Vector Movement System variant for AoG's *Babylon 5 Wars* (8/25/97)

Note

This Vector Movement System variant is neither a standalone game nor a derivation of the AoG game. It is a completely new movement system, designed for use with the AoG game.

Feedback is always welcome, including questions, suggestions, etc.. You can reach us at mailto:caw@wizard.net.

Updates to this variant for the Vector Movement System, as well as VMS variants for other games, can be found on the World Wide Web at http://www.wizard.net/~caw/vms.htm.

Basic Principles

There are three basic principles in the Vector Movement System. *All* ship movement flows as a direct consequence of these three core concepts. They are:

1. An object at rest will tend to stay at rest. An object in motion will tend to stay in motion.
2. The course of a spaceship (hereafter "ship") is the sum of all the forces which have acted upon it. To impart a force on the ship in a particular direction, you fire a thruster pointed in the opposite direction;
3. To point a thruster in the correct direction, you rotate the ship.

Procedure

During the movement phase for each ship, the owner of the ship performs the following actions

1. Plot movement for the ship.
2. Execute thrust for the ship.
3. Execute rotation for the ship.

A ship movement for ships moving in a particular subphase is plotted then executed by all players simultaneously. Initiative can affect what subphase a ship moves in, potentially causing it to move one phase earlier or later, as explained below.

The two new graphics are for recording the direction the ship's facing, the direction and speed the ship is moving, the direction and speed with which the ship is rotating, and the thrust applied each turn. Each graphic consists of a cluster of six hexes surrounding a center hex, with four boxes arranged horizontally below. Each of the six outer hexes is split down the center by a vertical line. The labels indicate whether the graphic is used for Even or Odd-numbered turns.

Each graphic (illustrated below) is considered "fixed" relative to one of the map edges, i.e., if the top of the graphic is "north" at the start of the game, then it is always "north". The hexes are marked "A" through "F", beginning with the hex on top and proceeding clockwise.

During the course of play, information regarding the ships current velocity and direction is recorded on the left hand side of the hexes; information regarding the ship's expenditure of thrust is recorded on the right hand side of the hexes.A similar procedure is followed with the rotation boxes at the bottom of the graphic, with the outside boxes recording information about the ships current rotational speed, and the inside boxes being recording information recording information regarding the rotational thrust applied that turn. The facing of the ship (which may be different than it's direction of travel) is recorded by drawing an arrow in the center hex. For odd-numbered turns, information regarding the current expenditure of thrust (e.g., "right hexside" information) is recorded on the Odd graphic, while information regarding the *outcome* of those thrust expenditures (e.g., "left hexside" information) is recorded on the Even graphic. For even-numbered turns, this sequence is reveresed. The exact procedure is as follows:

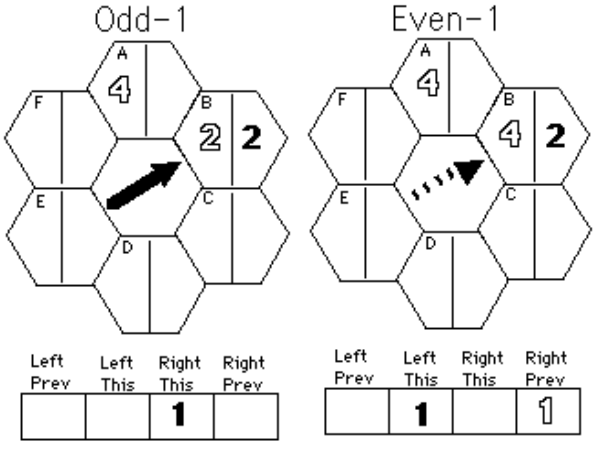
1. Calculate thrust levels;
2. Record current thrust in the appropriate right hex sides on the Current Turn graphic ("Odd" if an odd turn, "Even" if an even turn);
3. Record the result of those thrust allocations on the left hex sides of the approrpiate hexes of the Next Turn graphic ("Even" is an odd turn, "Odd" if an even turn);
4. Record current rotational thrust in the appropriate inside boxes on the Current Turn graphic ("Odd" if an odd turn, "Even" if an even turn);
5. Record the result of those rotational thrust allocations in the appropriate outside boxes on the Next Turn graphic ("Even" is an odd turn, "Odd" if an even turn);
6. Execute the move.

We recommend that at first you follow the steps in *exactly* this order, to avoid confusion.

