Computer-Aided Game Play and Computer Cheating: Examples from Chess, Shogi, and Go

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Introduction

For many games, computer programs have been developed that play the game with great strength. In almost all games, programs even have surpassed the strongest human players. This development carries chances and problems. On the one hand, games are understood much better by using computer programs as tools for analysis. On the other hand, the problem occurs that players may use forbidden computer help in tournament play.

Computer Help in Chess

The chess community has collected experiences with computer analysis from the 1970's on, starting with table-bases for non-trivial endgames. Computer help in top-level correspondence chess was introduced in the late 1980's. In particular, the case of Heinrich Burger is known who helped East Germany to win a medal in a Correspondence Chess Olympiad.

The author of this paper was one of the pioneers in computer-aided play. In his 3-Hirn experiments between 1985 and 1997, a human player has the final choice amongst the move proposals of two different chess computers. (The name "3-Hirn" is German and means "3 brain", where 3 comes from 1 human + 2 computers.) In 2004 he introduced (together with Timo Klaustermeyer) the concept of **Freestyle Chess**, where a human team captain is allowed to use any sort of help (other players, literature, databases, computer programs), but all within his thinking time.

The problem of computer cheating in Chess tournaments is also more than twenty years old. One of the best known cases is that of the Open Tournament in Boeblingen in December 1998, where a mediocre amateur player won big prize money. But he was so stupid to announce a "Mate in 8" against a Grandmaster in the final round, in a complicated position where even the best human players did not identify such a mate. Many more cases happened since, giving the scene enough experience to handle (and avoid) cheating cases nowadays. Successful measures include: forbidding mobile phones in tournament halls, time-delayed transmission of games in the internet, no online tournaments with big price money.

Shogi: The Cheating Scandal from Fall 2016

In Shogi, computer programs became very strong only in the last few years. It seems that the Shogi scene did not know about the experiences in Chess. Otherwise the big scandal from Fall/Winter 2016/2017 (centered around dubious cheating accusations against a pro player) would not have happened. In the presentation we will give an overview of that case.

Go: Online Servers and Online Tournaments

On the game server LittleGolem.net, games are typically played with very long thinking times (about 36 hours per move in average). Computer players and play with computer help are not explicitly forbidden, but players are encouraged to mention their style of play in the profile. For several years already, the Go tournaments on Little Golem are dominated by a computer player (Valkyria9, a bot written and operated by Magnus Persson) and by a player who uses computer help (Gerhard Knop).

When the internet became a common playing ground about 10-15 years ago, also several Go server evolved; and several online tournaments (in particular also some for team competition) were introduced. This worked more or less fine as long as computer programs were not strong in Go. However, the situation has changed drastically within the last five years, notably after the rise of AlphaGo and several follow-up bots. The near future will show which online tournaments will survive in which formats. The talk wants to help by making proposals.

On Other Games

Other games with interesting developments in computer programs will be mentioned on the sidelines: Amazon, Havannah, Hex, EinStein würfelt nicht, ...

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