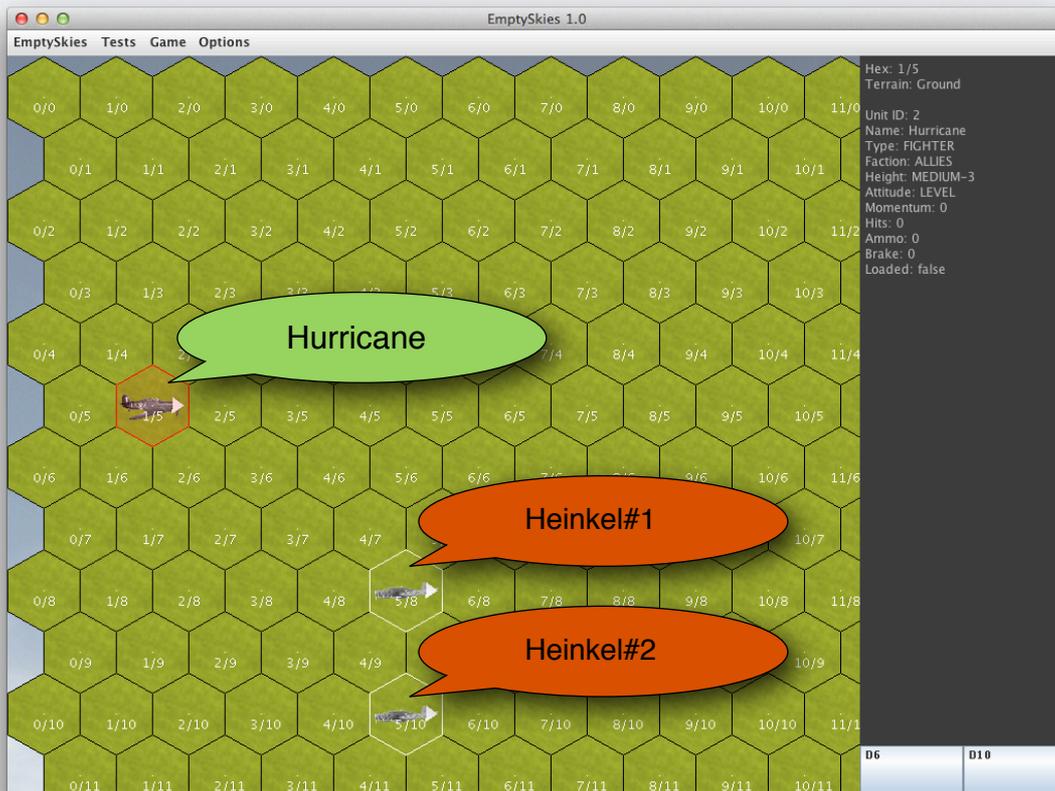


EmptySkies - Test run for *The Lone Wolf scenario*

This document introduces the *EmptySkies* (ES) tool, an unofficial Java-based play aid for the *Black Cross / Blue Sky* (BCBS) board game by Blue Sky Enterprises (www.blueskygameworks.com), helping to solitaire-play the (required) original game.

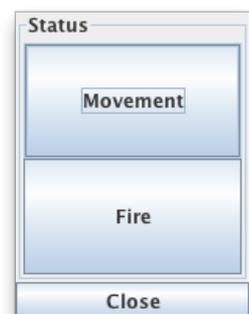
Turn 1

This test run set-up resembles that of the official BCBS solitaire scenario, with the single Hurricane slightly offset. The player's goal is to prevent the two Heinkels from

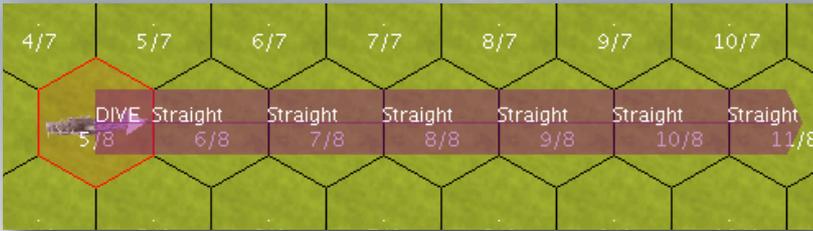


evading and escaping via the right-hand board side (not visible here). Even in this simple constellation, the scenario is quite challenging. One suggested strategy is to follow both enemies and maneuver into a position one level higher to maintain at least 10 hexes distance and some hexes away, preferably tailing the target. This prevents the Heinkels from firing back at the Hurricane, as they do not appreciate the size and tailing boni.