Movement Example

Assuming it is turn #3, an Odd turn, and the course is marked as A=4, B=2 (in the left hand sides of the A and B hexes), with the ship facing direction B (i.e., direction arrow in the center hex pointing to B), and I want to accelerate 2 hexes in direction B and rotate one facing clockwise to point in direction C, I would:

1. Calculate thrust levels, etc. [let's assume everything is fine, for illustration's sake];
2. Write "4" in the left hand side of hex A on the Even graphic (because this value is not being changed this turn, and hence will be the same at the start of the next turn);
3. Write "2" in the right hand side of hex B on the Odd graphic;
4. Write "4" in the left hand side of hex B on the Even graphic (because the current "2" plus the "2" acceleration equals "4"), indicating that next turn the ship will have a vector of "4" in direction B (in addition to the "4" in direction A, per #2);
5. Write "1" in the "Right This" rotation box on the Odd graphic, indicating I am expending rotational thrust to start rotating clockwise at a rate of 1 hex per turn;



6. Write "1" in the "Right Prev" rotation box of the Even box, indicating that the ship will start the next turn rotating clockwise at the rate of 1 hex per turn;

7. Write the facing arrow in the center hex, pointing to direction C.

To stop the clockwise rotation, and accelerate by another "2" in direction B, I would do the folowing:

1. Wipe/erase the Odd graphic; since it is now an Even turn (turn 4), the Even graphic is the current turn graphic, and the Odd graphic is the future turn graphic;

2. Calculate thrust levels, etc. [Let's assume everything is fine, for illustration's sake];

3. Write "4" in the left hand side of hex A on the Odd graphic (because this value is not being changed this turn, and hence will be the same at the start of the next turn);

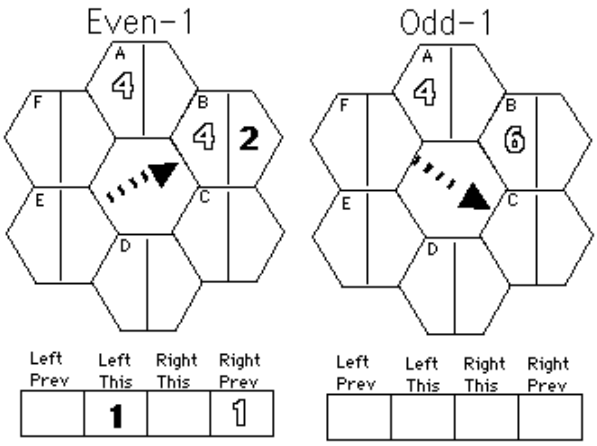
4. Write "2" in the right hand side of hex B on the Even graphic;

5. Write "6" in the left hand side of hex B on the Odd graphic (because the current "4" plus the "2" acceleration equals "6"), indicating that next turn the ship will have a vector of "6" in direction B (in addition to the "4" in direction A, per #3);

6. Write "1" in the "Left This" rotation box on the Even graphic, indicating I am expending rotational thrust in the counterclockwise clockwise direction. [If the ship were not rotating, this would be sufficient to start a counterclockwise rotation at a rate of 1 hex per turn. Since the ship is already rotating clockwise, it is sufficient to STOP the current rotation, levaing the ship facing direction C.];

7. Write nothing in the rotation boxes of the Odd box, indicating that the ship will start the next turn with no rotation;

8. Write the facing arrow in the center hex, pointing to direction.



The procedure flows very smoothly, once you get in the habit of being somewhat regimented in your approach: calculate what you want to do, write current thrust, write future effect, write current rotational thrust, write future effect.

Rules Changes

For the VMS variant we decided to use existing AoG ship characteristics and statistics either to generate VMS stats or as surrogates for VMS systems. Please note that this means that the numbers coming out of the conversions are highly suspect in any real-world sense; they are SWAGs (silly wild assed guesses) at best. They do seem consistant with our gut feelings, however, and given our goal of using the AoG numbers, I think they are the best that we can do.

1. DELETE the "Announce accelerations/decelerations" subphase from *1. Start of Turn Actions* in the *Combat Sequence of Play* (page 7 of the AoG rulebook).

2. INSERT a "All remaining ships move" subphase after the "All Fighters move" subphase of 2. *Movement* in the *Combat Sequence of Play* (page 7 of the AoG rulebook).

