Minimal Space Combat

The Book
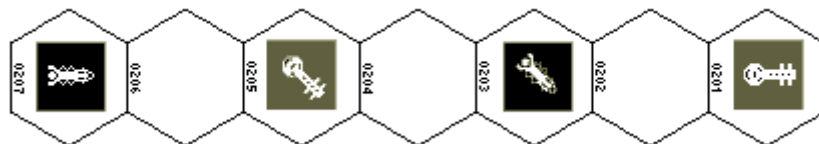

*Game Design
and Articles
by
Timothy Swenson*

Table of Contents

Introduction

Minimal Space Combat is "a very simple space combat game" that I have tinkered with over the years. As I've added different parts to the original game (without expanding on the original rule set), I wanted to create a single document that covered the entire collection of Minimal Space Combat articles that I've written.

Besides being a simple, fast, and fun game, Minimal Space Combat can be used to introduce new people to the world of wargaming and space combat. Being a simple game, it's perfect to give to new gamers, let them read it over and play a game. Most general concepts in wargames is introduced and discussed in the Tutorial.

Minimal Space Combat: The Rules

This is the game that started all the madness.

Minimal Space Combat: The Strategic Game

After doing Minimal Space Combat, I had to do a strategic version. Like many designers of tactical space combat games, I had planned a strategic version of my games, so when Minimal Space Combat came along, I had the urge to do the strategic level game.

Minimal Space Combat: The Solo Rules

If I don't do solo wargaming, I don't get to do wargaming. These solo rules came from a lot of thought of how to do the solo rules to include some sort of intelligence about what the situation was for the non-player side. I did not want tactics generated purely at random. These rules are adopted from a set of rules I write for the game Starmada.

Minimal Space Combat: The Tutorial

After many years thinking about doing a Tutorial, I finally sat down and did it. I did the tutorial mostly to allow Minimal Space Combat to be given as an introductory game to new gamers. The game itself is fairly simple, but for new gamers I wanted a document that provided a little more hand holding.

Minimal Space Combat: The Designer Notes

Understanding the Why behind the design can be useful to the player. My approach to design has been to determine what sort of feel I want in the game and flesh out the details to get that feel.

Apply Naval Tactics to Space Combat

I prefer space combat to be more than just a slug fest. I feel that every game should have some sort of tactics. When I realized that space combat is very similar to Naval combat, I sought out the best book I could on Naval tactics, summarized the tenets it covered, and put it in this article. This article can apply to all space combat games.

Acknowledgments

Most of the graphics in this book were created using V_MAP by Todd Zircher (http://zircher.iwarp.com/v_map.html), using the Maximum Burn counters slightly modified by myself.

Minimal Space Combat

A _Very_ Simple Space Combat Game

Game Design By Timothy Swenson

Copyright 1996 Timothy Swenson.
This game is freeware and may be distributed freely.

1.0 Introduction

The premise behind this game is this: what is the simplest playable game possible to game tactical space combat. The game must make some reasonable attempt to come close to simulating space combat and not just the simplest possible game. The emphasis in this game is fast and easy. Playability is given more consideration than realism. There is no consideration for expansion of these rules, because then it would not be minimal. Use the game for those times when you want a quick and dirty space combat game or for introducing someone new to gaming. If you want to go beyond this minimal game, there are other Freeware games that can do it.

So, here it is, enjoy it, and blast each other to bits.

2.0 Ships

Ships are comprised of the following elements:

ENGINE: Determines the maximum SPEED that a ship may travel.
SHIELDS: Determines the amount of damage a ship may take before being destroyed.
TO-HIT: The odds of a ship hitting another ship.
WEAPONS: The list of weapons a ship has and their firing arc.

Each ship has six sides. They are Front (F), Front Left (FL), Front Right (FR), Rear Left (RL), Rear Right (RR), and Rear (R). See the Facing/Firing Arc Chart below for a diagram.

Ship Turn Records: During the game, damage, speed, and movement is tracked for each ship using Ship Turn Records. At the beginning of the game, the ship's stats are entered on the Ship Turn Record. If a ship does not have a weapon on a particular side, fill in that oval. If a ship has ENGINE 4 then all but 4 of the ovals are filled in. The rest of the ovals are filled in when the ship takes damage.

3.0 Ship Design

Each ship is designed using a number of Build Points (BPs) to spend on the various elements of the ship. Each unit of ENGINE, SHIELD, or TO-HIT costs 1 BP. Each weapon costs 2 BP. ENGINE, SHIELD, and TO-HIT may never exceed 5. Only one weapon may be placed on each side of the ship. No weapons my go in the Rear of the Ship. This means that only 5 weapons may be bought per ship.

Different sizes of ships can be built, it depends on the number of Build Points used. The average ship costs about 15 BPs. Other BP values are 10 and 20. A ship of 25 BPs is the largest possible.

Below are some example ship designs using 15 BPs.

```
              Ship 1      Ship 2      Ship 3
ENGINE           3           2           4
SHIELDS          3           4           4
TO-HIT           3           3           5
Weapons      F,FL,FR     F,FL,FR         F
```

4.0 Turn Sequence

Turns are comprised of the following phases:

    Move Orders Phase
    Movement Phase
    Initiative Roll
    Player 1 Combat Phase
    Player 2 Combat Phase

Before combat takes place, both players roll a die. The player with the highest die roll becomes player 1. Ties are re-rolled.

5.0 Setup

The setup of the game is entirely up to the players. How many ships, what type of ships (how many BP's each), the starting location of the ships, and the victory conditions are for the players to decide. It is recommended that players first start off with a small number of ships and gradually build up over subsequent games. The most obvious victory condition is to see who can destroy whom.

Needed for Play: A number of 6 sided die, ship counters (one color per side), and a blank hex map (preferably with numbered hexes.

6.0 Movement

SPEED is how fast the ship is currently traveling. SPEED may never exceed the current ENGINE rating. Ships start out the game at any SPEED less than or equal to the ENGINE rating. SPEED is written on the Ship Turn Record during the Move Orders Phase.

Acceleration and Deceleration: Ships may accelerate or decellerate by 1 SPEED each turn. SPEED is written down in the Move Orders phase.

Moving a Ship: Ships may either move forward, turn left (one hex side) or turn right (one hex side). Each one of these movements costs 1 SPEED. Ships may not turn twice in a row, but must move at least one hex forward between turns. A ship must expend all of its SPEED in each turn, either by moving forward or turning.

Ship Movement Orders: All movement is plotted before any movement takes place. These Movement Orders are written on the Ship Turn Record during the Move Orders phase. Movement Orders are written down like "2L1". This means to move two hexes forward, turn one hex side to the left, then move 1 hex forward.

Since all movement (direction and SPEED) is plotted before any ships move, both players may move thier ships at the same time.

7.0 Combat

Ships may fire on other ships when the following occurs: target ship is within range of firing ship, there is a clear line-of-sight between the ships, and the target ship is in the firing arc of one of the firing ships' weapons. See the Facing/Firing Arc chart below to determine which arc the target ship is in. Each weapon on a ship may fire once per turn.

Range: All weapons have a normal range of 4 hexes. Ships may fire at 5 or 6 hexes, but with a -1 on the To-Hit Roll. Ships firing at 1 or 2 hexes fire with a +1 on the To-Hit Roll. Range 0 (same hex) is at +2 on the To-Hit Roll.

