

# X-COM: UFO Defense vs. XCOM: Enemy Unknown

## Using Gameplay Design Patterns to Understand Game Remakes

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### ABSTRACT

We analyze *X-COM: UFO Defense* and its successful remake *XCOM: Enemy Unknown* to understand how remakes can re-propose a concept across decades, updating most mechanics, and yet retain the dynamic and aesthetic values that defined the original experience. We use gameplay design patterns along with the MDA framework to understand the changes, identifying an unchanged core among a multitude of differences. We argue that two forces polarize the context within which the new game was designed, simultaneously guaranteeing a sameness of experience across the two games and at the same time pushing for radical changes. The first force, which resists the push for an updated experience, can be described as experiential isomorphism, or “sameness of form” in terms of related Gestalt qualities. The second force is generated by the necessity to update the usability of the design, aligning it to a current usability paradigm. We employ game usability heuristics (PLAY) to evaluate aesthetic patterns present in both games, and to understand the implicit vector for change. Our finding is that while patterns on the mechanical and to a slight degree the dynamic levels change between the games, the same aesthetic patterns are present in both, but produced through different means. The method we use offers new understanding of how sequels and remakes of games can change significantly from their originals while still giving rise to similar experiences.

### 1. INTRODUCTION

Remakes are new versions of previous works in the same medium. They can appear in many forms: remakes of films from one language to another, remakes of old films for modern audiences, and new productions of theatre plays and operas. Related to remakes are re-imagined works. These make larger changes to the original concept while still trying to maintain some aspects of the original work. One example of a successful re-imagining is the sci-fi TV series *Battlestar Galactica*, which in 2004 rebooted the 1978 series, changing the underlying backstory and the identities of several of the main characters.

In games, examples of successful remakes include, *Metroid: Zero Mission*, a remake of *Metroid*, and both *New Super Mario Bros.* and *New Super Mario Wii*, remakes of *Super Mario Bros.* These

remakes have been positively received; they retained much of the original gameplay and were developed by the same company. This is not always the case. While the 2008 remake of the game *Bionic Commando* received favorable reviews (high 80s from metacritic<sup>1</sup>), the re-imagined 3D version released a year later was reviewed more poorly (averaging 70 on metacritic<sup>2</sup>). Another example comes from the successful *Syndicate* series from the 1990s; it was re-imagined as a first-person shooter in 2012 whose aggregated metacritic rating dropped to the low 70s (69, 74, and 75 for PC, Xbox, and PS3 respectively)<sup>3</sup>. The distributor of the new version, EA, agreed, admitting: “Syndicate was something that we took a risk on. It didn’t pay off—it didn’t work.” [34].

*XCOM: Enemy Unknown* (X:EU) [14] is a remake of a successful game produced 19 years ago: *X-COM: UFO Defense*<sup>4</sup> (X:UD) [30]. At first glance the setting was not auspicious: the remake was not produced by the original developers, and previous attempts at sequels or remakes either failed to be successful (*X-Com: Apocalypse*, *UFO: Aftermath*) or were cancelled before completion (*X-Com: Genesis* and *The Dreamland Chronicles: Freedom Ridge*). The original title has retained considerable clout and a following even today, which puts additional pressure on a remake. For the developers of X:EU it was a challenge to not only live up to the expectations of the old fans, but also to cater to a new audience used to more forgiving experiences, adopting radically different controls, and leveraging modern technologies in a different context: the living room. Developers accepting the challenge to remake the original X:UD could not afford to simply reproduce the old systems or just paint a new high-resolution veneer, but had to change everything in order to keep the same feel in a new context. And indeed, the lead designer of X:EU, Jake Solomon, commented with some apprehension: “There’s no way to understate this: we redesigned the game.” [13].

Reviews seem to indicate that the new game managed to create a compelling game while maintaining the core experience of the original. Comments such as “A tense, gripping remake that offers nearly as many tactical thrills as the original” [7] and “Enemy Unknown isn’t a simple remake of the original X-COM: UFO Defense, but like that game, it cannily instills a sense of fear” [38] point towards a difference in gameplay while still evoking similar emotional responses. As Davis states, the game may have become somewhat easier, but this is not necessarily a bad thing: “This isn’t to say Enemy Unknown holds the player’s hand, but that the

<sup>1</sup> [www.metacritic.com/search/all/bionic+commando+rearmed/results](http://www.metacritic.com/search/all/bionic+commando+rearmed/results)

<sup>2</sup> [www.metacritic.com/search/all/bionic+commando/results](http://www.metacritic.com/search/all/bionic+commando/results)

<sup>3</sup> [www.metacritic.com/search/all/syndicate/results](http://www.metacritic.com/search/all/syndicate/results)

<sup>4</sup> The original name was *UFO: Enemy Unknown*, but this paper adopts the more distinct North American name of the game.

challenge you face feels fair.” [10] Lahti stresses both the preservation and change when he states: “XCOM’s ingredients are hard to recombine: strategy with consequences. [...] Firaxis keeps these spiritual details intact, but it also has the guts to melt down and modernize some of the series’ mechanical details” [22]. Hall echoes these statements when he points out: “Many have tried to modernize the game and failed, including series originator Julian Gallop himself. [...] The developers obviously cared enough about the X-Com lineage to put their own mark on it, and their concern shows in every aspect of the game.” [17]

## 2. REMAKE THEORY

Remakes are a broader concept that extends beyond games, and in other contexts, they have received considerable analysis. Film remakes are perhaps the most familiar and most theorized [12][25][39], but the concept can also be applied more broadly in design, as with the Volkswagen Beetle’s remake into the Volkswagen New Beetle [31]. Despite the concept being at least as prevalent in games, however, there has not so far been much analysis of video game remakes, comparable to that done in these other areas. We intend this case study in part as a first, concretely grounded step in a larger project of understanding video game remakes.