3. Except as modified by Initiative (see below), each ship moves according to the subphase of 2. *Movement* corresponding to the type of ship, e.g., all capital ships move in the capital ship subphase, all shuttles move inb the shuttles, subphase, etc. Within that subphase, the following steps occur:

   A. Movement is plotted using the VMS graphics on the ship sheet, as described above;

   B. Ships are rotated according to previous rotation and as plotted in step 1; Thrusters are fired as plotted in step 1.

Each step is performed *simultaneously* among all ships participating in that step, e.g., all ships plot, then all ships rotate and fire thrusters

4. The Initiative procedure outlined on page 8 is replaced with the following:

   Initiative is the ability of a military ship and its crew to react in a more timely manner than other ships. In the AoG version of VMS, this is represented by the ability or necessity of a military ship moving in an earlier or later movement subphase. Within the Initiative subphase, the following steps occurs:

   A. Add all the Initiative modifiers as present on the ship sheets, the scenario, and page 8 of the rules;

   B. Roll a d20;

   C. If the die roll is less than or equal to the *absolute value* of the total of the initiative modifiers, one of the following occurs:

      - If the total of the Initiative modifiers is a POSITIVE number, the roll determines whether the player is given the option of advancing or delaying the movement of the ship by one subphase, i.e., a roll under the total of the Initiative modifiers means that the ship MAY, at the owner's discretion, move either one subphase earlier or later than normally required;

      - If the total of the Initiative modifiers is a NEGATIVE number, the roll determines whether the player MUST advance the movement of the ship by one subphase, i.e., a roll under the total of the Initiative modifiers means that the ship MUST, move one subphase *earlier* than normally required

   Other than determining which subphase a ship moves in, the Initiative roll does not determine the order that ships move in; all movement is simultaneous per subphase, as outlined above.

Initiative Examples

Example #1: Player A has a Light fighter, with a +5 Initiative (+4 for being a Light fighter and +1 because of the race). Fighters normally move in the Fighters phase; on the Initiative roll, however, the player rolls a "4", meaning that the owner may choose to move in the "All remaining ships move" subphase. If the player rolled "6", the fighter would move in the fighter subphase as normal.

Example #2: Same as above, except the Light fighter was launched this turn (-10 Initiative modifier). The Total Initiative modifier is -5; if the player rolls of "4", the fighter MUST move one subphase earlier, in the Medium Warships subphase. If the the player rolls a "6", on the other hand, the result is that fighter moves in the fighter phase as normal.

Fighters and Shuttles

Unlike larger vessels, fighters and shuttles effectively have the ability to rotate at will, subject to thrust and damage limitations. For that reason, fighters and shuttles do not plot rotational thrust as larger ships do -- they simply rotate at the end of their movement phase, subject to the restrictions on rotation below, at the cost of one thrust point per hexside facing change. This cost represents the thrust needed to both start and stop rotation.

Minbari Movement

The Minbari are subject to the same laws of physics as the other races in the *Babylon 5* universe. They are much more devloped than most of the other races, however, and their understanding of the physical laws of the universe are not the same as ours. As a result, Minbari space drives somehow allows a ship to "de-couple" or "localize" its vector from its inertial frame of reference long enough to rotate the local frame into a new orientation. [Note that this is an explanation we made up to allow the Minbari ships to somehow use the flat turn costs printed on the ship sheets. It is not based on anything said by either JMS or AoG.]

So, addition to traditional vector movement, a Minbari commander may rotate the vector arrow of his ship in 60 degree increments by paying the flat turn cost listed on the ship sheet for each hexisde rotated. (Normal limitations on rotation apply to these flat turn rotations.) Specifically:

1) Plot any changes to the vector on the current vector graphic.

2) Calculate the flat turn cost based on the ship's new vector. In the cases where there are notations in two hexes for the vector, add the two numbers and calculate the flat turn cost based on this number.

3) Mark the rotated vector numbers and facing arrow on the next turn vector graphic. Note that the ship's facing also changes the same direction and number of hexside facings as the vector.

4) Execute the vector movement normally.

5) Rotate the ship's facing to reflect the flat-turn induced facing.

For example: a Sharlin War Cruiser along the vector A=5. The Minbari player pays 5 to accelerate to 6 hexes ahead, and then 6 for the flat turn cost. The Minbari player then moves the Sharlin 6 hexes along direction A, and rotates the ship 1 hex side in the desired direction (direction B). The Minbari is now along the vector B=6, and the player should change his record sheet to reflect the new facing and heading.

Thruster Firing Arcs

In the AoG system, ships have four sides. The Forward and Aft facings consist of the hexes immediately ahead and behind of the ship, projected outward, whereas the Port and Starboard facings consist of the two hexes on either side, projected outwards. I propose that side thrusters can be pointed into either of the side hexes; in effect, they have a firing arc like weapons.

