CHESS PROBLEMS

How the Computer Helps the Composer

Dr. Laszlo Lindner*

Dr. H. le Grand, problem composer and professor of cybernetics at Wageningen, Holland, organized a discussion at the meeting of the Permanent Commission for Chess Compositions of the FIDE in Arnhem, August 1981, regarding the influence of problem solving programs on human solving and on chess composing. Present were several computer experts: Norman Macleod (England), a fine problem composer; Mika Korhonen (Finland), composer, and writer of one of the most "intelligent" problem solving programs; P. H. Wiereyn (Holland), writer of probably the quickest solving programs. Also present were many other problem composers, interested in the very timely questions of the role of computers in chess composition.

A respected lecturer, Dr. le Grand enumerated some arguments which placed doubts on the practical value and usefulness of problem solving programs:

- Since problem solving is a hobby, why bother replacing a pleasing human amusement with a computer?
- Won't problem solving programs make solving contests unfair?
- Chess composition is an art. Can we tolerate the intervention of a computer into this creative activity?

The majority of the problem friends rejected these reservations. No one is forced to surrender his hobby, even if he knows that a computer can do the same quicker and perfectly. Of solving contests in chess reviews and columns, it doesn't seem to be a serious danger when winning only a book prize is at stake. In important competitions like the World Championship of Problem Solving, the use of a computer is neither permitted nor possible as this takes place in person.

On the other hand, the computer facilitates the composer in finding cooks (extra unintended solutions), duals (alternative continuations, including mating moves) and other mistakes. Dr. le Grand asks whether this help of a computer won't make the composer too lazy to look for the best, most economical and most artistic rendering of his idea? When a "correct" position is found (one with no cooks or duals), won't he quit searching for something more beautiful?

The answer to this question is not quite unambiguous. It is generally the obligation of a composer to construct his problem without external aid (a computer). But when we consider that the computer helps in the fully unfruitful part of composing, that of eliminating mistakes, then it has nothing to do with the real creative activity. In some genres, e.g., in helpmates, the search for cooks takes the majority, 80% or more, of the time in reaching the final product. Why not spend this valuable time creating, while letting the computer fulfill its mechanical task! If a composer

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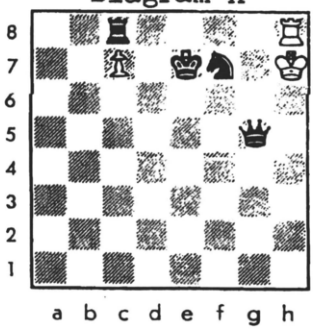
is easily satisfied with any mere "correct" problem, even if further exploration yields vast improvements in economy of pieces or more thematic variations, this is his own affair. The majority of problemists present at the discussion agreed with these opinions. The computer is the perfect controller of the soundness in a chess problem.

A few weeks after we met in Holland, Mika Korhonen wrote me a letter in which he explained his method of composing a problem with the help of his solving program, written for an Apple II microcomputer. (This program is one of the best in existence, as will be demonstrated for readers of the ICCA Newsletter in a later issue. This will occur when the tests announced in Vol. 4 No. 2 are evaluated.) After he constructs the skeleton of a directmate problem, which contains his theme or idea, he enters this "sketch" into the computer. It then shows the moves he intended, or else unexpected black defenses, as well as all undesirable solutions (cooks). Noting these, he rectifies the position and re-enters it, again discovering new mistakes and even still existing ones. He continues this process until the position is correct. Sometimes he enters twenty or more positions, but this is undoubtedly faster than if he had to examine each intermediate phase himself. And at the end, he is assured that the problem is absolutely correct.

Mika attached a problem to his letter, showing the theme of a semi-quick tourney announced in Arnhem. Although he was unable to compose the theme there during the three days at his disposal, on his return to Helsinki he did it with the help of his computer within twenty minutes!

The computer can sometimes help the composer in developing an idea. At the meeting in Arnhem I showed an interesting example. I tried to realize a miniature (seven men or less) helpmate two-mover containing the theme of different white pawn promotions aided by different moves of a black piece. To present this idea it is usual to compose twins (positions which differ from each other in one element only). I arrived at diagram A with its two twins.

