

Combat in Victory Games' "The Civil War"

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The heart of any war game is the combat system, by which individual engagements are resolved. These results, in their total effect, dictate much of the outcome of the battle or war being gamed. The validity of the combat system in Victory's "The Civil War" is examined here. For a number of battles, the historic outcome will be compared with results generated in the game.

Consider First Manassas. In the game, Beauregard with four strength points is in hex 5006 (clear terrain). Johnston with two strength points, commanding an Army (of Northern Virginia) is in hex 4906 (Strasburg), having moved down from Harper's Ferry (4905) earlier in the first turn. McDowell, commanding an Army (of the Potomac) moves from Washington via hex 5106 to attack Beauregard. This is within Johnston's reaction radius. With a 50% chance of reacting, he makes a good roll and arrives on the scene, setting up the historic situation:

Attacker: McDowell (-1 reroll), Army of the Potomac, 6 strength points
 Defender: J. Johnston (1 reroll), Army of Northern Virginia, 6 strength points,
 Beauregard (+1 to die roll)

None of the Confederate first turn leaders have arrived yet. The lowest level leaders in the game are division commanders, and the Confederates had not yet formed divisions. None of the Union division commanders are represented in the game.

The possible outcomes with the game's combat system are:

result	initial	1st reroll	2cd reroll	
c 0 u 1	.03	.02	.004	
c 1 u 1	.06	.05	.008	draw
c d1 u 1	.08	.01	.002	Union victory
c 0 u d1	.11	.14	.20	
c 1 u d1	.22	.29	.40	
c d1 u d1	.33	.22	.12	Historic result (draw)
c 0 u d2	.03	.06	.08	
c 1 u d2	.06	.13	.16	
c d1 u d2	.08	.06	.03	
outcome value	-.67	-1.11	-1.38	

- notes: 1) 0, 1, or 2 is number of strength points lost
 2) d indicates "demoralized" (inhibits tactical employment and may lead to a loss of a strength point. Counted as one for outcome value.)
 3) outcome value is the expected (average) loss net in favor of attacker
 4) The Confederates get two reroll options, one for each army commander.
 5) All results except the Union victory leave the Confederates in possession of the field. 87% of the results are greater victories than the Confederates achieved historically.

In this battle, which history (and most games of the battle) judge as being a pretty even affair which could have gone either way, is almost a certain Confederate victory under the game system. Why? Perhaps Johnston is overrated and McDowell underrated. If there were no reroll options, the most likely result is the historic one, and the Union has a more reasonable 8% chance of victory. One cannot draw too many conclusions from only one battle.

The next table lists 22 battles involving at least four strength points on each side for the war through 1864. The assumed game situation, range of possible outcomes, and historic outcome value are listed:

Battle	Union				Confederate				bestU		bestCgame		avgu	hist	u	att			
	A	sp	rr	t	-t	sp	rr	t	-t	ter	u	c					u	c	
1st Manassas	U	6	-1	0	0	6	1	1	0	-	1	d1	d2	0	-1.38	0	-1.38	-1.38	
Shiloh	C	13	2	0	-2	8	0	3	-1	-1	0	d3	d1	d2	3.51	-1	4.51	-4.51	*
Fair Oaks	C	9	-1	0	0	8	1	4	-2	-1	0	d3	d1	d2	1.96	0	1.96	-1.96	*
7 Days	C	18	-1	2	0	19	3	10	-2	-1	d2	d3	d3	d2	-0.92	1	-1.92	1.92	*
2cd Manassas	C	15	-1	2	-3	10	3	9	0	-	1	d2	d2	d2	.26	-1	1.26	-1.26	*
S.Mountain	U	6	-1	2	-1	4	0	1	0	-2	d1	d1	d2	d1	-1.19	0	-1.19	-1.19	
Sharpsburg	U	15	-1	3	-1	10	3	11	0	-	d2	d3	d3	d2	-0.92	0	-0.92	-0.92	
Fredr'sburg	U	21	-1	4	0	14	3	11	0	-1	d2	d3	d3	d2	-0.92	-2	1.08	1.08	*
Murfr'sboro	U	8	-1	3	0	7	-1	4	-1	-	d1	d2	d2	d1	-0.10	0	-0.10	-0.10	
Chancel'ille	U	19	-1	5	-2	11	3	6	0	-2	d2	d3	d3	d2	-0.92	-1	.06	.06	
Chemp.Hill	U	6	2	1	-1	4	-1	0	0	-	1	d2	d2	1	.63	1	-.37	-.37	
Gettysburg	C	17	1	4	-2	15	3	7	0	-	1	d3	d2	d3	1.21	1	.21	-.21	
Chickamauga	C	12	-1	3	0	13	-1	10	-1	-1	d2	d3	d3	d2	-.13	0	-.13	.13	
Chattanooga	U	11	2	6	-2	9	-1	5	0	-2	d2	d3	d3	d2	.36	1	-.64	-.64	
Wilderness	U	20	2	5	-1	12	3	6	0	-2	d2	d3	d3	d2	-.76	-1	.24	.24	
Spotsylvania	U	18	2	4	-1	10	3	3	0	-	d1	d3	d3	d2	.11	-1	1.11	1.11	
Cold Harbor	U	21	2	3	-1	12	3	3	0	-1	d1	d3	d3	d1	-.22	-3	2.78	2.78	*
Petersburg	U	13	2	4	-1	7	0	1	0	-1	1	d3	d2	d2	1.85	0	1.85	1.85	
Atlante camp.	U	22	2	4	-1	11	1	4	-1	-1	d2	d3	d3	d2	.51	0	.51	.51	
Atlanta	C	6	0	1	0	7	-1	4	0	-	d1	d2	d2	1	-.31	1	1.31	-1.31	
Franklin	C	5	0	1	0	5	-1	5	0	-1	d1	d2	d2	d1	.19	2	-1.81	1.81	*
Nashville	U	10	2	2	0	5	-1	3	0	-	1	d3	d2	d2	2.08	2	.08	.08	

