

The Design of Combat Patrol™

One Man's Wargame Development Journey

Part 4

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In part three of this series, I walked the reader through the design and evolution of the firing mechanics in G.A.M.E.R.™. In this article, I will talk about movement, morale, hand-to-hand combat, vehicles, and other special situations. I will also discuss briefly the final naming of the rules.

Movement...

I like for movement distances to be somewhat randomized. In *Santa Anna Rules* and *Wellington Rules*, units have both a fixed and random component to their movement speed. Better-trained troops have a greater percentage of their movement fixed while lesser troops have a greater percentage random. In those games terrain effects were even randomized. For instance, when a unit crossed a wall or other linear obstacle, the effect on movement was to subtract a six-sided die from the unit's movement speed.

For *G.A.M.E.R.™*, I wanted movement distances to be at least partially randomized. Early in development, when I was still using beads for shooting (see part 3), I determined the right movement speed would be a ten-sided die of inches. I wanted this randomization to have a greater impact on poor troops and little impact on elite troops. I decided that I could put minimum movement distances in place. So in *G.A.M.E.R.™*, green troops had a minimum movement speed of 3; regular troops, 5; and elite troops 7. If the "die roll" for movement was below the minimum, the unit moves the minimum instead. Terrain effects then impact this base movement speed.

After a few play tests, I decided to add a ten-sided die to the cards so that no real dice were needed in the game. There are 54 cards in the deck. I have results of one through ten five times on the cards. For those four extra cards I placed a 1, 4, 7, and 10. This means that the ten-sided die on the cards does not result in a perfectly uniform distribution, but it is pretty close, and there are some high and low results.

I was not completely happy with the minimum movement distance approach, but it worked well enough initially. Toward the end of development, it occurred to I was confusing players with a mechanic that involved "rolling" a 4 for movement and then having to remember that that unit is Regular, so 4 becomes 5. So I sat down with one of my favorite game design tools, Microsoft Excel, and worked up a bell curve of movement distances for each Guts level (e.g., Green, Regular, and Elite). In this method, Elite units on average move faster than Regular units. Then I created a new icon on the Action deck cards, a blue arrow for movement. This arrow has the movement speeds for the three Guts levels explicitly, so there are no more minimum movement distances to remember and conversions to make during the game. It is faster and simpler.

Hand-to-hand combat...

In general when I design a game I stay away from mechanics that use an opposed die roll. Hand-to-hand combat, however, is an area where I think the opposed die roll *feels*

right. When a figure shoots another figure, the shooting figure is doing something. When two figures engage in hand-to-hand combat, they are both fighting. *Mano e mano* has a natural analog in opposed die rolls.

I have tried to be careful not to use elements of the *G.A.M.E.R.*TM cards for more than one purpose. I think that is easier for players. In the *Sea Strike* game that inspired me to use cards (see part 1), I had difficulty remembering which portion of the card I was supposed to be using for which action. I was running out of real estate on the cards and so decided to reuse a portion of the card for hand-to-hand combat. With an opposed die roll, I initially intended the difference between the “die rolls” to somehow effect damage, so I did not want the die rolls to vary greatly. In *Beer and Pretzels Skirmish* I used averaging dice (six-sided dice numbered 2, 3, 3, 4, 4, and 5). By this point, I had pretty well committed myself to a dice-less system. I noted that there was a “five-sided die” on the card already – the randomizer used to determine which figure was hit by small arms fire. This worked well – *for a while*.

A characteristic of my gaming group is that they often start using – and modifying – rules before I even finish developing them. One of the guys in the group, Duncan, wanted to try *G.A.M.E.R.*TM for the War of 1812. I didn’t see any reason why it wouldn’t work. Recall that the current version is called *Combat Patrol*TM: *World War II* because I intended to use the basic “engine” for other historical periods myself. In those games, he wanted to distinguish in hand-to-hand combat between men armed with bayonets, hatchets, muskets without bayonets, etc. We found that a five-sided die did not allow for this level of resolution without some forces being unbeatable in melee.

I decided then to use the ten-sided die on the cards instead of the “five sided die” randomizer. I adjusted some of the modifiers as a result. (Unfortunately there are modifiers to the hand-to-hand combat rolls; I couldn’t get away from them entirely!) This had the added benefit of not using the hit randomizer in two different ways, which seemed to confuse some players.

