RWTH AACHEN UNIVERSITY

LEHRSTUHL FÜR INFORMATIK II
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Software lab summer term 2016
Implementation of Heuristic Algorithms for Board Games

– Assignment 5 –

Next meeting is on 05.07.2016. Upload your code and report before the deadline of 08.07.2016.

Task 1

Implement the *Aspiration Windows*[1] method which further optimises the alpha-beta-pruning with iterative deepening. As in the previous exercises perform benchmarks to evaluate the performance gain.

Make sure you test different window sizes to find a good compromise between too few branches being cut off (wide window) and too many searches being restarted (narrow window). Include your findings on the optimal window size in your report.

Task 2

Optimise your heuristic (evaluation function) for the bombing phase. Since it is possible to move to any field that is not a hole, your heuristic should be very efficient.

Note that on the 08.07 we expect your client to be fully functional. Particularly, the new features from the last assignment like iterative deepening, move sorting and time limits should work. Also make sure that your client works correctly in the bombing phase. Again, this is a strict deadline.

[1] You can find a good introduction into optimisation techniques for alpha-beta search (including aspiration windows) in "Der Alpha-Beta-Algorithmus und Erweiterungen bei Vier Gewinnt" by Hendrik Baier (page 30ff.).