

## COMPUTER CHESS: TRICK OR TREAT? (\*)

## Preliminary Thoughts on Threats and Rewards

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In January 1983, Clifford Anderson published a manifesto under the aegis of an organization named WOCIT (We Oppose Computers In Tournaments). Its contents vary from specific opposition against forcing a human to play a computer to the general remark that the organization does not want computers in chess tournaments regardless of who makes how much money on them.

Among the statements we find two interesting points:

- "\* Twisting and stretching the rules to make machines members of the USCF, and allowing them large and unfair competitive advantages is inexcusable.
- \* It is difficult to understand how the use of computers differs from the use of third party informants or Chess literature."  
([1], p. 3)

Although these points are worth discussing on their own merits - especially the last point raises philosophical issues - we tentatively conclude first of all that signs of apprehension can be observed in the manifesto. This conclusion leads to a general question: Do chess-players feel threatened by chess computers (or, equivalently, chess programs)?

In the beginning of the 1980s, the authors launched a research project at the Delft University of Technology, under the heading: Computer Chess and the World of Chess. This project, part of the computer research program of the University, profited from the close involvement of A.D. de Groot (University of Groningen).

(\*) Hallowe'en children's game of calling at houses with threat of pranks if sweets etc. are not given them (The Concise Oxford Dictionary of Current English, 1976).

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OPINIONS ON THE INFLUENCE OF COMPUTER CHESS

After a statement by international chess grandmaster Sosonko, revealing his opinion on computer chess in a wider context, we show to what extent opinions of top players may diverge by two quotations (in translation) of international grandmasters. According to Sosonko:

"I think that the development of computer chess ties in with the general development in our society. Some fifteen to twenty years ago that computer didn't mean a thing. But now it has grown so incredibly. I think that is very enjoyable and proper. It belongs to the general development. The computer is just one drop among all the progresses in our lives, it is just one part of all the revolutions in our lives." (August 26, 1980).

Coming to the narrower theme of computer chess, Sosonko continued:

"You mean in case a chess computer is as strong as a grandmaster? I have never thought all that much along those lines. But I think that it *certainly* will *not be* detrimental to the human world of chess. It will just grow to be more interesting. As I said before, I am convinced that computer chess is going to play a major role. I see a great future for computers. I think it will become very interesting" (August 26, 1980, our italics).

Sosonko's opinion is definitely not shared by everybody in the chess world. When asked whether a chess computer should be allowed to play in an IBM grandmaster tournament, John van der Wiel, for one, replied:

"(.....) So I can withdraw under protest and so I do myself out of those revenues. But first of all I would try as hard as possible to convince people that admitting computers means going in the wrong direction. I think that, at the start, that kind of thing is likely to happen. You take a tournament, a computer participates, that's cute. But the risks should be realized. It can become very risky indeed. Once we come to that point I think that I could well turn into a sort of revivalist preacher, you know: the Flood will be upon us." (June 27, 1980).

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THE PROBLEM AT ISSUE

Our investigation have focused on the potential threat of the increasing playing strength of chess computers to the chess world. To our way of thinking, a threat as possibly conceived by (professional) chess-players might read, when formalized:

"Suppose that the ELO rating of a computer chess program rises above 2650 ELO points, what are then

- ( i) the potential consequences for a professional chess-player?
- (ii) the probable reactions of the professional chess-players, as currently assessed by insiders?"

As matters stand in 1983, a rating of 2650 would imply that the program would be among the world's top five. Nor need it be confined to a single program: such programs, identical or closely similar, would then appear by the hundred or thousand.

Just as mental arithmetic retreated with the advance of the pocket calculator, tournament chess may decline as chess computers rise. Hence, the apprehensiveness or even dismay felt by the chess world in view of the rising strength of chess computers is not difficult to empathize with. We therefore focus on what we understand to be the major determinant of WOCIT's attitude; expressed somewhat crudely:

"The chess world feels threatened by the rise in playing strength of chess computers."

THREE HYPOTHESES

Optimally, the issue should have been investigated in a longitudinal project, interviewing professional chess-players over a period of time. Unfortunately, our span of control did not comprise the twenty years or so required. Hence, we opted for a one-off approach with its built-in assumptions:



- that chess-players, twenty years hence, will indeed react as they now state they will;
- that twenty years or so will indeed see the rating of a chess program climbing to some 2650 points;
- that professional chess-players, in twenty years' time will be comparable to those of to-day in the distribution of ages, education and income,

further assuming that this approach would yield results of some generality. Under these assumptions, three hypotheses were formulated. Open interviews, all conducted between April 1980 and September 1981, were then scored for the responses elicited and served to decide on the rejection or otherwise of the three hypotheses below.