Diagram A



The different solutions to these twins follows:

position a) 1.RD8, Pxd8=R! 2.Qf6, hRe8≠

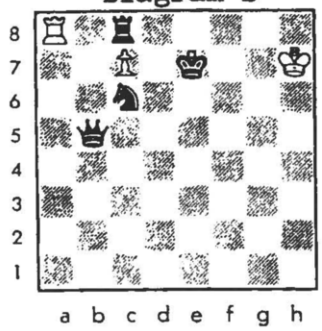
position b) shifting the black queen to b5 (and the previous solution is no longer possible), 1.Rg8, Pc8=S! 2.Kf8, Rxg8≠

position c) shifting the white rook to a8 (from part a), 1.Rb8, Pxc8=B! 2.Kf8, Bd6≠

Although I succeeded in getting three promotions neatly, the achievement badly missed the fourth promotion into a white queen! Anyhow, to test these positions I entered them into an Apple II, running with Mika Korhonen's diskette that he had kindly placed at my disposal.

The first and second positions proved correct, but in the third the computer found a second solution: 1.Re8, Pc8=Q! 2.Kf8, Qxe8≠! A cook, but this time a welcomed one! The only task that remained was to separate the double solution in part c, completing the fourfold promotions. This wasn't too difficult since I saw that in the case of promotion to queen, the black knight isn't necessary in the mate. With a few changes I came up with diagram B.

Diagram B



The twinning is as follows:

b) shifting the black knight from c6 to f7

c) shifting the white rook from a8 to h8 (in this case from position b and not the initial position)

d) shifting the black queen from b5 to g5 (from position c)

The solutions are successively:

a) 1.Re8, Pc8=Q! 2.Kf8, Qxe8≠

b) 1.Rb8, Pxb8=B! 2.Kf8, Bd6≠

c) 1.Rg8, Pc8=S+! 2.Kf8, Rxg8≠

d) 1.Rd8, Pxd8=R! 2.Qf6, hRe8≠

The reader can see how the successive modifications of the positions prevent earlier solutions, and on the other hand, enable the new ones to work. The problem has since been published in Eteroscacco (Italy), September-December, 1981.

I said to the audience that this problem was a co-production with Korhonen's "Mate 4F" program, but Mika laughed and assured me that I can consider it as my own. And later, when I told this story to Frederic Friedel in Travemunde, he said it is really fantastic: how the computer is helpful to his inventor, the man.

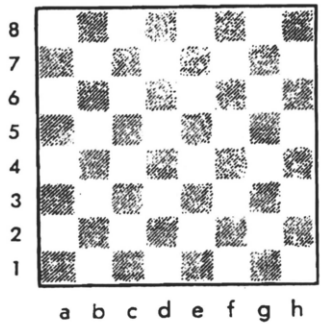
In Arnhem, at that meeting, it was also demonstrated how the computer is even able to compose problems! Norman Macleod, the prominent British problemist, showed diagram C as a creation of his program, "Composer". His example is a fourfold twin, helpmate in three. The twins are all formed from the preceding positions:

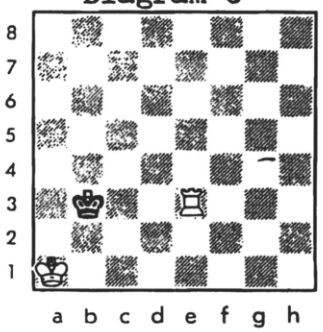
b) make e3 a white queen

c) shift the white queen to b5

d) make b5 back into a white rook

Diagram C





The solutions are exactly determined:

a) 1.Kc2, Ka2 2.Kc1, Kb3 3.Kb1, Re1≠

b) 1.Kb4, Kb2 2.Ka4, Kc3 3.Ka3, Qa7≠

c) 1.Kc2, Ka2 2.Kc1, Kb3 3.Kb1, Qf1≠

d) 1.Ka4, Kb1 2.Ka3, Kc2 3.Ka2, Ra5≠

Of course, everyone was very curious how Norman succeeded in instructing his computer to compose problems. He briefly explained it and wrote it down in a paper. He sent it to me, and I shall forward it to the ICCA Newsletter for the next issue. I hope that the readers will be interested in it.

Dr. Laszlo Lindner
Nepkoztarsasag utja 54
Budapest, Hungary H-1062