WHERE'S BATTLETECH IN MECHWARRIOR ONLINE? A CASE STUDY IN GAME ADAPTATION

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Battletech, *MechWarrior Online*, and the Clan invasion

On December 13, 2013, Vancouver-based developer Piranha Games, Inc. (PGI), announced the first expansion to their free-to-play shooter *MechWarrior Online* (MWO), the latest of a long line of digital games based on the strategic board game *Battletech*, first released by FASA corporation in 1984. Scheduled to be released only nine months after the game's official launch on September 13, 2013, the expansion in itself as well as the changes it would introduce to gameplay were heavily contested in the official and fan-moderated forums of the game. Hampered by technical problems, an extremely complex copyright situation, and a problematic business model, MWO had missed deadlines for feature injection on a regular basis. Players were thus skeptical of the new promises, as some elements envisioned as

core game features upon the beginning of the closed beta phase in May 2012 had not yet been implemented at the time of writing (1).

The vocal criticism of PGI's policies is certainly related to the fact that the developer only had two – at best – moderately successful major games to its name (*Die Hard: Nakatomi Plaza* and the console port of *Duke Nukem Forever*) before taking on the long legacy of *MechWarrior* games. Especially the 'founders' who participated in the initial crowd-funding of the project by raising several million dollars have been very outspoken in their general criticism of PGI's design decisions since the late beta phase. Discussion of the 'Clan invasion' event, however, connected a number of points of contention, and did so at an unprecedented scale. Within four weeks of announcing the feature and rule changes in the envisioned expansion on December 14 (Inouye, 2013), 1785 replies of lengths up to 2000 words had been posted in reaction to the design paper, and discussion in the thread continued until it was closed a week before the expansion launch ("MWO Forums: Clan Technology – A Design Perspective – Feedback," 2013).

Players not only dissected those changes and proposed alternate possibilities, but pointed out high-level problems the expansion would be creating and linked both to the Freemium business model used by PGI. That players did so with great skill and insight is unsurprising given that MWO has already been discussed in economics as a prime example for the realization that the "indirect link to the historical customer base from the acquired intellectual property assets is compelling because it presents significant funding and knowledge opportunities to entrepreneurs" (Smith, 2013, p. 25). In other words: the 'founders' had not only significantly co-financed game development, but had initially been pivotal in suggesting game design and features. By announcing the Clan invasion, PGI signaled that they would not prioritize bugfixes or the inclusion

of long-awaited features but would instead focus on creating an immediate influx of revenue through an elaborate pre-order model for additional game assets. What is more, the Clan invasion is a pivotal event in the fictional history of the BT universe, in which said Clans are an initially invincible enemy who temporarily unites factions that have been at war for centuries. One of the features announced in the initial design documents of MWO, yet never implemented, is 'Community Warfare,' a strategic component of the game that would recreate the complex political environment of BT prior to the Clan invasion, and which became partially obsolete by moving forward the invasion event. And while the developers and a part of the community debated how the Clans can be implemented without introducing extreme balancing issues, many voices raised the question whether balancing should be an issue at all when introducing an enemy that, according to game-world lore, is supposed to be overpowered (2).

The Clan invasion in MWO is a highly paradigmatic example for a number of fascinating issues of adapting analog games for the digital domain, because it showcases the intimate connection between evolving rules, intricate lore, player psyche, and business practices. *BattleTech* is best described as a modular game system in which the tactics of armored combat are only one, albeit central, level of abstraction, complemented by rules for actions on every scale, from a role-playing game up to a galaxy-spanning strategy rule-set. The unifying factor of these game modules are a common set of general rules (which, given their level of abstraction, might rather be identified as doctrine) and a coherent history of humanity's colonization of the stars, set forth in over one hundred novels. The traditional incarnation of BT, rooted deeply in the tradition of serious wargames, has been modified in quick-play rules, a collectible card game and a miniature-based tactics game. Since the late 1980s, *BattleTech* has expanded to digital games, again in several genres, from

adventures to strategy games and simulators. In the early- to mid-1990s, FASA's sister company Virtual World Entertainment ran arcades featuring exclusively their own battle pods, a networked set of up to 32 *BattleTech* simulation booths (Jacobson, 1993), which impressed players with real-time 3D graphics and detailed physical cockpits: "It took at least one gaming session (about a half hour) just to learn what all the switches did! It was as realistic a gaming experience as I've ever had" (Rogers, 2010, pp. FN 5). Given the tremendous effort required in creating the simulation booths, it can be assumed that the impression of realism conveyed by them was intentional, which would not be surprising at all if the BT rule-books didn't disavow the idea of realism for the board game: "Classic BattleTech is a game, not a detailed simulation. Therefore, the real world must take a back seat to game play—for simplicity, length of play, space required and simple enjoyment. […] Players are encouraged to remember such abstractions and not get bogged down in real-world mechanics and physics. Just enjoy the game!" (Bills, 2006, p. 36)

This paper will take a close look at the game design strategies with which PGI have translated a by-now venerable board game into a real-time action game. The argument presented here is that PGI have solved most design challenges in an ingenious way that is not only adequate, but resolves some issues inherent in the original game in quite elegant fashion. Their achievement in game design, however, has only been possible through a business model which forces them to take unpopular design decisions and alienate the long-term fans of the franchise who, both financially and intellectually, made the development of MWO possible in the first place. As such, this contribution to Well-Played demonstrates how the very same game can be a best-practice example in one respect while being worst-practice in another, ending up in a highly contested middle ground.

