

EUROPEAN CHAMPIONSHIPS SIMULATION

Leksand 2008 and FINAL REPORT

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Contents

1	LEKSAND 2008	2
1.1	Overview	2
1.2	The 8 Contenders	2
2	EUROPEAN CHAMPIONSHIP PROCEDURE	4
3	CONCLUSION	5
A	THE 2008 SIMULATION	6
A.1	Pairing	6
A.2	Results	6
A.3	Knockout Ranking	6
A.4	Open Ranking	6
A.5	Asian games	6
B	RESOURCES	7

References

- [1] G Kaniuk, European Championships Simulation - Prague 2005, Feb 2011, <egc_simulation_2005.pdf>.
- [2] G Kaniuk, European Championships Simulation, Jan 2011, <egc_simulation_2010.pdf>.
- [3] SOS, <<http://senseis.xmp.net/?SOS>>.
- [4] Minutes of Annual General Meetings, Item 15), 30 July 2010, <<http://www.eurogofed.org/egf/agm2010.pdf>>.
- [5] G Kaniuk, Probability of Win, April 2011, <prob_win.pdf>.

1 LEKSAND 2008

1.1 Overview

The EGC in Leksand 2008 had a number of strong Asian players lying between the previous two simulations as illustrated in the following table:

EGC	PLAYERS
Prague 2005	24
Leksand 2008	11
Tampere 2010	6

Table 1: Strong Asian Attendance

The main features of the simulation (summarised in Appendix A), are very similar to the Prague 2005 [1] and Tampere 2010 [2] simulations. The one difference in Leksand was that SOS alone did not select the eighth player in the top eight for the championship.

The rest of the simulation proceeded along expected lines. There were no repeat pairings in this case, and again the ranking for the championship defined by EC wins, then Open wins uniquely chooses the first 4 in the European Championship and correlates very well with rating. The ties for the remaining 4 were resolved by SOS.

1.2 The 8 Contenders

From the wall list shown in `egc_2008_r7(wall list)`, we see that the first 7 European players were uniquely chosen by MMS, then SOS as the tie-break. However there are three players vying for the eighth position, all on the same SOS. If no tie-break was applied at all, we would need to choose 3 out of 13 European players in the same McMahon group.

The purpose of the tie-break is to choose that player from the group of 3 with the most chance of winning the championship. To this end, several tie-breaks were compared as shown in the following table, which also includes rating for reference:

NO	sos-1a	sos-1b	sos-2a	sos-2b	msos.1	msos.2	rating
19	194	198	161	166	32.5	32.75	2601
20	194	198	163	166	33.5	33.00	2616
21	196	197	164	164	32.5	32.50	2503

Table 2: Tie-breaks for 8th player

This table shows tie-break values calculated in `egc_2008_r7`(tie breaks)for players 19 to 21, all of whom have the same MMS (33) and same SOS (229). It has been suggested using SOS-n as a tie-break, and there are two variants[3] of it:

- a) Remove the MM scores of opponents from the first n rounds.
- b) Remove the n lowest MM scores of the opponents.

We discuss the result of applying each tie-break in turn:

sos-1a Here we have removed the MM scores of the first round opponents. It so happens that in round 1, player 21 beat an opponent with a score of 33 whilst the other two lost to opponents with score 35. Regarding MM score as an estimate of strength, we cannot conclude that 21 is stronger than 19 or 20 for he beat someone two points *weaker* than the others. This suggests that sos-1a is not suitable.

sos-1b We have removed the MM scores of the weakest opponent for each player. The tie is unresolved.

sos-2a The MM scores of the opponents in the first and second rounds have been removed. The SOS values of the three players for the first two rounds are 69, 68, 66. So again player 21 is benefitting unduly by having played weaker opponents in the first two rounds: we remove less from his SOS than the other two.

sos-2b Remove the MM scores of the two weakest opponents, and we find as with sos-1b, that the tie is unresolved.

msos.1 This tie-break attempts to estimate a player's strength by a mini-max bracketing process. The SOS tie-break represents the *average* strength of a player's opponents (divide by the number of rounds). Let us use MM score to estimate the strength of a player's individual opponents. One way of estimating the player's strength is: midway between the strongest opponent that the player beats and the weakest opponent that the player loses to.

So msos.1 is defined as the average of the above two MM scores. For example, 21 has beaten opponents no stronger than MMS 33 and lost to opponents no weaker than MMS 32, so gets a strength of 32.5. In contrast player 20 has beaten players no stronger than MMS 34 and lost to opponents no weaker than MMS 33 getting a strength of 33.5. So 20 is stronger than 21, and by the same token is also stronger than 19.

msos.2 This extends the msos concept to include the two weakest losses and the two strongest wins to provide a slightly tighter estimate. In this case we get a unique ordering: 20, 19, 21. We see that this is also precisely the ordering of the player ratings.

