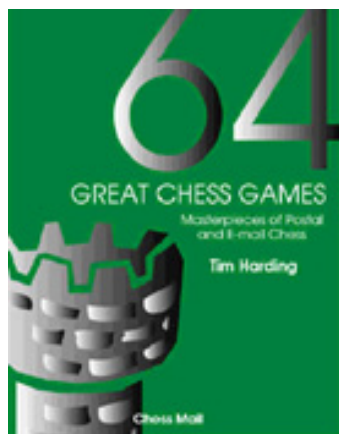




COLUMNISTS

The Kibitzer

Tim Harding



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Does Chess Have A Future?

This month's column takes as its point of departure some of the arguments and conclusions presented in the September column, *Materialism in Chess*. If you have not yet read that, you may wish to download it from the [ChessCafe Archives](#) and read it in conjunction with this article.

However, the present column also takes up a lot of other trains of thought connected with the future of our game. These include: computers, drugs, cheating, future chess organization and what other games may take the place of chess.

Civilized mankind has always, at least in most cultures, played games of various kinds: both athletic sports and more sedentary games. Of the latter, board games are a major family and card games another.

Motivations for play apparently include the need to test one's skills against others, an outlet for surplus energy (physical or mental) and, for some people, the urge to gamble. Some games don't make much sense without a gambling element (poker and other casino games) and the point of others is reduced, but not entirely eliminated, if it's not done for money (horse or greyhound racing and backgammon).

Chess, of course, is generally seen as the antithesis of a gambling game. The issue is generally decided by skill, no luck, and while it is possible to play for money stakes, many

strong players (including myself) feel distaste at the idea of coffee-house chess for cash stakes. Prize money in a proper tournament is a different matter.

The classic mid-20th century treatise by J. von Neumann and Morgenstern, 'The Theory of Games and Economic Behaviour', classifies chess as one of a family of games having these characteristics:

- Two person
- Zero sum
- Perfect information

This would be in contrast with poker where there are normally (though not always) more than two players, which is zero sum (what one player wins, somebody else must lose) and imperfect information. "Information" means here the state of knowledge that one player has of the state of the game, including his own and his opponents' holdings. In poker, this can vary between one form of the game and another, and at different stages of a "hand" (as concealed cards become revealed) but in chess both players see the true state of the board at all times.

The three criteria above don't really serve fully to distinguish the class of games to which chess, checkers, international (100-square) draughts and Go belong. There should be a fourth element: pure skill, i.e. there is no random element such as the shake of a dice, or the deal of a card. Perhaps this can be understood as part of the definition of "perfect information", but in games like backgammon you do see the board and all the positions of the men; what you cannot be sure of is whether you or your opponent will win a losing position by a series of lucky throws of the dice.

It is hard to see how these "playing conditions" of chess can be altered in future to make it a better game that is still

recognizably chess. The most obvious way, as has already been suggested, is to modify the “zero-sum” scoring system, perhaps by replacing the point for a win, half-point for a draw by the soccer system of 3 points for a win and 1 for a draw. In this case the total points for a drawn game (2) is less than for a decisive game (3) which means, in a way, that when a game is a draw both players lose (a player who draws all his games does worse than a player who wins half and loses half).

This modification would really only affect tournaments, unless it was also extended to the rating of games, but it would make no practical difference to the way casual games or knock-out events were played.

A more radical approach, which would yet preserve the zero-sum nature of chess, would be to rank certain kinds of “draw” higher than others. There have been local rules of chess in the past where one could win a game by baring the opponent’s king or stalemating him. A revision of the rules of chess, could lead to a more sophisticated scoring system that might have interesting effects on the play and theory of endgames.

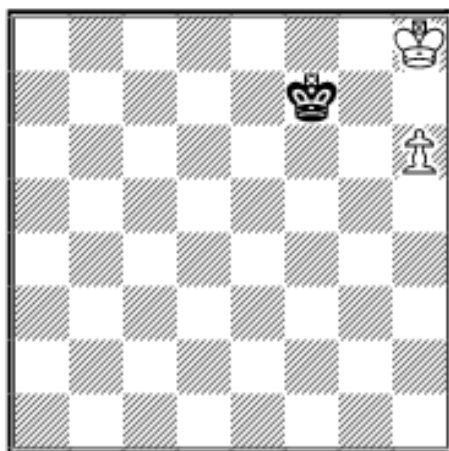
- Win by checkmate or time or opponent’s resignation: 1 point.
- Stalemating the opponent’s king: 0.8 points.
- 50 moves with no pawn move or capture (e.g. in a R+B v R endgame): materially stronger side gets 0.6, weaker side gets 0.4 points.
- Repetition of position (including perpetual check) or agreed draw or complete elimination of all material both clock flags falling in blitz: 0.5 points each.

