Table of Contents

ELUSIVE TRUTHS

Think of Truth. We have polled some of our colleagues and we are the first to admit that ours was a biased sample: the respondents were cursed with at least one of three failings: to the last man or woman they were tainted by mathematics, computer science or chess. Even so, when required to think of Truth they all had a vision of a mighty, stern lady of superhuman dimensions, holding a lamp - or possibly a torch - casting its light far and wide. Simple serenity went before her and clearness followed after. She cast out the darkness wherever she went. In short, she embodied virtue or even, to the more audacious, *was* the highest of all virtues incarnate. Those polled, even though biased, should have been less naive. They should have been forewarned by what two of the greatest English wits had to say about her: "Truth", quipped Oscar Wilde, "is rarely pure and never simple." George Bernard Shaw, not to be outdone, went on record too: "All great truths begin as blasphemies." Of both cautionary sayings, this issue of the Journal presents some striking examples.

Ken Thompson's contribution, with results that have been adumbrated in previous issues, is a blasphemy, some would say, while others' qualifications might be 'heretical' or even 'iconoclast'. Is it

not an impiety to doubt the wisdom which FIDE has so faithfully preserved down the ages? Is it not heresy even to suggest that FIDE is capable of injustice? And if taking down the idols that are FIDE's and declaring that they have feet that were of iron and clay, and breaking them to pieces is not iconoclasm, what is? Yet this is precisely what Ken Thompson does: the hallowed 50-move rule, to which a few exceptions are grudgingly allowed under the current regime, is seen to be without foundation. Nor is this all: semi-sacred pronouncements of Old Masters are not only disputed, they are falsified outright (shades of Popper), quoting chapter and verse. To confound confusion, we are left with far-from-simple truths, such as that a certain endgame is won with a probability of 53.4 percent. Or is it a probability? Yes, it is, if you assume that a certain piece is distributed equiprobably over all squares it may legally occupy. No, it is not, because to any chess-player such equiprobability is anathema and in any case once the pieces' positions are given optimal play is not a matter of probabilities, but a completely deterministic, pre-ordained sequence. So much then for the utter lack of simplicity of truth in chess. As a final blow to the unequivocality of truth, Ken casts some doubt on the validity of some details in his own work, as befits a true scientist.

Ken Thompson's truths, incidentally, have gained the columns of, we think, almost every newspaper which devotes some corner of its pages to chess. A report of his program's prowess has even reached the science column of no less than the International Herald Tribune, where James Gleick (New York Times Service) reports in glowing terms: "Centuries of wisdom about chess endgames (...) have been overthrown by a few weeks of computer work."

Simplicity and sacredness of accepted wisdom are again presented in the doubtful light of scientific truth in the article by Kaindl, Horacek and Wagner. They dare attack what amounts to one of the tacit dogmas in computer chess: if brute speed is useful, even bruter speed must be more useful in proportion. (The dogma is no less sacrosanct for being implied rather than explicit.) What they subtly suggest is that either at some stage of the game or at some stage of the computer constructing a move, brute force may be profitably abandoned for a more intelligent approach, such as a best-first algorithm. While in our opinion they fail to present a mathematical proof or even some close approximation to it, their case is strong enough to raise doubts about salvation lying with the brutes (one accepted truth). Never, they suggest, is chess truth simple; the brute approach could well do with an injection of some sophisticated reasoning. Being the good scientists they are, they cast doubt on their own findings in a highly perceptive concluding remark: should brute force prove to be more than a match for a human master, the slave will live on, a brute and dumb automaton, and no force on earth will even try to apply such intelligence as can be formulated.

A parallel topic is treated by Bal and Van Renesse. Theirs too flies in the face of common belief. Roughly, the established creed runs:

"Anything one can do, two can do better."

Good computer scientists one and all, members of our corps will of course apply this creed recursively, so that four are better than two, eight outpace four, and so on, so that the idea of arrays of 1,024 processors ploughing sixty-four squares in parallel is seriously entertained in some areas of research and may descend upon computer chess in microseconds from now.

In flagrant defiance of this creed, often held to be self-evident, they find that though all processors are created equal they will not harness as equal yoke-mates and that when forced into a common harness they will fall victims to the law of diminishing returns. Distressingly, it may well happen that even an infinite array of processors may yield a finite increase in processing speed, where finite is a number that may be counted on the fingers of one hand.

Truths impure, truths far from simple and truths blasphemous fill this issue which we hope will give our readers food for thought and - who knows? - even new impetus for research.

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