Therefore player 20 was chosen for the purposes of simulating the championship. The split and fold procedure used in the pairing gave him his best chance of beating one of the top three, but his winning probability was still only 22% - see `egc_simulation_2008(round 8)`, and he was knocked out in the first round of the championship.

2 EUROPEAN CHAMPIONSHIP PROCEDURE

In the light of the three simulations discussed so far, and taking into account the tie-break features seen at Leksand, the following summarises the procedure that should be followed in running the European Championship:

1. Choose the top 8 European players at the end of round 7 (the definition of *European* is beyond the scope of this report). Players are ranked by MMS, then SOS then (MSOS.1 or MSOS.2 for added confidence).

If this still does not resolve all ties, then the organisers of the congress should be given the final say. It is highly likely that unresolved ties will be for the 8th place and it is also highly likely that who ever is chosen in this position will not win the championship. For example, the option of giving up-and-coming youngsters experience of playing in the championship should be considered.

2. Having chosen the top 8, rank them by MMS then SOS. Produce a manual pairing using *split-and-fold*, i.e. 1 plays 8, 2 plays 7, and so on. If there is a repeat pairing, make just one attempt to avoid the repeat by playing 1 against 7 and 2 against 8 for example. If that still leaves a repeat, accept the original pure split and fold pairing.
3. Most pairing programs provide a forced pairing feature. After setting the above forced pairing, complete the pairing for the Open tournament following normal McMahon rules.
4. Players who lose a game in the European Championship return to the Open tournament with whatever McMahon score they have gained in the knockout.
5. At the end of round 10 rank the Championship players by EC wins, then total number of wins in the Main tournament. To avoid possible confusion here, the tie-break is the total number of wins at the end of round 10, regardless of whether the game was played as part of the championship or not. Any further ties should be resolved by SOS.
6. The winner of the Open tournament is the player with the highest McMahon score who is not the winner of the European Championship. The MMS of players includes any games played as part of the championship.

3 CONCLUSION

This report completes the simulation studies initiated as a consequence of decisions taken at the Annual General Meeting of the European Go Federation in 2010 on the format of the European Championships [4]. The conclusions to be drawn from these studies are:

- Three simulations have been carried out using a model for the probability of win [5] to generate realistic game results based on player's known ratings.
- In the one simulation reported here, a further tie-break beyond SOS was needed to choose the 8th player in the top 8. In the remaining simulations the SOS tie-break was able to choose all top 8 players.
- In all simulations, if no tie-break was used to choose the top 8, then between 13 and 15 players on the same McMahon score would be competing for the bottom few places.
- A procedure for running the European Championships, which implements the decisions taken at the 2010 AGM of the EGF, has been included in this report - see Section 2. This procedure was followed in all the simulations presented.

A THE 2008 SIMULATION

A.1 Pairing

There were no repeat games in the knockout section.

A.2 Results

Results for 100 boards were simulated using the ratings after the end of EGC 2008.

A.3 Knockout Ranking

The table `egc_2008_simulation(knockout ranking)` is sorted by EC WINS, then TOTAL WINS, then SOS. This shows a unique selection for all 8 players. For places 3 to 8, the SOS tie-break could be replaced by RATING without disturbing the ordering. The plot given in the sheet shows a good correlation of -0.88 for rating vs position.

A.4 Open Ranking

Results are presented for the first 51 players in `egc_2008_simulation(open ranking)`. The first 16 players have a fair correlation (-0.83) for rating vs position. For the remaining players there is a trend, but the correlation is poorer (-0.56).

This result is very similar to the rating vs position graph in the real tournament `egc_2008_real(top 50)`. The top 16 have a correlation of (-0.79) and the remainder a correlation of -0.47.

A.5 Asian games

Tables can be found in `egc_2008_simulation(asian games)` for the distribution of Asian-European games in both the simulated and real tournaments.

By the end of the knockout, EC players occupied McMahon groups from 34 to 37, so counts were gathered for all games where both players had a final $MMS \geq 34$. Counts are detailed for the three pairing groups between Asian(A) and European(E) countries. The following table summarises the counts for the real and simulated tournaments:

	E	A	E-E	E-A	A-A
real	32	19	46	23	16
simulated	30	23	44	19	24

The player counts in the European and Asian regions (first two columns) are very similar in the real and simulated tournaments. The last three columns show the games played between the European and Asian regions, and as expected we see a modest increase in the internal Asian games (A-A) due to the extraction of top European players from the Open.

B RESOURCES

This document must be read in conjunction with the following files contained in the accompanying archive *egc_simulation_2008_ods.zip* for Open Office spreadsheets, or *egc_simulation_2008_xls.zip* for Excel spreadsheets:

1. *egc_2008_real.[ods|xls]* the wall list for both weeks of the European.
2. *egc_2008_r7.[ods|xls]* the wall list at the end of round 7.
3. *egc_2008_simulation.[ods|xls]* the tables of simulation results.
4. *gor.txt* the ratings file for 2008.