### 2.1 Remakes in games and other media

In our view, the concept of game remakes is complex enough that it would be unwise to propose an overarching theory at this stage. Rather, we prefer to start bottom-up by taking a detailed look at a specific videogame remake. Nonetheless, it is instructive to look at existing remake analysis in other media, and consider the extent to which it applies to our study of the *X-Com* remake. Film scholars point out that a key feature of remakes is the relationship of the old and new audiences [25]. Two common types of remakes (in both films and games) are the cross-cultural adaptation type of remake (e.g., a French film remade by Hollywood, or a Japanese game adapted to the American market), and the updating type of remake, where an older film or game is recreated for the current era. *X-Com* is clearly an example of the latter.

Update-type remakes aim to remake an older production in a way that feels contemporary: they take advantage of advances in technology and production techniques, and adapt references and conventions to those now current. A major issue with update remakes is that they simultaneously target two audiences: fans of the original production, who consciously approach the remake *as* a remake, and new audiences, who may have heard of the original, but approach the new production largely on its own. Fans of the original will often approach remakes with an idealized memory of the original production [12, p. 24], and interpret the remake intertextually. New audiences are more likely to compare the remake to other current productions, rather than place as much emphasis on its status as a remake, so they demand a production that can “stand alone” *without* reference to the original. Discussing film remakes, Leitch [25] gives a succinct characterization of this tension at the core of remakes, which we find in video game remakes as well:

“Conventional wisdom assumes the original film was outstanding—otherwise why bother to remake it at all?—yet the remake is better still—otherwise why not simply watch the original, or watch it again? The audience for a remake is responding to the paradoxical promise that the film will be just like the original, only better. The fundamental rhetorical problem of remakes is to mediate

between two apparently irreconcilable claims: that the remake is just like its model, and that it’s better.”

The paradoxical promise to adhere to some kind of fidelity to the original, but nonetheless to produce a new take on it that is novel and interesting, is a key way in which remakes differ from sequels. Leitch characterizes sequels as instead promising more: the audience for a sequel liked the first film and wants more, roughly in the same vein. The audience for a remake, on the other hand, wants the same again, but not literally the same [25]. The distinction between remakes and sequels in film is then, to a first approximation, grounded in the film’s storyline: a sequel’s story expands on that of its predecessor, whereas a remake tells some version of the same story again.

It is likely that the question of remakes and sequels plays out differently in video games than in film, as video games are typically not solely defined by their storylines. Spector [36] argues that game designers who work within large, sequel-driven franchises should not see themselves as doomed to make the same game over and over. He considers it lazy to blame narrative constraints for a lack of game innovation, since many different kinds of gameplay can be designed within the same narrative arc. Conversely, if a designer actually does want to remake “the same game”, it is not sufficient (unlike in film) to simply reproduce the same narrative arc; rather, remaking the gameplay is key. Understanding what aspects of gameplay are retained, modified, and adapted in a remake is therefore a main aspect of game-remake analysis that differs from the analysis of film remakes. This analysis may vary by genre, especially because remakes are a complex phenomenon that simultaneously exhibits elements of a commercial practice and an authorship practice [39, p. 2]. For example, is *Starcraft 2* a remake or a sequel of *Starcraft*, or a hybrid? And what to make of series such as the yearly *FIFA* releases?

Given these complexities and multitude of contexts involved in understanding video game remakes, we propose to begin understanding the phenomenon via a case study of a particular, clear example. We focus on how the game design of *X:EU* has changed in making “the same” game in a new context, by using a side-by-side design-pattern analysis of the two games to characterize those changes. Interestingly, the *X-Com* remakers began by simply re-implementing the original *X-Com* on the new platform as closely as possible, and then began making changes from there. Unlike the case of “demakes”, where a newer game is remade onto older hardware, the platform did not force the developers here to make radical changes in order to perform the initial reimplementation, which was completely straightforward. They nonetheless did make a number of changes. Our study here investigates those design changes, looking at what changes they made after that initial direct reimplementation, and why they would have made them.

### 2.2 Usability updates

Usability inspection methods are a set of practices allowing expert evaluators to assess software interfaces. Heuristic evaluation is a method where experts evaluate a piece of software’s compliance with a list of recognized principles [43]. Desurvire et al. developed the PLAY heuristics [11] for games, which consist of three main categories: Gameplay, Coolness/Humor/Immersion, and Usability. This last category is further subdivided into: Tutorial, Status, Feedback, Terminology, Burden, Layout, Navigation, Error and Story. In Section 5.3 we will examine a crucial pattern present in both games to trace the evolution of the implementation according to the usability heuristic principles.