It is true that this system might make it harder to teach chess to young children, but they have few draws anyway (except stalemates). Of course you can argue about the relative

values of these situations too. Is it “better” to stalemate your opponent or to capture his last piece; I reckoned the former requires more skill so I gave it a slightly higher value. All these formulae would result in the total points for a game still being 1 point, but would in many cases help avoid the need for Sonneborn-Berger tiebreaks etc.

Of course, in practical tournament situations there would often be agreements to split the point in non-standard ways. For example, if $R+N \text{ v } R$ arose (with no pawns) the players could agree to split the point 0.6-0.4 without having to play out the 50 moves; the defender who had no hope of “drawing” any other way than stalemate (e.g. in a $K \text{ v } K+P$ ending) could accept the stronger side’s proposal to split 0.7-0.3.

There would be a few cases where care is required entering the final phase of an endgame. The weaker side will strive to force a repetition or perpetual because only that is a “true draw”. There are even some cases with king and rook’s pawn against king where the side with no pawn actually administers the stalemate, so a special rule would be needed for this situation or the player without the pawn gets 0.8 and the player with the pawn gets 0.2.



With our present rules of chess, this position is just a simple draw. Black to play draws by 1...Kg6 (or 1...Kf8 2 Kh7 Kf7 with repetition) 2 Kh7 Kf7 stalemating White. With my proposed scoring, instead of 0.5 points apiece, White would get only 0.2 and Black 0.8, so 2 Kh7?? is a blunder. White should instead play 2 Kg8, allowing 2...Kxh6 for a true 0.5-0.5 draw by elimination of material.

White to play would have to avoid 2 h7?? and play instead 2 Kh7! Kf8 (not 2...Kf6?? 3 Kg8 and White wins in the ordinary way by promoting the pawn) 3 Kg6 Kg8 4 h7+ Kh8 5 Kh6 when White stalemates Black and gets 0.8 to Black's 0.2, which seems fair.

Another option for a revised scoring system would be to bring back a win by baring the opponent's king (but with insufficient mating material: say 0.75 points). With the proviso, that if you can capture your opponent's last piece in reply to his capturing your last one, this does not apply, i.e. if with K+R each, and the two rooks captured on successive moves, it is a draw. However, a "bare king" rule would destroy one of the beauties of chess, the subtleties of many simplified endings, whereas adjusting the scoring for stalemate could actually make them even subtler, as I have just demonstrated.

To be honest, while all the above are possible modifications of the rules of chess, I do not actually propose them. They will only make the game more complicated without necessarily making it more logical, and all such schemes will only make it easier, not harder, for the computer to dominate the human opponent.

Similarly, such changes to the rules such as 'Fischerrandom' (i.e., switching the starting arrangement of the pieces on the back row) or free castling (advocated in The Kibitzer 31) would not, in my opinion, require more than a few years for the commercial computer programmers to master. What they would do is wipe out the vast body of opening theory that human players have learned, or can refer to in books or databases. That may be a good thing, in a way, but it also means that the computers (once programmed to cope with the new rules) would beat the humans even more easily.

A point I raised in passing in last month's article was: "...A

pessimist will probably say that the computer is taking the magic out of the game of chess.”

It is very hard to think of a modification to chess which will, at the same time, make it both better and simpler for humans, but harder for computers. So probably chess as a semi-serious activity for intelligent adults is doomed to die out in the next century or not — if not the next decade or two.

What will replace chess? Or can chess be modified to extend its “use-by date”? Back in December 1998 (Kibitzer 31) I discussed some of these issues in my article *Bring Back Free Castling*. In the intervening four years, computers of the type you or I have at our disposal at home have probably quadrupled in power.

I suspect that any 2-person board game of skill is capable of being analysed by computers, although some would probably be harder than others. The more strategic a game, I suppose the more humans could continue to defeat computers.

The game now known as GO evolved in China around 500 BC, where it was known as Wei Chi (“the surrounding game”). GO looks simple: you just place white and black stones in turn on the interstices of a 19x19 board. The object is to control the majority of the territory. Pieces, once placed, cannot be moved but surrounded men are captured and added to the opponent’s score of territory. A win by 1 point is as good as a win by 100 so draws are very rare.

