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CHESS IS IN THE EYE OF THE BEHOLDER

It is a coincidence into which no very deep significance should be read, yet remarkable enough to be pointed out. About 25 years ago there was a single view of chess, the human game par excellence. So there was on sex: the male pursuit par excellence. Meanwhile it has been revealed that sex has a female view complementary to its traditional male aspect and that chess leads an alternative existence on wafers of dedicated silicon.

It is legitimate to ask whether the two views of sex are just two slants on the same theme or whether they are deeply complementary and possibly antagonistic. The same problem is coming up slowly but persistently in chess. Do the human and the non-human player pursue the same game? Superficially, the answer would seem to be a resounding yes. Silicon plays a very exact game by any human formalism. Incidentally, the same goes for sex where the male-driven or female-controlled games result in superficially similar unions. In computer chess, however, there have been warning signs that the computer game is highly similar to, yet also totally different from, the human one.

To the beholder blessed with perfect hindsight there were early signs of a fundamental controversy. Kommissarchik and Futer (1974)*, who first computed the 5-man KQPKQ endgame database, admit that the trajectory percoursed by the white King is beyond human understanding: it is known but not explicable. In the early days, when databases were few and far between this may have been written off as a coincidence in which the best line of play, by a fluke, smelled of the chaotic. As more instances accumulated, the chaotic nature of best move sequences became ever clearer.

Take the KRP(a2)KbBP(a3) endgame (Timman-Velimirović) as databased in 1987**. We are not detracting from anybody's reputation when we state that IGM Timman, though a party to the issue and most willing to derive what benefit he could extract from a perfect analysis, confessed himself unable to follow (except by the dullest of rote learning) the evolution of the pieces. These are but two instances. Many more have come up since In short, we may now confidently state that, the more protracted the endgame, the more difficult it is to explain it in human terms. Thus chess, human in origin, may be said to evolve into inhumanity, more so as the game of chess is pursued to its limits of sophistication.

It is not by chance that the current issue is permeated by expressions of the dichotomy between the perfect knowledge of silicon and the human attempt to understand it. *Learning in Bebe* takes one approach: how to disguise the deterministic and hence reproducible nature of programs so as to confuse the unsophisticated human opponent. Complementarily, John Roycroft (*A Use for Endgame Databases?*) starts from a database, and, working backwards from its unquestioned authority, strives to detect humanly perceptible patterns in the lines of play imperatively recommended.

The common factor in all cases – notably see Stiller's contribution (*Karpov and Kasparov The End is Perfection*) – is that whatever the database says is chess, unassailable, definitive, and the ultimate arbiter. While this is one thread of reasoning, there is yet another which points out the tension prevalent between these aspects of chess, brainware and software contending. The prevalence of heuristics and special search methods in the literature, especially in this Journal for the past few years, only means one thing· the full-width brute-force search, for which computer chess has been derided as trivial and crudely mechanical, is slowly retreating: silicon players are getting more selective in their choice of moves and are thus, to the extent they adopt heuristics, conforming more closely to the famous human model: investigate fewer lines more deeply.

Moreover, no program worth its salt now searches to a fixed depth· n-ply whatever the value of n is not crudely deterministic in that it would stop at the nth half-move. All programmers pursue a line to a variable depth if at the end of a depth-n search the situation is far from quiescent. In this, the programs are highly emulatory of good human players who, we are told, will track a line more deeply as it appears more interesting. Convergence? Possibly, but still in inhuman terms because the width, even though reduced, is still too formidable for humans to grasp. Sex at least has the advantage of being human all through – though this does not imply that any human being truly understands all of it.

An editorial is not the best place to trace out all the subtle points in which we now believe the two varieties of chess are distinct. Of one thing we have become convinced: computers and human beings play two different games albeit by the same formal rules. Where they diverge, how they diverge and how best to exploit the properties of programs to better the human standard is a fascinating research subject for the next decade which will see the level of both kinds of players rise, even to the point where silicon, already a recognized arbiter, will grow to be the best player of them all.

Bob Herschberg
Jaap van den Herik

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