Rotational System

In the AoG game, each system on the ship is represented by a certain number of boxes. (Think *Star Fleet Battles*.) These systems can receive damage, which is represented by crossing off boxes. When all the boxes are crossed off, the system is totally nonfunctional.

Each ship has 1 to 4 thrusters per side, with each thruster having a rating indicating the maximum number of thrust points that can be safely channeled through that thruster. These thrusters all function as the ships rotational system:

1. To rotate, a ship channels some of its thrust points through any thruster. This thrust must be separate from any thrust used to change the ship's course. This thrust *does* count towards the total amount of thrust that can be channeled through a particular thruster. Note that the Accel/Decel Rating does *not* apply to the generation of rotational thrust points.

2. Each thrust point which is used to produce rotational thrust produces 1 rotational thrust point. Each thrust point which is used to produce rotational thrust does not produce normal thrust.

3. The cost in rotation points to start or stop a ship rotating one hexside per turn is the Pivot Cost from the AoG ship sheet. This cost is written in the form of "X + X", where the first X is the cost to start rotational, and the second X is the cost to stop rotation.

4. There is a weapons firing penalty of -2 per hexside facing changed that turn.

5. Due to stress on the hull of performing violent maneuvers (not to mention the stress on the crew!), most ships have certain restrictions on how great a rotational speed they can withstand before they take damage. Unless degraded by damage, those limits are:

   - Civilian ships and transports are limited to a rotational speed of 1 hexside per turn;
   - Most warships are limited to a rotational speed of 2 hexsides per turn;
   - Shuttles are limited to a rotational speed of 3 hexsides per turn;
   - Fighters have no such limit.

   Note that shuttles and fighters are assumed to stop rotating at the end of a rotation -- this is done to make large numbers of fighters easier to control. This is an absolute limit -- fighters and shuttles do not have rotational thrusters capable of rotating faster.

   Larger ships, on the other hand, are limited to a specific rotational speed. Ships which violate their maximum rotational speed take Xd10 damage to their primary structure, where X is the number of extra hexsides rotated. Such damage is rolled at the end of every turn that the ship exceeds the maximum rotational speed.

6. Thruster critical hits apply to rotational cability as well as acceleration/deceleration capability.

Advanced Rotation Variant

In the above examples, rotation is recorded as facing changes per turn, with a "1" meaning a rotational speed of one hexside per turn, etc.. There is no reason, however, why rotatational thrust has to be applied it neat little bundles equivalent to the amount needed to turn a full hexside. Instead, players could record the amount of thrust applied, and allow fractional increments.

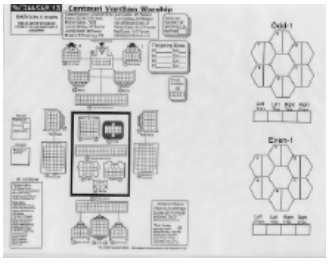
For example, if it takes "10" thrust to start the ship rotating at a speed of one hexside per turn, a player allocating "15" thrust would start the ship rotating at a speed of 1.5 hexes per turn. The facing of the ship would change for only when the amount of rotation accumulated was equal to or greater than "10"; the first turn the ship would rotate 1 hexiside (with "5" left over), but the next turn the ship would rotate 2 hexsides (because 5+15=20, and 20/10=2).

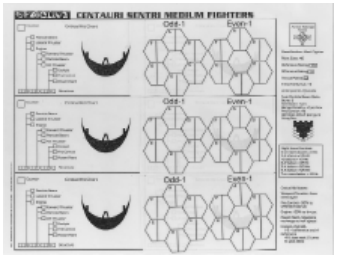
Converting the Ship Sheets

The final step is to convert photocopies of the AoG ship sheets for use with VMS. Each ship has a Ship Sheet which contains information about the specific ship, and is used to record damage. By adding the vector graphics from the following page onto these ship sheets, you can use them with VMS.

For non-fighters, you can eithger do it the easy way, which is to photocopy the ship sheetwith a landscape orientation at .78 (i.e., legal-to-letter size) as illustrated below left, or the hard way, which is to photocopy the sheet and vector graphics and cut-and-paste the components onto another sheet of paper. The easy way is, of course, easier, but since the hardway doesn't require reducting the size of the image, it may be a little easier on the eyes.

