ZYRCAN

A SCI-FI GAME BY JAVIER GARCÍA

Fight in an epic space battle!

The five most powerful races in the galaxy face off in a strategic battle for control of the galaxy Zyrcan... Will you be skillful enough with your ships?

3-5 Players | +8 Age | 15-20 Minutes

Game components

- 1 Gameboard
- 60 Ship Tokens, in 5 colors (12 for each player: four 1-engine ships, six 2-engine ships, and two 3-engine ships)
- 1 Rulebook

How to play

Phase One: Deploy

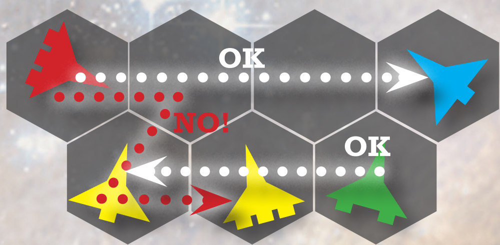
The youngest player starts, and play goes clockwise. On your turn, you place any one of your ships on an empty space on the board; with fewer than 5 players, you will use a smaller portion of the board, as illustrated to the right. After everyone has placed all their ships, Phase Two begins.

In a 3-player game, only use the central, darker hexagons. In a 4-player game, also use the brown spaces, as well. In a 5-player game, use all the spaces.

Phase Two: Attack

Once again starting with the youngest player, players take turn capturing enemy ships. To do this, move one of your ships in **a straight line**; the ship **must** end its move in a space containing another player's ship, eliminating that enemy ship.

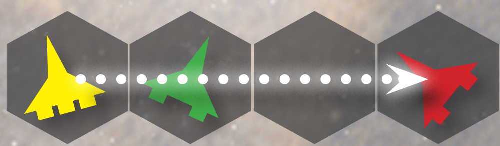
The distance a ship moves is determined by the number of engines it has (1 engine = 1 space; 2 engines = 2 spaces; 3 engines = 3 spaces). The ship must move its full amount. The ship may move through other ships' spaces, but does not affect them. Remove [only] the enemy ship in the target space from the board.



The ships must move their full move in a straight line, and must always end up in a space that contains another player's ship.

Ending the Game

When you are unable to make a legal move, you pass your turn; finish the current round (i.e. stop just before the youngest player's turn), and then the game ends. The player who has the most engines still on the board wins the game. In the case of a tie, the tied player with more ships on the board wins.



Upon completing its move in an occupied space, remove the enemy ship there from the game, and put the moving ship in that space. The game will end when a player is unable to move onto any enemy ships.

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Variant: Blitzkrieg

Phase One: Deploy, Maneuver, and Fire at Will!

The youngest player starts, and play goes clockwise. On your turn, you place any one of your ships on an empty space on the board, but it must be **at least** as far away from any other **friendly** ship as the number of engines the **ship being placed** has (e.g. 2 engines = 2 spaces or more away).

After placing the ship, you must move one of your previously-placed ships (if there are any); this cannot be the ship you just placed. As usual, the ship must move in a straight line, as many spaces as it has engines; it may move "through" other ships.

The **ship may move to either an empty space or an occupied space**, eliminating the enemy ship from the game. After everyone has placed all their ships, Phase Two begins.

Phase Two: Attack

In turn, each player moves a ship **in a straight line**; the ship **must** end its move in a space containing another player's ship, eliminating that enemy ship.

Ending the Game

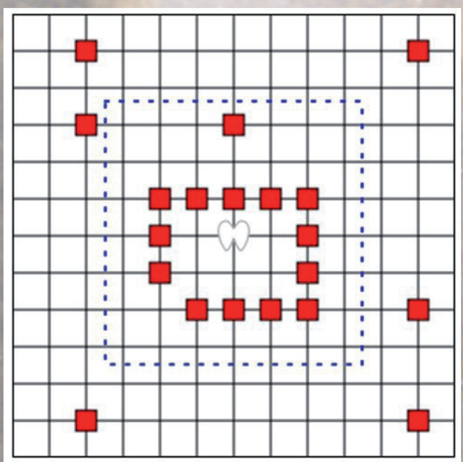
When you are **unable** to make a legal move, you pass your turn; finish the current round (i.e. stop just before the youngest player's turn), and then the game ends. The **player who has the most engines still on the board** wins the game. In the case of a tie, the tied player with more ships on the board wins. If the tie persists, then it's a tie.