Computing moves for units in ES is straightforward: simply right-click one of your AI units (which are marked as such in the unit information panel to the right) and select *Movement*. Internally, this will force the computation of an entire tree of potential movement locations. These locations are then one-by-one evaluated in terms of distances to enemies and target hexes, firing opportunities, altitudes, attitudes, and so one. A heuristic then simply chooses the optimal location for each plane given the current constellation of aircrafts.



Doing so for the top-most Heinkel gives the following movement path suggestion:

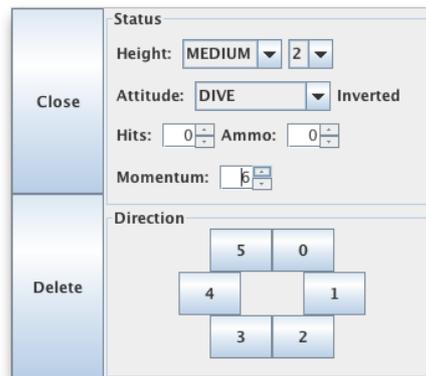


This effectively moves the Heinkel towards the right board side as far as possible, further increasing the distance by a full level of height at the end of this movement phase.

The second Heinkel executes a virtually identical move:



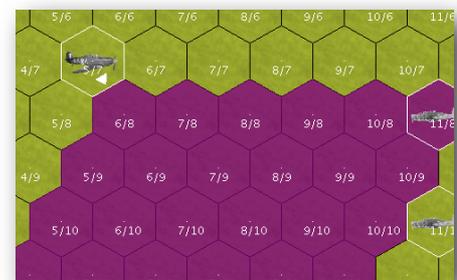
As ES is not a full game, these moves and corresponding status changes need to be adjusted for each game piece individually. Consequently, the momentum, height, attitude, direction and all other status attributes of each aircraft must be changed by the player. Dragging a game piece to another location automatically brings up a status dialog:



Here, the corresponding values, e.g., the number of momentum points, can be set.

In this test, the Hurricane is moved towards the two enemy aircraft in level attitude, attempting to get a shot from one level above and behind with a height advantage. As no momentum is usable, only a single right-turn is made.

Next, it is checked if the closer one of the two bombers is in the firing arc (see image to the right). It is, although at the utmost boundary (ignore the distance for arc computations here, it has been set arbitrarily to six hexes). The Hurri can target the bomber with its front-firing guns, rolling the number of fire factor dice.



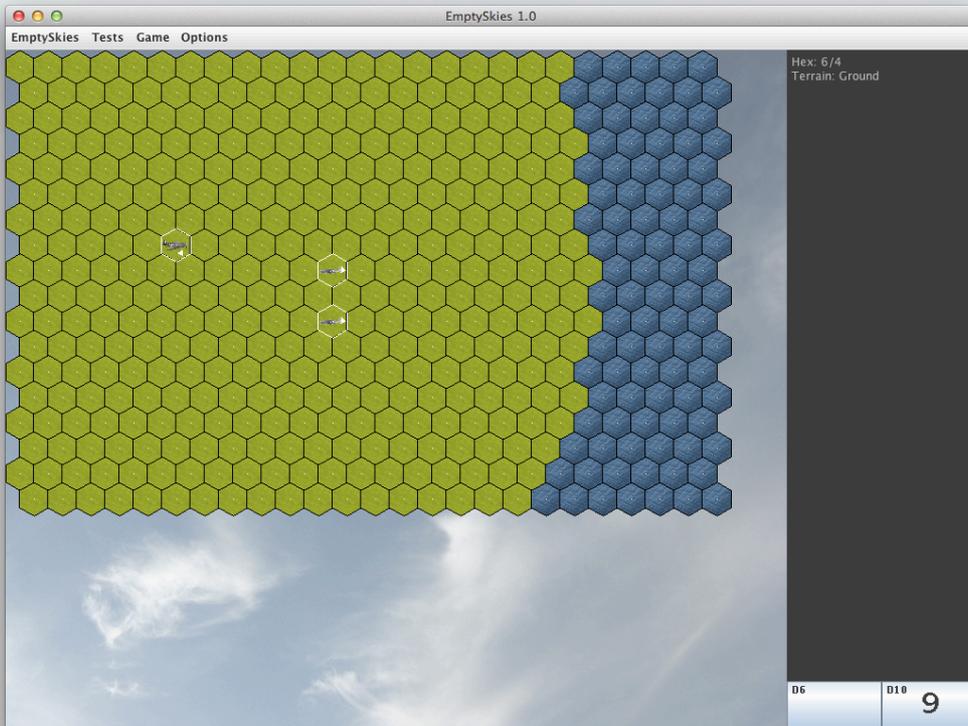
To resolve dice rolls, a *dice panel* has been built into the right-bottom corner, allowing rolls with either D6 or D10. Here, just a single hit at the given distance was achieved (which the Heinkel probably didn't even notice...). Again, the aircraft status is changed accordingly, setting the number of damage points.