### 2.3 Isomorphism in gameplay Gestalts

The new *X-Com* game manages to capture the “feel” of the old one. That has been described in Gestalt psychology with the concept of isomorphism, the idea that experiences can be compared and deemed similar because of related qualities [21][24]. Gestalt psychology introduced the concept intending “sameness of form”; experiential isomorphism is the identification and linkage of similar attributes of a modeled experience with attributes in another experience. The isomorphism required by Gestalt theory is not a strict *structural* isomorphism, a literal isomorphism in the physical structure of the representation, but rather, it is merely a *functional* isomorphism, a behavior of the system *as if* it were physically isomorphic.

While isomorphism can be identified in local parts of a game, it can also be identified for the overall design, the gestalt. Lindley [27] defines gameplay gestalts as configurations or patterns of interaction with the game system, elements so unified that they cannot be merely described as sums of parts. Gameplay gestalts can also be particular ways of thinking about the game state from the perspective of a player, *patterns of reoccurring perceptual, cognitive, and motor operations*. Using these two concepts, isomorphism and gameplay gestalt, we can say that a remake is perceived as having the “feel” of the original if their gameplay gestalts are isomorphic. It must be noted that the sameness claimed by isomorphism is always formal and never structural, i.e. differences in detail will always be possible to identify.

## 3. DESCRIPTION OF THE TWO GAMES

We summarize the designs of *X:UD* and *X:EU* in order to ease understanding of our later analysis of the two games.

### 3.1 X-Com: UFO Defense

*X:UD* is a science-fiction-themed computer game, with core gameplay elements that include both real-time resource-management simulation and turn-based tactical combat. Players act as commanders of an international organization, the X-COM, devoted to defending Earth from an extraterrestrial invasion. As gameplay progresses, players encounter the various alien races, e.g. the insectoid Chryssalids, cyborg Mutons, and the psionically gifted Ethereals, and learn how to use the alien technology against them. The real-time portion of the game is the Geoscape, a three-dimensional representation of Earth that allows players to intercept alien craft, access X-COM bases, review funding, and access information about the alien menace. When accessing each base, players can decide to build new bases up to a maximum of eight, review information about existing bases, equip the soldiers stationed there, assign crews to aircrafts, arm each craft, build or destroy facilities, initiate research on new technologies and alien artifacts, manufacture new items, transfer goods and personnel between bases, purchase or sell items, recruit or sack personnel.

Research and manufacture are essential to develop better technology and to uncover how to defeat the aliens. Funding is provided by the nations of the consortium, and the amount donated by each member depends on the performance of the X-COM organization in their territory. The turn-based tactical section, the Battlescape, is entered whenever X-COM troops approach aliens. In this phase, players control a squad of soldiers in turn-based combat, navigating a partially randomly generated world presented in isometric 3D. Prior to any combat, players are asked to equip each soldier with the armament loaded on board the craft that takes the squadron to the alien encounter. Combat is based on Time Units (TU) available to each soldier. TU can be spent moving, managing inventory, equipping and using items,

firing weapons and kneeling down for extra cover. The game also allows for opportunity shots if enough TU are available: soldiers are able to reactively shoot hostiles when spotted during the enemy’s turn.

The landscape is initially hidden until the line of sight of each soldier reveals it. Nighttime scenarios feature limited line of sight to account for reduced visibility. Missions in the Battlescape are terminated when all hostiles or humans are eliminated, or if players chose to withdraw. Missions are scored according to the number of human and alien casualties, and any artifacts the player is able to retrieve from the aliens. After each mission, surviving soldiers may be awarded with an increase of skills stats and rank according to their performance.

The game is well-known for being unforgiving; it is not uncommon for all soldiers on a mission to be killed, especially early in a game. The fact that enemies typically has better detection capabilities, and can take control of player’s unit through psionic means, further adds to a high level of tension, and this is primarily felt in the tactical turn-based part of the game, rather than in the strategic real-time part.

### 3.2 XCom: Enemy Unknown

*X:EU* maintains the same theme and gameplay structure of its predecessor, also centered around both real-time management simulation and turn-based tactics. Players are again asked to act as commanders of XCOM to defend Earth from an alien invasion. When not in combat mode, the game shows a side view of the XCOM base. The Geoscape is used to move time forward by scanning for alien craft, but otherwise the game does not progress in real-time, and players cannot send aircraft on patrol missions. The view of the XCOM base also allows easy access for players to give orders related to research or production, hire and train soldiers, review panic levels and funding information, and access special actions that become available as gameplay progresses.

It is possible to identify a few radical differences between the two games from just a cursory glance. Developers of *X:EU* chose to dismiss TUs and introduce “moves”, to reduce the level of detail regarding equipment and its management. They also limited players to one base, reduced the maximum soldiers from 40 to 6, and finally introduced four soldier classes with unique class abilities. What is left unchanged is the subdivision of the game into two modes, Geoscape and Battlescape, the international consortium evaluating players’ performance and funding the project, research and manufacture of new technology as a means to progress in the game, and the turn-based nature of combat.

Although it is beyond the scope of this paper to investigate what motivated Firaxis to make these changes, some alternatives seem more likely than others. First, the gamer community is bigger, which has driven many developers to aim at broader markets; in practice this means catering to less experienced players as well as players with less time on their hands than many “old school” games required. Second, significant amounts of know-how have been developed within usability (and to a certain extent playability), and gamers are aware of these newer best practices through other products. This makes some previous design solutions difficult for contemporary audiences to accept. It is quite likely that both these reasons drove Firaxis to move away from the original design, even if it was cherished by the original players of *X:UD*.

