



**KTH Computer Science
and Communication**

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OPPOSITION FOR MASTER'S PROJECT

The duties of an opponent are to:

- Critically review the report in question
- Pay particular attention to the problem approach, the methodology chosen and to the interpretation/evaluation of results
- Make annotations on the report of clerical errors, other minor errors, incomprehensible or ambiguous text
- Complete this Opponent Record (use a computer or black ink)
- In advance – at the time stipulated – give this record to the persons stipulated in the instructions for your exjobb subject.
- Orally present your general opinion of and comments on the work during about 5 minutes after the author's presentation of the work
- Put questions to the author of the report following his/her presentation: you may put forward the questions set down in the Opponent Record, or some of these questions, but it is also reasonable to expect the presentation to generate new questions.
- Give the Opponent Record and the annotated report to the author at the conclusion of the seminar

You may contact the person responsible for the degree project, e.g. to test programs.

The Opponent Record can be completed either using a computer or manually. If writing by hand, use red or black ink and write distinctly. The Record copies must be legible but not necessarily aesthetically pleasing.

Master's projects vary considerably. Consequently, at times not all of the questions will be relevant to the project you are opposing. It can be appropriate to rephrase the questions to fit the project. You may also introduce one or two additional questions.

Attempt to answer the questions in the Opponent Record in relative detail. Answers such as **Yes** and **Good** are insufficient.

OPPONENT RECORD

Thesis compiled by: Gustav Engström, Sam Henriksson

Title of thesis: Optimal spelstrategi för yatzy - en jämförande studie av mindre regelförändring

Opponent: Jonas Sköld

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

Yes, the purpose was to analyze the difference in expected score between the standard yatzy rules and a modified set of rules when playing with the optimal yatzy strategy.

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

The title together with its subtitle reflects the contents of the report in a good way. However, since the main purpose of the study was to compare the two sets of rules, not analyze the optimal strategy, it might have been better to mention the comparison in the title instead of in the subtitle. The optimal strategy is merely a tool for conducting the study, not the main purpose of it.

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

I consider the introduction to be both interesting and adequately exhaustive. There is an explanation about the differences of the Scandinavian and non-Scandinavian game. The work of other people is covered, as well as the basic theory of the optimal strategy. It is also justified why the strategy for the non-Scandinavian game can be applied to the Scandinavian game.

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

The authors explain that there exists an optimal strategy for playing yahtzee. It is also obvious why this strategy is used during the study, even though there is no explicit explanation of the choice of strategy. Even though the choice is implied and seems rather obvious, a discussion about alternative methods would strengthen the arguments for choosing the method. Many of the implementation choices made, however, are well justified.

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

Much of the background is focused on the previous work in the area using the described method. It is clearly concluded that the method works and is feasible. The authors mention, among other things, two degree projects from the same course the previous year that successfully used the method.

Is the method adequately described?

The algorithm is fairly complex and not easily graspable. The method therefore requires a thorough, yet easy to understand, description. I believe that the authors have done a decent job in describing the algorithm, but it would not hurt to make it more pedagogic. The game state tree would be easier to understand if the description was complemented by a figure showing the structure of a small part of the tree. That would help the reader to get an understanding of the tree and the algorithm.

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

The results are clearly shown using both a table summarizing the significant results and a graph showing the distribution of the results. The comparison between the two different rules is easy to follow thanks to the grouping of the results. It is good that the authors have chosen to display the standard deviation in complement to the average result, since that is a relevant part of the result.

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

Yes. It is expected that the average score would increase with an extra throw of dice every round. The standard deviation does not differ that much between the two rules, but I share the authors' view that the scores are more likely to be close to average when more throws of dice are permitted.

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

Many of the referenced works cover the exact same area as this report, which makes them highly relevant. There are also references for the mathematical and statistical theorems which convince the reader that the probabilities are correctly calculated.

Which sections of the report were difficult to understand?

As mentioned earlier, the algorithm description is the section with the most complicated content. This also makes it the most difficult to understand. The other sections are well written and there are not many incomprehensible sentences.

Other comments on the report and its structure.

The English abstract contains some weird sentences and should probably be revised. The report is nicely divided into appropriate sections and well defined and coherent subsections.

What are the stronger features of the work/report?

The report is well written and keeps a sufficient academic level throughout the text. The results are presented clearly and the discussion covers some interesting points.

What are the weaker features of the work/report?

The method section could be improved with a more explicit justification of the method choice, as well as a simpler explanation of the algorithm. The report does not fully answer the problem statement. The question was *how much* the score would change, but the conclusion only says *that* the score changes.

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

After a quick search, I have found no other works dealing with the change of rules described in this report. In that sense, the work is groundbreaking. However, I also have no knowledge of people playing with four throws, which means that the significance of the study is very low.

Summarize the work in a few lines.

The authors have studied if a minor change of the rules of the dice game Yahtzee, namely allowing four throws in each round instead of the standard three throws, affects the expected score. They have done so by implementing the optimal strategy for playing the game and simulated 100000 games for each set of rules. The conclusion is that the expected score does increase, from 233 points with three throws to 280 points for four throws.

Questions to author:

1. What are your thoughts on the score difference between the two sets of rules? Is the difference bigger or smaller than you had expected? Have you done any calculations on how much the score is supposed to change with an extra throw?
2. Do you know why your optimal score differs from that in the work of Larsson, Sjöberg?
3. What is your theory on the relatively low number of occurrences of scores between 260 and 290? Have you seen this in the works you referenced?