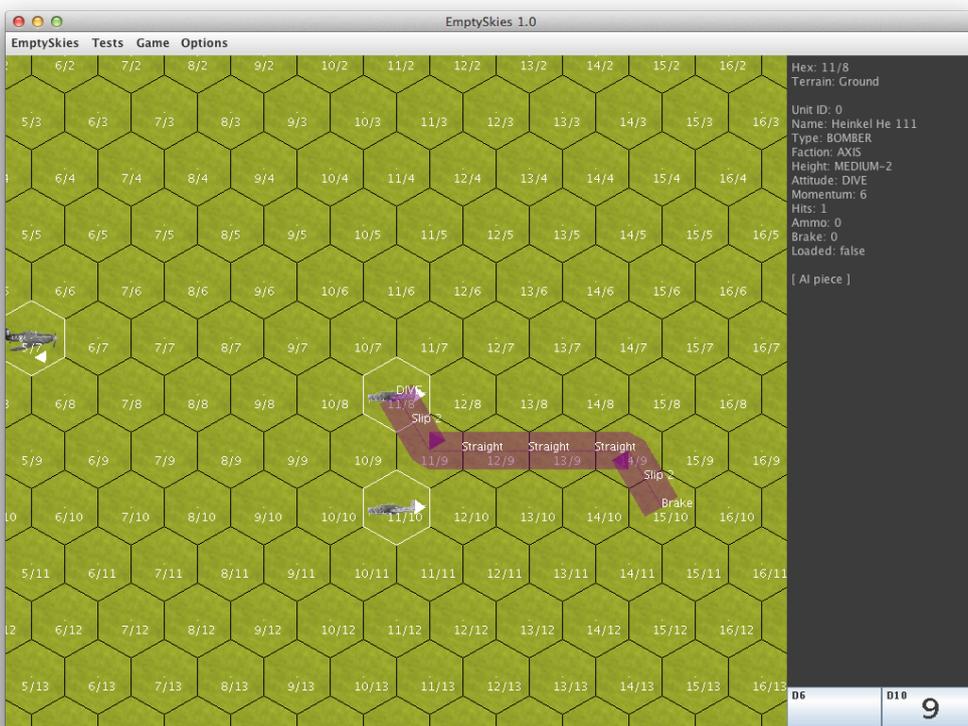
Note that for the moving and firing actions executed so far, the original game charts and rules are required - ES is only a playing aid, and assumes familiarity with the BCBS rules.

Turn 2

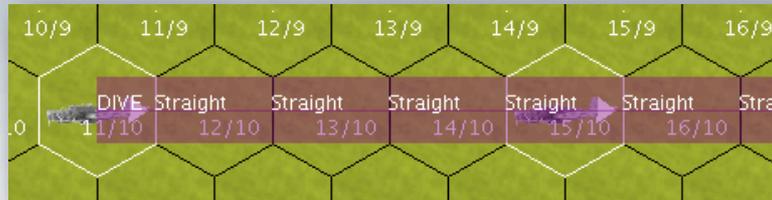
Let's get some brief overview and re-focus on the interesting section of the map. The map is perfectly scrollable via drag-and-drop, but also has a quick-view option using the mouse wheel. This immediately provides a zoomed-out map overview:



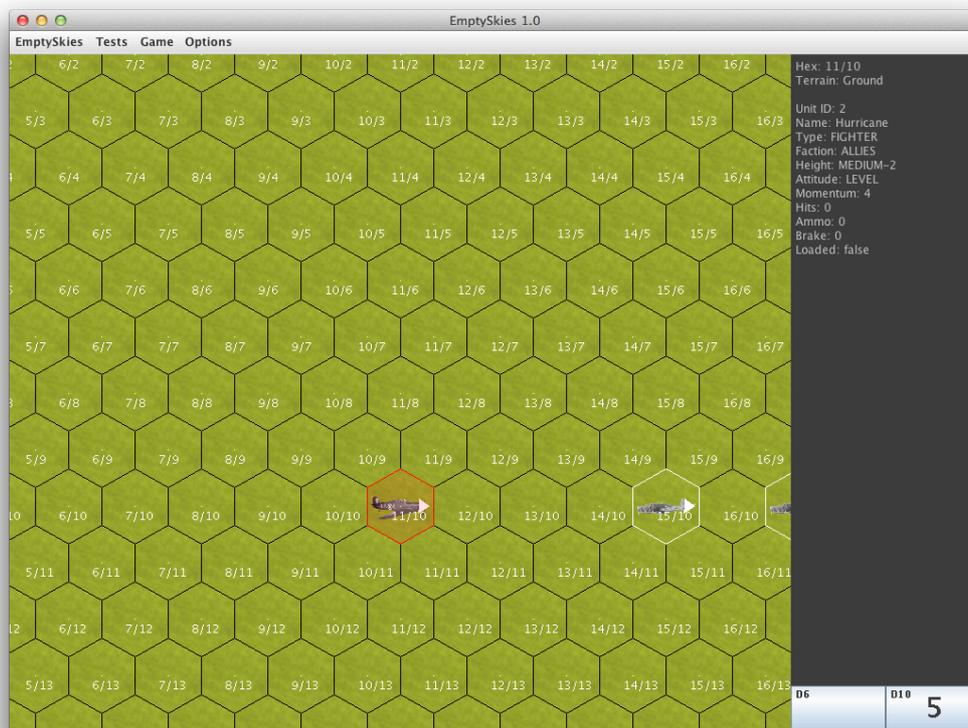
From this overview, the player can select the hex to be in focus. The map will automatically center at that location. Doing so and calling up the movement AI for the first Heinkel yields:



This is a weird move, made possible by the momentum points acquired in the previous turn. It looks like the Heinkel frantically tries to evade, after being hit the turn before, slipping and braking while diving. The second aircraft makes a more conservative dive:



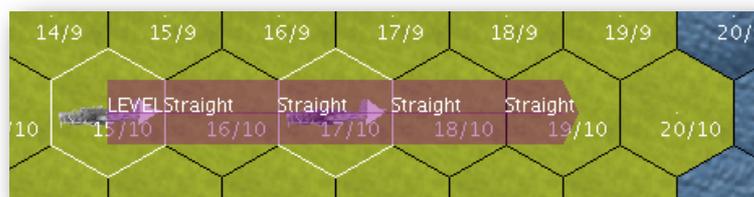
This aircraft actually overtakes the first one, and the formation is broken up. The Hurri simply follows, closing up on the first Heinkel in an attempt to shoot it down:



Rolling the dice, however, gave no luck, and I didn't even score a single hit... This ends turn 2.

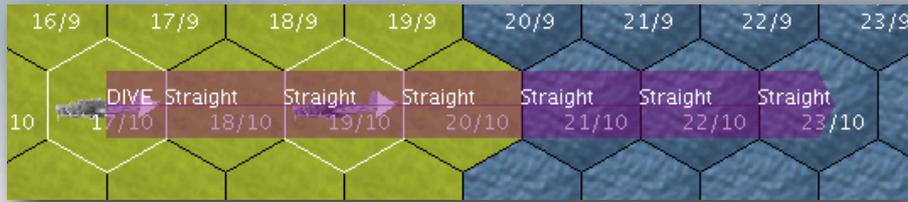
Turn 3

As determined by the logic, the first Heinkel moves level this turn. This only allows it to stay in a tight formation with the second one, reducing the distance to the enemy.