Since this is a game about modern skirmishing, I did not want the game to revolve around melee. I wanted melee to have an immediate effect. Since I adopted an opposed die roll method, I determined that the winner would draw a card to determine whether the defeated enemy was wounded or incapacitated. As a major purpose in close assaulting is to push the enemy out of a key piece of terrain, the defeated soldiers (if not incapacitated) are pushed back two inches, and the victorious soldier can move forward one inch. This would allow the attacker to get through a door, over a wall, etc. In the event of a tie, both sides drop back two inches. This method means that no one is locked in melee from one activation to the next. When soldiers are locked in contact, a number of additional rules are needed about adding figures to an existing melee, disengaging from melee, etc. For larger-scale black powder era games in which melee plays a more important role, I like having units locked in combat to allow both sides to pour more units into the action. For World War II skirmish actions, not leaving figures in contact seems better.

Guts...

It’s the first letter in *G.A.M.E.R.*TM. I wanted morale to be important, so I worked on this quite a bit early in development. There are really three issues to resolve in a morale system:

- When does a unit make a Guts check?
- How does a unit make a Guts check?
- What happens when a unit fails its Guts check?

In determining when a unit makes a Guts check, I borrowed from previous designs. Morale is conducted at the team level. When a team has a figure wounded or killed, the team accrues a morale marker. Morale (or Guts) is not resolved until the unit activates next, so it may accrue several morale markers before it resolves melee. I like having the unit make a Guts check when it next activates, because that keeps all the players guessing as long as possible. When morale checks are made immediately, all the players know how to respond. When morale checks are made later, there is a window of uncertainty in which everyone has to guess what the unit will do.

When the unit does activate, before it can perform any actions, it must make a Guts check for *each* morale marker it has accrued. This technique has the advantage of eliminating modifiers for percent of casualties received; however, it is a “memoryless” Markov process, in that the number of morale markers accrued for previous Guts checks does not influence the chance of a failure of morale in any subsequent turn. This “memoryless” property results in a loss of fidelity, but reduces complexity and is worth the tradeoff.

Players resolve Guts checks by drawing a card and reading the result written in the morale section at the bottom of the card. Initially I had one of the three Guts levels written on each card as shown in Figure 1. If the label on the card matched the Guts of the unit, the player would apply the result on the card; otherwise, that “roll” was considered a success and one morale maker was removed. In play testing, negative effects occurred too infrequently, and morale seemed irrelevant. I could have put multiple Guts ratings on cards and adjusted the number of times a Guts rating appeared.

Instead, I modified this system to remove the Guts labels. Just flip a card; read a card; apply the results. So how do I account for units with better morale? Many of the results on the cards include a phrase like “If the unit is Elite, remove all remaining morale pips.” That result indicates that all remaining markers are removed and that the unit has passed all of its Guts checks. Of course there are more of these results for elite units than regular units than green units. As a result, when a unit must make a Guts check often one or two of the results are adverse.

The increase in occurrence of adverse effects meant that those adverse effects needed to be generally mild but that the cumulative effects would be meaningful. I began by making a list of as many negative outcomes as I could imagine. Examples are “figure with lowest Guts is stunned,” “all figures are stunned,” and “the unit is pinned.” There is even one “unit runs off the table” result. There are also a number of “no effect” results. Having enumerated an exhaustive list of effects of failing a Guts check, I put them into a spreadsheet and adjusted how many times I wanted each one to occur, summing to 54. In truth this was a trial and error effort. While my play testers were largely unaware, the results and their frequency changed many times during development until I had achieved the right balance. Guts checks worry players and often have major impacts on a skirmish, but games do not hinge on a completely random effect.

He's wandering off the reservation again...

Morale is one of those areas where game developers delude themselves and players with the illusion of fidelity (accuracy). We have all seen games with dozens of modifiers for morale checks, but it seems to me that morale checks should follow a uniform probability density function because they are truly random and unpredictable events. Do we really understand why a unit runs away at the first sign of danger one day and then fights to the last man the next? I think there is a really small number of conditions that should be reflected as modifiers in our games and let the randomization of the dice (or cards) take care of the rest. I think a unit's morale and training (if represented separately), cover, leadership, and perceived danger are about it. In *Beer and Pretzels Skirmish* there were just a handful of modifiers. In *G.A.M.E.R.TM*, there are really only two: Guts level and whether the unit is in cover. I am working on an optional rule that lets leaders remove morale markers.

