

## AEGONICS

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Wagers are one form of speculation. So is science in the eyes of many of those philosophically inclined. Would it not follow that the combination of wagers and science would make a perfect match? And are we not entitled to regard engineering as applied science of which software engineering is therefore a branch and the engineering of chess programs even more outstandingly so? In short, it seems to many that it is natural for ICCA members to bet. If so, it is *a fortiori* salutary for ICCA officers to bet in the interest of computer chess. The rationale of a bet emanating from Jaap van den Herik therefore is not only self-evident, it can be deduced by syllogism...

### **A logical better?**

Whatever the flaws in the spurious logic (don't bother to point them out), your Editor-in-Chief has been a consistent, a passionate, and, so far, a losing placer of bets. If one's bet is to do any good, given a rich likelihood of losing it, one had better place one's money where one's heart is, on the optimistic side. So we conclude: bet on the prowess of the chess machines, tell the world they will be ready for their next superb feat by 1995 – even if you have your doubts ... Nothing can be so depressing as predicting against the face of progress — quite apart from that it would place the professional punter in the sad class of academics who knew — worse, have proved — that heavier-than-air flight was impossible, that man could never reach the moon, and that chess intelligence would have to be in protein for ever and a day.

### **One bet, one date, one winner**

One such bet, maturing on January 1, 1995, therefore was by Professor Jaap van den Herik, strictly against all comers, but it was only IM Hans Böhm who took him on. There was no dilly-dallying or shilly-shallying: the date was precise and so was the best computer's achievement in dispute, an ELO rating of 2600, not a whit less.

The AEGON tournament provided a splendid opportunity for settling at least this wager, allocating the bone of contention to one and one only of the disputants, all to the accompaniment of a speech by a noted chess expert and renowned speaker, Tim Krabbé, with the adjudication entrusted to an attorney, Ben Grapperhaus, who is as far from naive about chess as he is astute about Law. Jaap van den Herik was the first to speak, neither free of modest bragadocio nor devoid of self-interest. Let us record it.

"What is one to do if one has a material as well as a moral interest in the AEGON tournament? Obviously, one must declare one's interest. I do so herewith. As to the moral interest, matters are as simple as silicon. It is the largest venue in the world where chips may mate their makers and we need these pairings desperately as a chess community. Otherwise, we run a great risk that the stronger will for ever remain ignored by the weaker, where lilliputian Grandmasters, in parliament assembled, decide to ignore anyone the size of Gulliver. In other words, if there are not to be regular and more AEGONS, the superiority of the computers will go unrecognized, which would be my moral loss.

"It would also be my material loss, since I have a wager on the books. It will be the delicate task of Mr. Grapperhaus to adjudicate that I have won my bet, stating that by January 1, 1995 there would exist a computer program with a playing strength of 2600 ELO points. A different adjudication is not possible. The bet was agreed upon between IM Hans Böhm and myself in early 1990 and was at equal odds to the tune of 500 guilders, now sadly more dollars than when it was wagered.

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"Do you honestly believe that Kasparov can be beaten convincingly and repeatedly by no fewer than three average International Masters, at speed chess or at rapid chess? Of course not: against the World Champion, weaklings of 2450 to 2500 ELO points are pitifully helpless, they have not a snowflake's proverbial chance in Hell. My opponent will argue, no doubt, that speed chess and rapid chess are exceptional conditions of play, ill-suited to bring forth convincing results. The objection is laughable: *the* World Champion *is* the World Champion, anywhere, any style, any duration.

"It is self-evident that the best can only be beaten by their peers, those entitled to spar with them on an equal footing. So here is the evidence I muster in support of my contention that the best computers are worthy peers of the World Champion.

- **The 1994 Munich INTEL Speed Chess Tournament:** FRITZ3 (by Frans Morsch) tying with Kasparov for the first place at 12½ out of 17. FRITZ3's tournament performance rating (TPR), a gratifying 2803, surely establishes it as a true peer of the World Champion.
- **The 1994 London INTEL Rapid Chess tournament:** CHESS GENIUS (by Richard Lang) knocked out Kasparov in the first round, went on to beat IGM Nikolić (2645), finally to succumb to Anand (2715), obviously enjoying the chop and change among its equals.
- **The 1994 Harvard Cup in Boston:** WCHES (by David Kittinger) did away with the cream of the United States' Grandmasters in a tournament of rapid chess, reaching a tournament performance rating of 2895 USCF points.
- **The 1993 AEGON Tournament:** THE KING (by Johan de Koning) achieved a tournament performance rating of 2590 ELO points, *under standard conditions*.

"You may hear it argued that one is still in the realm of accelerated chess (speed or rapid) and that in the one instance, AEGON, where conditions were indeed regular, the best program just failed to make the 2600 mark. Those who would wish to use this fact as an argument against my side of the wager simply show their ignorance of statistics. No test in the world can distinguish, in a sample of only 6 games, between the arithmetic result of 2590 actually achieved and the strength of 2600 I posited. Indeed, it is possible that, for stochastic reasons, THE KING was intrinsically at 2610 or even better.