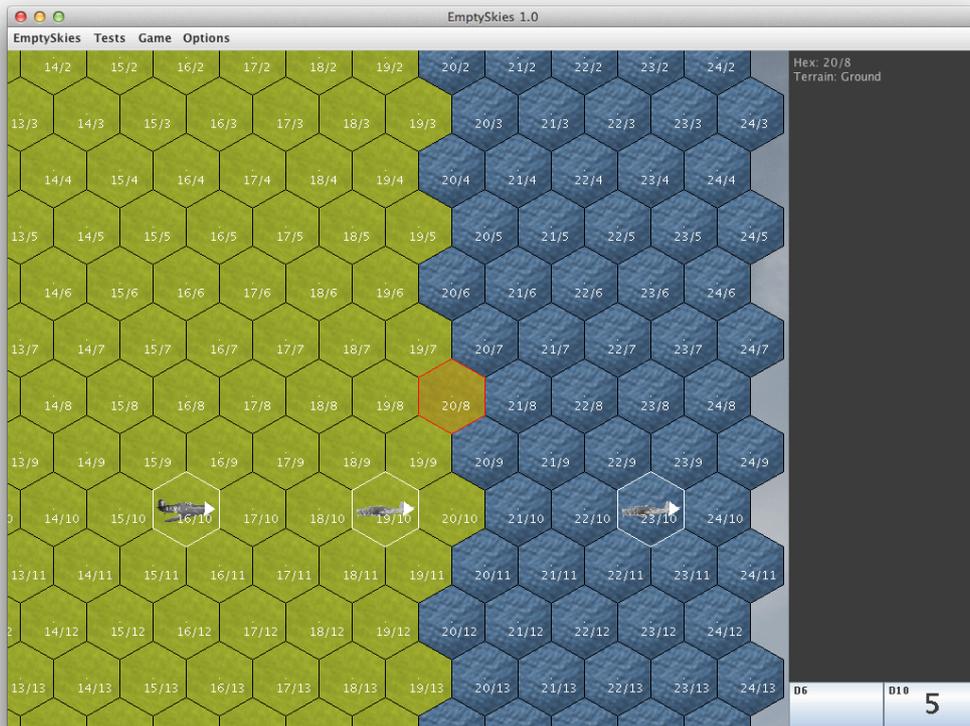


Given the close distance to the Hurricane, this is not a good solution... It looks like the logic tries to keep it in formation, sacrificing potential speed advantages. Improved strategies will require some advanced or additional rules to balance this behavior.

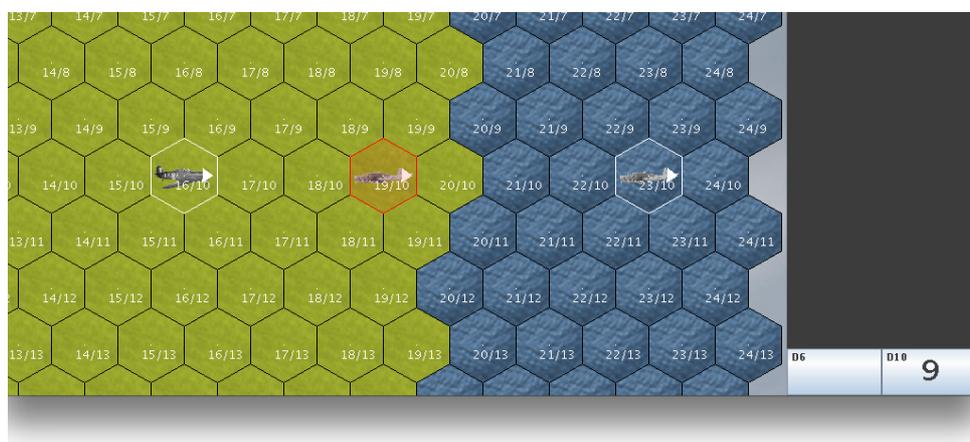
Ignoring the formation, the second Heinkel continues to dive away:



This probably is due to the close distance to the tailing Hurricane... Again, the Hurricane closes in with the hunter, establishing an excellent attack position:



This time the dice are lucky for me, and I manage to add a further six hits:



However, the Heinkels are some sturdy pieces of metal, and my target remains flying as if nothing happened. The next turn, both aircraft escaped successfully. Any game piece can be removed from play at any time via the status dialog shown above, using the *Delete* option. There is no book-keeping of turns, victory points, etc.

Conclusion

This concludes my very first play-test of EmptySkies. I found it actually quite hard to shoot down one or even two of the bombers. Admittedly, this is also true for the original solitaire scenario of BCBS. In this test run, both evading aircraft frantically tried to reach the destination game board side, and eventually succeeded in doing so. The underlying logic used slips, breaks and dives, and might even return fire if an opportunity arises. Altogether, this potentially makes it a harder opponent than the solitaire rules included in BCBS. Overall, it looks promising. In the original game, only one single-player scenario is contained, and being able to solitaire-play some two-player games is in my view certainly a benefit.

Some potential improvements concerning the turn logic will be made in future implementations, including

- a strategic-level heuristic which rewards progress towards the current scenario goals (e.g., escaping any hunters), and penalizes any actions preventing the achievement of these goals
- more balanced (and meaningful) weights for the group-level and piece-level AI decisions. For examples, bombers should try to remain in formation at all costs.

Additional features will include

- measurement tools for firing arcs and distances
- explosion hexes.

That's it for the first play test, feel free to contact me (*bolero*) at BGG.

Tobias