GO is a game capable of great subtlety. Although it may seem at first too abstract for the majority of westerners, more and more chess players are turning to it now. At the web server www.itsyourturn.com you can now play tournaments on a reduced size board (I recommend the

13x13 variety).

GO has a sort of inevitability or universality that chess lacks. By this, I mean that if we encountered a civilization from another part of our galaxy, it is most unlikely that they would play a game like chess, with its unique forms of pieces and special moves and rules. It is quite conceivable that they would, however, have evolved something like GO. Maybe the board would be a different size, but that is probably a minor point. Or if the aliens had not yet invented GO, you would be able to teach the basic rules to them much easier than chess; if they share the same basic mathematics as humans, they can learn GO easily.

The question of whether chess will die out because the computer is destroying its magic is really a combination of several issues.

(a) As I said last month, computers easily find the majority of combinations once considered 'beautiful' so our chess aesthetics and use of concepts like 'sacrifice' are changing.

(b) Computers often find flaws in even the tactical calculations of grandmasters, and have refuted much of the analysis in old books. Maybe this is a good thing for chess authors as people should buy the newer books which are more accurate and players are forced to be more disciplined in their thinking, not just playing a move because it looks 'right' or 'exciting'.

(c) Computers are making less headway in strategic chess and endgames, but experts seem divided on whether this is a problem that can be solved by throwing more teraflops at it. Maybe there will be an irreducible 'human' element to

chess that computers can only match by becoming truly aware artificial intelligences, which could still be some decades or centuries away.

Yet, for how many more years will this situation obtain? Is not the world narrowing??? The range of positions where human ingenuity can outsmart the computer is in my opinion getting close to the stage where it's the exception rather than the rule.... So, to point d:

(d) Irrespective of c, which is only a consolation to grandmasters, the novice, average player, (soon even the expert and minor master) will find the percentage of positions which they can reach where the human outplays the computer is becoming smaller and smaller. Already it's well below 50% in my opinion, and when the type of position where the computer makes a mistake is very much the exception rather than the rule, chess is dead.

One argument one hears goes like this. Just because we have bicycles and racing cars, track and field athletics have not died out. Humans still race against each other and try to lower the world record. Then you remember Ben Johnson. It has taken a decade for a 'clean' athlete to lower the 100 metres record to below what was achieved by Johnson on drugs.

A controversial move by FIDE in recent years was to introduce drug testing in major events. I think most chess players are unaffected by this as they don't play at the level where they will get tested anyway. Others see the move as pointless, unnecessary, demeaning of human dignity, intrusive into personal freedoms and worse. These include people who do see the point of drug testing in physical

sports but don't see what drugs could be beneficial to the performance in chess.

Alcohol, for example, might make a player fearless and I know some Irish players who frequently sit down with a pint of beer at the chessboard. Surely, however, they are more likely to play an unsound combination under its influence. You would rather play them when they are drunk than sober.

Beta blockers have been suggested, to reduce tension and so allow calm calculation without nerves. However, a Dutch player who tried this a few years ago reported that the effect was different. Under the influence, he could see he was in difficulties in the game but he just didn't feel that concerned to do anything about it. Beta blockers did not make him fight harder or analyse better.

Coffee maybe is beneficial, in that it could increase a player's endurance in a long session: more able to concentrate, less likely to fall asleep. If you drink too much coffee before or during a game, you could fail a FIDE drug test. However, is this really comparable to professional cyclists using Human Growth Hormone or EPO?

Prescription medicines and over-the-counter proprietary remedies cause problems too; athletes are supposed to produce medical certificates stating what they are on and why it is necessary. In a chess context, requiring such certification seems ludicrous to me.

There is one well known substance that can help chess performance in some competitive situations. Adrenalin — a naturally occurring drug/chemical produced by a gland in your body in extreme situations — can certainly assist you to cope with tension e.g. in time trouble. Nobody is suggesting this is banned, but maybe if a way was found to increase the production of adrenalin at will, this would be

objected to. Just as there are now tests in some sports for excessive levels of the male hormone testosterone or human growth hormones.

This is partly done to stop one person gaining an advantage over another, but there is also a health reason. Unscrupulous team coaches and managers may be tempted to dose unsuspecting young athletes without awareness of the dangers, as happened in East Germany

One must ask, are any of these dangers realistically relevant to chess? So what is FIDE trying to do? The only obvious motivation for their bringing in drug testing to chess was to comply with Olympic movement rules in the hope of getting chess admitted to the Olympic Games. This policy was supported by several national chess governing bodies because they believed Olympic acceptance would enable them to gain access to government funding in their own countries.