"My honorable opponent, Hans Böhm, will, as you must be told, shift his ground. Instead of arguing, in vain, that I have lost my bet, he will proceed to inveigle you into thinking that the bet was not about playing strength, but about the understanding of the game as Hans Böhm, reputed to be human, sees it. In this error, he has an illustrious predecessor, namely IGM Hein Donner, who also expressed his classic and outmoded disbelief in a mere chip understanding his undoubted genius. In doing so, Hans Böhm shows a double weakness, sufficient to mark him as the loser of his bet. On the first count, the fact that he entirely transforms the substance of the bet marks him as having seen that he has lost. Second, it shows my opponent's ignorance of computer chess, as strong and as ancient as his distrust in these machines. Our ICCA has now awarded twice its annual Award for the best computer-generated comment (technically annotation). Its depth and accuracy of analysis will surprise many an International Master. Computers *can* be made to understand any chess in human terms!

"Conceding his loss, my opponent will argue that I may have been intrinsically right, but simply too optimistic, too impetuous in my timing. If he persists in this weakest of all defenses, a surprise will be in store for him: he counts on simply accelerated power in his opponents' engines. Again, he is wrong. Their

power is not simply linearly accelerated with time – it grows much faster – technically  $\frac{d^3p}{dt^3}$  (the third

derivative of power  $p$  relative to the time  $t$ ) is positive: not only will his opponents outpace him at the rate of his fall, he will fall even faster.)

"It is only the dearth of meetings on an equal footing between human ingenuity and silicon engines that prevents these irregular results in the computer-chess domain to be better known. Since the AEGON annual venue is, far and away, the largest of these objective matches of strength, and since I have a declared moral and material interest in it, it is my privilege to help opening the tournament with this short statement in my discussion with International Master Hans Böhm. I did so on behalf of chess! May the best chess win."

### **An ever-shifting target**

It was very difficult for Hans Böhm to match the spiritedness of his adversary, understandably, since, by choice, he was in the gloom-and-doom camp. Böhm, winner of a previous wager with Van den Herik – though he claimed *two* previous victories – mostly circled around his disbelief, stated in a set of variations on a theme. He was at his best when he shifted his ground to an already moving target yet further. Since, Böhm stated, normal tournament practice is virtually excluded as a yardstick, the chess strength of a computer in A.D. 2000 is most objectively gauged by the analyses the computer furnishes of the 1999 human World Championships. The idea was that, while the human contestants were pondering their best moves, the computer would calculate in parallel, and any move on the board would be matched by the computer's best move of that moment. In turn, it would have to be the flesh-and-blood World Champion analyzing the computer's moves as a final assessment and that would provide true inside into the computer's understanding of the game.

### **Big Ben decides**

It was then Ben Grapperhaus's turn to pronounce, as an attorney-at-law, his formal verdict on who would be the victor. His verdict, cast in the mould of a judgement rather than of an assessment, was communicated by Tim Krabbé. Ben Grapperhaus, a silent legal eagle, provided a slight anticlimax. While nobody had expected Van den Herik to win, Grapperhaus's formalism seemed too dispassionate: "A playing strength of 2600 can only be derived from an official FIDE ranking, in which only games played under normal tournament conditions are taken into account". The adjudicator continued: "The results Van den Herik is citing do not, in their vast majority, refer to the type of game on which the official FIDE standard ratings are based. As of the 1<sup>st</sup> of January 1995, there is no chess program with a playing strength of 2600 ELO points. It follows Jaap van den Herik has lost the wager."

### **Monstrous Toys**

Tim Krabbé, a noted chess personality and analyst, to whom the task fell to announce the verdict, used the occasion to reminisce:

- Towards the end of the seventies, the first commercial [chess] computers reached the market. At once, love and hate commingled in equal proportions. Those computers played a horrifying and ridiculous type of chess. It was incredible that anyone could even hope to sell a single copy, yet it was irresistibly wonderful that a toy shop would peddle a thing really producing chess moves.

### **Out of the window with it!**

Gleefully Krabbé recalled that those first computers did not even know the rules of chess too well. When he once perpetrated an invalid move against CHESS CHALLENGER MK1, the computer played on, nothing daunted. That was a thing to inspire Krabbé: "In the next game, my opening was 1. Rh1×h8. It saw its Knight being attacked and played 1. ... Ng8f6 – an evident blunder, because it enabled 2. Ng1×g7. I was quite surprised that the poor creature saw that it had been mated. Its display showed: LOSE. Encouraged in my naughtiness, I played, in my next game, 1. Bc1×e8, hoping to have solved for ever the problem of the shortest game. The CHESS CHALLENGER MK1 gave me the lie. It countered by 1. ... Qd8×e8 and that left me without a plan to speak of. To make up for this insult, I defenestrated it.

### **"Play me", says Internet**

After the hilarity had subsided somewhat, Krabbé went on to make a point few would have thought of. Noting that all too many played their computer for lack of a worthy adversary, he, in earnest rather than in jest, stated that Internet had now brought an unexpected boon. It would provide a human player with an equally human opponent, preserving perfect anonymity, for better or for worse, if so desired.

Your Editors, not claiming Olympian impartiality, cannot resist recording for posterity these proceedings enlivening the AEGON tournament.