all of which were stinking clones (800 Fathoms, Funky Fish (1981) and Battle of Atlantis). After that third-tier game is then repeated at a tighter level of difficulty. The innovation of the space series came through adapting elements of other successful Schmups eras. Although this is not a truly innovative approach to gaming design, Universal managed to use it to and in the process helped his father a new genre of video games. Perhaps Universal was an emulator of gaming techniques and was a necessary step in the development of Orthodox Schmups. Universal's last arcade game was published in 1985. Indoor Football (1985) was to become the company's last game before they left the arcade market for good. One of their more recognizable franchises, Mr. K (1982) was later revived by Visco in the form of Mr. Do's Neo (1997) for Neo Geo. In its day Universal released twenty-three different arcade games. Proto-Smups created the Shmpu genre as we know it today, copying the success of Space Invaders. Apart from Sky Raider, no Proto Schmpu is truly original, and all owe their existence to space invaders. The development of the game in the Shmpu genre during this period was slow, as developers were unwilling to fully ditch the Space Invaders formula for fear of losing money in the hungry Space Invader market. Closing thoughts: Reflecting on research done a decade ago Since this study was done there have been great roads made to determine a clear vocabulary and approach to understanding games. While playing 3,500 arcade games sounds like something fun, it took about 4 years to get through all of them, averaging about 16 games a week. The vast majority of these games are where localizations, clones or minor variations are different, however this has been a significant challenge. The question I've always encountered is that I classified games based on what mechanics they presented. My database originally had about 20 fields used to refer to different mechanics, such as chain, motion types, etc. Once the new mechanic was discovered, a new field needed to be added to the database, causing the need to come back through most of the games I had already played to make sure I didn't miss it in the analysis. Although the ludology at the time was gaining its popularity, it seemed that most of the works are on ludology, where there is a story about the legitimacy of the industry rather than the application of methodology. Fortunately, things have changed and thanks to the work of Koster, Swink & Schell (Among many others) we now have a much more consistent frame of reference to understanding the mechanics of the game, but is that enough? Going beyond mechanical analysis, I can't help but use game research models similar to the ethnological approach by which we become part of the phenomenon we are trying to investigate. I must admit that my personal investment in medium (arcade games) was necessary to build this piece. What became clear during this study was that innovation could not be traced simply to the reverse engineering mechanics of the game - much of the lineup needed to be understood through a wider cultural lens. The controversy surrounding space invaders is a perfect example of this. If I only traced the mechanics, I wouldn't show the importance of games like the M79 Ambush and Depthcharge in formation, b, distant and genre of games. To close, I was shocked at how quickly these cultural diminish artifacts aired. Many of the very early games I had to find where nearby are impossible to find. I am very grateful for the hard work of the MAME team and various dumping teams around the world. This is indeed a very gray area in terms of copyright, however without their work we would have already lost many of these important artifacts that had a lasting impact on the gaming ecosystem. It's great to see a lot of people around the world taking an active interest in preserving this story, but unpredictable for many of these games they're already lost. [1] Since there is no standardized system for links to video and computer games, this thesis will use publisher and year information to differentiate differentiate different versions of the software. These links to the software will not be found in bibliography other than those Schmups that form examples. [2] [3] Throughout this study, the mechanics of games refer to the types of rules and systems used by a particular game. This is used as an alternative to the term better known term, gameplay. [4] Figure 2. Icaruga. Reprinted from [online] gaming store. (2003) (Available) www.gamespot.com copyright 2000 by Treasure Limited. Reprinted under the terms of a fair deal in The Australian Copyright Act, 1968, section 40. [5] Figure 4. The boundary is down. Reprinted with [Online] G.Rev Limited. (2003) (Available) copyright 2003 by G.Rev Limited. Reprinted under the terms of a fair deal in The Australian Copyright Act, 1968, section 40. Statistics collected from empirical analysis MAME v0.98 [7] Figure 9. Space monster flyer. Adapted from a space monster flyer. Copyright Taïto, 1972. Reprinted under the terms of a fair deal in The Australian Copyright Act, 1968, section 40. [8] In Figure 11. Sky Raider Flyer. Adapted from sky raider flyer. Copyright atari, 1978. 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