average .39 -.10

key: A-attacker sp-strength points rr-reroll options t-positive tactical pts
 -t-negative tactical points ter-terrain (column shifts)
 bestU-best possible results for Union bestC-best possible results for Conf
 game-probable outcome value (for Union) hist-historic outcome (for Union)
 u-Union advantage in game compared to history
 a-attacker advantage in game compared to history
 *-case where game results do not allow historic outcome

The overall deviation from historic outcomes in favor of the Union of about .4 means that in the game the Union army would win about 40% of battles which would be draws historically, and would draw 40% of those they would not lose too badly. This is a significant bias. The bias against the attacker is low. Most of the bias in favor of the Union comes from the results of one battle, Shiloh, although other important battles, especially in 1862, also had outcomes that cannot be reproduced by the game. A closer look at Shiloh is instructive:

Attacker: A.S. Johnston (0 rerolls), Army of Tennessee, 8 strength points, Besuregard(+1), Hardee(+1), Breckinridge(+1), Polk(-1), Bragg(0)
 Defender: Grant (2 rerolls), Armies of Tennessee and Cumberland, 13 strength points (8sp for AT, 4sp for AC, 1sp naval), Buell(-1), Sherman(0)
 Terrain: Wooded - one column shift for defender

In this situation, an attack seems doomed to decisive failure. Yet, in a battle the Union 'won', they suffered losses of 13047 (d3) to 10694 (d2) for the Confederates. Even if the results are considered d2 - d2 (leaving the Union in possession of the field under the game system), this is far better for the Confederates than the 0 - d3 or 1 - d3 rout that the game would generate. If Buell does not show up, the expected results are hardly better, (3.44 vice 3.51 value in favor of the Union). If Lew Wallace (and 2 sp's) are absent, and McClernand's leader center is present, then the expected results are a much more reasonable .1 in favor of the Confederates. (In the game, McClernand's marker is entered as a corps commander later, in time for Vicksburg but not Shiloh.) Thus, if the forces are limited to what was available at the start of the decisive first day, the game system does pretty well.

But partitioning the battle in this way is not reasonable. In the scenario data for turn 4, Wallace's command is included in the army, rather than being a separate stack, as any rational player would do. Buell did in fact arrive and participate in the battle. The game is simply too aggregated to play out the fine structure of battles, where one side or the other has difficulty bringing their forces into the battle. This is a function of command, and should be reflected in leader ratings and their effects on battle outcome. Perhaps part of the answer is that Grant's rating of 2 and his historic performance are a serious discrepancy. If Grant is rated 1 instead, and A.S. Johnston is rated as 1 instead of 0 (reflecting perceptions of his ability at the time) and McClernan (-1) is present, then the expected outcome is -1.87, almost two points better, but still leaving the historic outcome beyond the realm of possibility.

Other problems may include the fact that wooded terrain may actually help the attacker, for example by allowing surprise. A case could be made for a roll to determine the column shift due to woods, with reroll options applicable. Also, the very severe penalty to an inferior attacker, as at Shiloh, seems too large. This is also the case for the Fair Oaks and Second Manassas battles which are also anomalous, though not to the degree of Shiloh. Early in the war, before use of field entrenchments became common, the attacker carried much less of a burden.