In the following, I will use aiming, one of the central concepts

of both games, as my central paradigm for the strategies of adaptation from board game to the temporal and spatial logic of a real-time game in a 3D environment. In doing so, I will draw on the current official BT rule-books as well as the MWO player community's theory-crafting and reverse-engineering efforts aimed at making the rules of the computer game transparent, but the core of my argument is formed by my own playing experience and a detailed comparison between the board game's probability-based and the computer game's skill-based approach to the same scenarios.

Holy cows and prime beef: Adaptation of core rules

Despite the great variety of games that have emerged from the BT franchise, all of them share a number of central assumptions and design principles. All games revolve around fighting in BattleMechs – walking tanks reminiscent of robots, yet controlled by a pilot in their head. The rationale for this kind of warfare is that in the 25th century, weapons of mass destruction have been banned, which leads to mechanized infantry becoming the dominant force on battlefields throughout the galaxy. In terms of unit diversification, Mechs come in four different weight classes between 20 and 100 tons. They are, except for a few rare exceptions, bipedal and powered by fusion engines, use an internal skeleton and artificial muscles, and are protected by armor. A Mech body is divided into 11 zones: head, both arms, both legs, front and rear left, middle, and right torso. The limiting factor for every Mech action, especially offensive ones, is heat generation by fusion engine and weapons. Mechs use three types of weapon systems, energy based (e.g. lasers), ballistic (cannons), and missiles, with every type subdivided into classes with their unique relationship between weight, range, damage, and heat. Energy weapons, for example, tend to create more heat than ballistic weapons, but require no ammunition and weigh less, while missile weapons generate heat in proportion to the number of missiles fired at a time, from two to 40, which will

spread damage over several body zones of the target. Because of this intricate balance of co-dependent factors, not only on weight and speed of a Mech determine its fighting style, combat role, and preferred tactics, but its exact weapon load-out. That is why each weight class in BT offers dozens of different Mech models with numerous variants. MWO has only implemented a fraction of these, yet already contains 39 chassis with a total of 169 unique variants at the time of writing.

Three factors make the adaptation of BT into real-time, 3D games a special challenge. While BT fiction (including expository parts of rule books) stresses the pivotal role of the pilot as a skilled warrior, the rules focus almost exclusively on the Mechs: Mechwarriors supply only two base values on the BT record sheet. As with every board game, time and space are modeled in ways that are fundamentally different from digital games. "In nondigital games, overall game time is often logical, specifying the ordering of events, whereas in digital games, time is often used in a chronological fashion, notably as a balancing tool in multiplayer and massively multiplayer games" (Tychsen & Hitchens, 2009, p. 171). Similarly, space in board games is usually divided into discrete, simplified units, which means that "conditions can become more complex and multilayered when players engage in 3D game spaces" (Nitsche, 2008, p. 43).

These factors are aggravated by BTs coarse granularity. The board game is played on a surface with hex squares of one inch in diameter, operating at 1/1200 scale, and each turn represents ten seconds of game-world time. BT uses two six-sided dice (2d6) throughout its rules, with values, modifiers, and results tables carefully chosen to account for this dice-combination's pronounced preference for mid-range values: statistically, almost half (44,5 %) of all rolls will be 6, 7 or 8. Targeting in BT is based on the Mechwarrior's piloting skill, which is modified by distance to target, relative speeds and similar factors. The effective range of weapons is evenly divided into close, medium,

and long range. A modifier of +2 is added to the to-hit probability at medium range, which increases to +4 at long range. Given that the base value is equal to the pilot's gunnery skill (which defaults to 4), these modifiers are drastic, especially as attacker and target movement also contribute modifiers (see Table 1).

Table 1. Hit probability calculations in BT

range	base value	attacker movement	target movement	range modifier	to-hit value (2d6)	to-hit percentage
short range	4	+ 1	+ 2	0	7	58,4 %
medium range	4	+ 1	+ 2	+ 2	9	27,8 %
long range	4	+ 1	+ 2	+ 4	11	8,4 %

A young and inexperienced Mechwarrior with a skill of 4 will thus have little chance of hitting moving targets at great distances, yet fares reasonably well in close combat. Hit placement is similarly semi-randomized through the use of tables without any influence of pilot skill. Missiles are always fired in clusters, whose hit locations are resolved via an additional table. Only immobile enemies can be targets of aimed shots, while in all other cases, roughly 45 % of shots will hit the torso-area of a Mech.