To-Hit Roll: Once all of the above conditions have been met, roll 1 die for each weapon firing. If the die roll is equal to or less than the To-Hit of the firing ship (taking Range modifiers into effect), then the target ship has been hit.

Damage: Each weapon delivers one hit of damage to the targeted ship. Roll 1 die. On a roll of 1-4, mark off one oval of SHIELD. On a roll of 5 mark off one oval of ENGINE. One a roll of 6, the weapon on that side of the targeted ship is destroyed. If there is no weapon on that side or the weapon is already destroyed, mark off one oval of SHIELD. If there is no ENGINE, mark off one oval of SHIELD. All damage is applied immediately.

Destruction: Any ship with no more ovals of SHIELDs is considered destroyed.

Facing/Firing Arc Chart
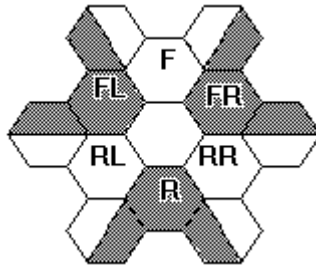
*Note: Notice that as you extend the firing arcs, some hexes will be in two firing arcs.

Ship Turn Record

```
Ship Name: _____    Unit # _____
ENGINE:    O O O O O
SHIELD:    O O O O O
TO-HIT:       _____
Weapons:
   F: O   FL: O   FR: O   RL: O   RR: O
```

Turn	Speed	Move	Turn	Speed	Move
1	_____	_____	16	_____	_____
2	_____	_____	17	_____	_____
3	_____	_____	18	_____	_____
4	_____	_____	19	_____	_____
5	_____	_____	20	_____	_____
6	_____	_____	21	_____	_____
7	_____	_____	22	_____	_____
8	_____	_____	23	_____	_____
9	_____	_____	24	_____	_____
10	_____	_____	25	_____	_____
11	_____	_____	26	_____	_____
12	_____	_____	27	_____	_____
13	_____	_____	28	_____	_____
14	_____	_____	29	_____	_____
15	_____	_____	30	_____	_____

Ship Turn Record

```
Ship Name: _____    Unit # _____
ENGINE:    O O O O O
SHIELD:    O O O O O
TO-HIT:       _____
Weapons:
   F: O   FL: O   FR: O   RL: O   RR: O
```

Turn	Speed	Move	Turn	Speed	Move
1	_____	_____	16	_____	_____
2	_____	_____	17	_____	_____
3	_____	_____	18	_____	_____
4	_____	_____	19	_____	_____
5	_____	_____	20	_____	_____
6	_____	_____	21	_____	_____
7	_____	_____	22	_____	_____
8	_____	_____	23	_____	_____
9	_____	_____	24	_____	_____
10	_____	_____	25	_____	_____
11	_____	_____	26	_____	_____
12	_____	_____	27	_____	_____
13	_____	_____	28	_____	_____
14	_____	_____	29	_____	_____
15	_____	_____	30	_____	_____

Minimal Space Combat
The Strategic Game

A *Very* Simple Strategic Space Combat Game

Game Design by Timothy Swenson
Copyright 1996
This game is Freeware and my be distributed freely.

1.0 Introduction

Minimal Space Combat: The Strategic Game (MSC:TSG) is the Campaign game for   Minimal Space Combat (MSC). MSC:TSG allows players to fight wars on a strategic level and either use MSC or Strategic Combat to fight the tactical battles. MSC is needed for play and it is assumed that players are familiar with it. Like MSC, MSC:TSG is kept minimal.

2.0 Definitions

Fleet: A fleet is composed of one or more ships.
Occupied System: A system that has a fleet in it.
Captured System: A system that had been occupied, but is no longer occupied.
Owned System: A system that is either occupied or captured.
Offensive BPs: Number of BPs spent on WEAPONS and TO-HIT for a ship.
Defensive BPs: Number of BPs spent on SHIELDS for a ship.

3.0 Turn Sequence

The game is played in the following phases:

>   1. Production
>   2. Initiative Roll
>   3. Player 1 Movement
>   4. Player 2 Movement
>   5. Strategic Combat / MSC Combat

Player 1 and Player 2 is determined by the initiative roll. Both players roll a die. The player with the highest die roll becomes Player 1. Ties are re-rolled.

4.0 Set Up

Needed for Play: A number of 6 sided dice, Fleet Counters (one color per side), System Counters (three colors; two for each side and one for neutral), and a hex map (preferably one with the hexes numbered).
Building a Fleet: Each player gets a set amount of BPs to create his entire fleet. The amount of BPs is dependent upon the size of the scenario being played. An average game would have 30-40 ships per player. With the average ship being 15 BPs,
then a total of 525 BPs (15 BPs times 35 ships) would be a good start for a game. It's up to the players what the total of BPs is for their game.

Setting Up the Map: The size of the map and the total number of systems is chosen by the players. Each system takes up one hex. Systems should be placed evenly around the map.

Home System: Each player designates one system as his Home System. Home Systems are usually at opposite ends of the map.

Starting Positions: All fleets start the game in the Home System and move out from there.

Fleet Control Sheet: Fleet Control Sheets are used to keep track of the ships in the fleet. Fleet Control Sheets are filled out before the start of the game and kept current during the game. For each ship in a fleet the following information is needed:

    Ship name or number
    Offensive BPs
    Defensive BPs
    Engine: The ENGINE value of the ship.

5.0 Victory Conditions

The objective of the game is to destroy the enemy. This can be done by destroying the entire enemy fleet or by occupying the enemy Home System.

6.0 Production

The Production phase of a turn involves calculating the production from Owned Systems, building ships, and bringing these new ships into play. Each Owned System produces one BP per turn.

Ship Building: Ship building is done in the Production phase. As BPs are built up from production, they may be spent on building new ships. Ships may be built of 10, 15, and 20 BPs. Follow the rules in MSC for building ships. Once a ship is built it may only enter the game from the players' Home World. New ships may either stay at the Home World and await more new ships, or they may move to join up with a fleet (they become a one ship fleet).

Production Control Sheet: The Production Control Sheet is used to keep track of how many BPs are produced per turn and when they are spent.

7.0 Movement

Fleet Movement: Each fleet may move a number of hexes up to the lowest ENGINE value of any ship in the fleet. Movement may be made in any direction. A Fleet may pass through the same hex as friendly or enemy fleets.

Ship Transfer Between Fleets: Ships can be transferred from one fleet to another or fleets can be combined into one fleet. To transfer ships between fleets, both fleets must end movement in the same hex. Ships are transferred at the beginning of the next movement phase.

Capturing Systems: Systems are captured by occupying them for at least one full turn. If an enemy fleet is occupying the system, then they must be moved or destroyed before the attacking player can occupy the system. Once a System is captured, it remains captured until it is occupied by an enemy fleet. A captured system does not produce until 1 full turn after being captured. A system captured in Turn 7 does not produce until Turn 9.

Fleet Sensors: When a fleet ends movement within 3 hexes of an enemy fleet, the moving player may ask the other player how many ships are in the enemy fleet.

8.0 Strategic Combat

When enemy fleets end their movement in the same hex, then combat takes place. Combat only takes place between these two fleets.

