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## MATCHLESS

The theory, however implicit, underlying the World Championship has always been that the World Champion was without match among his peers. In principle at least, the successful candidate struggled his way up through tournaments and matches, comprising many tens of games against successive adversaries. Thus, the assessment 'World Champion' is essentially a statistical judgement, being based on successive victories. Let us recall: ten matches at 6.5 to 5.5 each would suffice for the title. Though finding such a Champion matchless? – definitely not: rather the best among equals. In such a context, an outcome of 4 to 2 is hardly overwhelming.

It follows that the Kasparov-DEEP BLUE match is almost neutral, the more so as the sample size, six games, was extremely curtailed and there is no repetition in sight. If one reverts to the dry-as-bones view of the statistician, any conclusion from the match is as strictly invalid as concluding to the bias of a coin after only six flips.

The World Champion is still without match among his peers: he won the match. Those in the know were not greatly surprised. They had expected nothing spectacularly better. Still and all, the computer's straight win in the first game in 37 moves only was a breath-taking surprise as was the level pegging of 2-2 after four games.

What *has* changed far outweighs the invariance.

The playing style, notably Kasparov's, has been adaptive and responsive as befits a World Champion. As the match progressed, Kasparov provided fewer and fewer leads for DEEP BLUE to follow. Conversely, DEEP BLUE was allowed his rein, at which the program proved rather helpless. In the fifth and sixth games, the program seemed to have lost its bearings.

Another change may well have been that in this match it was no longer an easy matter to distinguish between human and computer moves; it is not yet five years ago that several authors have castigated computer play as being over-acquisitive, naive, and visibly mechanical. No longer so: this match has contributed to establishing the near-equality of the program and the Champion.

The most radical upheaval, however, was in the sociology of computer chess. Twenty years ago, there was a majority of sceptics willing to deny that computers ever could play reasonable chess. In the run up to the Kasparov match, opinions had reversed. Very many were surprised that 256 processors failed to win the day. There is a most interesting implication here: in the popular view, a chess engine is now a fully-fledged chess-player, capable of holding its own against the best – if not quite with 256 processors then surely with a small multiple thereof, it *will* be the best.

To sum up, the match Kasparov-DEEP BLUE was matchless and Kasparov has remained without match. We offer two riders. First, DEEP BLUE was at a disadvantage for not having been able to train against Kasparov beforehand. Second, within one and the same match, the competitors diverged in their aims. It was stated that DEEP BLUE inflicted wounds on itself by refusing an offer for a draw which eventually led to its loss. Allegedly, this was in the interest of science. But was it science, other than engineering with the ultimate purpose of winning ever after?

Finally, we most recognize that the very top of the world chess-players has now unexpectedly been augmented by DEEP BLUE and its immediate successors. It is to be hoped and expected that with more top players in the game, chess, already matchless among games, will find itself even more elevated. It would be most surprising if this extension would not give rise to more research leading to more chess knowledge. In short, Kasparov-DEEP BLUE was a matchless occasion in the matchless course of the game.



Photo by courtesy of Konrad Zuse

Bob Herschberg  
Jaap van den Herik

#### MASTER OF PERFORATIONS

Konrad Zuse *c.* 1949, directing an early paper-tape reader.

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