In the following sections, I will show that PGI achieve great fidelity to BT logic (if not rules) because they make creative use of the side-effects of realistic time and space in their game-world. By fine-tuning elements not present in the board game but necessary in real time, e.g. acceleration, twist rates and angles, the various game units become even more clearly differentiated from each other than in BattleTech and thus more viable in their individual roles on the playing field.

Discrete time and real-time

It almost goes without saying that BT uses an asynchronous relationship between playing time and world time (Tychsen & Hitchens, 2009, p. 193), while MWO employs the 1:1 mapping typical of shooter games (Tychsen & Hitchens, 2009, p. 181). Furthermore, BT is turn based and uses a mixture of consecutive and simultaneous turn resolution (Tychsen & Hitchens, 2009, p. 198): In the initiative phase, the turn order of players is determined, before a consecutive movement phase and a simultaneously resolved attack phase ensue. This leads to a situation in which game time "is further complicated by turns being normally taken in sequence, but the turns of all players in a round occupying the same world time, thus, mapping different playing times to the same world time" (Tychsen & Hitchens, 2009, p. 199).

These differences are nowhere more apparent in MWO than when it comes to targeting and firing weapons in BT. Every weapon can be fired once a turn, i.e. every ten seconds, regardless of its other characteristics. A class of burst weapons (such as rapid-fire autocannons) exists, yet even they can be fired only once per turn and differ from their 'regular' counterparts by being treated as firing clusters of simultaneous shots which are resolved using the same tables as missile volleys. Heat generation is relevant insofar as it limits the number of consecutive rounds a weapon can be fired before overheating the Mech.

In a real-time game, being able to fire all weapons only once every ten seconds is obviously not feasible. Therefore, MWO and previous *MechWarrior* PC games are using weapon-specific cooldown periods to determine when they can be fired again. In MWO, these range from 0.52 to 4.75 seconds. The cooldown correlates vaguely with the damage output of a weapon, allowing for smaller weapons to be fired more often and less carefully. Compared to its predecessors, MWO uses short cooldown

periods: a Large Laser will be ready to fire after 3.25 seconds in MWO, while in *MechWarrior 4: Mercenaries*, it would take 6.5 seconds. While this gives fights a faster pace, PGI has counterbalanced this design decision by stressing the temporality of actual attacks. Laser weapons need to remain on target to transfer energy and thus do damage, from between 0.5 seconds to one second. Firing this type of weapon thus means having to face the enemy for the full duration of the shot constantly correcting for the movement of both Mechs. Shooting a Medium Laser at its optimum range of 270 meters at a big Mech like the Catapult, the target is only three times as wide as the center reticule, which at a standard Full-HD resolution of 1920×1080 is 14 pixels in diameter. At this distance, an aimed shot at a moving target is possible, yet extremely difficult – the Catapult's center torso is only 5 pixels wide. Similar effects have been achieved with ballistic and missile weapons by choosing rather low projectile velocities compared to other shooter games. The biggest ballistic weapon in the game, the Autocannon 20, has a maximum range of 810 meters, and its projectiles travel at a slow 650 m/s, so that it takes the bullet 1,25 seconds to reach its target. While other projectile weapons have a higher velocity, they are still slow enough to have to lead their target significantly. All weapon types are thus clearly distinguished by their respective drawbacks, having to compensate for movement either before or during the shot, making each weapon type distinct and none overpowered.

Interestingly, the implementation of autocannons, the most important and widespread type of ballistic weapon in the game, is one of the few instances where MWO departs significantly from BT rules and descriptions in fiction: "With calibers ranging from 30 to 90 millimeters at the lighter end, to as much as 203 millimeters or more at the heaviest, most autocannons deliver their damage by firing high-speed streams or bursts of high-explosive, armor-defeating shells through one or more barrels"

(Bills, 2007, p. 207). While the word "most" in the BT description leaves some room for interpretation, it is clear that, originally, autocannons are conceived of as firing more than one projectile per round and that their damage derives from multiple hits that are only counted as one. Not only does the interpretation of autocannons in MWO differentiate this weapon more clearly in its usage and effect from laser weapons, but it revises an incongruence in the BT rules: As mentioned above, there is a class of fast-firing Ultra autocannons, which are considered cluster weapons in the BT rules, distributing their hits randomly like those of missiles, while the burst fire of standard autocannons is treated as a localized effect. In MWO, burst fire autocannons suffer from both the drawbacks of laser and projectile weapons, making them inferior to other weapon types. It is in exactly this fashion that Clan autocannons have been implemented to counterbalance their otherwise superior capabilities.