Combat can be resolved two different ways: Using Minimal Space Combat or using Strategic Combat defined here. If the players use MSC for combat, then a game of MSC is setup with the two fleets.

The Strategic Combat phase is composed of a number of subphases - Attacker Attacks, Attacker Defends. The difference between the two phases is who is attacking. In the Attacker Attacks subphase the Attacker is attacking, where as in the Attacker Defends subphase the Defender is attacking. After each player has had a chance to attack, combat either continues, or it is broken off by one of the players by moving (retreating) his fleet one hex toward his Home World.

The Attacking Player is the one that moved his fleet into the hex of the enemy fleet, thereby instigating combat. The other player is the Defending Player.
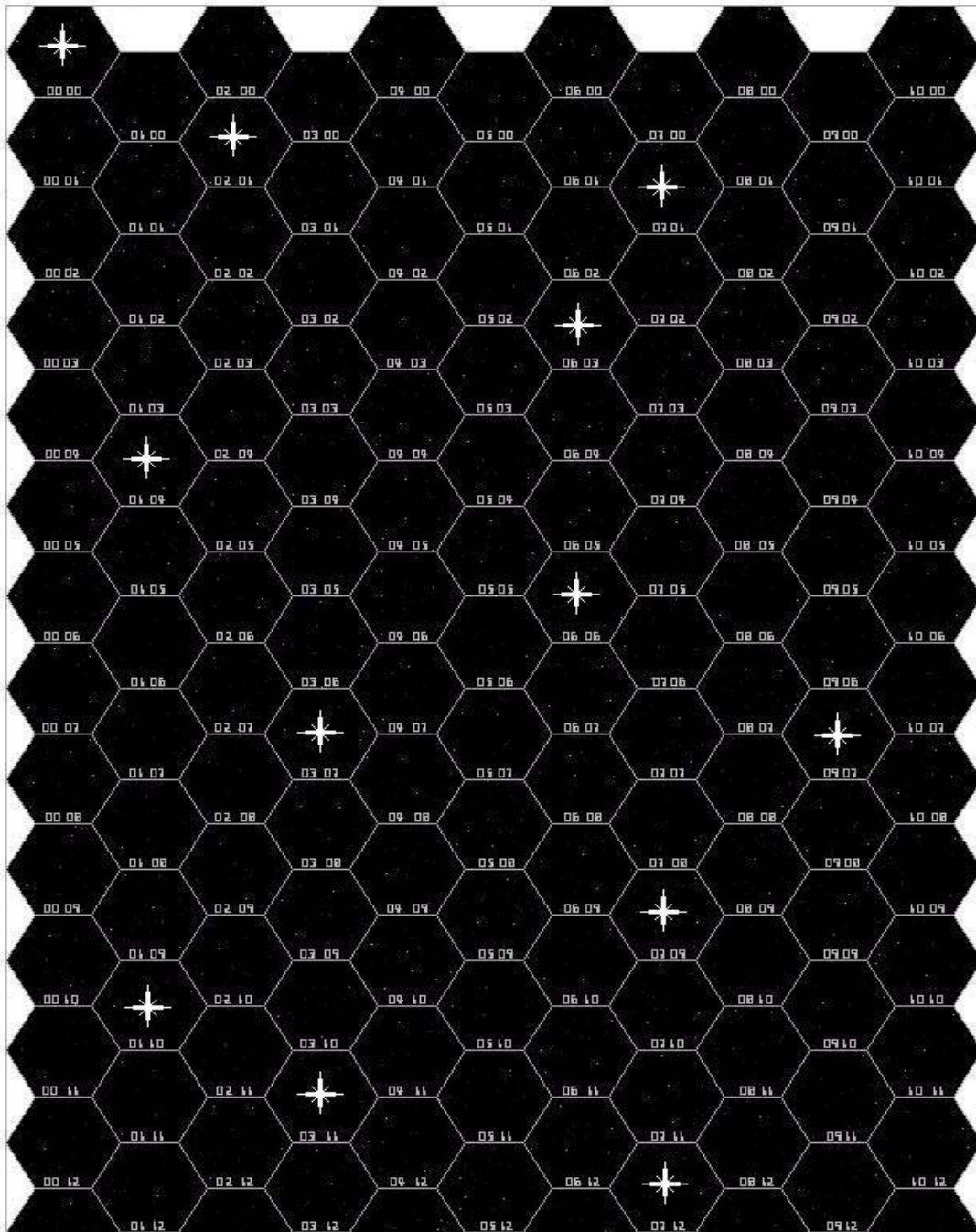
Strategic Combat is resolved in the following manner:
   - The Attacker totals up the Offensive BPs for his fleet.
   - The Defender totals up the Defense BPs for his fleet.
   - For each 7 Offensive BPs or 3 Defensive BPs each player gets 1 die.
   - Both players roll the dice.
   - Each 6 or 5 rolled by the Attacker is one enemy ship destroyed.
   - Each 6 or 5 rolled by the Defender is one ship saved. (If the Attacker rolls 3 6's and the Defender rolls 2 6's, then the Defender only loses 1 ship.)
   - The Defender gets to choose which ships are destroyed.

9.0 Charts

Fleet Control Sheet

Ship Name/Number	Off.	Def. BP	Engine BP
1 _____	____	____	____
2 _____	____	____	____
3 _____	____	____	____
4 _____	____	____	____
5 _____	____	____	____
6 _____	____	____	____
7 _____	____	____	____
8 _____	____	____	____
9 _____	____	____	____
10 _____	____	____	____
11 _____	____	____	____
12 _____	____	____	____
13 _____	____	____	____
14 _____	____	____	____
15 _____	____	____	____

Production Control Sheet

Turn	Prod. BPs	Spent BPs	Running Total	Systems Captured
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____
11	_____	_____	_____	_____
12	_____	_____	_____	_____
13	_____	_____	_____	_____
14	_____	_____	_____	_____
15	_____	_____	_____	_____

Example System Map

Minimal Space Combat
The Solo Rules

Written By Timothy Swenson
Copyright 2001
This document is freeware and may be freely distributed

Introduction

For some gamers finding a partner to play a game can be rather difficult. Location, work schedule, "other" interests all seem to conspire against the gamer. Playing solo allows a gamer to at least have some enjoyment of a game any time they want.

These solo rules are designed to assist Minimal Space Combat players in playing a solitaire game, by making the decisions on movement and attack for the non-player side.

Setup

A solo player will always have the advantage of intelligence during a solo game. To balance this out, the non-player side must have a larger number of ships. Given the scenario playing, either ships can be added to the non-player side, or the solo player can subtract ships from his side. Exactly how many ships to add or subtract is up to the solo player. The more experienced player should give the non-player side a bigger advantage.

One small criteria, to limit the number of Movement tables created, no ship should have an ENGINE greater than 6 (at least for the non-player side).

Movement

For each non-player ship on the board, movement orders must be generated. This is done by rolling one six-sided die, and comparing the result with the appropriate Movement table (based on SPEED of the ship), and finding the movement orders.