## 4. METHOD

In order to compare two games, there is a need to identify and discuss specific design features. This can naturally be done in many different ways, but for the purpose of this paper, it is specifically gameplay features that we need to distinguish. Game designers have voiced a similar need for a vocabulary to speak about game design, nearly twenty years ago [9]. Several projects have been initiated from the industry to meet this need [2][8][20], but it appears to have been difficult to reserve time to develop these further. Probably the most widely spread of these results in the Mechanics-Dynamics-Aesthetics framework [19], which has been a collaboration between industry and academia. In this model, the game mechanics that exist in a game affect the dynamics of gameplay when the game is played, and this in turn creates aesthetic experiences, in the wide meaning of the concept.

One of the ideas suggested by game developers, that of using design patterns [20], has been adopted and put to extensive use in the field of game research. Developed originally to support participatory design in architecture [1], the idea of design patterns was popularized in software engineering [15] before reaching game researchers. After suggesting a modified template for describing patterns,—motivated by a wish to avoid making patterns perceived as a tool to remove unwanted effects and acknowledging their unreliability to mechanically solve design issues in games—a set of 300 gameplay design patterns was documented [5]. Several independent collections for specific sub-areas of gameplay design have been developed [18][26][29][35] and the original set has been expanded with patterns concerning non-player characters [23], game dialogues [6], team work [3], and novel technology-based gameplay [32]. See the Game Ontology Project [40] for a similar approach that has been used to examine gameplay segmentation [41] and game temporality [42].

Gameplay design patterns are “semi-formal inter-dependent descriptions of commonly recurring parts of the design of a game that concern gameplay” [5]. Full description of a pattern includes an introduction assuming no knowledge of other patterns, a section on what makes it appear in a game, and a section on the consequences the pattern has on gameplay in general. However, patterns are useful as descriptions with only single-sentence definitions or in some cases simply by their name. Indeed, this is the way patterns are used in most papers (see [18] for an exception). The full pattern collections are then described on wikis<sup>5,6,7</sup> that have restricted access to who can edit them. This paper follows the established convention in not providing detailed descriptions of patterns and making use of the wiki containing Björk and Holopainen's updated collection<sup>8</sup>.

While patterns have been described as tools of game design and analysis, they are not dedicated to a specific purpose. The first academic publication on gameplay design patterns proposed many different uses, including idea generation, analyzing competing designs, problem-solving, categorization of genres, and support in explorations of new platforms and mediums [4]. Of the documented uses of design patterns, the analysis of pervasive games [32] is perhaps the closest to the goal of this paper in that it analyzed many games and looked for similarities between them based on the presence or absence of patterns. However, looking only at *X:UD* and *X:EU* makes the clustering technique used in that work inapplicable, so instead we apply a qualitative analysis,

after identifying patterns. This can be viewed as a form of close reading of the games, using patterns as points of reference, and usability heuristics as an evaluation parameter.

The easiest design patterns to identify are those that describe concrete game mechanics. However, simply matching which such patterns were kept from the original game would not be enough, since we know that game mechanics were deliberately changed with the goal of maintaining the overall feel unchanged. Using the MDA framework as a model, the gameplay aesthetics of the two games has been identified by players and critics as similar. Whether the dynamics that support these aesthetics are the same is less clear, while the mechanics level is clearly a mixture of old and new features. Understanding how *X:UD* and *X:EU* provide the same feel therefore can be seen as a study in how partly different features on the mechanical and dynamic levels can lead to the same aesthetics (one obvious hypothesis here might be that only the ones that did not affect the core experience were changed). This exploration might be conducted by trying to identify gameplay design patterns on all the levels of the MDA framework and explore their relations. The positioning of gameplay design patterns on the MDA framework has already been done for the aesthetics of camaraderie [3] and pottering [28]. Given the consensus that both *X:UD* and *X:EU* provide tense single-player experiences, these aesthetics were however unlikely to be a main feature of the analysis; camaraderie describes the sense of togetherness that can be achieved when playing in teams while pottering has been described as “the kinds of things frittered between (usually in leisure time) with little or no purpose.” [37]

Based on this approach to pattern-based analysis, we performed a detailed examination of the games as follows. Each of the researchers first studied both games from a stance of identifying gameplay design patterns. While one of the researchers played through *X:UD* just before playing *X:EU*, all researchers had played both games, and revisited *X:UD* to check details. Based on this, we created a common list of identified patterns, along with a note of their presence in each of the two games, and whether variants of the patterns were observed. For newly identified patterns, we agreed on naming, the underlying concept, and preliminary sets of relations to other patterns. Patterns that had not already been marked as mechanical, dynamic, or aesthetic (on the wiki based on Björk and Holopainen's work) were categorized as one of these. This list of patterns provided the basis on which to look for traces from mechanical patterns to dynamic patterns, and from dynamic patterns to aesthetic patterns. The resulting traces were then compared to see if they confirmed or refuted the statements regarding gameplay feel described earlier in the paper, or if they brought light to other aspects of the gameplay of the games. Finally, we conducted an analysis based on the PLAY game usability heuristics [12] for aspects concerning the most dominant pattern found. Due to space limitations, we do not explain individual gameplay design patterns in detail. Patterns we identified during the analysis are given brief descriptions; older patterns are explained in detail on the previously mentioned wiki.