Board game rules versus object design in 3D environments

As with the shift from discrete to contiguous time, the move to 3D does more than "heighten the level of immediacy *within* the virtual environment" (Nitsche, 2008, p. 34) in MWO. The physical modeling of both environment and Mechs necessitates a more diverse and coherent treatment of spatial relationships. Hills and buildings are not uniform shapes, but have protrusions and arches that may block fire or complicate aiming. The canonical division of a Mech into 11 hit zones becomes problematic when one tries to translate this schematic layout to a physical entity. Where, exactly, does the center torso end and where do the side torsi begin? Is the hip counted as part of the torso or the legs? What about joints and neck? Although MWO remains mindful of BT rules, major departures from the board game are inevitable because of the concretization necessary in the resolution of these questions.

As mentioned before, there are no targeted shots in BT. The hit location table specifies which of the 11 body zones of a Mech is affected by a successful attack. If one converts the absolute die results in the rule books to percentages based on 2d6 probabilities, the weighted nature of the hit location table becomes apparent. The probability of hitting center torso is about 20 percent, followed by side torsi and arms at roughly 14 percent, each leg at 11 percent, and the head at under 3 percent. These values are identical for all Mechs, regardless of their shape and size. The rules of BT even stress explicitly that fiction and illustrations, "though essential in making the game universe come alive, should never be construed as rules." (Bills, 2006, p. 9). When dealing with 3D-models in a virtual environment, this generalization is impossible to maintain, as the shape of an object is obviously more than a merely aesthetic factor. Analyzing the shape and hitzone distribution of Mechs in MWO – which is easily done in the training portion of the game, where it is possible to shoot at immobile targets and check where hits register on their body-zone diagram – the results are somewhat surprising (see Figure 1). The Cataphract, a common heavy Mech, shows two noticeable oddities: The visual size of its cockpit area is significantly larger than the percentage in BT, but only a small part of this section is counted as the head hit zone, making the head actually significantly smaller in MWO than it is in BT. The second major deviation is the size of its legs, which are almost twice as big than they should be according to the hit location table.

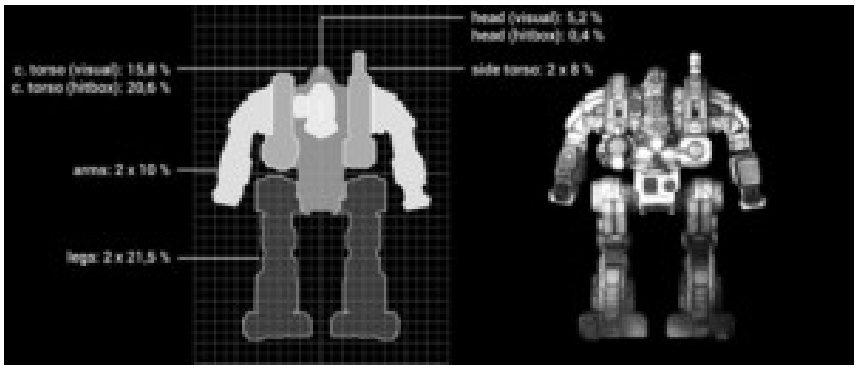

Figure 1: Appearance vs. hit boxes in MWO

A very similar shift in proportion can be observed in all Mechs in MWO (see Table 2). The changes to head and legs are motivated in different ways: Because the disproportionately large heads of many Mechs would make headshots easy, their effective size is reduced without altering appearances or necessitating the allocation of additional armor. The physical size of Mech legs, however, can neither be reduced, nor is it possible to dissociate physical model and hitbox as in the case of the head. The physical models of Mechs are reasonably faithful to the design drawings of BT rule books (Bills, 2008, p. 231). If we manipulate the dimensions of the Cataphract frontal view to fit the proportions suggested by the BT hit distribution table, we arrive at a unbalanced, top-heavy form (see Figure 2). It is thus safe to say that PGI's decision to double the amount of armor allocated to legs for all Mechs has resolved an issue inherent in the BT rules through a minimal departure.

Table 2. Frontal hit zone percentage differences between BT and MWO.

Zone	BT frontal to hit percentage	MWO frontal surface (Cataphract)	MWO frontal surface (Battlemaster)	Cumulated difference
Head	2,8 %	0,4 % (visual 5,2)	0,6 %	- 82 %
Center Torso	19,4 %	20,6 % (visual: 15,8)	16,8 %	- 4 %
Side Torso	27,8 % (13,9 each)	16 % (8 each)	14,4 % (7,7 each)	- 45 %
Arms	27,8 % (13,9 each)	20 % (10 each)	24,2 % (12,1 each)	- 21 %
Legs	22,2 % (11,1 each)	43 % (21,5 each)	43 % (21,5 each)	94 % bigger

