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HOPE PROGRESSING?

All readers of this Journal must believe that chess, at around the master level, is a programmable activity. Most of us do not pause to probe into the philosophy underlying this assumption, namely that the quality of a position can be evaluated. This item of our philosophy goes back to Shannon (1950) and to Samuel (1959), if not to Zermelo (1912). Yet, even now, it is taken for granted perhaps too glibly.

Ever since Shannon at least, chess programs have used evaluation functions as a matter of course. The hope behind this use was and always has been that the evaluation derived from such a mechanical, algorithmic function would, by some miraculous and unexplained process, coincide with the evaluation arrived at by some human being. The hope behind this hope was that the human being would at least be a master, a grandmaster if at all possible or even, ideally, the next century's world champion!

In effect the evaluation function stands for knowledge of chess, that is, all knowledge beyond the admittedly mechanical awareness of legal moves and termination rules. Many human beings, in the chess world or beyond it, opine that even aspiring to this knowledge is presumptuous. The former world champion, Professor Max Euwe stated, in his inaugural lecture (1964), in essence, that the master's vision existed and could be proved to exist, but could not be broken down into specific components.

The world has not heeded his warning. Evaluation functions as implemented in computer programs went in for an analysis into component features, such as mobility, pawn structure, king safety and a host of others. The features selected were largely at the discretion of the individual programmer and the extent to which his intuition paralleled a grandmaster's was undecided and, indeed, undecidable.

The Editors are happy that the present issue of the Journal contains some contributions which may help to lift part of the veil that has hitherto obscured these functions. Peter Frey, reviewing Donald Mitchell's M.Sc. thesis, reports his applying sequential linear regression by features to Othello, a game where exact evaluation by exhaustive search is feasible

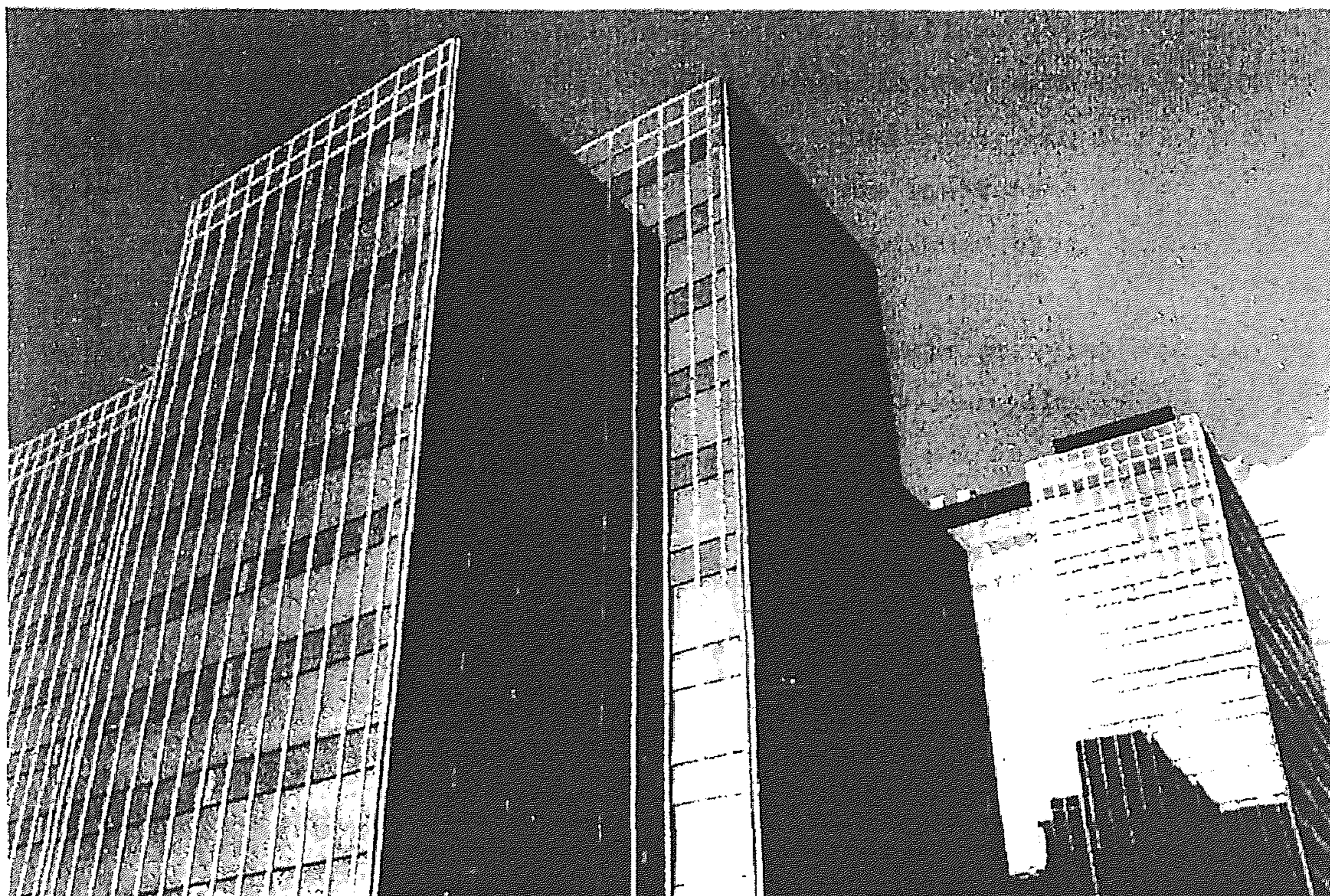
without running into the notorious exponential explosion that besets chess. The features were assumed given; the problem was how to weight them most rationally. The surprising outcome is, in our reading, that some features end up with weights which seem counter-intuitive to Othello-programmers' ideas. The article thus gives a clear though implicit warning against intuitive weighting as done by chess programmers trying, in turn, to approximate or better grandmaster's intuition.

Rainer Seidel, writing as a pedagogue, approaches the evaluation problem from a different angle and in effect insists that such functions and, indeed, all vagueness should be eliminated altogether whenever they can. In the simple KRK case he presents an analysis solely based on chess knowledge and thus derives the truth value of this endgame in an absolute sense.

There is, as we see it, therefore a clear progression: rational, non-intuitive construction of evaluation functions, reduction to such systematic knowledge as exists or may be developed, finally leading to approaching the true value of positions encountered. This progression represents progress. However, progress is not always of forceful impact.

Research into the true value of some simple positions, published in this Journal and elsewhere, unfortunately has not led FIDE, meeting last year in Thessaloniki, to translate rational findings into a rational new termination rule. We regret their decision but are not discouraged by it since we feel certain that, in the longer run, results from computer-chess research will find their way into rules governing chess contests, - and these contests will not exclude competing computers either!

Bob Herschberg
Jaap van den Herik



A Micro-tournament in a Macro-building
(The WTC, Amsterdam - Will They Compete?)