## 5. ANALYSIS

Maybe not too surprisingly, both games support the aesthetic design pattern TENSION. COMBAT occurs in both games due to the alien ENEMIES present on every mission LEVEL. This is further compounded by the fact that soldiers killed during missions are gone forever; the use of the mechanical pattern PERMADEATH makes deaths into IRREVERSIBLE EVENTS and the ever-present risk of these adds to the TENSION of the games. While PERMADEATHS are a concern in themselves, their consequences are increased by

<sup>5</sup> [http://gdp2.tii.se/index.php/Main\\_Page](http://gdp2.tii.se/index.php/Main_Page)

<sup>6</sup> <http://ldp.soe.ucsc.edu/doku.php>

<sup>7</sup> <http://rpgpatterns.soe.ucsc.edu/doku.php>

<sup>8</sup> [http://gdp2.tii.se/index.php/Main\\_Page](http://gdp2.tii.se/index.php/Main_Page)

the fact that soldiers have CHARACTER DEVELOPMENT—primarily through INCREASED ABILITIES via raised statistics in *X:UD* and through unlocking abilities in TALENT TREES in *X:EU*—which makes the deaths of experienced soldiers a greater loss. TENSION is also added by having an UNCERTAINTY OF INFORMATION regarding the layout of the LEVELS and the position of ENEMIES due to a FOG OF WAR system. Additionally, the RANDOMNESS involved in COMBAT results make people hope for LUCK; an aesthetic pattern that also supports TENSION.

The TENSION pattern continues outside tactical COMBAT, since the funding countries (FACTIONS) need help to continue supporting the player economically. Performing missions successfully in the countries does help game progression, but can also be seen as a form of DIEGETIC SOCIAL MAINTENANCE. This can be done proactively in *X:EU* by launching satellites, and in *X:UD* by building bases. In both games, the opportunity to fight combat missions in territories with high level of panic or about to leave the international consortium is left to chance. This randomness limits the agency that players have when trying to act proactively.

Both games have a type of LINGERING EFFECTS: soldiers that are hit can suffer wounds that need to be stabilized or they will continue to lose hit points until they die. These create TIME LIMITS before which players must have performed some actions or soldiers will die, rather naturally this also creates TENSION if there exists some chance to mitigate the LINGERING EFFECTS. Further increasing the TENSION in the game is that players may suffer HELPLESSNESS regarding individual soldiers; one may suffer LOSS OF CONTROL over them due to panic reactions when seeing allies die, or, worse, one may experience TRANSFER OF CONTROL of soldiers to psionic attacks from the alien Ethereal type. The attacks from the alien Chryssalid species also have a form of LINGERING EFFECT; it automatically kills with its melee attack but after a few turns the corpse will reanimate as a Zombie. This can be seen as a form of TRANSFER OF CONTROL, but the risk of INSTAKILLS also provides TENSION.

Probably not too surprising to readers now, both games have CHALLENGING GAMEPLAY. PERMADEATH plays a large role in this, but so does the implementation of COMBAT; one is likely to die from one or two attacks, making INSTAKILLS not uncommon events even if one discounts the attacks by Chryssalids. Like many games released, *X:UD* and *X:EU* let players choose their DIFFICULTY LEVEL. This could be seen as a counter-argument to the claim that the games have CHALLENGING GAMEPLAY: wouldn't selecting the easiest difficulty level make the games not challenging? Relatively, this is true, but the other patterns exist even on the least challenging levels of the game, and the games are less forgiving than most. A more likely reason for the presence of DIFFICULTY LEVEL is to allow experienced players to have more trouble completing the game. The presence of an Ironman mode in *X:EU* is another indication of this; players can start in game modes where one can only use one save file and thereby not use SAVE-LOAD CYCLES to undo failures.

The CHALLENGING GAMEPLAY gives rise to STIMULATED PLANNING, since players are in no real-time hurry to finish actions. A consequence of the way CHALLENGING GAMEPLAY is

constructed in both games is that failures make future challenges more difficult. On a tactical level, the loss of soldiers, equipment (and ships in *X:UD*) makes later responses more difficult. On a strategic level, the monthly PROGRESS EVALUATIONS will lead to decreased funding if players fail missions. Both these create POSITIVE FEEDBACK LOOPS in the sense that failure increases difficulty, which increases the likelihood of failure. In this case, this dynamic pattern takes the form of AVALANCHE EFFECTS (also a dynamic pattern) since a few failed missions can trigger escalating difficulty that will lead to losing the game. Being aware of this possibility is also a source of TENSION for knowledgeable players. The presence of TENSION and CHALLENGING GAMEPLAY makes it easy for players to fail miserably with missions, losing all soldiers, and in the case of *X:UD*, the transport vehicle that carried them to the mission. While failures with missions can be frustrating, they can also become some of the most memorable experiences while playing the game in that the series of events can become so bad that the easiest way of handling them is to treat them as entertainment; this is the essence of the aesthetic pattern SPECTACULAR FAILURE ENJOYMENT [3].

