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## BACK TO FIFTY

Not surprisingly, the admission of computer programs to human tournaments (FIDE, Manila, June, 1992) has claimed pride of place in our Journal. An equally important decision was all too easily overshadowed by the momentous change in status of the programmed opponents: it was the adoption, proposed by the Rules Commission, to abolish the exceptions to the 50-move rule and to make that rule uniformly binding on the game, regardless of the nature and number of the men involved. A game is statutorily drawn when 50 moves have been played without a capture or without a Pawn having been moved.

As we all know, FIDE moves in a mysterious way and the most recent ukase puts an end to a bizarre period of vacillation. Up to the early fifties, the rule now re-instituted was universally applied and seemed unproblematical. However, chess is a subtle game and subtleties of research have swayed FIDE: due to the research of Crosskill (1864) and Troitzky (1934), both working without benefit of database, instances were found in which it might take more than 50 moves for the stronger player to achieve his deserved victory. Characteristically, FIDE, in its first variant decision, took notice of these human findings and allowed a 100-move limit for the specific endgames studied, KRBKR and KNNKP. If our reconstruction of events is correct, it was then up to our own computer-chess community to throw a spanner into the works. Ken Thompson was to discover in 1983 that KBBKN took a maximum of 67 moves to win – his computer-assisted finding was characteristically ignored by FIDE in 1984.

What *did* change in the same year was due to Timman's experience against Velimirović (Rio de Janeiro, 1979). Timman felt that, in his endgame, 70 to 80 moves would be necessary to achieve a win. From the outset, his Dutch supporters thought it unjustifiable that, the 50-move rule applying, Timman might miss his win owing to a statutory limitation. As it turned out, Timman won in fewer than 50 moves, though it transpired that some positions in this endgame required more than 50 moves to completion, to be precise 54 rather than Timman's conjectured over 70. FIDE decided to let the 100-move rule apply to this KRP(a2) KbBP(a3) endgame as well.

A stream of computer research then grew from a trickle to a torrent, proving that an ever-increasing number of endgames required an ever-increasing number of moves to seal a victory. Twists and turns then set in: the database programs tied knots in ever more endgames, perhaps culminating in Stiller's admirable but horrifying 1991 result that in some positions at least KRBKNN required 223 moves. This clearly was too much. FIDE had meanwhile decided to refine the 50- or 100-move rule. For certain endgames the critical number of moves was formulated as the nearest multiple of ten over the maximum length to win. At IGM Dr. J. Nunn's suggestion this could be refined to the nearest higher multiple of five. For KRBKNN this would let the endgame be decided only after a maximum of 225 moves – a clear absurdity.

Even when the choice was merely between 50 and 100 moves, a valid objection had arisen: the stronger side (e.g., RB in KRBKR) could now impose on his opponent a 100-move *correct* defence even when the endgame was drawn from the outset. For KRBKNN this argument is even more telling.

So FIDE now has decided to cut the Gordian knot and the intolerable onus on the weaker side has now been removed. Or has it? Chess is a subtle game and the notion of optimal play is rendered more complex by the apparent simplicity of the rule now again in force.

A case has been constructed in which KNNKP is a game-theoretical win in 54 moves, but now a statutory draw for all that. This applies to optimal play based on the regular database's normal omniscience. However, being aware of the 50-move rule, it is possible to construct databases which depart from optimality by the regular definition, and preserve the win. In our instance, by *suboptimally* moving the Pawn on move 47, and then winning on move 92.

The simplification to a uniform 50-move rule has obvious consequences in increased complexity for constructors of databases and of the programs consulting them. Suboptimal moves in the classical sense will now have to be allowed for to a considerable extent. The distance-to-win now may be a preferred measure to the distance-to-mate if the latter exceeds 50 moves. A large field of casuistry is opened up.

It is certain that suboptimality will play an increasing role or rather that optimality has now been given an unexpected twist and is no longer the simple notion it seemed to be. This ties in perfectly with Jansen's research, reported in this issue, in which he tentatively assesses the impact of moves known to be suboptimal on a human opponent. The suboptimality concedes a few plies, but may successfully entrap the human defender into a disastrous concession by reason of the resulting human complexity. FIDE's Gordian slash has, we believe, simplified matters only on the very surface of the game.

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