There are 6 different Movement tables, corresponding for SPEED 1 to 6. Each non-player ship must move its full SPEED each turn. The Movement table takes into account the direction of the nearest friendly (the non-player) ship and enemy (the solo player) ship. The direction, Left and Right, are in relation to the facing of the non-player ship. If there are two or more ships that meet the criteria for the nearest Friendly or Enemy ships (i.e. two enemy ships at a distance of 3 hexes), then the closest one is decided by an odd-even die roll.

Combat

For each non-player ship on the board, combat must be determined if a ship has one or more enemy ships within range of one or more weapons. For each weapon that has one or more enemy ships within range, a determination must be made on which ship to attack. If only one enemy ship is within range, the decision is obvious. For 2-3 enemy ships in range, a die roll is made (1d6) and the result checked on the Attack table. This table will determine which enemy ship should be attacked. At this point combat is resolved as normal.

Tables

SPEED 6

Die Roll	Left		Right		Friendly Ship
	Left	Right	Left	Right	Enemy Ship
1	3L2	3L2	3R2	3R2	
2	2L3	3R2	3L2	2R3	
3	4L1	2L3	2R3	4R1	
4	1L4	2R3	2L3	1R4	
5	3L2	4R1	4L1	3R2	
6	3L2	2L3	3L2	3R2	

SPEED 5

Die Roll	Left		Right		Friendly Ship
	Left	Right	Left	Right	Enemy Ship
1	3L1	3L1	3R1	3R1	
2	2L2	3R1	3L1	2R2	
3	1L3	2L2	2R2	1R3	
4	2L2	2R2	2L2	2R2	
5	3L1	1R3	1L3	3R1	
6	1L3	2R2	2L2	1R3	

SPEED 4

Die Roll	Left		Right		Friendly Ship
	Left	Right	Left	Right	Enemy Ship
1	2L1	2L1	2R1	2R1	
2	1L2	2R1	2L1	1R2	
3	3L	1L2	1R2	3R	
4	L3	1R2	1L2	R3	
5	2L1	2R1	2L1	1R2	
6	1L2	1R2	1L2	2R1	

SPEED 3

| Die Roll | Left | | Right | | Friendly Ship |
	Left	Right	Left	Right	Enemy Ship
1	1L1	1L1	1R1	1R1	
2	2L	1R1	1L1	2R	
3	L2	L2	R2	R2	
4	1L1	R2	L2	1R1	
5	1L1	2R	2L	1R1	
6	2L	1R1	1L1	2R	

SPEED 2

| Die Roll | Left | | Right | | Friendly Ship |
	Left	Right	Left	Right	Enemy Ship
1	1L	1L	1L	1R	
2	L1	1R	1R	R1	
3	1L	R1	R1	1R	
4	L1	L1	L1	R1	
5	1L	1R	1L	1R	
6	L1	1L	1R	R1	

SPEED 1

| Die Roll | Left | | Right | | Friendly Ship |
	Left	Right	Left	Right	Enemy Ship
1	1	1	1	1	
2	L	R	L	R	
3	1	1	1	1	
4	L	R	R	R	
5	1	1	1	1	
6	L	R	L	R	

Attack Table

```
Die   ---------------------
Roll  | 2 Ships | 3 Ships |
---------------------------
  1   |    N    |    N    |    N - Nearest
      ---------------------
  2   |    F    |    M    |    M - Middle
      ---------------------
  3   |    N    |    F    |    F - Furthest
      ---------------------
  4   |    F    |    N    |
      ---------------------
  5   |    N    |    M    |
      ---------------------
  6   |    F    |    F    |
      ---------------------
```

Minimal Space Combat
A Tutorial

Written by Timothy Swenson
Copyright 2002
This document is freeware and may be freely distributed

Introduction

This tutorial is designed to introduce Minimal Space Combat, and wargaming in general, to those new to wargaming. It is assumed that the reader knows nothing about wargames and has never played one. It is also assumed that the reader is familiar with games in general and has played a game of some sort, be it chess, checkers, Risk, or Monopoly.

This tutorial will walk the reader through the concepts of wargames and Minimal Space Combat, and then through the rules of the game, giving play examples. The final section is a walk-through of a example turn.

What is a Wargame?

A wargame is a board game that generally simulates some form of battle. Chess and checkers are considered abstract games because each piece really does not represent anything other than a game piece. Chess has knights, kings and queens, but they don't necessarily represent actual knights, kings, or queens, nor do they behave like them.

A typical wargame has a board that represents a battleground, usually with terrain features like hills, forests, roads, lakes, rivers, towns, etc. Each piece used in the game represents infantry, a tank, a space ship, or such, depending on the setting and scale. Wargames can be set in any period of time - past, present or future. Wargames can be global in scale, fighting WWII in a few hours, or very tactical with each piece representing a single soldier.

Chess and checkers use a board ruled lines forming squares. In most wargames, the board is covered with hex shaped spaces. It was found that hexes better simulate real movement when compared to using squares. With squares, traveling diagonally a piece can travel farther in fewer hops.

What is Minimal Space Combat?

Minimal Space Combat is a game designed to simulate combat between large space ships. Each piece in the game represents a single space ship. Each ship is basically similar to a Naval vessel, like a battleship, a destroyer, or a cruiser. Each space ship has multiple weapons of different types and can move around the board.

Ships

As mentioned above, each piece in Minimal Space Combat is a single space ship. These ships are similar to the types you've seen on TV and in Movies; Enterprise from Star Trek, Imperial Destroyers from Star Wars, and Battlestars from Battlestar Galatica. Each ship varies in size, how big it's engine is, how much defensive shielding it has, and how many weapons it has. In fact, each of these attributes are used in the game to determine how each ship plays in the game. In Minimal Space Combat each ship has the following attributes; ENGINE, SPEED, SHIELDS, TO-HIT, and WEAPONS.

ENGINE determines how big an engine a ship has. An ENGINE of 3 is bigger than an ENGINE of 2, meaning the ship of ENGINE 3 can go faster than a ship of ENGINE 2. The numbers used are abstract and no relation to reality, and just used to come up with a way of determining a faster ship over another.

SPEED is the current speed of a ship at a given time. A ship of ENGINE 3 can have a SPEED of no more than 3, a ship of ENGINE 2 can have a SPEED of no more than 2, and so on. During a game, ships may slow down or speed up depending on what the players want them to and where they want them to be.

SHIELDS are generic devices used by ships to deflect weapons fired by other ships. Anybody that has watched any Star Trek show knows what shields are and what happens to them when they are hit (they can do down in strength). In Minimal Space Combat the SHIELDS determine how much damage a ship can take before it is destroyed (blown up).   Each weapon that hits a ship, can lower SHIELDS and when it gets do zero, the ship is destroyed and removed from the board.

TO-HIT is the odds of one ship hitting another. The better the TO-HIT value, the better chances the ship has to hit the enemy.

WEAPONS is just a list of what sides of the ship the weapons are on. Minimal Space Combat being a very simplistic game, only has one type of weapon for all ships. This weapon can be a beam weapon, a torpedo, a laser weapon, or whatever. The weapon is simplified to being just a weapon.

Each ship has 6 sides, to correspond to the six sides of a hexagon spaces on the board. The sides are Front (F), Front Left (FL), Front Right (FR), Rear (R), Rear Left (RL), and Rear Right (RR). Each side can have one weapon. WEAPONS will have a listing of the sides that have weapons. If a ship has three weapons, then WEAPONS will list something like F, FR, FL.

