

Elegant Combat in War Games

F. Miguel Marqués, CNRS

This article is a personal view of how the combat mechanism used in traditional war games has evolved through the introduction of more elegant algorithms. It reviews some game examples to illustrate the innovations that have made the strongest impressions in the war gaming hobby.

1 Introduction

THE war game was born in early 19th century Prussia when Georg von Reisswitz proposed *Kriegsspiel* (game of war) as an officer training exercise [1, 2]. In the 1850s, Helmuth von Moltke became Chief of Staff of the Prussian Army and generalised *Kriegsspiel* as a tool to prepare for the wars to come. A century later, war games entered the hobby world [3] as *conflict simulations* with a tendency for increasing detail; war games are hence also known as *consims*.

This tendency has led consim players to disparage more recent, lighter war games as ‘games with a war theme’ for their lack of detail. However, I feel that some have succeeded in abstracting the details to recreate the given conflicts in a more streamlined and elegant way. My definition of *war game* is thus broad: a game that strives to recreate a particular war, battle, or form of warfare. It ranges from the more traditional, highly detailed games that require many days to play, to the more modern, simpler and lighter ones.

1.1 The Fog of War

Apart from their theme, the main factor that sets war games apart from abstract open information games is the uncertainty inherent in war, which has been known as the *fog of war* since the time of *Kriegsspiel*. In Moltke’s words: *No battle plan survives contact with the enemy* [4, p. 35]. He did not believe war to be random, but realised that once war broke out, many parameters that escaped our control would mess with the original plans. Since the outcome could not be predicted, he viewed military strategy as the ability to prepare for a range of possible outcomes.

Moltke’s philosophy can be extended to games, since even in those with open information and deterministic confrontation mechanisms, a good player has to consider the decision tree with all possible reactions by the opponent, as discussed in [5]. War games add an additional layer of uncertainty on top of that tree, since combat results are generally uncertain.

War games typically recreate the fog of war around combat using three different methods:

1. Randomising the combat result.
2. Limiting the command of combat units.
3. Hiding information from the opponent.

Traditionally, however, they have mostly focussed on the first approach. The veil is removed from the game state, with all information available to all players, who are given unlimited command over their units (typically cardboard counters with strength and movement values on a hexagonal grid), and the fog of war is condensed to the roll of a die and a cross reference into a *combat results table* (CRT). For example, Figure 1 shows the CRT from the game *Napoleon at Waterloo*¹ (1971), in which the attacker or defender retreat or are eliminated, depending on their strength ratio and die roll.

Combat Results Table										
Combat Ratios (Attacker to Defender Strength)										
Die	1-5	1-4	1-3	1-2	1-1	2-1	3-1	4-1	5-1	6-1
1	Ae	Ar	Ar	Dr	Dr	Dr	De	De	De	De
2	Ae	Ae	Ar	Ar	Dr	Dr	Dr	De	De	De
3	Ae	Ae	Ae	Ar	Dr	Dr	Dr	Dr	De	De
4	Ae	Ae	Ae	Ar	Ar	Dr	Dr	Dr	De	De
5	Ae	Ae	Ae	Ar	Ar	Ee	Dr	Ee	Ee	De
6	Ae	Ae	Ae	Ae	Ar	Ar	Ee	Ee	Ee	De

Figure 1. A typical *combat results table* (CRT), from *Napoleon at Waterloo*.

However, the condensation of the fog of war into a CRT is conceptually wrong. In game-theoretic terms, imperfect or incomplete information is replaced by randomness. Moreover, such a simple mechanism cannot easily reflect the peculiarities of each different conflict. Designers therefore attempted to simulate these by adding many fiddly rules, requiring, for instance, that modifiers be computed for the effects of terrain, weather or politics, using additional tables and charts. As a result, rulebooks for these games came to resemble law books, with almost as many exceptions as rules, and combat resolution felt more like work.

¹<http://bgg.cc/game/3573>