An interesting case where the expected outcome nearly matches history is Gettysburg. A close look at this battle, which is so familiar, is instructive:

Attacker: Lee (3 rerolls), Army of Northern Virginia, 15 strength points, Longstreet(+2), A.P. Hill(+1), Ewell(0), Hood(+2), Early(+1), Stuart(+1)
 Defender: Meade (1 reroll), Army of the Potomac, 17 strength points, Hancock(+2), Reynolds(+1), Pleassenton(0), Howard(-2), Sedgewick(+1)
 Terrain: clear

The most likely outcome in the game is u d2 c d3, although d1 or 1 are possible Union results. Thus, the battle is a Union victory, regardless of rolls. Yet, this battle would not be so popular for gaming if the Confederates have no chance. In fact, had Lee been content to call an end to his attacks at the end of the second day, the historic outcome would have been a near draw. Note that the d3 Confederate losses are not subject to variation, Lee's rerolls can affect only the Union losses. The game simply does not seem to reflect the degree of variability of results which one would expect.

Another factor that comes into play in this battle is tactical factor saturation. The Confederates have potentially 9 points that can be added to their die roll (7 for their own leaders, and 2 for Howard), but are limited to using 6 by the rules. Thus, the long asked question of whether Jackson could have made a difference at Gettysburg is answered: No. His two additional factors would make no difference, and indeed the Confederates would be no worse off without Longstreet, too. This seems a serious problem, since probably no army in the war could not have benefitted from additional good leaders. If the limit is lifted, the outcome is a deterministic c d3 u d2, regardless of any army commanders. (Perhaps the die rolls adjusted to values greater than 12 should allow the excess to be subtracted from the opponent's roll.) Allowance of more than 6 tactical points would favor the Confederacy early in the war where some of the most serious discrepancies exist, and may redress the apparent Union bias of the game results.)

There is an additional serious problem in the combat system when forces of dissimilar sizes engage in combat, especially when one is 'small' and the other is 'medium', for example 4 vs 3 strength points. As the rules are written, a medium force inflicts about 1 sp more casualties than a small force for a given combat column (strength difference or ratio), compared with a similar battle between 'small' forces. This problem is unnoticed in historic cases since so few such battles occurred. But with such an advantage, a player would make a point of bringing about such engagements, to an unrealistic extent. This is further aggravated by the inability of non-army forces to avoid combat. Perryville is the only clear medium vs small case that has been examined, and the expected game outcome is indeed one point off the historic outcome in favor of the medium force. This force size problem can be fixed by using the same 'size' entry for both forces, with the larger force choosing which to use if the sizes are different.

Discrepancies in a combat system such as those described here can have a significant effect not only on the battles themselves, but also on the style of play. What Confederate player would commit his armies at Shiloh or Gettysburg, given the certainty of defeat? As a result, a much more cautious style of play results, especially for the Confederates. Still, the combat system seems basically workable, if in need of some adjustment.

The results that were used here were generated by a program (in the language C) which plays out all possible outcomes of battles, including reroll options, and calculates the chances for various outcomes. (Unlike the game, the program does not allow a player with a reroll option to pass, then reroll again later instead. This affects only cases where both sides have rerolls, and the effect in any case is small.) The historic outcomes are derived from data listed in Livermore's Numbers and Losses. Demoralization is assumed in most cases unless one side showed unusual initiative after the battle, or demoralization was otherwise evidently absent, as with the Confederates at Cold Harbor.

optional

Another discrepancy between history and the game system concerns possession of the field. In the game, the undemoralized force or the side suffering fewer losses retains the field, with ties going to the defender. Yet in many battles, the side having the greater losses claimed the field and victory. Perhaps for a tie, in the absence of fortifications, the side with the larger force at the end of the battle should retain the field. This would take care of Sharpsburg, Murfreesboro, Chickamauga, and South Mountain. In other cases, such as the Seven Days, Wilderness, and Spotsylvania, an army leader with a good rating should be allowed to pay for possession of the field with an extra strength point loss. This willingness to trade blood for victory was characteristic of several battles, and would help explain discrepancies between the game and history in the above cases plus catastrophic losses at Cold Harbor and Franklin.

Interested correspondents may obtain a copy of the program, data, and/or output of the program used to generate these results. The program is 4 pages with no documentation, input is 4 pages, and output for 45 battles is 48 pages. (Figure.10 per page for reproduction and 6 pages per ounce, plus envelope.) Please send a stamped, self-addressed envelope.