To keep track of ships during a game, there is the Ship Turn Record. This sheet of paper keeps track of the movements of the ship, what SPEED it is going in any one turn, and keeps track of damage a ship has taken. There will be one Ship Turn Record for each ship in the game. To keep things simple, start of playing with only a few ships for each player.

Ship Design

Minimal Space Combat has some simple rules allowing each player to design their own ships. To keep this tutorial simple, this section of the rules will be skipped and the predefined ships provided with the game.

Turn Sequence

Like other games, Minimal Space Combat is played in turns. In most games turns are like this; Player 1 moves, Player 2 moves, Player 1 moves, Player 2 moves, etc., until the game ends. In most wargames the turns are more complex and are made up of different parts or phases. The phases are:

      1. Move Orders Phase
      2. Movement Phase
      3. Initiative Roll
      4. Player 1 Combat Phase
      5. Player 2 Combat Phase

In Minimal Space Combat, movement and combat are done in to different phases. Movement is also considered simultaneous. This means that each player moves at the same time. How is this done? In the Move Orders Phase, each player writes down the movement they plan for each of their ships (remember the Ship Turn Record sheet?). Once these movement orders are written down, then each player moves

their ship in accordance with the movement orders. Each player does not know where the other player will move their ships. The detail on movement will be discussed later.

After all ships are moved, an initiative roll (with dice) will be made. This will determine which player will be Player 1 and will have the first Combat Phase. This roll is done by having each player roll a die. The player with the higher die roll is Player 1. In the even of a tie, each player rolls again.

Setup

How many ships and of what type of ships are to be used in a game is up to the two players. Players can decide to have a limited battle of 2-4 ships per side, or they can decide to have an all out epic battle of 10-30 ships per side. It is recommended that each side be given equal forces. These forces can be calculated equal if the same number of Build Points are used for each side. This will allow each player to decide if they want a lot of small ships, or a few number of larger ships.

The players also determine how large a map to use and where to locate their forces on the map.

Minimal Space Combat is only a set of rules for a game. The players will need to provide the parts necessary to play the game. This includes:

Ship Counter or Miniatures - These can be small miniature ships or cardboard counters with ship outlines drawn on them. The only thing needed is a way to tell one ship from another.

Hex Map - Blank or black hex maps are available from most gaming or hobby stores. On the Web there are a number of blank hex map files. Do a search for wargaming web pages.

Ship Turn Record Sheets - One will be needed for each ship in the game.

Die - At least one six-sided die will be needed to play the game.

Movement

Each ship gets to move about the map, maneuvering to fire at the enemy ships. As mentioned above, each ship has a value for ENGINE. Also mentioned above is SPEED, the current speed of a ship, that may never exceed the ENGINE value. Keep in mind that as ships are damaged in battle, the ENGINE value will decrease, also decreasing the highest SPEED value. Ships may start out with any speed that is equal to or less than ENGINE.

Acceleration and Deceleration: Ships may change their SPEED by 1, each turn. A ship with SPEED 3 may either accelerate to SPEED 4 or may decelerate to SPEED 2 in one turn. Ships may decelerate down to a SPEED of 0 (just sitting there), but this may not be a good idea. Any changes in SPEED is done in the Movement Orders Phase and written down on the Ship Turn Record sheet.

Moving a Ship: Ships may move forward 1 hex or turn 1 hex-side. Each one of these actions costs 1 SPEED. If a ship has SPEED three, it may move forward 3 hexes; it may move forward 1 hex, turn 1 hex-side to the left, and move forward 1 hex. Ships are not allowed to make two turns in a row and must move forward at least 1 hex before turning again. This means that a ship of SPEED 3 wants to make a quick turn. The ship can turn 1 hex-side to the right, move forward 1 hex, and then turn another hex-side to the right. A ship of SPEED 1 may only turn or move forward in one turn.

Each ship must expend all of its SPEED on one turn. With a SPEED of 3 a ship must either move forward or turn 3 times. If a players wants to expend a lesser SPEED, then they need to decelerate before marking down their movement.

Since neither player knows exactly where the other player will move each ship, ships are allowed to move into the same hex. Ships do not collide when in the same hex, they are just assumed to be very close to each other.

Movement Orders: The decision on how to move each ship is done during the Movement Orders phase. When each player figures out how they want to move each ship, they write the movement down on the Ship Turn Record sheet for that ship. Movement Orders are written down using numbers and the letters L (for a Left turn) and R (for a Right turn). If a ship is to move 1 hex forward, turn 1 hex-side to the left and then move 1 hex forward, the Movement Order is written down as "1L1". A Movement Order of "2R" would be to move forward 2 hexes and then turn 1 hex-side to the right. A more complex Movement Order would be "1L1R1" , 1 hex forward, turn 1 hex-side to the left, 1 hex forward, turn 1 hex-side to the right, and 1 hex forward.

When the Movement Phase happens, both players can move their ships at the same time, moving then only as written down on the Ship Turn Record. Not knowing where the other player will move to add a little complexity to the game, necessitating a little planning and wishful thinking by each player. To keep track of which ship counter belongs to each Ship Turn Record sheet, be sure to give each ship counter an number or other form of identification. This is then written down on the Ship Turn Record sheet.

Movement Example:

1L1   R1R
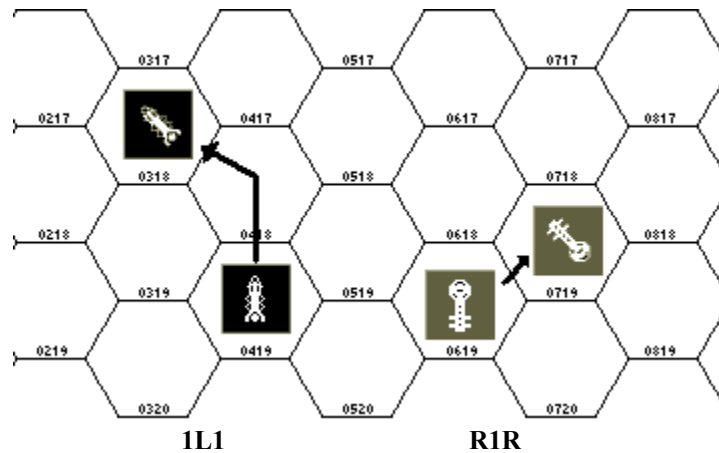
Combat

The heart of any wargame is attacking the other player and blasting his units to pieces to little bits. In Minimal Space Combat, combat is fairly simple, but there are a few things that must exist before combat happen. These things are: Firing Arc, Line of Sight, and Range.

Firing Arc: The weapon that is used to attack another ship is based on the Firing Arc. Since ships have weapons based on a certain side of the ship, then the attacking ship can only fire at ships that are in a Firing Arc for which there is a weapon. See the Firing/Facing Arc Chart below. Notice that as Firing Arc extends from the ship that certain hexes can exist in two Firing Arcs.

