Dynamic Information Shogi Server

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Abstract

We have developed the Server-Client System for DI-Shogi which is an imperfect-information game. In an imperfect-information game, the server must not transmit any information that a player cannot acquire by him/herself in order to prevent them from cheating. Therefore it was designed so that the client receives the pieces that the player can see, leaving all the other aspects of the game to be performed by the server.

1   Introduction

DI (Dynamic Information) -Shogi is an imperfect-information game devised by Iida and others, and is the shogi version of the DI-game. An imperfect-information game is a game which players cannot acquire a part of the opponents' information. Since DI-Shogi has the feature that an opponent's piece can be seen with effect to the player's pieces, there is a limit to a human referee of giving information. The computer is better suited to the task. Furthermore, it cannot be played on the same screen, in order to avoid seeing the opponent's board. So, working through the network is necessary, away from each other. So the DI-Shogi server was developed.

2   DI-Shogi

DI-Shogi does not allow players to acquire the opponents' location information except certain conditions are met. The only information which players have access to is your own pieces (on the board and in hand) and a mass (piece of opponent) with effect to its piece. The example of a game screen is shown in Figure 1.

Although an ordinary shogi has the rule outlawing Nifu etc., DI shogi has a few rules of its own listed below:

- The drop a opponent's piece.

- The move which requires a checkmate for its king

- The move which does not avoid a checkmate

If these fouls are committed more than the set number of times (default setting is at eight), they will be lose the game on a foul. However, players can set their own number(s) prior to the match as they wish.

3   DI-Shogi Server

DI-Shogi needs to be played by the server client model, in order to prevent players from cheating. The amount of information transmitted to a client from a server must not exceed that of the player's[2]. The DI-Shogi server client system is developed on the basis of the above condition. The correspondence between server-clients is shown in Figure 2, Figure 3.

A connection demand is performed from a client to a server using a Java applet. The message transmitted at this time is ID and the password of a player. A server attests, when a message is acquired. The player whose connection was permitted requires a connection person list, and chooses an opponent from there. The server then sends both players the announcement of the game start and it begins.

An input of a move transmits a move to the server. The server judges whether the move is legal, a check, or checkmate. If it is legal, the piece which a player can see, and its position is transmitted to a client. If not legal, only the notice of a foul is transmitted to the client. If the message which received is not the notice of a foul, the client will draw the board which carried out a move. It displays using a dialog at the time of a check and a checkmate. At the case of a foul, the dialog of the notice of a foul is displayed and it requires another input.
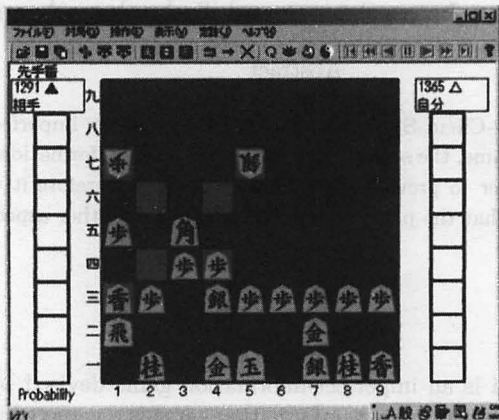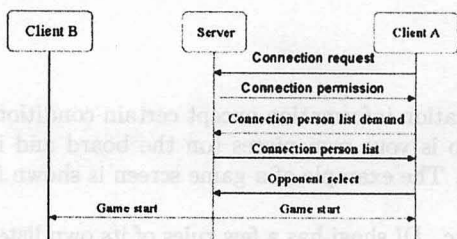
Figure 1: The board of DI-Shogi

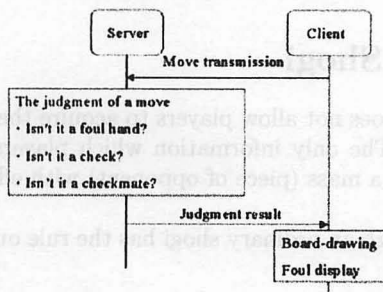Figure 2: The exchange of the message till a game start

Figure 3: The exchange of the message during a game

4 Future Work

This time only the service to players will be provided. A service to observer will not be provided to prevent cheating. However, watching the game should provide a different kind of excitement as well. Especially in an imperfect-information game, the excitement would be changed by providing methods of the information to observers. It is necessary to know what information should be given to observers.

References

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