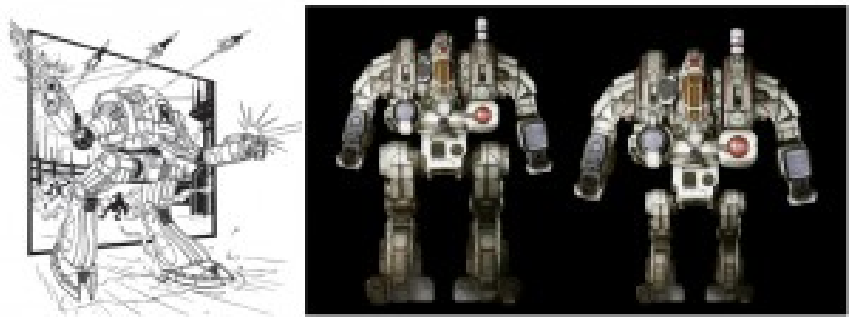

Figure 2: BT illustration, MWO model, MWO model scaled to BT body zone percentages

Board-game movement versus contiguous space

The player's contribution to aiming in BT is as minimal as it is crucial. Mechs can fire all their forward-facing weapons in a 90 degree arc straight ahead and hit targets with arm-mounted weapons on the respective side, thus giving a Mech with weapons in both arms an effective 270 degree field of fire (see Figure 3). Every target within this zone can be targeted in the attack phase, provided it is not hidden behind cover.

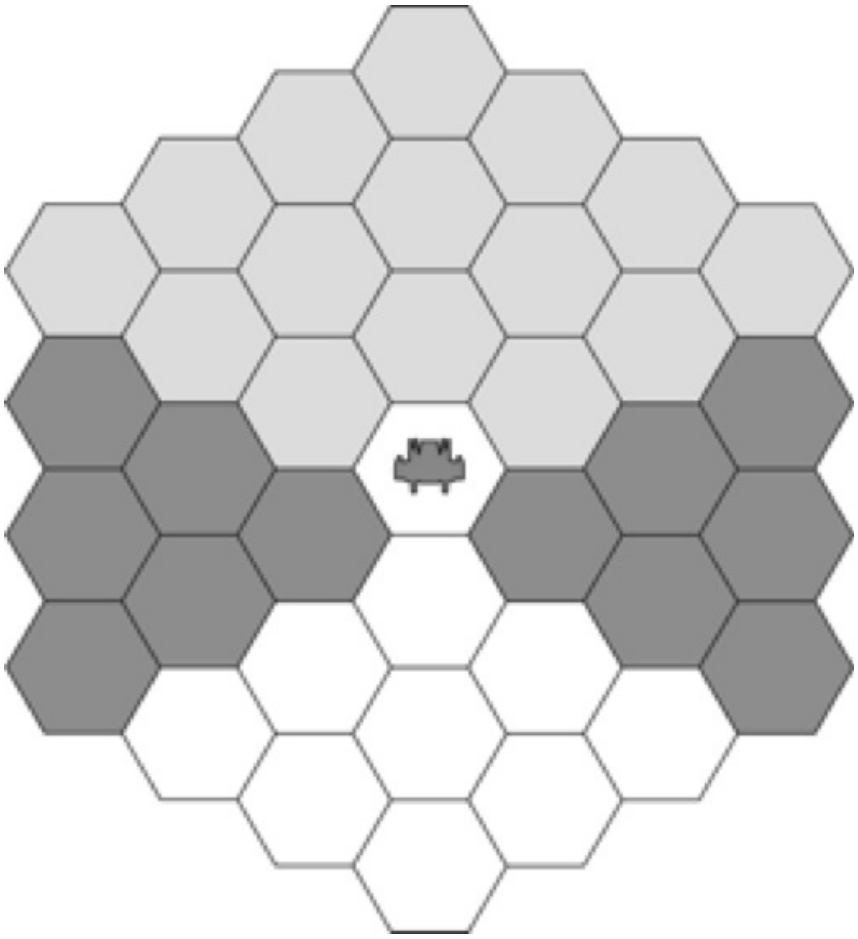

Figure 3: Forward and lateral firing arcs in BT

Turning a Mech by one hex side, i.e. 60° in BT, comes with a fixed cost of 1 movement point (MP). The slowest Mechs in BT have a maximum of 5 MP, the fastest 14 MP, meaning they could turn as many hex sides. Expressed in degrees, this means 300 degrees respectively 840 degrees, which, based on the turn-length of 10 seconds, results in a turning speed of 30 degrees per second and 84 degrees per second, respectively. In MWO, these speeds are accelerated, slightly at the low end of the scale – an Atlas AS-7D with a 300-rated engine turns at 34 degrees/sec. – and more noticeably at the high end – a Spider SDR-5V with a

270-rated engine turns at 103 degrees/sec. –, i.e. by 13 and 23 percent. MWO thus not only increases the turn-rate of all Mechs, it increases the turning speed of light Mechs disproportionately. As with the shorter cooldown times compared to previous *MechWarrior* games, this gives MWO a faster pace, yet it again further differentiates weight classes by making light Mechs even more agile and thus increasing the survivability of this least well-armored class.