While the main prominent aesthetic patterns of both games may be TENSION and CHALLENGING GAMEPLAY, three other are noteworthy: REPLAYABILITY, HIGHER-LEVEL CLOSURES AS GAMEPLAY PROGRESSES, and THEMATIC CONSISTENCY. The first mainly arises from the fact that both games let players choose their DIFFICULTY LEVELS. While this does allow for CHALLENGING GAMEPLAY, it also supports REPLAYABILITY in that players can challenge their skills on a more difficult setting after they have completed a game instance. The development of technologies and weapons forms a sort of HIGHER-LEVEL CLOSURES AS GAMEPLAY PROGRESSES, but this pattern mainly arises from the fact that some technology research projects have narrative significance and progress the game as a whole. While the aesthetic pattern of THEMATIC CONSISTENCY has perhaps more to do with theme and presentation of a game than its gameplay, the latter can support this through having game actions that fit the theme not only in form but also in function. For this study, an additional aspect is the thematic consistency between the games regarding gameplay. The replacement of radar stations with satellites in *X:EU*, for example, changes the form but retains the function of providing a way to influence one's possibilities to detect and intercept UFOs.

## 5.1 Patterns introduced in X:EU

Many specific mechanical gameplay design patterns were introduced in the remake *X:EU*. Interestingly enough, many of the dynamic patterns these gave rise to in turn instantiated TENSION. For example, since players often are outnumbered in *X:EU*, there is a need to only engage in COMBAT when one has local superiority in firepower. This requires STEALTH during MOVEMENT (dynamic and mechanical patterns, respectively), and performing this is a source of TENSION. *X:EU* also added several more types of LINGERING EFFECTS, e.g. poison that does damage for several turns, and objects that start to burn and then explode the following turn, giving more TIME LIMITS to players and thereby more TENSION.

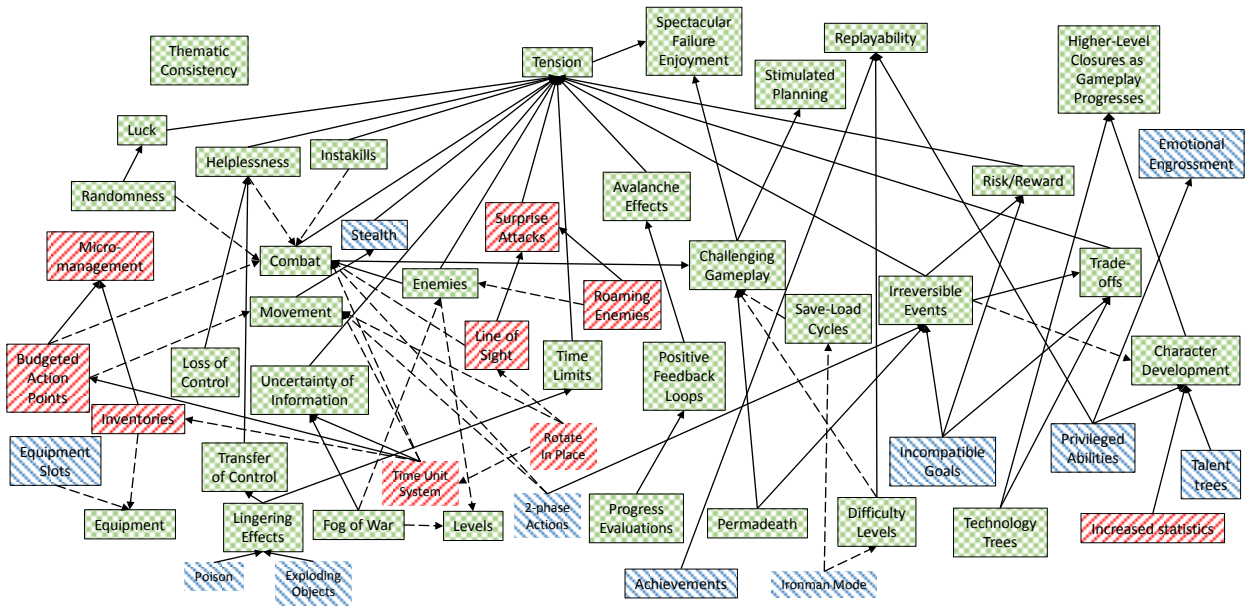


Figure 1. Most patterns mention from X:EU and X:UD (Green indicates presence in both games, red only in X:UD, and blue only in X:EU). Solid lines indicate instantiating relations and dashes lines modulating ones. Boxes without outlines are mechanics.

In a large gameplay departure, *X:EU* removed the very central game mechanic of TUs. This mechanic is an instantiation of BUDGETED ACTION POINTS applied to each soldier in the player's team. *X:EU* uses a two-action system instead, in which each soldier can first make a move and then fire or make an additional move. Abilities unlocked through TALENT TREES can modify this move sequence, and characters belonging to the sniper class start out not being able to fire after moving. The second action can be forfeited for one dash (longer than two separate movements), but this does not let players first advance and then make a decision on what to do next (an example of the RISK/REWARD pattern). The two-action system in *X:EU* is in fact a very limited BUDGETED ACTION POINTS system, which might be described as a subpattern since it provides different dynamics. While in *X:UD* players move TU by TU, and can move back if something threatening appears, movement in *X:EU* is an IRREVERSIBLE EVENT for the scope of that turn, so players must be prepared to accept placing a character in danger if they explore too far ahead (another example of the RISK/REWARD pattern). This naturally creates TENSION, but even as the new action system in *X:EU* provides this, it at the same time reduces TENSION in other parts of the game. Specifically, Chryssalids cannot attack as frequently as in *X:UD*, and this has caused players to feel they are not as frightening as before<sup>9,10</sup>.

