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SCIENCE, COMPETITION AND BUSINESS

There is an intricate relationship between science, competition and business. Of these three entities competition plays a special part, since it is closely involved in all research activities and well known to the farthest corners of commerce. In itself, competition is pure and a logical consequence of the existence of games as is manifest in the Olympic Games. However, in connection with one of the two other entities, we see a clear difference between science and business.

In science the competition can be tough, very tough, but the focus typically is on honour, whereas in business the focus is on money and the competition mostly searches for the boundaries of what is legally allowed. Obviously, university professors and businessmen live in different worlds. Now and then they meet; for instance, during conferences with product demonstrations (especially in the medical domain), or at the Computer Olympiad, where amateurs play for fun and honour, and professionals for position and money.

In the past, in computer competitions, this discrepancy has led to amateur titles and professional titles. Since the machines perform the actual work instead of the brains behind the machines, we recently (2001) distinguished between a single-processor World Champion and a multiple-processor World Champion. So, four titles were theoretically possible. Of course, winning one such a title diminishes the honour compared to the situation in which only one title is at stake. The latter statement applies equally well to money instead of honour. Therefore it comes as no surprise that the future participants of the Computer Olympiad, professionals as well as amateurs, wish to change this assortment of titles. One program should be the best, honoured as such by the title World Champion, and thus receive the appropriate revenues.

This is not the end of the story since a competition is needed to establish the best program, and for such a contest the rules should be spelled out. It is not an easy task to achieve that professionals and amateurs are

univocal on the rules to be followed. There are many obstacles and although everybody wishes to arrive at a solution, the opinions diverge considerably. The ICCA is aware of these difficulties and in the autumn of 2001 a rule-discussion group was formed. The moderator is Bruce Moreland.

The ICCA was invited to take part in the discussion, but is certainly not leading. Now and then our President David Levy makes a statement. Following the pros and cons of every item it must be admitted that several different positions are acceptable. To mention a few items, we see discussion on the opening book (should the author be a team-mate?), multiple entrants (can a human being simultaneously be a member of two or more teams?), cloned programs (when is a program a cloned copy of an existing program?) and the professional interfaces (who is allowed to use ChessBase's dedicated user interface functions?).

Here science and business meet again. There is hardly any discussion on using Eugene Nalimov's endgame tablebases. No one suggests that Nalimov's name should appear in the authors' list of the programs using the tablebases. To make this point even more explicit, the alpha-beta algorithm is not credited in any form. Fortunately, the algorithm is not patented and all programmers may make free use of it. In addition to this observation the scientific question should still be: who is to be credited for alpha-beta? There are four candidates. Newell, Shaw and Simon were the first to publish on the algorithm, albeit without deep cut-offs. That was in 1958. According to Knuth and Moore (1975) it should be McCarthy, who voiced the idea during Bernstein's talk in the Dartmouth conference in 1956. The third candidate is Samuel, who claimed in an article published in 1963, that he had already implemented this idea in an early version of his Checkers program in the beginning of the 1950s, but that it was too straightforward to devote a paper to it. His research focus was learning and not pruning. The fourth candidate is Brudno (1963), who published the first real publication on alpha-beta (in Russian).

This is science in all its splendour: scientists claiming priority for the honour only. For Nalimov, an analogous reasoning holds true. In this issue (p. 258) the ICCA honours him as the recipient of the ChessBase Best-Publication Award for the year 2000, for creating and making his tablebases plus generator program publicly available. Thank you, Eugene!

In the 1970s and 1980s many computer-chess aficionados were eager to be involved in computer programs, if only they would not have needed to go through all the details of board representation and move generation. They would have loved to tune the evaluation function and improve the move ordering. At the time it seemed an unattainable desire. However, GNUCHESS appeared, and later on Bob Hyatt's CRAFTY, for which Hyatt deservedly received the 1995-1996 Novag Best-Publication Award, helped many computer-chess programmers to start their own program. This service to the public is now topic of discussion.

The area is grey and full of untrodden paths. In Portoroź 1989, the Tournament Directors (Jaap van den Herik and Jonathan Schaeffer) faced a formal protest by the Hegener + Glaser Company, owners of the Mephisto line of machines, against the program QUICKSTEP (see *ICCA Journal*, Vol. 12, No. 4, pp. 233-234). The evidence was overwhelming and the disqualification was unavoidable. However, science and business have progressed since then and it is no longer clear that cloned programs can be distinguished with the same accuracy as was possible more than ten years ago.

Over the years we have seen an impressive list of scientists. Moreover, we have seen Fidelity, Mephisto and Novag as supporters of computer-chess research. Currently we live in a world dominated by ChessBase. They claim to have the best software regarding playing strength and user friendliness. Still your Editor is looking forward to the next World Championship (WCCC 2002) and is hoping for a tough competition between a scientist and a business professional.

Jaap van den Herik