Facing/Firing Arc Chart
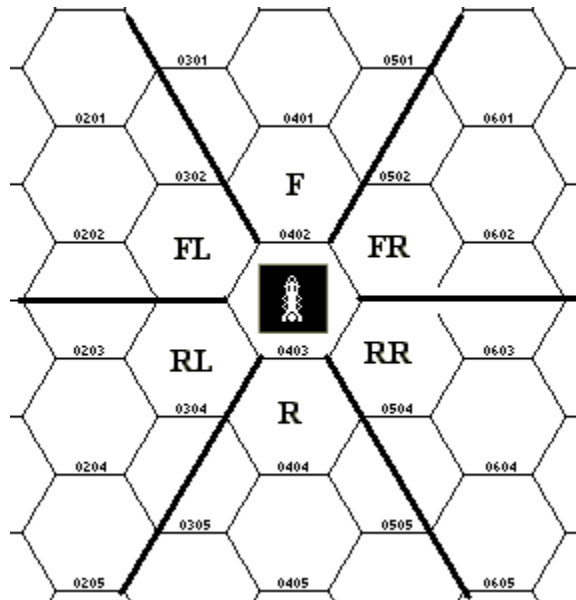
Line of Sight: Before a ship can attack another ship, there must be a clear Line of Sight (LOS) between each ship. The Line of Sight is measured from the middle of each hex the ships reside in. If a straight line between the middle of the two hexes crosses a hex that has another ship in it, then there is not a clear Line of Sight.

Line of Sight Example:
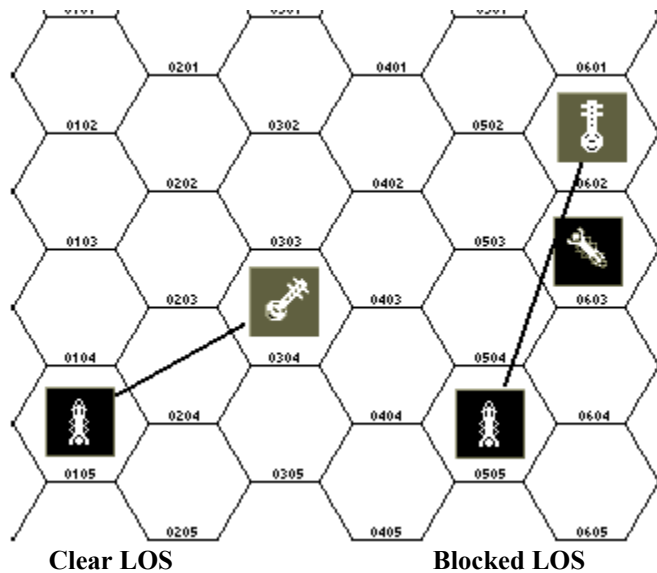
Range: All weapons have a normal range of 4 hexes. This means that a ship can attack an enemy ship up to 4 hexes away. Ships attack enemy ships at 5 and 6 hexes away, but at a cost of -1 to the To-Hit Roll (we'll get to that in a moment). This means that it will be harder to hit a ship at a range of 5 or 6 hexes. If the enemy ship is only 1 or 2 hexes away, then the To-Hit Roll is +1. If the enemy ship is in the same hex,

then the To-Hit Roll is +2. Using the Line of Sight example above, the ships with a clear Line of Sight are at a range of 2, where as the ships without a clear Line of Sight are at a range of 3.

Once the Firing Arc, Line of Sight, and Range have all be determined, then the attacking ship makes a To-Hit Roll. A To-Hit Roll determines if the attacking ship has hit the defending ship. The attacking player rolls 1 die. The roll result must be equal to or less than the To-Hit of the attacking ship. Any To-Hit Roll modifiers from determining Range will be added to the die roll before comparing to the ships To-Hit.

Here is an example; A ship with a To-Hit of 3 is attacking an enemy ship 2 hexes away. The player rolls a 2 on the die roll. Because the range is only 2, there is a +1 to the die roll. The die roll is now 3. This is equal to the To-Hit of the attacking ship, so the enemy ship has been hit.

In another example; a ship with a To-Hit of 3 is attacking an enemy ship 5 hexes away. The player rolls a 3. Because the range is 5 hexes away, there is a -1 to the die roll. The die roll is now 2. This is less than the To-Hit of the attacking ship, so the enemy ship has not been hit.

Damage: Once a ship has been hit, then the attacking player needs to determine how much damage was done to the defending ship. All weapons deliver one unit of damage. Damage can affect the SHIELDS or the ENGINE. Roll a die. On a die roll of 1-4, then mark off one oval of SHIELD. On a die roll of 5, then mark off an oval of ENGINE. On a roll of 6, then the weapon on that ships' side is destroyed and its oval is marked off. If there is no weapon on that side of the ship, then mark off one oval of SHIELD. If there is no more ENGINE, then mark off an oval of SHIELD. All damage is marked down at the time of the attack and takes effect immediately.

Destruction: Any ship with no more ovals of SHIELDS is considered destroyed and removed from the game. Feel free to make much of an explosion sound as you like.

Example Turn

Let's walk through a example turn, showing all of the steps each player takes in playing the turn. Each player has one ship. The counters are black and grey. The two ships are defined below:

| **Black**	**Grey**
ENGINE: 3	ENGINE: 4
SHIELD: 3	SHIELD: 4
TO-HIT: 3	TO-HIT: 5
WEAPONS: F, FL, FR	WEAPONS: F

The players start their ships at the two furthest positions (see the diagram below). In the Movement Orders phase, each player marks down their current SPEED and the movement for each ship. The black player gives his ship a starting SPEED of 3 and writes down "2R" for his movement orders. The gray player gives his ship a starting SPEED of 2 and writes down "1R1" for his movement orders. Now that they both have completed their movement orders, the game enters the Movement Phase. Both players move their pieces to the next position on the map (based on the Movement Orders given to each ship). The ships are now at the two closest positions.

For the Initiative Roll, the player rolls one die. The black player rolls a 5 and the gray player rolls a 2. The black player wins the Initiative Roll and gets to attack first.

The black player checks to see what Firing Arc the gray ship is in and finds it is in his Front (F) Firing Arc (where he does have a WEAPON). The black player determines that the Range is 3 hexes, so there is no TO-HIT modifier. Since there are no other ships in the game, there is no need to determine a clear Line of

Sight. The black player then rolls one die and gets a 4. The ships TO-HIT is 3, so the black ship has hit the gray ship.

To determine damage, the black player rolls one die and gets a 1. This means that the weapon has hit the SHIELDS. The gray player marks off one oval of SHIELDS from his ship.
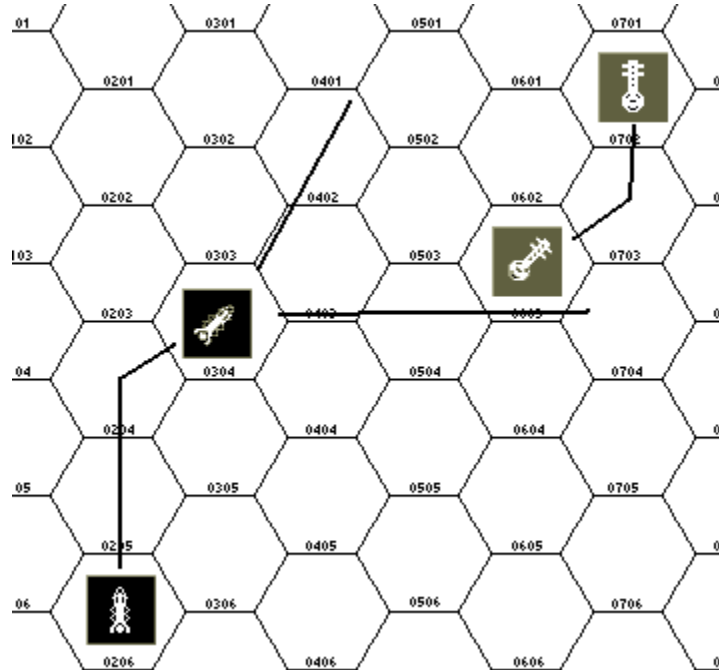
It's now the gray players' turn for combat. The gray player determines that the black ship is in his ships Front (F) Firing Arc. The gray player already knows the range is 3 hexes and that there is a clear Line of Sight, so he goes a head and rolls the a die. He gets a 5, just equal to his TO-HIT for the ship. The gray player then rolls the die again to determine damage. With a die roll of another 5, the black player marks off one oval of ENGINE.