Shifting focus to the strategy mode, the missions in *X:UD* are independent of each other, but in *X:EU* the abduction missions come in groups of three. Each gives a different reward and is located in a different country. Players can only complete one of each mission set, so must forfeit the other rewards and accept the rise of panic level in the ignored countries. This is an example of the mechanical pattern of INCOMPATIBLE GOALS, which forces players to make TRADEOFFS that are coupled with RISK/REWARDS, both because it may not be apparent which goal is the most important, and because one may fail to achieve the goal. Both these dynamic patterns give rise to TENSION.

*X:EU* adds some mechanics to increase REPLAYABILITY. One is that the different starting positions have PRIVILEGED ABILITIES which offer slightly different gaming experiences. Second, the use

of ACHIEVEMENTS encourages players to replay the game to increase certain trans-game values (e.g. kill 500 aliens to gain the Pale Horse achievement or shoot down 40 UFOs to gain Shooting Stars) or to play differently (e.g. win a mission with only female soldiers to gain Flight of the Valkyries or clear a UFO crash site with one soldier on a high difficulty to gain Lone Wolf).

## 5.2 Patterns not carried on to X:EU

Several game mechanics not directly related to the tactical combat were removed or changed. While this focuses gameplay on choices related to combat, it also removes MICROMANAGEMENT; the change from TUs to the two-action system can also be seen in this light. *X:UD* had INVENTORIES for soldiers, vehicles, and bases, as well as letting EQUIPMENT be picked up from squares in LEVELS. *X:EU* simplifies this to EQUIPMENT SLOTS for each soldier, which cannot be modified during missions. While this does remove MICROMANAGEMENT, it still allows players to select TASK-RELATED LOADOUTS for the missions they have chosen. In addition, *X:UD* required the construction of living quarters to host additional personnel, and general stores to be able to expand the INVENTORIES; both features were removed in *X:EU*.

A feature restricted or in practice not present in the normal difficulty level of *X:EU* is ROAMING ENEMIES. In *X:UD*, this pattern interacts with the FOG OF WAR and enemies' long detection ranges to expose the player's soldiers to SURPRISE ATTACKS; this would occur even without ROAMING ENEMIES, but they make it unknown where the follow-up attack will come from. *X:EU* does not support SURPRISE ATTACKS at all: ENEMIES notice soldiers at the same time as soldiers notice the ENEMIES. Occasionally ENEMIES will walk into players' field of vision and then attack, but players see this attack and the attacker will remain there until after the player's next turn. This is a loss of source of TENSION in the remake. *X:UD* provides another form of SURPRISE ATTACKS that was removed in *X:EU*: aliens can be revealed to be right beside a soldier and attack, because the game only shows ENEMIES that are actually in soldier's LINE OF SIGHT (based on their facing direction), while *X:EU* ignores facing, and reveals enemies based on potential LINE OF SIGHT including rotations. Therefore an unseen enemy can never be lurking right next to a soldier. A similarity to ROAMING ENEMIES was also removed from the

<sup>9</sup> [www.ufopaedia.org/index.php?title=Chryssalid\\_\(EU2012\)](http://www.ufopaedia.org/index.php?title=Chryssalid_(EU2012))

<sup>10</sup> [forums.nexusmods.com/index.php?topic/818369-de-nerfing-chryssalids/](http://forums.nexusmods.com/index.php?topic/818369-de-nerfing-chryssalids/)

strategic game mode in *X:EU*. In *X:UD*, aliens could be provoked to attack the player's bases. While these attacks could be prevented by quick responses by aircraft, they are likely to come as SURPRISE ATTACKS, and removing this is a case where a source of TENSION was removed from the remake.

*X:UD* allows up to 40 soldiers on missions after certain troop transports have been developed. *X:EU* in contrast starts by allowing only 4 soldiers to be sent on missions; purchasing IMPROVED ABILITIES in the officer training school (which does not exist in *X:UD*) increases this to 6. While this can be seen as a minor shift from TECHNOLOGY TREES to TALENT TREES, the limitation on squad size make each soldier more valuable. Together with the four CLASSES providing PRIVILEGED ABILITIES, this makes *X:EU* soldiers become CHARACTERS, while those in *X:UD* are more like UNITS. Although not a clear-cut distinction, this helps build EMOTIONAL ENGROSSMENT in *X:EU* for the soldiers, and thereby TENSION when they are put at risk. An indication of this is found in several reports where players personalize soldiers with names of friends or famous characters in order increase the game's TENSION [16][33]. Or as Davis says: "You can further personalize your troops, if amplified emotional loss is your thing." [10]

### 5.3 Usability analysis of TENSION

TENSION is a pivotal pattern for both games, receiving support from a large number of mechanical and dynamic patterns. Hence it is interesting to examine how its implementation changed in more detail. We do this by looking at three TENSION supports that were removed in *X:EU*. We connect these to the PLAY heuristics [11], in order to reverse engineer the new design.