A surrogate for perceived danger is the number of casualties taken. I don't have a modifier for this. In *G.A.M.E.R.TM* you accrue a morale check marker for each wound or incapacitation result received – even if you get a second incapacitation result on a figure who is already incapacitated. My thinking is that accurate, casualty-producing fire tends to decrease a unit's perception of safety. Checking morale for each morale chip to a certain extent takes into account casualties received (and hence perception of safety), but it is memory-less from one turn to the next. Once I pass the morale checks for a previous set of casualties, the next set of morale checks does not take into account the fact that you took three casualties previously. The cumulative likelihood, however, of something bad happening to the unit as it takes many casualty checks over several turns seems to somewhat mitigate that effect – and this slight loss of fidelity allowed me to eliminate another modifier.

Game designers should be constantly looking for ways to reduce modifiers through innovative mechanics. Charts are easy. Thinking hard about streamlining your system is harder. As an example, in *Beer and Pretzels Skirmish*, I had a modifier that reduced your chance of passing morale checks if you were ALMOST surrounded and another modifier that improved your chance of passing morale checks when are REALLY surrounded. While there is a chance of getting away, I think soldiers have a strong temptation to slip away, but once there is no choice but to fight, they fight like Hell. When you clear a building, doctrinally you are supposed to start at the top and work your way down if you can. This gives the people in the building a chance to try to escape into the streets – where your support team is ready to maul them with machineguns. If you work upward, the enemy on the top floor have no choice but to fight to the last man, grenade, and bullet. In *G.A.M.E.R.TM* I resisted the temptation to include a rule like this and instead leave this up to game masters or house rules. It is a nice bit of flavor, but it is not one of the three or four *most important* aspects of morale that should be represented in the game.

The peripenultimate GAMER Action Deck...

Figure 1 shows the first and second major version of the decks of cards for *G.A.M.E.R.*TM. Note how each refinement of the cards gets a little simpler and easier to read. I spent a lot of time trying to determine how to make these easier for players to read and understand quickly in the “heat of battle.”

Note also that the results of Guts checks are different if the unit is in cover or in the open.

This gave a benefit to units in cover without the need of a chart or modifiers. The morale process, then, takes into account number of casualties (albeit somewhat imperfectly because it is a Markov process), the Guts level of the unit, and whether it is in cover. These are the three most important determinates of morale success or failure. All three have an impact in *G.A.M.E.R.*TM without the need for a morale table and a sack full of modifiers.

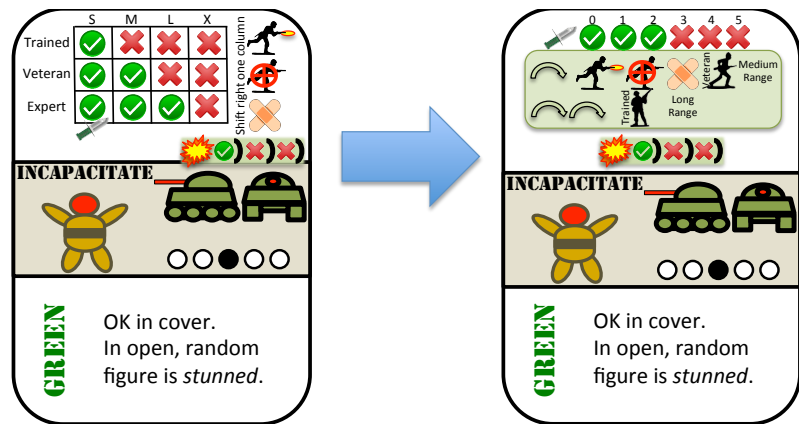


Figure 1: First and second versions of cards for *G.A.M.E.R.*TM.

Vehicles...

After many play tests over more than a year, I was growing confident that as an infantry-on-infantry game *G.A.M.E.R.*TM was coming along nicely. The necessary addition of vehicles became the next challenge. The canonical process for vehicles in most games is roll to hit, then roll to penetrate, then roll for damage. While this is fine, I really wanted to do something with the same fidelity but with fewer steps; however, I needed to balance that against the notion of keeping the vehicle combat resolution as similar as possible to that for personnel. It makes it easier for players if similar things are resolved in similar ways. Personnel combat is resolved as “roll” to hit then “roll” to see which target soldier was hit, where the target was hit, and how badly was he wounded. Using the same mechanism to determine whether a soldier hit a vehicle or personnel was easy enough.