Play will continue until one ship has been destroyed. Players can move their ships off of the map and remove them from the game, but in most games, the players will play down to the last ship (or until they get tired of the game).

Minimal Space Combat
The Designer Notes

Written by Timothy Swenson
Copyright 2002
This document is freeware and may be freely distributed

The idea for Minimal Space Combat came to me back in 1996 on a flight to Los Angeles. I don't know what triggered the thought, but I started thinking about space combat games and complexity. I'm not a fan of overly complex games with volumes of rules, so I started thinking about going down the other road. The question formed in my mind, "What would be the smallest set of rules for gaming space combat?"

So, on the flight, the beginnings of Minimal Space Combat was formed. Luckily I had my laptop with me so that by the time I was off the plane, most of the design details were completed. The general feel for the game came from my previous design "Stellar Wars" and some ideas I had for changing the game. The hardest part was what design elements to keep. What parts of a standard design were not minimal and could be reduced? What parts where necessary to still keep the feel of space combat?

After playing a number of games with movement orders, I started to like that concept and adopted it for Minimal Space Combat. I knew that I wanted to keep the idea of ships having 6 sides (one for each hex side). Armor and Shields were rationalized down to just Shields. Weapons were rationalized down to only one type. Since Engine and Speed went hand-in-hand, I kept them.

The turn sequence is one that I've used before and like the idea of not letting the players know first who's going to get to attack after movement. This adds some uncertainty to the game and a little feel of gambling ("will this attack work or not").

Line of Sight and Range were obvious and would be stupid to remove from the rules. I know that a ship in a hex blocks a line of sight (seeming to show how small the hexes are), while two or more ships may be in the same hex at one time (seeming to show how large the hexes are). Since movement is preplanned by the players, writing any rules to resolve stacking conflicts would have been too much. Leaving the Line of Sight rules are they are, encourages more movement by the players.

In any space combat game I design, I try to encourage as much movement as possible, even writing the rules to sort of force movement. In a space combat game, since there is no terrain, there is nothing to prevent the players from just coming to a halt in the middle of the board and just start firing at each other, until one player is left. Encouraging and forcing movement helps to reduce the chance of this scenario from happening.

When thinking about designing wargames, I have 4 areas of key thought:
1) Playability vs. Realism
2) Miniatures vs. Board Games
3) Open Ended vs. Story Setting
4) Designing Units

The first three only really apply to more complex designs. Realism is not much of a concern when doing a minimal design. Neither is writing a full setting for the game. I did really want to keep the idea of Designing Units and write the simple ship construction rules.

When I first designed Minimal Space Combat, I had not planned on anything more than just the game. Soon I was thinking about strategic level games and decided to take the same approach as before and design a minimal version of a strategic space combat game. The idea for solo rules and a tutorial came

after a few years, but it took a few years more before I actually got around to doing them. Once all of the pieces were in place, it was only a natural conclusion to wrap everything up into a single document.

Applying Naval Tactics to Space Combat

Written By Timothy Swenson

INTRODUCTION

At first glance Space and Naval combat may not seem to have much in common. Naval combat is based in the past or present. Space combat is based in the distant future. Naval combat is based on real ships and real situations. Space combat is based on almost fanciful ideas and made up situations. But they share two key points in common; terrain-less battle area, and multi-part units.

Naval and Space combat are fought on battle grounds with no terrain. Naval combat is fought on the open seas, Space combat is fought out in the vast expanse of space. Ground combat is grounded in the type of terrain it is fought on.

Most space combat games define each ship as having lots of subparts that are destroyed as the game progresses. When a number of key subparts are destroyed, the ship is considered destroyed. This is exactly the same way that Naval combat is gamed.

The core of this article comes from the book "Naval Tactics: Theory and Practice" by Wayne Hughes. Most of the books I found that supposedly covered Naval tactics only covered past battles and very specific examples. "Naval Tactics: Theory and Practice" was the only book that I could find that talked about the general theory of Naval tactics and how it all works.

Naval Combat is a War of Attrition

Out on the open seas there is no place to hide and take cover. Firing your weapons on the enemy means that you must expose yourself to his weapons. You have to take hits to deliver hits. There is no defensive position to take. There is no high-ground to hold. It's just pure ship against ship.

There are a few things you can do to give yourself an advantage in facing your enemy:

  - Greater Range. If you have a greater weapons range than your enemy, you can sit outside his range, avoiding his attacks, and deliver your attacks. Greater range usually means a less effective attack, due to a lesser chance of hitting your target and the lesser force of your weapons. This is a small price to pay for unreturned fire.

Historically, in a situation like this, you would have to have a good system for aiming your shots. Early Naval combat took place at close quarters because aim was harder to achieve than range.

  - Bigger/More Weapons. The bigger or more weapons you have in relation to your enemy, the greater your odds at winning. Having more weapons means that you can deliver more hits than the enemy. Having bigger weapons that each successful hit delivers greater damage. The result is your destroying more of the enemy's firepower over time than he of yours. This translates into victory for you.

  - Greater Armor. The greater your armor, the more hits you can take and not sustain serious damage. Any enemy shot that does not do serious damage is a wasted shot. Do not go overboard in armor. In systems in which you are allowed to design ships, having a lot of armor usually means having fewer weapons. Historically, lots of armor meant a heavier ship, which would take more effort to move it, which meant a less maneuverable ship.

Attack Effectively First

This is the first tenet of naval warfare. Advantage in battle goes to he who gets the first shot. Getting off the first shot means that you can inflict damage on your enemy before he does so on you. Destroying any of your enemies weapons, before they are allowed to fire, equates to the enemy never having them at all.

Effectively means that you must make your hits count. If you get off the first shot, but they are poorly aimed, it is as if you never fired at all.

There are three means that can assist in attacking effectively first:

  - Mass. Mass is having more ships and weapons that your enemy. You want to get all of your forces into battle as soon as possible. This gives you the mass to make your first blow a serious one.

  - Concentration. Concentration is focusing the main efforts of your forces on a few key enemy ships. You don't need to attack his entire fleet at the same time. If you can mass your forces and attack a small portion of his fleet, while avoiding as much enemy fire from the other ships, your attacks will be more effective.