*X:EU* removed rotation actions, so soldiers always face the direction of their last movement. This discarded the use of LINE OF SIGHT to determine if a soldier and an alien can see each other. This change addressed two points from the PLAY heuristic: "Controls are intuitive, and mapped in a natural way; they are customizable and default to industry standard settings" and "Player is given controls that are basic enough to learn quickly, yet expandable for advanced options for advanced players". This small change has a sizeable consequence: it removes the possibility of asymmetrical information flow, so if one combatant is aware of another, then the reverse is also true. As a result, it also removed the TENSION of potential SURPRISE ATTACKS.

In one of the more noticeable changes, *X:EU* opted to allot two actions to each soldier per turn instead of using the TU system from *X:UD*. This frees players from performing mental arithmetic to figure out whether they had enough TUs to perform all wanted actions. This change clearly addressed the PLAY heuristics "The game does not put an unnecessary burden on the player" and "Player error is avoided", but at the same time removed the danger of players putting their soldiers at risk due to erroneous calculations, a mistake easy to make but impossible to blame on anything else besides players themselves.

Finally, in the original *X:UD* the aliens' TU status was hidden, so it was impossible for players to know if aliens could perform reaction-based attacks during the players' turn. *X:EU* opted for a more transparent system which always clearly communicates when aliens are in "overwatch mode" and can take a shot at soldiers during the player's turn. This change also clearly reflects PLAY heuristics "Game provides feedback and reacts in a consistent, immediate, challenging and exciting way to the players' actions" and "Provide appropriate audio/visual/visceral to actions". This clarity of information removes a source of

UNCERTAINTY OF INFORMATION and allows players to be somewhat more relaxed.

Summarizing, the few changes seem to have been motivated by a desire to streamline controls and interface and update game systems to current standards. It is also evident, however, that each of the changes slightly lowered the potential intensity of the TENSION pattern.

## 6. DISCUSSION

Our analysis shows an overlap in patterns between the two games, but also clear differences. This is in line with the reviews, and there is a general agreement between the reviews and the patterns found, e.g. thrill-evoking gameplay and the pattern TENSION. While similarities exist on the mechanical levels between the games, they become much more similar on the higher levels of abstraction. This argues that the two games are isomorphic regarding their gameplay gestalt; that is, the overarching patterns determining the experience of playing the games, the aesthetics of their gameplay, are close enough that players who have played the original have similar experiences with the remake.

A noteworthy feature is that common aesthetic design patterns often do not stem from the same mechanical or dynamic patterns. As two examples, TASK-RELATED LOADOUTS are provided by INVENTORIES and EQUIPMENT SLOTS in *X:UD* and *X:EU* respectively, and SURPRISE ATTACKS are used by *X:UD* as one source of TENSION while *X:EU* uses STEALTH and IRREVERSIBLE EVENTS instead. This points to a possible explanation for why the remake has been described as maintaining the feel of the original while having changed many of the core gameplay mechanics. From a methodological perspective, a pattern analysis is always subjective—not least since patterns can be present with various levels of importance in a game and since documented relations between patterns do not automatically occur in any given design. Nonetheless, the analysis of the two games did identify TENSION and CHALLENGING GAMEPLAY as the main aesthetic patterns, and this is in alignment with the reviews of the games. Further, the mechanical patterns match the concepts mentioned in reviews. These two levels are connected through the various relations that patterns have exhibited in the designs. The transparency this provides in the analysis opens it for inspection, refinement, and expansion through looking at other games in the series.

Regarding the general relevance of pattern analysis, the presence of THEMATIC CONSISTENCY in *X:EU* provided a new case in which a pattern can emerge. While usually patterns occur in a game solely based on the design features existing in that game, *X:EU* had to not only be internally consistent but also maintain the theme from *X:UD*. In one sense, the similarities between gameplay patterns in two different games became a way for a specific pattern to emerge in the later game. This points towards a novel way of using patterns, and further work could explore to which extent this applies to existing patterns or which new patterns can be found based upon this approach. It is beyond the scope of this paper to look at the failure of the re-imagined versions of *Bionic Commando* and *Syndicate*, for example. While analyzing these as well may be valuable to understand the design requirements of new version of old games, in the context of this paper the most interesting discovery would be if they did support the same aesthetic patterns and held no obvious unbalanced or otherwise problematic design features.

On a practical note, the analysis in this paper points suggests a strategy for developers involved in producing remakes (or sequels) of games: when it comes to gameplay one may change

many mechanics as long as one maintains the aesthetic design features. Using gameplay design patterns together with the MDA framework can help developers be aware of these design goals, as well as having an overview of which possibilities exist for realizing specific aesthetic patterns.

## 7. CONCLUSION

This paper analyzed *X:UD* and *X:EU* and showed that the games were isomorphic in regards to gameplay aesthetics while differing in specific mechanics. In doing so, the paper applied gameplay design patterns in a novel way to do a comparative study, and explained how *X:EU* can both be perceived as true to the original in the eyes of reviewers while also significantly changing gameplay, updating it to comply with modern expectations. Thus the X-COM series demonstrates one example of how games can navigate the paradox of remakes, to make the “same” game again, but “improving” it in some way rather than merely duplicating it.

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