While the changes made to turning speed are incremental, a complete paradigm shift has been necessary in the implementation of torso-twisting in the real-time game. In BT, a Mech can turn its upper torso in 60-degree-steps in relation to the legs (and thus its direction of movement). This type of movement does not consume movement points and is executed not in the movement but the attack phase, yet can only be done once per turn. Before initiating the attacks of a turn, the player decides whether the Mech's upper torso will face straight or 60 degrees left or right for the remainder of the turn. Combined with a 270-degree field of fire, this means that Mechs with arm-mounted weapons are able to cover their complete rear arc. Backstabbing tactics are thus difficult to carry out in BT (see Figure 4).

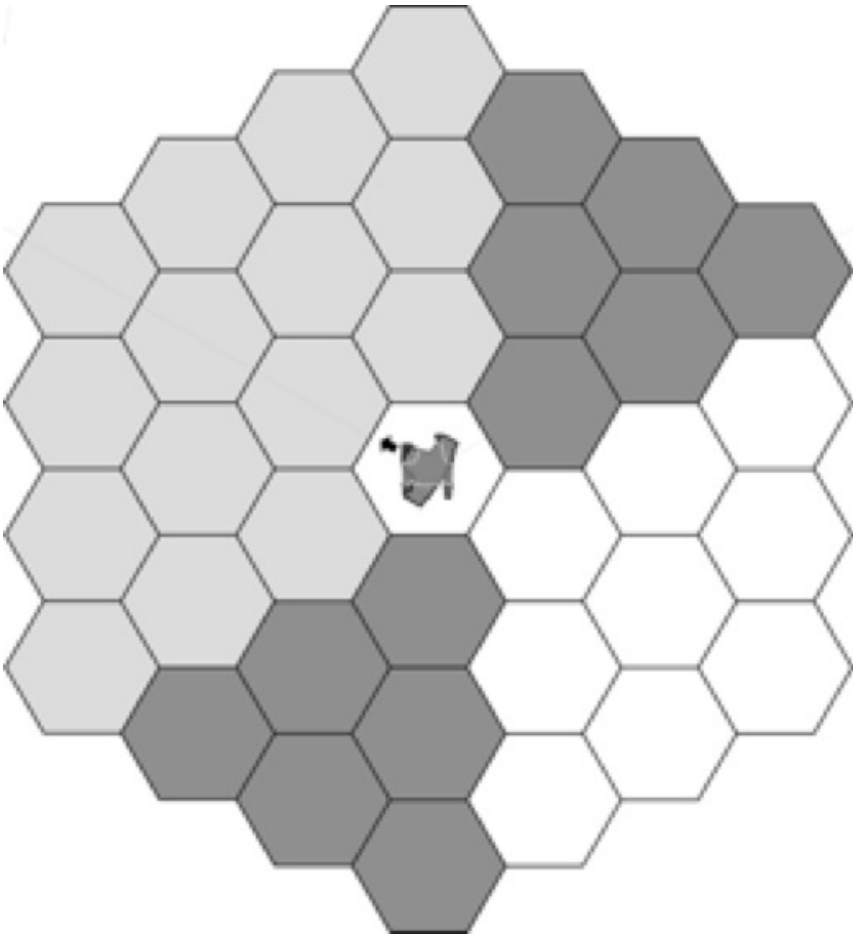

Figure 4: Torso twisting in BT

The facing of the torso, however, determines only the firing arcs, i.e. which objects can be targeted; when the Mech itself is hit, the torso direction is ignored. This handling of torso-twisting has two side-effects that would not work in real-time and -space: First, all Mechs turn their torso at the same speed. Second, a Mech can face a target to its left without exposing its back to an enemy on the right. The torso-twist feature in BT thus determines exclusively the direction in which the Mech's weapons are pointed.

In MWO, torso-twisting gains additional significance and strategic value. While it can be used for preliminary target selection as in BT, its primary purpose is aiming at targets and following their movement. While in BT, every target in the 90 degree arc in front of the attacking Mech can always be targeted with all weapons, a Mech in MWO needs its torso-twist ability to aim within this arc and, as explained above, sometimes keep the enemy targeted for a significant amount of time. A the same time, torso-twisting is one of the most important defensive maneuvers in MWO, because it enables a target to expose less vulnerable body parts and spread damage instead of allowing it to concentrate in one area. Both because of these additional effects and because of logical coherence, each Mech chassis has individual twist ranges and speeds in MWO. The least mobile Mech, the 85-ton Stalker, has a torso twist range of 120 degrees and fixed arms, allowing it to merely cover the forward firing arc in BT by using its full range of motion. Only the most agile Mechs in terms of combined torso and arm movement, such as the 55-ton Griffin, can cover at least part of their rear arc with arm-mounted weapons the way it is possible for every Mech in BT. Mechs in MWO thus are more agile and fire more frequently than in BT, but have a much narrower field of fire, need to constantly turn their torso in order to aim their weapons, and thus more than compensate for their slightly higher speed and rate of fire compared to BT.

