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PLY THE RANDOM

The diversity of computer chess is amazing, even to its practitioners. So is the breakneck speed of its evolution. The hot pursuits of yesterday are now questioned, challenged, denied or even derided. Take the value of value, in plainer speech: the evaluation function. In all our yesterdays, it reigned supreme. The late lamented Tony Scherzer devoted a large part of his energies to building hardware computing it efficiently, as did Hans Berliner. Was not our world united in believing that its speed, its quality, its universality, even its auto-adaptability were essential as the game developed from early to middle to end? Were not we all convinced that evaluation was central to the game?

Hardware constructors concurred in this belief no less than mind-over-matter purists, such as Botvinnik, who maintained that only a Botvinnik-like evaluation function would be the magic key letting those computers enter the human haven.

The perusal of one issue of this Journal is enough to upset this long-cherished belief. The diversity of our discipline has shown yet another facet, perhaps a random facet on a 20-sided die. Not quite two years ago, Don Beal threw a stone into the quiet pond in which the true believers hid their highly secret proprietary functions. He proposed that one would play better than random moves by solemnly minimaxing over nonsense, over nodes which had a random-number generator for their setter of values!

Even more shockingly, he argued that the moves chosen became progressively superior as one searched more deeply over these random values. He suggested that one more ply of unreason gave just a little bit of edge over one fewer ply of nonsense. In short, deeper searches on random trees held an improvement, as shown by experiment.

When these heretical ideas were first aired, unbelief must have been universal and everybody's intuition told them to shrug off this idea as one more academic extravaganza. We should not have rejected his ideas out of hand, remembering such maxims as "any plan is better than no plan at all". Perhaps we should also have looked back in wonder at twenty years or more spent in refining evaluation functions without spectacular, convincing progress, which should have given us food for thought.

In this issue, Beal and Smith's notion is being given substance by a formula-ridden, symbol-strewn essay by Levene and Fenner, who use a sophisticated mathematical apparatus to prove that Beal was right: two ply of random is better than one! With the caution inborn to mathematicians, they venture to conjecture that more plies are always better, even when the node values are literally dicey. Heavy maths in this issue, but you have been warned: there would be when occasion warranted.

Perhaps this finding should temper the admiration we must feel for Kuszmaul, who has gone a long way towards solving one besetting problem in computer chess: how do I distribute the work over many machines? When many is 512, the name of the engine is Connection and the name of the game is Chess, Kuszmaul succeeds in persuading a large fraction of them to work simultaneously on... computing the evaluating function. Hats off for achieving the feat, though wrinkles of doubt whether all those machines, pushing away on a 1024-pedalled giant tandem bicycle, were spending their energy wisely and well when they were just computing evaluations. Would a parallel random generator have done as well in a road test? We doubt it, but Beal is just disturbing enough to make us ponder.

More conventionally, an ICCA communication in this issue reminds us, not without humour, that FIDE is as it ever was: no human blood, no FIDE titles, and that seems as final as anything in our diverse world. Still, as we report in this issue, Godesberg was the venue of yet another evaluation function, an important meeting attempting to assess FRITZ3. That machine was tolerated there, a mere Pentium among more Grandmasters than ever before in a regular tournament. FRITZ3, as though relieved of the shackles of competition, companionably played chess for chess' sake, pleasing itself and mostly pleasing its opponents. They were even somewhat respectful of his 90 million instructions per second and would have agreed with what FRITZ3 himself, had he been human and given to self-evaluation, would have thought: "MegaHertz are not Megahurts".

Bob Herschberg
Jaap van den Herik