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ARIMAA: GAME OVER

Three names, three stories and deep admiration from the Editorial Board. That is the main contents of this issue. The three names are: Omar Syed, David Fotland, and David Wu. The protagonist of our euphoria is undoubtedly David Wu. In 2011, he obtained his B.Sc. degree under the supervision of David Parkes (Harvard University) by delivering the thesis “Move Ranking and Evaluation in the Game of Arimaa”. Earlier, in 2008, David’s program SHARP had entered the Arimaa Computer Championship for the first time and came second behind David Fotland’s program BOMB. In 2011 and 2014 SHARP won the Arimaa Computer Tournament, but not the contest against the best human players of that time.

However, in 2015 SHARP won the Computer Tournament as well as the Arimaa Challenge (see pp. 3-11). A fantastic performance, which is in some sense comparable to DEEP BLUE’s victory over Kasparov (1997), and WATSON defeating Ken Jennings and Brad Rutter in JEOPARDY! (2011). In Chess and JEOPARDY! the initiative was in the hands of IBM, and the scientific progress was recognized worldwide.

Now the ICGA community is proud to have its own challenging game owing to the initiative by Omar Syed. In 2003, Omar and his son Aamir Syed published an idea in the *ICGA Journal* on a new game, called Arimaa and offered a prize of US \$10,000 for the programmer who developed before the year 2020 a program that defeated the top human Arimaa players. The game looked very difficult for computers (and humans!). Experienced Go programmer David Fotland did the “opening” moves. His program BOMB won the first five Arimaa Computer Tournaments. However, BOMB never had any chance of winning the Arimaa Challenge against the top human players involved.

All in all, your Editor is pleased with the contribution in this issue by Omar Syed in which he reports the Arimaa story: from Inception to Completion. It is breathtaking to read how he arrived at the idea of Arimaa, how he continued the idea by organising a series of tournaments, and then seeing how his idea was realised in a tough competition.

The crown on his idea came, to his own surprise, already in 2015. The achievements of the program developers are well expressed by David Fotland (five-time winner of the computer tournament) and David Wu (three-time winner of the computer tournament and now (2015) also winner of the contest against the top human players).

Although the Arimaa community is not as large as the chess or the JEOPARDY! communities, the success of David Wu’s SHARP did not remain unnoticed to the great game community. A search on Google will bring you to a great variety of descriptions of this success.

¹ The Editor gratefully recognizes the cooperation with Kingpin Chess Magazine’s Editor Jonathan Manley and author Andy Lewis, in particular he appreciates their permission to reproduce the slightly adapted version of this article.

Of course, “Arimaa: Game Over” is the most evident title for this editorial. However, some remarks are in order. Currently, the term Game Over is used frequently in video games. There are hundreds of designs with the message Game Over. The message was often used for pinball games, and later for Arcade games, meaning “your game is over”. Later on, the expression tended to have a somewhat negative meaning. Nowadays, it is almost an equivalent for “It’s all over”.

However, in our games community we know that it is not so. The last scientific challenge, establishing the game-theoretical value of Arimaa, is still waiting for its solution. Arimaa is now in the class of games in which computers outperform the best human players, just like chess. Yet, the ultimate question is: can we solve the game? As readers of this Journal know we distinguish between weakly solving and strongly solving a game (introduced by Allis, 1994). So, we would like to encourage all researchers to continue the development of advanced techniques to find the ultimate truth of Arimaa.

After completing my Editorial, I was happy with the contents and the title. For curiosity, I checked at Google whether this title was used earlier. Then I arrived at the Kingpin site and found Andy Lewis’ article. David Levy brought me in contact with Jonathan Manley (their Editor) and Andy Lewis. The result is to read on pp. 55-62. Thank you both for the fast cooperation.

Next to the Arimaa euphoria we have still maintained the character of the Journal by publishing two notes, one by Guy Haworth on Chess Endgame News. The second note is on research on the computational complexity of $n \times n$ Chinese Chess by Qiang Gao and Xinhe Xu.

We wish our readers a pleasant reading time and apologize for the late appearance of this issue. We promise to provide you with more interesting news soon.

Reference

Allis, L.V. (1994). *Searching for Solutions in Games and Artificial Intelligence*. Ph.D. Thesis, Rijksuniversiteit Limburg, Maastricht, the Netherlands.

Jaap van den Herik

The credits of the photographs in this issue are to: Fritz Juhnke, Jean Daligault, Mathew Brown, Omar Syed & David Wu, and to Kingpin Chess Magazine.

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David Wu

GAME OVER?