I spent a fair amount of time while running in the mornings trying to come up with something really novel to determine penetration. One idea was to bin armor and penetration factors into unique, but coarse, categories like very light, light, medium, heavy, and very heavy. In this way, I could imagine some kind of nomograph on the card, on which the player would compare the penetration of his weapon against the armor of the target. This had two problems. The first is that this started to look like a table that when put on a card would be too small to read. I thought of ways of deconstructing the chart, but none were satisfactory. The second problem was that five categories are not enough to take into account the breadth of WWII vehicles, aspect angles of hits, different armor at different parts of the vehicle, etc. Another idea I considered is having a target number that always meant penetration. You would “roll” some type of randomizer, add you penetration, and

subtract the armor. If that value beat some threshold the shot penetrated. In the end, I accepted what was probably the inevitable and went with a “traditional” penetration method: “roll” a die, add your penetration, and see if this is greater than the enemy’s armor. (This is actually the same as the previous method except the “threshold” value is built into the armor values.) There is some intuitive appeal to trying to get a net penetration value greater than the enemy’s armor value.

In determining what damage would be inflicted on vehicles, I naturally broke this into penetrating hits and non-penetrating hits. When a shell penetrates an armored vehicle, there is a high probability of the vehicle being incapacitated. Here I decided to re-use an icon already on the cards. I decided that on a penetrating hit, the shooting player draws another card and looks at the high explosive icons. If a large explosion icon appears, the vehicle is destroyed. The vehicle owner draws a card for each crewman to see how badly he was wounded. I built a table to determined damage to the vehicle if the vehicle was penetrated but didn’t “brew up.” For non-penetrating hits, I had a similar table but then realized that those results were dependent on the hit location. Instead of having a table for non-penetrating hit damage, I thought I could write those effects on the cards near the hit location indicator. Then I had another epiphany. The damage from a penetrating hit that didn’t blow up the vehicle could inflict the same damage as a non-penetrating hit but with more damage to the vehicle’s occupants. This allowed me to eliminate a table and greatly simplify the chart card.

As it exists, a unit record sheet is the front half of an index card, and the “quick reference card” is on the back. For infantry, the quick reference card has some reminders about movement speeds and the modifiers for hand-to-hand combat. That’s it! For vehicles, the quick reference card has a stylized flow chart that walks a player through the hit and damage resolution process for vehicles.

The next challenge was vehicle movement. Of course vehicle *can* move very quickly relative to personnel. In the kinds of combat situations represented by most skirmish games, they rarely do move as quickly as they theoretically can, because they don’t know where the enemy is, and the crew has a strange desire to survive. I needed to find a way to limit vehicle mobility.

Borrowing from the 19th century versions of Look, Sarge, No Charts I initially had the notion of a “regular” speed and a “dash” speed. A player could apply the dash speed if the vehicle made no turns and traversed only roads and open terrain during the activation. This seemed good until I put it on the table. Not only did it confuse players, but it just didn’t work well on the table. Eventually, I settled on the idea that the vehicle has a pretty generous movement speed but that every turn or pivot costs it three inches of movement. This seems to appropriately restrict vehicle speeds with a single, simple rule for players to remember – if the vehicle does anything other than move straight ahead, subtract three inches.

Close assaulting vehicles

I thought long and hard about vehicle close assaults and had begun to work up some interesting mechanics. If you started this far away and had this kind of weapon and performed this action then you would do the hokey pokey, shake a chicken leg over your opponent’s vehicle and voila! a close assault would occur. I was describing the close assault procedure to Duncan during a drive to our club’s gaming night when he pointed out that all

the mechanics needed for a close assault were already in the rules. A figure could run up to a vehicle and toss a satchel charge, sticky grenade, or other weapon onto a tank with different parts of the existing rules. From that point, the effect of the anti-tank weapon could be resolved in exactly the same way as a bazooka or anti-tank gun. The core rules were flexible enough that I didn't need to build any special cases, exceptions, or new rules.

Watch where you step!

Another example of re-using existing rules instead of adding new ones was how to handle minefields. Previously I have described the mechanic I use to determine whether a vehicle bogs down: the terrain "attacks" the vehicle. I could use the same mechanic to determine if a mine hit a soldier or vehicle. Soldiers hit by mines are automatically incapacitated. Vehicles hit by mines use the normal penetration and hit resolution processes as any other anti-tank weapon.

What's in a name?

I was nearing completion and had been convinced by others to publish the game. The final artwork was arriving from my artists in Canada and Maryland. I had made the last few tweaks to the layout of the cards and the number of times that each icon appeared on each card to adjust the various probabilities. I was busy rewriting and editing the rulebook and was ready to send it to a semi-professional editor for review. Then I started thinking about the name of the rules. *G.A.M.E.R.*TM was fine when it was a game for my personal use, but now that I expected others to free up some cash to pay for it, I needed something better.

