TABLE OF CONTENTS

PITTING BITS AGAINST BRAINS

About twenty years ago, C.P. Snow postulated the existence of two cultures: a broad stratum based on the Arts and the Humanities and innumerate to the point of being unable to balance their checkbooks, and a thinner substratum or superstratum of boffins, all-too-numerate scientists unable to spell 'sesquipedalian' or 'trough' approximately correctly. The division between them was as nearly binary as one could find: not only were literate numerates very thin on the ground, but also the communities had become so divided that number would not speak to letter, nor the other way round.

To be sure, Snow's position was somewhat extreme: a multitude of books nowadays testify eloquently that some numerate persons are literate (their books are a pure joy to the general reader, as are C.P. Snow's), whereas conversely we have seen a generation of Arts students, graduates and even professors using the computer not merely as a subservient tool, but as a useful generator of hypotheses to be tested.

Whether the gap between Arts and Sciences is widened or not, we dare not venture to decide. What we do find is that there is an ever-widening circle of persons who do not seem troubled by the existence of any gap and who easily span the Snow-filled crevasses. Yet, occasionally, your Editors cannot help thinking that the gap between Arts and Sciences still persists most acutely in chess, even though it may have been thinly bridged over in the world at large. We beg you, dear reader, to survey your acquintances. Any ten aficionados of computer chess (to the familiarity of which you are naturally biased) are balanced by many tens of those which profoundly believe, with their gonads and their Stauntons, that chess is a human preserve and that 'those dumb computers' should have no voice in it at all.

Still, even among those who allow and welcome computers participating in chess, there is a rift: the pages of this Journal exude constant pleas to incorporate more human notions, more (humanly) strategic concepts, more of Grandmasters' conceptual knowledge and perceptual specializations into chess programs. To the extent we can survey the field, their pleas go unheard; over the past years the message has been loud and clear: the bruter the force, the finer the outcome. (This issue of the Journal proves no exception.)

Yet there are tendencies pointing in the opposite direction. To our gratification, some at least of the world top are not averse to participating, somewhat obliquely, in computer chess. Botvinnik has ever been with us, Timman was fascinated by a generalization of an endgame which befell him, while Karpov became enthralled by what was recorded in a database.

These, we hope, are straws in the wind of change but do not as yet significantly influence the conviction of the majority. That majority, while not hide-bound, is conservative. They have every right to be so: their style of analysis, tentative, groping, forever hesitant has been superseded by computer databases which are omniscient and have no need of hemming and hawing. Would they be readers of this Journal - and the fewest of them are - they would be appalled at the justified assertiveness of our contributors.

In despair, they may be inclined to ask whether human beings and computers, both claiming to be playing chess, are in effect playing the same game. We sympathize with their feeling of inadequacy and have ample reasons to support their contention that the games, though obeying the same rules on the same board with the same pieces, are essentially different. The computer, being neither conscious nor sentient, plays chess in a manner essentially different from the manner of a human being. The objection that a computer does not know what it is doing must be accepted, so must the graver counter-argument that, to our first approximation, it is a great deal more dead and mechanical than the assembly of a Grandmaster's neurons.

But more solidly: is chess a game? More precisely: is it a zero-sum, two-person game with perfect information? According to von Neumann and Morgenstern and the best thinkers after them, it is. In such a game only results tell. Hence, in essence one cannot distinguish, even morally, between results achieved computerwise, say by exhaustive search, and results unquantifiably arrived at by Grandmasters' intuition. In game-theoretical terms at least, the distinction is vacuous, the results are all that one deigns to remember.

Yet we understand and sympathize with the conservatives' indignation. We feel that there are now two chess cultures: in the Arts variety, the terms are brilliance, intuition, insight, inspiration and the Master's eye; in the Science branch, the relevant terms seem to be things like ever-cleverer hashing, yet another ply, deeper(!) horizons and various sly entrapments. No greater opposition between cultures can be imagined and the assertion of two different games seems well justified on the ground of these two completely different sets of governing concepts.

Now, let us not forget one thing: when reduced to games played there is no difference at all. We are playing the same games, be we humans or computer instructions. Your Editors personally object to calling a move brilliant when executed by a human partner and dismissing the same move as merely mechanically produced when played by a computer program. That their way of arriving at the move may be different is neither here nor there. The Grandmaster cannot really explain how he arrived at his move, not even to human beings, whereas the computer cannot explain how it arrived at its move, even to a Grandmaster. So we are at a par, humans and computers all, in our inability to convey the beauty of play even to each other. So be it; but let the unity of chess not be broken up by this sort of wrangles. The game is far too beautiful for that.

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