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NEW GAMES, DIFFERENT STAGES

In the CMG Sixth Computer Olympiad held in Maastricht in August 2001 a new game, named Gipf, entered the scene. The game was invented by Kris Burm in 1996. It has been played by a group of human players and since August 2001 by two programs, too. The programs are called GFI and GIPFED. A brief description of the game, the board and the rules are given in this issue. Moreover, two competition games are published, but the quality of the games is hard to assess. The publication is meant as an incentive. In 1983, the inclusion of two Scrabble papers in a special issue of the *SIGART Newsletter* had such an encouraging effect, since these publications inspired Brian Sheppard to build his World-Champion calibre program MAVEN. Reading the two papers he believed that he himself could do a better job, at least a better engineering job. Over the next eighteen years (1983-2001), he built a Scrabble program of which he claims that it plays close to perfection and that it definitely outperforms any human being. In a forthcoming paper in *Artificial Intelligence* - his first paper on this topic - he describes his struggle over the years. He unveils human myths and unlocks mysteries of the game. As a case in point we mention the following myth: "Experts use the general principle of avoiding placing vowels adjacent to bonus squares. The idea is that a heavy tile can be "double-crossed" on the bonus square, leading to a good score for the opponent. The theory goes that it is appropriate to sacrifice up to 6 points to avoid placing a vowel next to the bonus squares on the initial turn." The facts are: "The human estimate is grossly in error. Computer analysis showed that the largest such penalty is only 0.7 points! Most vowel-bonus square combinations had penalties of 0.01 points, meaning that you should avoid it only if there was no other consideration."

At the previous Computer Olympiad (London, 2000), we saw four newcomer games, viz. Amazons, Hex, Lines of Action, and Shogi. Three of them were part of this year's Olympiad again (there was no Hex tournament) and it is tempting to investigate for the three programs whether any progress in playing strength had been made. How difficult such a question is, can be best explained by referring to the game of chess in the years

1980 up to 1994. Afterwards, the 15-years of time span mentioned saw a steady progress in playing strength, but inspection of the newspaper reports, for instance on the well-known AEGON tournaments, shows that suspicious journalists refused to see any progress at all. Admittedly, for the laymen it is difficult to discern progress, since it is usually small and is mostly expressed in details. Typically, progress is manifest only after a number of years.

For Lines of Action the reporters of the tournament in this issue are convinced of the progress of their programs and implicitly claim that the current playing strength is within or above the class of the human world top. Sheppard called the class following the World-Champion level the *Abandon-Hope* class; it is the last stage before solving the game. For Amazons we have only guesses on the playing strength, since there have been no contests in the domain between human beings and computer programs. In their optimism, the Amazons programmers believe that their programs play quite well, but our readers will wait for signs of evidence and ignore claims. Nevertheless, the program 8QP (Johan de Koning) performed outstandingly by winning the tournament for the second time with a perfect score. For Shogi, it is obvious, the computer performances are still in their infancy. There is a long path with many obstacles to go for all Shogi researchers.

The Editorial Board of the *ICGA Journal* considers it their task to bridge the gap between researchers and engineers as distinguished above. In order to obtain insight into the world of games we encourage publications on new games, i.e., games that have not gained our attention so far. In this issue we are happy to publish contributions on three such domains, i.e., on Chinese chess, checkers and international draughts. The first two contributions are closely related to chess and are worth reading in the context of how to apply computer-chess techniques in other domains, meanwhile improving these techniques. The contribution on international draughts briefly describes Nicolas Guibert's route from a novice programmer to a proud participant in a world-class match against an international draughts Grand Master. Guibert discusses the first Man-Machine match in the history of international draughts: IGM N'Diaga Samb (Senegal) versus BUGGY (France). He is our guide in a fascinating match. On the one hand, IGM Samb cooperates with the BUGGY programming team (imagine Kasparov cooperating with the DEEP BLUE team), and on the other hand Samb acts as the opponent to be defeated. So far, so good. But what if a programming error occurs at the moment the program has a clear advantage? Seasoned computer-chess programmers know what this means: the bug is the bug, it always comes unexpectedly and you have to take it as is. The game is over: lost. However, most programmers have difficulty in accepting what seems unavoidable. Maybe a draw is possible as a trade-off between a programmer's error and the program's advantage. The reasoning is clearly lopsided, and most reporters will suppress the details. As an Editor, I read the international draughts report and I liked it. Having seen the section describing the mistake, I decided to leave it as submitted and not to suggest any changes. Chess and international draughts are in different stages of development. For each game, phenomena such as the one described provide landmarks on the path to the *Abandon-Hope* level.

In summary, we nowadays distinguish for all our games only four classes of playing strength, viz. (1) weaker than World Champion, (2) World-Champion level, (3) the *Abandon-Hope* class, and (4) the class of solved games. So far, the Computer Olympiad has abandoned only four games since they were solved: Connect-Four, Qubic, Go-Moku, and Nine-Men's Morris. For all other games researchers and engineers are encouraged to try and reach the last class.

Jaap van den Herik

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