Game design by Javier García

Art by Xavier Carrascosa

Revisions by Nathan Morse

Note: This game is inspired by the angel problem, a game theory question posed by John Horton Conway in 1982.



The Angel Problem

The prolific mathematician John Horton Conway, best known for having created the "game of life" (which simulates cellular growth, death, and stasis) in 1970, and his contributions to the theory of finite groups, knot theory, number theory, combinatorial game theory, and coding theory, proposed a game theory question known as "the angel problem". You have two players, the angel and the devil; the devil tries to confine the angel, while the angel simply avoids being trapped. But the real question this problem poses is whether there is a strategy that ensures that one of the two opponents can always win.

When we talk about board games, it seems that the simpler the rules are, more attractive the result is. Chess, one of the most complex board games in the world, has rules so simple that anyone can learn in five minutes. However, to apply them properly or find a strategy to ensure victory is an enormously complex task. The angel problem, which Conway proposed in his 1982 book, Winning Ways, belongs to this category.

In this game, known in some publications as "Angels and Demons", involves two players, the "angel" and the "devil". It is played on a chessboard of infinite size, and both players have completely different characteristics. The angel has a power k, where k is a natural number equal to or greater than 1, and it is agreed upon by both players before starting the game. At the beginning, the board only has two pieces: the angel, at the origin (although with an infinite board it makes little sense to speak of a "center", this space is designated the "origin" for mathematical purposes) and a devil marker in any other position. On each turn, the angel flies to another empty space, as if it were making k moves of a king in chess, but ignoring the intervening spaces. Then, the devil "marks" an empty space, disallowing the angel from ever landing in that space. The devil wins if he makes it so the angel cannot move, and the angel wins if he can survive indefinitely. The big question: Can a sufficiently high-powered angel win?

Proving that there is a winning strategy seems like it should involve demonstrating that either the devil can win in a finite number of turns, or that the angel always has a move he can take to avoid losing, in which case his "winning strategy" would be as simple as always choosing this move. Unfortunately, the solution is far from easy to find. Conway himself offered a reward for a general solution to this problem, which despite not being exceptionally attractive — $100 for a winning strategy for the angel, and $1000 for a demonstration that the devil can defeat an angel of any finite power — made hundreds of fans of this type of hobby sweat blood trying to find a solution. As with other board games, you can apply the rules of the angel problem to boards of more than two dimensions. Indeed, although the original game was designed for an infinite two-dimensional board, the first proofs of (partially) successful strategies have been found for dimensions greater than two.

In three dimensions, it was proven that if the angel moves ever higher along the y-axis, and the devil can play only moving on two planes, then the angel has a winning strategy. Of course, anyone "real" that plays as the devil is not going to limit himself with such a silly move constraint, so the angel was nowhere near having a safe strategy up its sleeve. Shortly thereafter, it was shown that the protagonist could win in 3D, if his power was greater than or equal to 13, no matter which way the devil moved. As for the original problem in two dimensions, it was Conway himself who made the first steps towards the solution he sought. In 1982, he showed that an angel with k = 1 always loses to the devil. That same year, he also found that if the angel never decreases its y-coordinate value, then the devil can always win. Finally, in 1996, he showed that if the angel always increases its distance from the origin, then the devil has a winning strategy. The situation obviously does not look good for the angel.

Despite all these efforts, there is no proof that secures victory for the villain, either — playing on a 2D board, anyway. While the pessimistic may see this as a failure, it is actually a test of how entertaining a simple game like this can be. The absence, at least so far, of a winning strategy ensures that both players have a chance to win, something essential for a game to be viable. While thousands of players enjoy their games of "Angels & Demons", hundreds of mathematicians struggle to find a proof that may not even exist.

Source: http://www.neoteo.com/el-problema-del-angel.neo