My buddy Mark strongly advised against the name *Look, Sarge, No Charts* for my previous rules. He urged me to stay away from a cute name. I was trying for a play on words "Look, Ma, no hands," and I was trying to emphasize what made those rules unique – the complete elimination of big letter of A4 sized chart cards cluttering the table. After publication, some people steered away, because the silly title turned them off. Others thought that "sarge" in the title meant it was a skirmish game, rather than a battalion level game. Mark urged me to find a title for *G.A.M.E.R.*TM that emphasized the topic and scale of the game and not the engine. As a software person, the idea of separating the engine from the game made sense. After all, I did intend to use the basic engine for other historical periods – and even science fiction. This time I decided to listen to his advice. So I kept the name *G.A.M.E.R.*TM to describe the underlying, basic mechanics, but wanted another name for this set of rules. For a week I bombarded my buddies with dozens of possible titles. In the end I chose *Combat Patrol* for the rules, feeling that this told customers something about the scale and focus of the game. *Combat Patrol* is then followed by a subtitle World War II. This tells the customer something about the historical period intended. The idea is that there might be a *Combat Patrol*TM: *Napoleonic Wars*, *Combat Patrol*TM: *War of Jenkins' Ear*, or others at some point in the future if the basic *G.A.M.E.R.*TM engine and *Combat Patrol*TM rules gain some popularity.

Trademarks? Really?

One of the first responses I received when I began pre-publicity for the game on The Miniatures Page was a snarky comment about trademarks. (A snarky comment for a know-it-all on TMP? Never!) Twenty-five years ago, when Rick Vossman and I published my

second commercial foray into game design, we chose a title for our rules. I was surprised several years later when another wargame hit the streets with the exact same title. I started getting confused Emails and calls from prospective customers and friends. The TM marking puts people on notice that they should not use *Combat Patrol*TM, *G.A.M.E.R.* TM, and *Double Random*TM Activation belong to me for the purpose of a miniature wargaming. Of course it doesn't protect the terms combat patrol or gamer in other contexts and for other uses. This may seem like overkill to others, but once burned, twice shy. Apple, Microsoft, General Electric, and others protect their intellectual property with trademarks. Why is it unreasonable for me to do the same?

Conclusion...

While this series of articles is about one set of rules, *Combat Patrol*TM, the thought processes described are typical of my work. A thorough development effort involves many evolutions of various aspects of the rules. The designer is a sculptor. People will say, "her nose is too big," "her nose is too small," "her legs are too short," "her legs are too muscular," etc. The designer must listen to these inputs; however, he alone is responsible for what the statue looks like.

Woodrow Wilson is often credited with saying, "If it is a ten-minute speech it takes me all of two weeks to prepare it; if it is a half-hour speech it takes me a week; if I can talk as long as I want to it requires no preparation at all. I am ready now." It is easy to throw together some charts and a few mechanics you like from other games to create a set of rules. Some symptoms of lazy game design are:

- Inconsistent mechanics. For instance, some charts have column shift modifiers, some modify the die rolls, others have multiplication factors, on some high rolls are good, on others low rolls are good, and on still others good and bad results are mixed randomly.
- Many charts and tables.
- Many special cases in which the basic rules break so a patch must be applied.
- Many, many modifiers that provide the illusion of fidelity but mere add resolution (and complication). This is particularly true when there are so many modifiers that the target number for success or failure rapidly hits the extremes (e.g., 1 or 6).
- Any modifiers that have less than a 5% impact on whatever result is being determined.

I have never been blessed with the big marketing muscle that other authors enjoy, so few of my efforts have achieved any kind of commercial success. With one exception all of my designs have taken two to six years to develop. I think the results have been worth the effort and offer value to gamers who have tried them. Each has tried to bring something novel to the table (pun intended), reflecting the salient aspects of a particular period or genre while carefully eliminating unnecessary complications.

I would like to leave the would-be designer with these final thoughts:

- Be Draconian about eliminating all unnecessary complication. If it is not essential to representing the period or genre, jettison it.

- Make as many of the rules optional as possible. This goes hand-in-hand with the first bullet. Any important but nonessential aspect of the rules should be optional

I have never tried to document the development of a set of rules before. It was interesting to look back at old version and see for myself how the design evolved over time. I hope you, the reader, found it equally interesting.

May your dice (or cards) be good!