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# ARRAYED FOR BATTLE?

For at least a thousand years, large parts of humanity have been enthralled, no doubt in holiness, but also with morbid fascination by the idea of the Last Judgement. It is pictured, in mosaics, on wood, on canvas, and in tapestries, as a gigantic battle, in which the forces of Good are mustered against the forces of Evil. The battle is quite formal, with commanders and their batallions, trumpet signals to direct the hosts and all the paraphernalia of large-scale warfare.

With due reduction of scale and of ultimate importance, one may state that computer chess stands before a similar last battle, the issue being whether the game-playing machine or the human being will be the victor. Looking around us, signals are confusing. For one thing, there is a group which considers the apocalyptic day to be so near that it is time to draw up precise rules for the ultimate contest. Thus, those concerned with allocating the Fredkin Prize possess at least a tentative order of battle providing for all manner of contingencies.

Reading this array of regulations one is beset by doubts: the prize may be there, but will there be a player? Technical dangers lurk. Will the World Champion, whoever she may be, stake a world reputation on winning

from a mere computer or on a worse outcome? Also, the Fredkin Prize, while huge when founded in 1980 no longer is prize money fit for Champions. Are we well-arrayed, and that for a null battle?

Apparently, a last judgement seems nearer on 64 other squares, those on which the skirmishes of checkers evolve. The reigning human champion, Marion Tinsley, has been in perpetual checking mastery for forty years now and has a single challenger, generally conceded to be a program, Jonathan Schaeffer's *Chinook*. A last judgement between them therefore should be much less contentious than in the chess world, where human championship is not nearly so static and, worse, where the nearest program contender cannot be identified with all requisite clarity. Human nature, both of near-champions and champion programmers, being what it is, one would hardly know how to organize this little apocalypse for chess. But even for checkers, where all seems so simple, the masters of the battle plan complain bitterly: more funds, more certainty in the continuity of effort, better advice and top-level consultants are required to the tune of $100,000 per year as a minimum to bring off a deceptively simple event, for which forces seem better arrayed than they are in our chess world.

In chess, there is no unique contender to do battle with the human champion. Folklore has had it for a long time that *Deep Thought* was the be-all and end-all of all programs, a piece of myth carefully not discouraged by its high and mighty sponsors. Possibly with some misgivings, *Deep Thought* in an even more advanced version was pitched in Hannover against seven selected German Grandmasters, it being fully expected that *Deep Thought II*, as it is now called, would be well able to hold its own against the opposing cavalry. Not quite so, going by the score: 2.5 out of 7 is not uncreditable, but hardly spectacular. Of course, *Deep Thought II* could plead the extreme state of bugginess probably besetting a week-old infant. Incidentally, this is perhaps the place to dispel the myth of a program's constancy in time. Whoever takes the trouble to work through Anantharaman's last major contributions in these pages will become convinced that software, notably chess programs, is in a constant state of flux. Even mature programs expected to be sedate often impetuously change from day to day.

Be that how it may, the best contender apparent is not clearly outshining its competitors, however human these may be. In such a state, is chess well-arrayed to do the ultimate battle?

Most curious of all: the reigning World Champion, good-naturedly submitted to a most remarkable experiment. He was in effect the human referee in the classical Turing experiment who has to decide what answers are the human being's and which emanate from its electronic equivalent. Now Kasparov did not plead ignorance and in fact admitted that he keeps well abreast of what the computer-chess top is currently achieving.

In a very real sense Kasparov failed the test. In a carefully randomized experiment he identified the computer in fifty percent of cases. Though this *is* better than flipping a coin at random (the choice in each case being one out of four games, and one out of eight contestants), it is not spectacularly superior to chance. There are two ways to read the outcome. First, the time is clearly over when computers were striking by their stupidity; second, the time is not ripe yet to identify computers by their brilliance. Now seeing that the contestants were Grandmasters the conclusion is warranted that the program is not a bad Grandmaster. But being a Grandmaster is a far cry from being a potentially successful contender in full panoply to do battle in the minor Armageddon of computer chess.

Our conclusion would be that the computer-chess world is, as yet, poorly arrayed for an imminent battle.

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