While horizontal turning is only slightly adjusted in the adaptation of BT rules to MWO and torso twisting undergoes a noticeable paradigm shift, vertical aiming is a vital component of the 3D game that is without real equivalent in the board game. There, environment elevation is taken into account mostly for determining line-of-sight. This is true for MWO as well, yet at a, once more, much finer granularity. BT rules stipulate that as long as line-of-sight exists between two units, they can fire at each other. In the fleshed-out 3D environments of MWO,

each individual weapon needs an unobstructed line of fire, which gives models with many high-mounted weapons a significant advantage: Not only do they need to expose a smaller portion of their body before firing, the pilot's view and the weapon position are optimally aligned. Only with breast- and shoulder-mounted weapons, the BT-logic of line-of sight is valid in MWO, while other weapons are literally 'shoot from the hip' and will inadvertently hit buildings, hills, or allied Mechs. Another consequential interpretation of BT rules in MWO is that torso-mounted weapons can only be aimed by moving the torso as a whole, which limits especially the vertical range of weapons significantly. This is another case in which PGI fill a gap in the BT rules in a way that does not contradict them, creates a coherent spatial logic, and even is a game balancing element. The Battlemaster and Banshee assault Mechs mount multiple heavy weapons high on their chest, giving them a significant strategic advantage. This is counterbalanced by severely limiting their torso movement speed and range, restricting the ability to bring their weapons to bear, especially on small and fast-moving targets which they might obliterate in a single hit. Particularly the torso pitch range of only 20 degrees forces those otherwise powerful Mechs to keep their distance from enemies on both higher and lower ground (see Figure 5). Standing in a steep, narrow canyon, those Mechs will be barely able to aim at their attackers, while the same situation in BT would be unremarkable, as adjacent fields are considered to always have line-of-sight (Bills, 2006, p. 99).

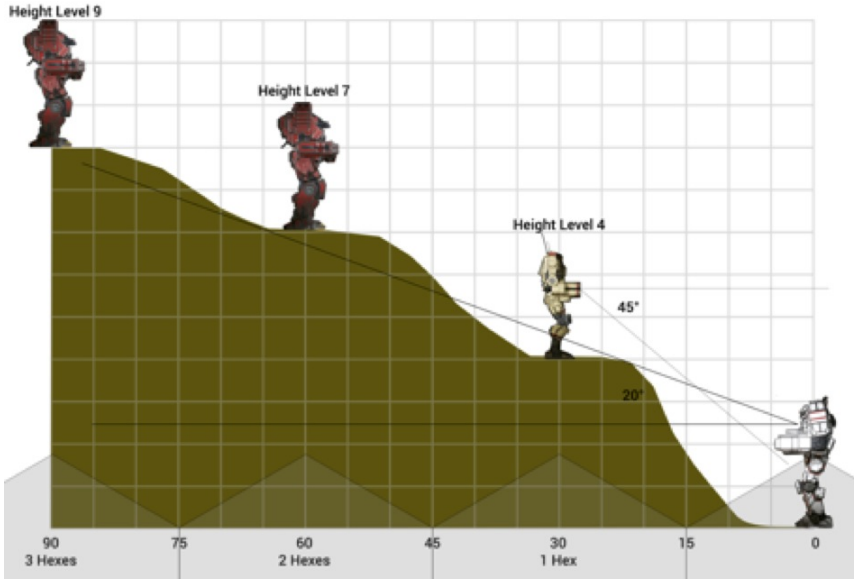

Figure 5: Correlation of topology and pitch movement

By the same logic, light Mechs can effectively enter a safe zone by staying within less than ten meters of these Mechs that could annihilate them with a single hit of all their weapons (see Figure 6). In conclusion, it can be observed that MWO creates additional rules and even derives additional depth from nothing more than consequently applying physics and spatio-temporal logic.