For fighters, it just happens that the fighter vector graphic (which doesn't have the rotation information) just fits in the fighter boxes on the ship sheet, turning a six-fighter sheet into a three fighter sheet, as illustrated below right. For flight-level rules (which allow control to use several fighters with one counter, and hence one vector graphic), same procedure as for non-fighter ship sheet conversion can be used.





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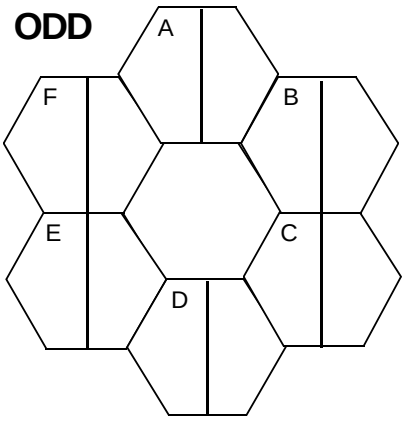

Past Current Past

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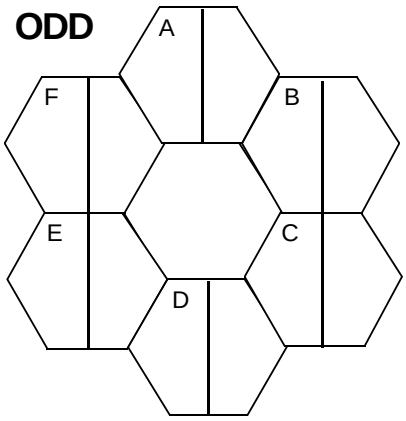

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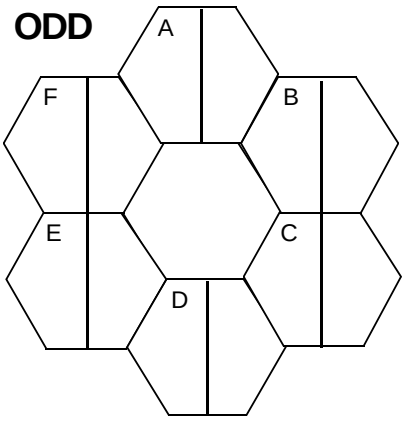

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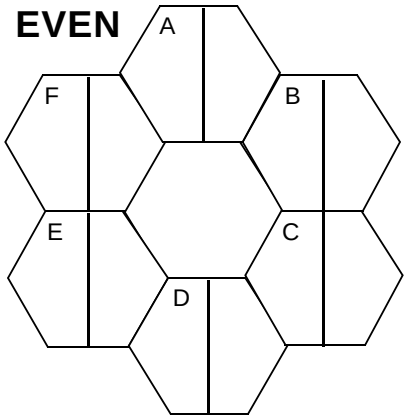

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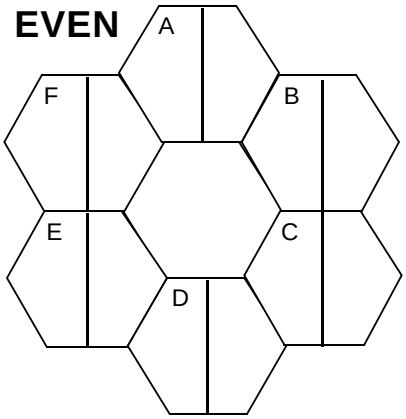

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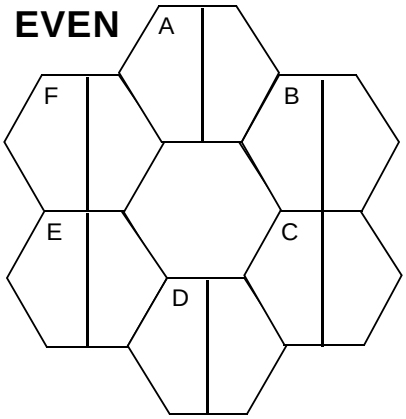

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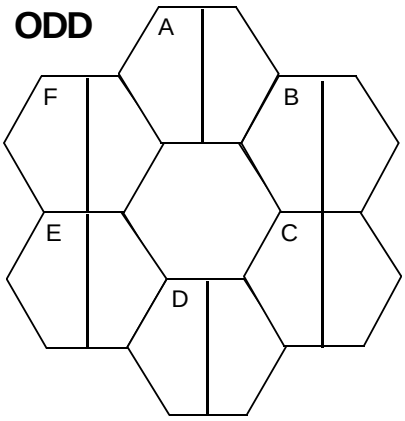

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