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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 cham-
pion, Professor Max Euwe stated, in his inaugural lecture (1964), in es-
sence, 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 parallelled 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 lineair regression by features to
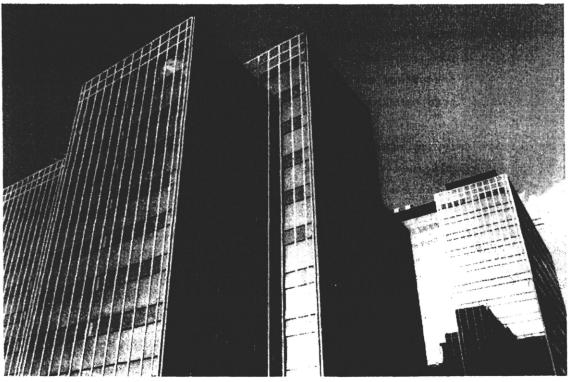Othello, a game where exact evaluation by exhaustive search is feasible

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 intui-
tive 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, in-
deed, 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-intui-
tive 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!

<div align="right">
Bob Herschberg
Jaap van den Herik
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A Micro-tournament in a Macro-building
(The WTC, Amsterdam - Will They Compete?)