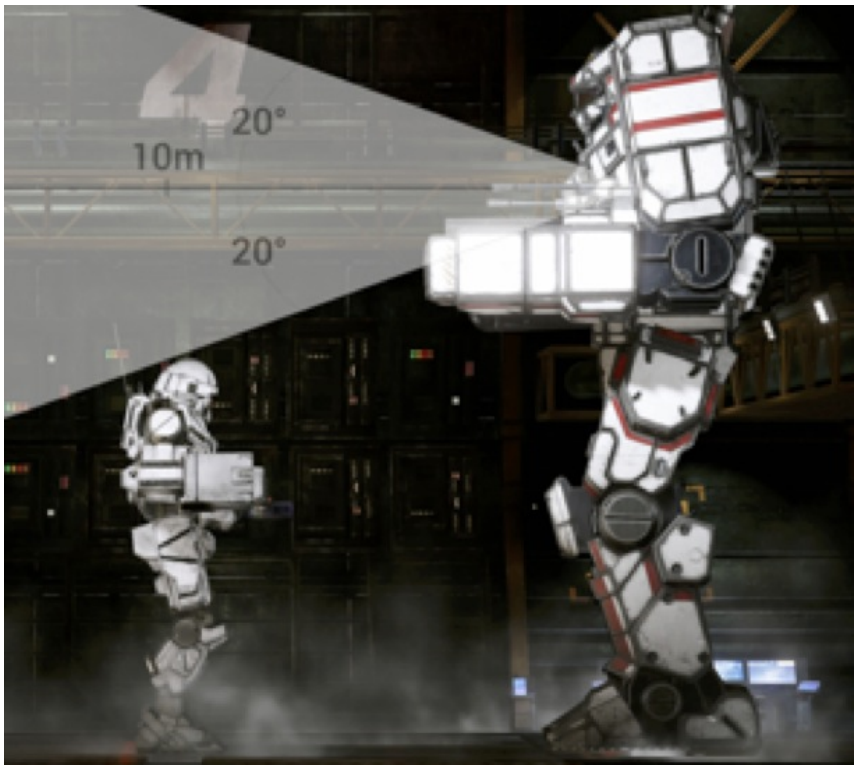

Figure 6: Limited yaw movement creates a dead zone

Conclusion: The Freemium Conundrum

As described initially, long-time players of BT who had provided "direction towards features, the evolution of the game, and historical insight into the game" (Smith, 2013, p. 25) have been instrumental in developing MWO through financial and intellectual contributions, and much of their criticism of the game's recent development has identified the Freemium business model as the culprit. Although there are indications that PGI had no real choice in terms of business models – licensing of the *MechWarrior* trademark from Microsoft apparently excludes retail products (Smith, 2013, p. 25) – they make use of the most important Freemium strategies as identified in recent research (Niculescu & Wu, 2011, pp. 2-10; Pujol 2010 #594: 2-3). The

freely playable core game multiplies the number of people who will have a first-hand impression of the game, providing "market seeding" (Niculescu & Wu, 2011, p. 3), while a constant stream of a variety of commercial features (game resources, customization items, collectible items, and affiliation items) in the game provides monetization through item-purchasing (as opposed to restricted access or advertising) (Luban, 2012/2012). Their thorough understanding of the business model is most apparent in their recent introduction of high-price prestige items. User statistics indicate that in Freemium games, the willingness to spend money on in-game purchases follows not a linear or normal distribution, but a logarithmic one. In other words: the few statistical outliers who spend most on the game are spending so much as to not be statistically irrelevant, but to be the driving force behind the commercial success of the model. To fully benefit from this player behavior, a game needs to allow for extreme purchasing behavior (Lim, 2012/2012). MWO has catered to this audience through the offering of gold-skinned limited edition Mechs priced at $500.

Even if one does not identify the implementation of Freemium strategies such as those of PGI in MWO as downright "evil" – the term Warren Spector chose (Spector, 2014) –, there are moral implications in this case. PGI have identified *Battletech* as a brand with a loyally devoted, very knowledgeable, and affluent fan base and used them to create a well-balanced game, which then underwent countless modifications which upset or diluted the game the primary target group had helped create.

The initially mentioned problem of how to handle the Clans' as an overpowered enemy force in MWO has been handled in a way that is, unfortunately, typical for PGI's design decisions since the launch of the game. Clan units were introduced as overpowered to give extra incentive to pre-purchasers. This way, PGI not only secured advance payments from players, but insured a mid-term interest of players in the game. While it is undoubtedly a

sound business strategy to keep financing and player-base stable, the following re-balancings were so radical as to make some of these previously overpowered Mechs barely playable. Some Clan Mechs can equip a very high number of energy weapons. Firing too many of them concurrently is penalized by a disproportionate surge in heat, initially by a factor of 3. For two months after their injection into the game, Clan Mechs were reserved for those who had pre-purchased them. When they were then released to the general public, PGI waited four weeks, giving interested customers the chance to buy one of these overpowered Mechs, before increasing the heat penalty on Clan Lasers from a factor of 3 to a factor of 12, making the Clan Nova with 12 Medium Lasers so hot that it will self-destruct after firing two full salvos ("MWO Forums: Nova Is Dead," 2014/2014).

PGI has shown great awareness of the fact that long-time fans are stakeholders of their game in the development and initial release phase, but has since then ignored their input and often taken the game into the opposite direction from this fan-base's wishes. It is hard not to interpret this behavior as disrespectful and exploitative, both towards the (especially long-time) players and the game itself – which is a shame, given the high quality adaptation of *BT* that PGI created with the help of the fan-base. The constant changes to the game necessitated by the Freemium business model do, however, also mean that there always remains a chance that the initially balanced game-state will return at some point – or even improved upon. Only time will tell.

(1) While this paper was under review, a number of features have been added to MWO, including the long-promised strategic component "Community Warfare." The resulting changes to the game are too numerous and far-reaching for inclusion in this

paper; it therefore reflects the game's development up to July 2014.

(2) A concise and representative position is that of user Aim64C on the official forum: "The Clans are, by definition, not supposed to be balanced." http://mwomercs.com/forums/topic/144895-clan-technology-a-design-perspective-feedback/page__view__findpost__p__2991312

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