KTH Computer Science
and Communication

Andreas Stjerndal, e-mail:. stjernd@kth.se April 23, 2013

OPPONENT RECORD

Thesis compiled by Nils Dahlbom and Norgren Philip Svensson.

Title of thesis: Optimal Yahtzee

Opponent: Andreas Stjerndal

Was it easy to understand the underlying purpose of the project? Comments.

The purpose was very clear. Simply to create an algorithm that optimizes Yahtzee play.

Do you consider that the report title justly reflects the contents of the report?

Very much so. By just reading the title, Optimal Yahtzee, one understands what the whole report is about.

How did the author describe the project background? Was there an introduction and general survey of this area?

There was an introduction, explaining the basics of Yahtzee and some aspects of what it takes to optimize the score. They then went through existing research that has been done, writing a little bit about how different researchers have approached the problem.

To what degree did the author justify his/her choice of method of tackling the problem?

They divided the problem (algorithm) into four larger parts, and discussed why those parts were important.

Did the author discuss the extent to which the prerequisites for the application of such a method are fulfilled?

No, not really applicable.

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Is the method adequately described?

Yes, the different parts of the algorithm are explained detailed enough, and there are equations and tables for visualization.

Has the author set out his/her results clearly and concisely?

The results are very clear and presented in a good and understandable way. Numbers are compared with the state-of-the-art solution, figures are shown etc.

Do you consider the author's conclusions to be credible?

Yes, they appear to be logical and based on the facts on the report and the sources.

What is your opinion of the bibliography? What types of literature are included? Do you feel they are relevant?

Mostly it is research papers that are referenced. One from KTH, one from Loyola University Maryland, and one from Eindhoven University of Technology. The seem to be, in my oppinion, very credible and good sources. Additionally they refer to a math book when using equations. I myself have used that book for a course previously actually. All in all, very good bibliography, and everything is relevant.

Which sections of the report were difficult to understand?

Most of the report was easy to understand, at least for me. Yahtzee is a simple game most people are familiar with, and that helps a lot. The hardest part was understanding the mathematics and the formulas. For me who has studied a lot of math in my days, it was not too much trouble though.

Other comments on the report and its structure.

I think it is a solid report. The language is good. The structure is excellent, and every section contains what you expect.

What are the stronger features of the work/report?

They do a good job explaining the concepts and thought process in a clear way throughout the report.

What are the weaker features of the work/report?

I can't find too many weak spots in the report. It is a clearly problem that they attempt to solve, and the report contains everything one would expect for this problem.

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One small remark is that one of the URLs in the references, [4], did not work for me, but I managed to find it anyway. In the report it is:

www.cs.loyola.edu%2F~jglenn%2Fresearch%2Foptimal_yahtzee.pdf&h=SAQGdLxx4

And the one that worked for me was:

www.cs.loyola.edu/~jglenn/research/optimal_yahtzee.pdf

So the %2F should be replaced with /.

What is your estimation of the news value of the work?

The news value is probably not too good. As they mention in the report, another optimized yahtzee algorithm, which is proven to be correct, has already been developed.

Summarize the work in a few lines.

The goal was to create an algorithm that plays the game Yahtzee with a high average score. First they explained the basics of what needed to be done and went through previous research. They then went on to describing how they went about creating the algorithm and discussed the results.

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Questions to author:

1. How long did it take to run the algorithm? The 10 000 and 100 000 runs you did when gathering the average? What kind of computer hardware were you running on?

2. Do you feel that you could get the average score close to to optimal (Tom Verhoeff) if you spent more time with improving the rules to prioritize different categories? (like prioritizing the Upper Section as you mentioned) Or do you think it is necessary to use a graph to explore every possible outcome to get something close to Verhoeffs score?