H1: "As of now, there exists respect for the playing strength of a chess computer".

It was stipulated beforehand that H1 would be considered as rejected when the percentage of assents over all relevant interviews would be below an arbitrary 80%, thus completely specifying the test.

H2: "As of now, career intentions of chess-players are influenced by the rise of chess computers."

It was stipulated beforehand that H2 would be considered as rejected when the percentage of assents over all relevant interviews would be below an arbitrary 30%, thus completely specifying the test.

H3: "As of now, there exists some fear of chess computers".

It was stipulated beforehand that H3 would be considered as rejected when the percentage of assents over all relevant interviews would be below an arbitrary 30%, thus completely specifying the test.

The meaning of the notions 'respect', 'career intentions', 'rise' and 'fear' were to be taken as their everyday denotations. For some explicit comments see [2, Chapter 5]. Playing strength was defined by the ELO rating, comparable to the USCF rating.

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ON THE INTERVIEW TECHNIQUE

As stated before, open, i.e., semi-structured, interviews were chosen as the most appropriate technique of investigation for a variety of reasons.

- ( i) It seemed impossible to gather unbiased quantifiable material by e.g.
  - studying publications, reports, comments, columns, etc.;
  - observing chess-players when incidentally playing a computer.
  
- ( ii) In spite of the time-consuming character of interviewing, verbatim recording and scoring, this turned out to be a feasible procedure due to the support of many enthusiastic co-workers.
  
- (iii) The familiarity of one of us (vdH) with the chess world made it nearly certain that the interviews would be granted.

One of the advantages of open interviews is that during the conversation other topics (closely) connected to the attitude of a chess-player can be discussed though the remarks so registered are not uniform among respondents. In the interest of comparable results the interviews, while open, always contained a core of well-structured questions.

During the interviews much emphasis was put on

- the full coverage of the domain of the hypotheses to be tested;
- the reliability of the information.

In order to make sure that all essential points were covered, the investigator during the interview frequently summarized the responses so far. The aim of doing so was also to prevent the respondent providing only evasive answers.

In order to ascertain the reliability of the information, a transcript of the interview was sent to the respondent requesting verification of his deposition. The process was repeated, if necessary, after such amendments, if any, as were thought material by the respondent. Up to a point, this procedure afforded some assurance of the constancy, over time, of the respondent's views. Furthermore, it allowed him easily to register the instan-

ces where this was the case. Needless to add, this was additional to the opportunity, given to him during the interview, of assenting to the summary or amending it. More generally, the interviewer and the respondent interacted to mutual agreement, the interaction's details serving no less as feedback to the interviewer.

#### THE INDIVIDUALS SAMPLED

The stated aim of our investigation naturally led us to interview, first and foremost, strong, (potentially) professional chess-players, those not professionally competitive holding no interest to us. At the same time, it seemed inappropriate to disregard the views of chess programmers, co-responsible for the treats leading to apprehension or dismay as perceived, by hypothesis, by human players. Equally, we felt insiders, possessing relevant knowledge but unlikely to be materially affected by human or computer supremacy, should be consulted. Moreover, it was considered that the age of (potential) chess professionals might affect their attitude. With this in mind, we arrived at six classes of persons to be interviewed.

class 1: strong youth players;

class 2: young top players;

class 3: the world's top players;

class 4: experts in chess and chess programming;

class 5: originators of chess programming ideas;

class 6: chess programmers.

In total, 49 interviews were processed in the course of testing our three hypotheses. A further instalment of this article, to be published in the next issue of this Journal, will detail our samples and summarize results.

#### FIDE AND ICCA: PARTNERS OR RIVALS?

In the open-ended part of some interviews the relative positions of FIDE and ICCA were discussed. From our earlier issues [3,4] our readers will be acquainted with the FIDE/ICCA co-operation agreement now in force. Although



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the sceptre of FIDE is no longer in his hands, the opinion of its former President, the international grandmaster Fridrik Olafsson, well deserves quoting. It combines his opinion as a strong chess-player with the meticulousness befitting the President of the FIDE Computer Chess Commission:

"Well, as I have said already, I cannot speak for FIDE, I can only speak for myself. And I think that we have to consider this very carefully before we let them play. I am sure that many chess-players will have objections. And FIDE is founded for the chess-players." (July 7, 1980).

Later on, Olafsson was more explicit on some points:

"(.....) I mean if we let the computers in, we have to try to understand what will happen, what the objections will be, what the main risk will be, why people will object. And we must also consider whether the objections are valid or not. Is this something just psychological which will disappear after a period, or are these really very valid objections, that we have to take into consideration, and so on, and so on. This is a whole concept, which we have to have a complete view on. Of course, I hope I can use my experience as a lawyer if I have to tackle this problem." (July 7, 1980).

