2009 Glenn Dale **Badminton** Ladder Tournament

Location: Glenn Dale Recreation Center, Glenn Dale, MD
Time: May 9, 2009 : 10.30 am – 3.00 pm (approx)

Welcome to our first badminton tournament. You should have signed in for the **A** ("advanced"), **B** ("beginner") or **J** ("junior") level. The **A** level is for those who have played in tournaments before (you know how you are!). The **B** level are recreational players. Depending on interest, beginning juniors can play in **B** as well as their own **J** level, to increase the chance of winning a prize. That's the advantage of growing up!

We will use a somewhat peculiar – and experimental – ranking system for this tournament, similar to the ELO system used in chess. Except in chess you win, loose or draw. Here you can score between 0.0 (you lose 0-21) or 1.0 (you win 21-0). Our plan is to only play doubles, but with varying (random) partners. If we have time and energy left, we can do singles as well. Each player starts the tournament with a rank of 1500 points. After a game a score is computed (from a single set) as a number between 0 and 1, taking your points divided by the sum of the points of you and your opponent. Winners will thus have a score of more than 0.5, the looser less than 0.5. The sum of the scores of you and your opponent is thus always 1! But it becomes important – even if you loose – to keep your loss as small as possible. You will loose less ranking points if you loose 21-19 compared to 21-2!!

The theory behind the ELO system is based on math and solid statistics of something called the *logistic curve* . Basically, for each 400 points more in ranking means you are supposed to be 10 times better. After a game has been played, your game score (S, that number between 0 and 1) is compared with your expected score (E, based on the ranking difference between you and your opponent), multiplied by a K factor, and added to your old ranking (R) to get the new ranking (R'). The following simple formulae is used for this:

$$R'_a = R_a + K(S_a - E_a)$$

and the formulae for the expected score based on the ranking difference is as follows:

$$E_a = \frac{1}{1 + 10^{(R_b - R_a)/400}}$$

In the spirit of Open Source, you can view the python code that we use to compute the rankings. For singles this is easy. For doubles, the rankings of the two team members are averaged and the gained ranking points are then added to the players individual rank in the same way as described above.

A nice side effect of this complexity is that if a player comes in ½ hour late, (s)he can easily enter the tournament. You don't have to form fixed doubles teams. Players can also leave early and still maintain a good ranking.

After everybody has played enough games (or we're all too tired) the top 4 ranked played in each group will play a finals that we can then all watch. The numbers 1 and 2 will play the numbers 3 and 4. After this we will update the rankings one more time, and prizes are awarded to the new numbers 1 and 2.

Good luck!
Your friendly tournament committee: *Peter Teuben, Neil Clavano, Manuel Alega*