Since the International Olympic Committee have now announced their decision to reduce the number of olympic sports, and no to admit chess, is it not time to scrap the FIDE drug rules? Unfortunately the anti-Ilyumzhinov “ticket”, which was to have stood against the incumbent FIDE president this November, has withdrawn so there is no prospect of decent governance for world chess for several more years. To my mind, FIDE is almost entirely discredited and the majority of national organizations, which keep the present regime in power, have been shown to be a fairly spineless and amateurish lot. This is one of the reasons why I almost never play over-the-board chess.

Although no drug is known at present that assists chess performance, but I suppose it is possible in future that a custom drug might be synthesized which did make a difference.

Some of you may have read the futuristic science fiction novel *The Player of Games* by Iain M. Banks. This is a set in rich interplanetary civilization called The Culture where machines do most of the work and the humanoid citizens have as much leisure time as they want. The central character, Gurgeh, is a professional games player. The games he plays are complex — often involving imperfect information (such as hidden pieces) and the main game in the book has several players, so there is negotiation as well as competition between the participants.

The implication is that games like chess have died out through being too one-dimensional.

The most relevant aspect of the book for my argument, however, is the drugs issue. Adult Culture citizens have glands that enable them to synthesise a wide variety of substances within their own bodies which are beneficial for the task in hand. According to the circumstances, they can consciously will their bodies to produce the drug they need and secrete it into the bloodstream. One such (in the Banks novels) has the capacity of stretching subjective time, so that a far greater depth or breadth of calculation could be possible than normal in a finite stretch of objective, clock-measured time. Such a drug would obviously be very useful, if not decisive, in blitz chess or time trouble!

A world in which games players ordinarily make use of such “home-grown” custom drugs is obviously far removed from today’s situation where FIDE might deprive you of a chess prize or ban you for drinking one cup of coffee too many!

Discussions about ‘cheating’ in chess inevitably come round to computers in the end. A line one often sees aired on bulletin boards:

(e) “I don’t want to play internet chess/

correspondence chess/ any kind of chess any more because my opponents are using computers to cheat...”

Anyone who reads Internet chess bulletin boards, especially ones relating to correspondence chess, is almost certain to have seen the topic of “cheating” raised. By this, the person making the accusation means that his opponent is getting the assistance of a computer to help generate his moves, maybe to the extent that *all* the opponent’s moves are computer-generated.

It is evident that in any game or sport — physical or mental — if cheats prosper then they will drive out the good, honest players and will eventually have only each other to play against. The good, honest players will find another place to play, or another game altogether.

However, what constitutes cheating in chess? Until computers came along, cheating was almost impossible except in the sense of taking back moves or fiddling with the clock or (in the days when games were adjudicated) trying to alter a sealed move.

In friendly social chess, players probably take moves back a lot, and opponents do not mind. In competitive situations, the touch-move rule applies. Except for the purposes of adjusting pieces (where you must first say “j’adoube”, meaning “I adjust”), if you touch a piece with your hand you have to make a move with that piece, if there is a legal move to make. If you touch an opponent’s piece, you have to capture it if possible.

There was a notorious case in the 1960s when a Yugoslav grandmaster whose name begins with “Matu...” was seen to change his mind about which piece to move, and got away with it, in a major tournament. He was heard to mutter “je

spreche j'adoube" while doing so. Afterwards he was often known as "J'adoubovic"!

There was a worse case a few years ago. If you hold a piece and move it to one square, you can (without letting go) move it somewhere else, but there is a notorious case when Garry Kasparov (then world champion), playing Judit Polgar, broke this rule. Video evidence later confirmed that for a fraction of a second Kasparov's hand parted company with the piece he thereafter grasped again and moved elsewhere. Although Ms Polgar pointed this out, she never got any satisfaction until she finally managed to beat Kasparov in the recent Russia-World match.

So if we cannot trust grandmasters and even world champions not to cheat, in high-level events where there is an international arbiter present, we must assume similar incidents go undetected in ordinary Open Swisses and amateur events. However, these are very much the exception. I can only remember one case of an opponent trying to take a move back, which happened in the Islington Open in London about 30 years ago. A relatively elderly opponent (perhaps about the age I am now!) was quite offended when I insisted he move the piece he had originally picked up.

The arrival of chess computer programs and the Internet has radically changed the picture.