Olafsson, again, on the delicacy of these matters:

"I know it will be very difficult to convince the chess-players if they have objections. Because for the chess-players this is maybe more a question of emotion than of logic." (July 7, 1980).

To be continued in the next issue.

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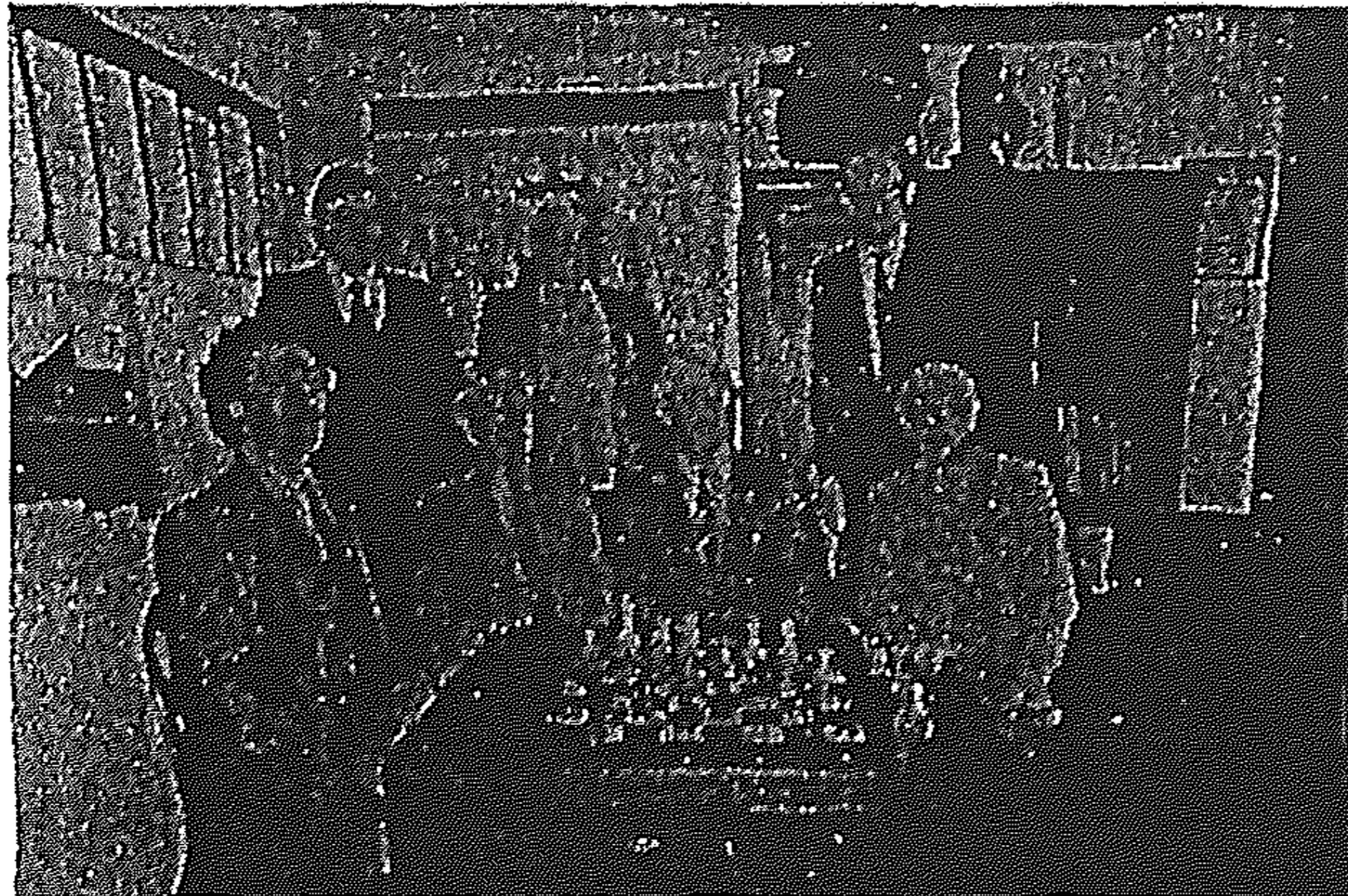


Photo by TF.

The old rivals: Samuel Reshevsky and Mikhail Botvinnik in the Manhattan Chess Club (Oct. 24, 1983). Behind them the IGMs Alburt and Bisguier.