ON THE ROLE OF PLANNING IN COMPUTER CHESS

I. Bratko, «Jožef Stefan» Institute, University, of Ljubljana, Tamova 39, 61000 Ljubljanna, (Yugoslavia)

The performance of existing chess programs will be discussed, in particular a comparison of their performance in the middle-game with that in the end-game. The following explanation for fairly good play in the middle-game and relatively poor play in the end-game (in comparison with human chess players) is given: the way in which existing chess programs "think" could be described as "tactical" as opposed to "strategic", the latter being more crucial to the end-game than in the middle-game. Strategic treatment of position requires the determination of a strategic goal relevant to the position and subgoals relevant to the main goal. Only such a goal scheme can be a basis for the planning of further play in positions, where tactical tools are not sufficient and lead only to meaningless moves with no underlying long term plan. The automatic generation of possible goals in a given position seems to be an extremely difficult task. Thus it would make practical sense to initially design a method for teaching the program in an acceptably natural way to recognize strategic goals and corresponding subgoals in a given position and to make use of already, existing tactical tools in order to achieve chosen goals. Then the program should be taught by a good human player in a high, chess oriented language. The learning process would be carried out in the opposite direction to the one in known experiments: it should begin with the treatment of simple positions that occur in the end-game, and then proceed to more complex positions, rather than start with the initial chess position and complex moddle-game situations. One way of implementation of this idea will be illustrated by some end-game examples.