  - Maneuver. Maneuver is getting your ships where they can be the most effective exactly when you need them to be. In firing first effectively, you must get as many ships as possible into firing position at the time you want to fire (mass). Without effective maneuvering you can not achieve the mass you need, which will not allow you to achieve any effective concentration.

Maneuver can easily be applied before the battle begins. If, through maneuver, you can manipulate your opponent to maneuver where you want him to be, then you have an advantage over him.

The reason you want to attack effectively first, is to destroy some of the enemies weapons before they get a change to be used on your forces. This lessens the number of weapons the enemy has and increases your odds of destroying the enemy. Why does it increase your odds? Because of the nature of attrition warfare and the concentration of force. Let say we have two sides, A and B, with each side having 100 and 80 ships respectively. Each of the ships are exactly the same and have one weapon each. Each side will destroy 10% of the others ships in each turn.

In turn one, side A destroys 10 ships (10% of 100) and side B destroys 8 ships (10% of 80). Now side A has 92 ships and side B has 70 ships. In the next turn side A now has 85 ships (92 - 10% of 70) and side B has 61 ships (70 - 10% of 92). This keeps going on until one side is totally destroyed. At the end, side A is victorious over side B and still has 58 ships. The ratio of ships between the two sides was dropping far faster for side B than for side A.

Having the larger force is very important in both Naval and space combat. If you are the weaker force, then you may need to think if this is really the right time to fight.

What should the difference between the two forces be to make an impact on the battle? The Naval War College did some gaming prior to World War II, come up their own evaluations of relative strengths (not just the number of ships) and applied them to their wargaming. With odds of 2:1, the smaller side was removed from the game. Odds of 3:2 and the lesser force lost half its strength. With the odds of 4:3, the superior force defeated its adversary but took enough damage to limits ability to fight another battle soon.

Reserves are a Waste of Forces

In ground combat, reserves are used to give that final blow to the enemy. It lets you unleash well rested forces against a hopefully tired and weary enemy, breaking his will to continue fighting. This does not work in Naval combat.

Ground combat is based on the man. The will or morale of men is critical. Breaking the will of the enemy starts with breaking the will of a few of the enemy. Reserves are used to break the will of the enemy by hitting him hard when he is tired and weak. Loss of morale is contagious on the battle field. Seeing the man next to you retreating does not instill confidence. Once a battle line begins to break it is very hard to stop and reform it.

In Naval combat, the war is against the machine. Breaking the will of a few of the enemy does not usually spread to the whole ship. If you are going to try to break someone's will, aim for the captain of the ship or the commander of the fleet. They are the ones that decide when to retreat. If the enemy commander does not decide to retreat, then you must destroy their ability to fight by destroying the ships weapons. Even with the good morale of its sailors, a ship that has no weapons can not continue the battle.

Because Naval combat is attrition based, you want the greatest number of forces at the very beginning. You want to inflict as much damage to your the enemy as you can, before he has time to return the favor. Keeping forces in reserve does not allow you to inflict as much damage as you can.

To Know Tactics, Know Technology

Tactics change with technology. Tactics is heavily based on using what weapons you have as effectively as you can. A ship that has torpedoes will use different tactics than a ship that has guns.

Here are a few key points about Knowing. They are discussed in terms of wargaming and apply both to Naval and Space combat:

  - Know Your Units. In wargaming terms, your forces are your units. Know what units you have, what weapons they have, how fast they are, how strong the are, etc. Tailor you tactics to the capabilities of your units.

  - Know the Rules. Wargaming is based on the rules of the game. Knowing the rules lets you know exactly what you can and cannot do. Not knowing the rules means that you may not know all of your available options. Sometimes there are rules that you can exploit to use in your favor. At the same time you don't want to be unsporting and abuse the rules.

Defense is Inherently Weaker

Taking a defensive position means waiting for the enemy to come to you. This breaks the first tenet of naval warfare, Attack Effectively First. Taking a defensive position does not give you mass, concentration, or maneuver. It allows your enemy to attack you on his terms not yours.

In ground combat the defense is almost always the stronger position. The defense is based on both terrain (something to hide behind) and position (the enemy has to move you). Neither terrain nor position is available in Naval combat.

Maneuver

In ground combat, not only is where you are in relation to the enemy important, but where you are in relation to terrain is also important. Holding the high ground is important for defense. The concept of maneuver warfare is to out maneuver and to make the enemy position less useful to him.

In Naval combat position is not as vital. There is no flanking maneuver, there is no rear to guard. The only position important is the relation of the enemy to your weapons. You must have as many weapons aimed at the enemy as possible. Your enemy will try to maneuver so that as few as possible of your weapons are able to fire on him. This is the only maneuvering that really counts.

Scouting

The goal of scouting is to get your weapons within range of the enemy and aim at him. If you don't know where your enemy is, you obviously can't attack effectively first, because you have nowhere to direct your attack.

Scouting applies in wargaming when rule systems have any form of hidden or partially hidden movement. Partially hidden movement is having many counters on the map, but only a few are real units, the rest are decoys. Hidden movement is any movement that is not done on the map or within view of the other player. A popular way of implementing hidden movement in space combat games is cloaking, ships that are essentially invisible.

Scouting will only work in a wargame that has rules that make detection of decoy or cloaked ships easier the closer you get to them. This is the core of scouting, getting your forces close enough to the enemy to find out where he is.

Naval scouting has been done at two different levels, strategic and tactical. Strategic scouting is done to know where the enemy is, but not to specifically to engage him. This is usually done by long range reconnaissance aircraft or eavesdropping on enemy radio conversations. Tactical scouting is done on a smaller scale with the aim of bringing an attack to the enemy.

Scouting is based on the range of your weapons, or more importantly, the range of your enemies weapons. Scouting has to take place far enough in front of your main forces for them to have time to react and prepare for battle. You don't want to scout at the range limit of your weapons because this leaves no time to set up a proper attack. You must scout well ahead of your weapons range. If your enemy has a significantly greater range than you, you must scout at a distance greater than his range. You don't want your scout ships to discover the enemy after he has launched an attack on you.

Before the age of the aircraft carrier, scouting was traditionally done with a scouting line of small but fast ships well ahead of the main part of your forces. These ships would be set in an arc pattern about 45 to 60 degree wide. They would be spaced at the distance of their visual range, so that no enemy ships could slip in between them. Once the enemy is sighted, they would draw back to the protective cover of the larger ships.

Areas not using in Gaming

Because of the nature of wargaming there are many parts of real combat the are not simulated.

  - Doctrine. Doctrine is the teaching of specific strategy and tactics to all military forces before the battle. Doctrine guides these forces in their decision making processes. Doctrine is reinforced through careful planning and practice. Doctrine is the glue of good tactics.

In wargaming, you make all of the decisions and your units are nothing more than cardboard. The teaching of doctrine does not apply. There is one brain controlling your forces not many.

   - <u>Morale</u>. Unless specifically addresses in the rules, morale of your troops is not a consideration. Even when morale is addressed in the rules, they not simulated close to real life. Morale is based on affecting the will of your troops. Good morale comes from taking care of your troops and providing them with good leadership. Gaming can in no way hope to simulate all that this involves.

   - <u>Command and Control</u>. Command and control deals with how to get controling orders out the your forces, so that they do as you wish. A significant part of war and war planning is how to keep control of your forces. Coordination of your forces is vital in