Before continuing, I want to state my basic principle on this. Using a computer to help generate one's moves is cheating if and only if it is done in the context of a competition, or organization, which specifically forbids computer engines. Thus, in online blitz or rapid chess, played on an Internet server, the normal rule is that computers are not supposed to be used in any way to improve or assist performance.

This issue is by no means as simple as some people take it to be. The respected Dutch chess writer Tim Krabbé recently posted some thoughts on this topic under the provocative heading *The Case for Cheating* (<http://www.xs4all.nl/~timkr/chess2/diary.htm>).

I agreed with some of what he said, but not all. For example, he writes:

“... I've never understood what all the fuss is about. An inescapable fact of Internet chess is that you can't see your opponent - you play a chess move-producing entity you know nothing about. This is also true of correspondence chess where the use of computers is fully accepted - and what else is Internet chess but very fast correspondence chess?”

I don't agree with that last statement. There are two distinct models of competitive chess organization and Krabbé is wrong to conflate them.

Traditional “over-the-board” (OTB) chess, whether blitz or social or tournaments at rapid (15-30 minute) or championship time-rates, is played against a clock. Time is measured in minutes and seconds. Correspondence chess (CC), whether played by post, fax, email or one of the Internet servers that provide a CC-like service, is played against the calendar not the clock. Time limits are measured in days (hours on some servers, but many hours). The amount and depth of analysis that a human player could do in the time available in the CC model is well capable, at present at least, of outperforming commercially available computers.

A high proportion of the chess played on Internet sites is played on the OTB model where assistance (human or mechanical) has always been forbidden. Where Krabbé has

a point is that the model cannot be fully applied in Internet circumstances. As others in this argument have often done, he points out that the Internet Chess Club (ICC), for example, is notorious for its use of “spyware” to detect illegal computer engine use. To play on ICC, you use its client program Blitzin. New players downloading and installing Blitzin are not told that this program monitors the player’s computer. Personally, I do not play on ICC and never have.

Krabbé says on this question: “Of course, many players, myself included, dislike playing computers. But if an entity beats you too often, or you don't like its moves, you can stop playing it. ... only a very small minority of ICC-players deny themselves the pleasure of playing chess, to create ratings that have no meaning even to themselves. The hunt for computer cheaters is a refusal to acknowledge that Internet chess cannot be like over-the-board chess. The attempted remedies are worse than the disease.”

The question of computer use in chess played under the CC model is a different issue from computers in the ICC kind of case.

In correspondence chess situations, however, where time is measured in days or hours rather than in minutes and seconds, the rules are often different. It doesn't matter whether the game is being played by post, fax, email or via a web server, if the game is played under the rules of the principal worldwide organization, ICCF, then computer assistance is not forbidden.

The largest free email club, IECG, follows the same principle: having a rule against an offence that cannot be detected only harms the honest player, who will observe it, at the expense of the dishonest, who will break it anyway — unless there is a reliable detection system and sanctions for

the offender. Others say it is OK to use databases of games, e.g. for openings research or to find previous games by an opponent, but the use of analysis engines to generate one's moves or blundercheck variations is not allowed.

The 5th CC World Champion, Dr Hans Berliner, interviewed in *Chess Mail* in 1997, was asked about the issue of getting advice from other human players or computers. He said that it could not be legislated against: "CC... is like a research project... Everybody brings what they can to bear on the problem".

Some correspondence chess organizations take different views. Like several of the North American postal chess clubs, the International E-mail Chess Club tries to forbid the use of computer engines. How is such a rule enforceable? IECC assistant CEO Tim Nagley, writing in the club's newsletter [*Chess Bits*, May 2001, Section 2] has written:

"Although the standard of evidence required to 'prove' the assertion (of using a chess engine) is both difficult to satisfy and at times debatable, in practice IECC officials are, sometimes with professional assistance from elsewhere, perfectly capable of forming a clear impression of the situation."

Presumably he means the use of "internal evidence" to examine a game, with the aid of a master player and a computer running a popular program such as Fritz, Shredder or Junior. If the accused player's opponent has a rating of 1500 and shows abysmal opening knowledge and strategic sense for 15 moves, but starts to play like a grandmaster when the game gets tactical, and specifically finds some "difficult" moves which are the same as the computer suggests, then there may be a *suspicion* of computer use, but I don't see how there can ever be proof. In less extreme examples (i.e. where the opponent's rating is 2000+ and he

has not played the opening like a patzer) even circumstantial evidence is hard to come by. Either that guy has been using Fritz to play the whole game from the beginning, or (heaven forbid!) maybe it's even possible that he is just a strong chessplayer?

In many cases where I have seen accusations of “cheating” flying around, it has seemed to me that these are made by weak players who just don't comprehend the speed and depth of tactical vision that masters are capable of, even in blitz events. In correspondence chess contexts, one finds oneself having to explain over and over again that the top echelon of ICCF grandmasters (and even many correspondence IMs) in many situations will outplay a computer. For in correspondence chess (CC), you have many days (if you want them) to decide on your moves. You can analyse very deeply, making notes, and can go deeper than the horizon of a computer.

If a decisive result can be obtained within 14-ply (7 moves by each side) then the computer will probably get it right in the end, but the correct analysis of many CC middle-games and endgames require going much deeper than that. Moreover, notwithstanding the “tablebases” which enable computers to play a very small class of simplified endgames perfectly, there are many more cases in which even an “endgame-savvy” program like Shredder 6 will flounder, suggesting the wrong move. Positional endgames, and many middle games, are about planning and this is just what computers are unable to do. In such situations, even with the huge speed and RAM advances of hardware in recent years, the programs are still making the same kind of errors that they made five years ago, according to ICCF grandmaster Roberto Alvarez, writing in *Chessbase Magazine* a few months ago.

On the other hand, there may be situations specific to CC

server chess. Many people may play on both “blitz” servers (OTB model) and “CC” servers, and like Mr Krabbé, not see essential differences between the two types of servers. Another point is raised by the freechess.de server where they have two distinct leagues, the HCL (Human Chess League), where computers are not allowed, and the ACL (advanced chess league) where they are allowed. Is this distinction on freechess.de actually respected by the players?

I play a fair bit of casual chess on these servers, mostly to see what they are like, usually making my moves in a minute or two without analyzing as I would for a rated ICCF game. If an opponent is online at the same time, several moves may be exchanged before one of us logs off to look at the game more deeply.

I announced mate in about 8 moves against one opponent in the ACL and he replied “We’ll see”. I reminded him that this was the ACL so he could switch on his Fritz and see for himself. It would seem that opponent should have entered an HCL event instead, but I encountered some other opponents who were using their computers: one or two skillfully, but one at least just transmitting what the computer advised (I know because he told me).

When playing an HCL event, on the other hand, I did encounter one opponent who appeared to start playing unaided but then switch his computer on at a crucial stage — just when I was relaxing and blitzing for fun rather than trying to find the best moves, one move per day. So I can understand how one could get angry in such situations, but there is no proof. Moreover, the opponent can only beat you if you make bad moves, so there isn’t much point in getting upset or making accusations.

Last month I had a long phone call from Tryfon Gavriel, webmaster for the Chessworld CC server. He had the idea to

put a “(C)” after the names of players suspected of using computer engines, which he thought he could detect because of the types of games they played and/or because (to give one instance) a player without a FIDE rating had 2500 on his server. This idea seems of doubtful merit to me.

Somebody even suggested on a bulletin board that maybe players accused of computer use might take the server owners to court. However, that doesn't seem likely if they are playing under usernames... If they are using their own name, that might be a different matter.

Somebody else made the potent point to Mr Gavriel that if he alienates the computer users, he could find that they all go and play on somebody else's site instead and surely he does not want that?

To sum up the disparate threads of this month's article, I am pessimistic. Chess is very popular at present — the Internet created a huge boom in the game because it was one of the human activities best placed to benefit from it: much more than contract bridge or football, for example. In the long run, however, Internet means computers and computers will eventually make the activity seem of low value then the intellectual prestige and challenge of chess, as well as its aesthetic appeal, will be reduced too far. If computers do not kill chess, then they will certainly reduce its attraction to a small minority at either extreme. (There will only be casual players at one end, not caring what computers think, and at the other end of the scale the few super-grandmasters still able to match the machines.) I don't think this will happen in the next few years, but I doubt if my grandchildren will be playing chess.

Yet maybe there is a ray of hope. In the universe described by Banks, although the computers are better than the humans at games, their interference is restricted and people still play games, though games of imperfect information which are more complex than chess. In fact Gurgeh is tempted by a computer to cheat in one game: the computer offers during an adjournment to reveal to him an important secret about his opponent's holding so that he can attempt to win a perfect victory in that game which so far nobody ever achieved. Gurgeh is tempted and then is blackmailed by the computer, which threatens to expose his cheating.

So, in a future where Big Brother is watching you at all times, the computers themselves may become the guarantors that no player uses a computer to generate his chess moves: a paradox!

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