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### LOGIC AND META-KNOWLEDGE

Chess has spread its wings and now serves as a source of inspiration for many games. Chess-players have disseminated their knowledge and see their terminology used by other game communities. Chess-theoreticians have studied the books by Chéron and by Levenfish and Smyslov to introduce even newer concepts. Currently, they feel that they are overrun by machine learning techniques and computer power. Meanwhile serious computer-games researchers are broadening their scope, developing new concepts, and deepening the knowledge of how to formulate constraint logic that can be made suitable for a full range of games.

This issue of the Journal shows the reader the path upwards. The key words are Logic and Meta-knowledge. They bring the thinking on games at a higher level. Hendrik Jan Hoogeboom, Walter Kusters, Jan van Rijn, and Jonathan Vis apply logic to four different games, viz. Klondike, Mahjong Solitaire, Nonogram, and Don Shou Qi (Jungle Chess). Their scientific contribution is in the improvement of techniques and in a new result for Jungle Chess. In the section News and Reports we see the games Mahjong and Nonogram reoccurring: a framework for Computer Mahjong competition is presented and a report on the Nonogram tournament (Yokohama 2013) is published.

Advanced Meta-knowledge is described by Bo-Nian Chen, Hung-Jui Chang, Shun-Chin Hsu, Jr-Chang Chen, and Tsan-sheng Hsu in their article on Chinese Chess Endgame Knowledge Bases. By their new techniques, they found that 20 percent of a previously constructed body of endgame knowledge, consisting of over 120,000 material combinations, was erroneous. Clearly, research in that field will take many years before an error-free database has been constructed.

It is amazing and breathtaking how Guy Haworth time and again is able to collect, from all over the research world, the most intriguing new findings in solving chess endgames. It is a *mer à boire* and the *mer* turns out to be an ocean. His results on the 50- and 75- move rules are brand new and convincing. The ICCF (International Correspondence Chess Federation) has voted at its 2013 congress in Krakow on these rules. What rule should apply and when? The ICGA is aware of this discussion and the Board will think about its ruling for future computer-chess tournaments.

Dap Hartmann keeps us scientifically up to date by a well-written review of Pim Nijssens's Ph.D. thesis *Monte-Carlo Tree Search for Multi-Player Games*. Here we see the games: Chinese Checkers, Focus, Rolit, and Blokus. As Hartmann stated: "Much of this research was already published in several papers by Pim Nijssen and Mark Winands. It is a pleasure to see all of that now neatly combined into this first class thesis."

Reading all the new things in this issue, I think that Frederico Pistono's adage (and book) *Robots will steal your job and that's OK* does not apply to our researchers for the next twenty years. Yet, Pistono is a visionary man, with a broad knowledge and full of small jokes. I would like to invite the readers to send me their speculation on the end of the following story (from Frederico Pistono, personal communication, 19 September 2013), told from José Raul Capablanca's perspective.

"I was playing in a tournament in Germany one year when a man approached me. Thinking he just wanted an autograph, I reached for my pen, when the man made a startling announcement. 'I've solved chess!' I sensibly started to back away, in case the man was dangerous as well as insane, but the man continued: 'I'll bet you 1000 marks that if you come to my hotel room I can prove it to you.' Well, 1000 marks is 1000 marks, I humored to the fellow and accompanied him to his room.

"In the room, we sat down at his chess board. 'I've worked it all out, white mates in 12 no matter what.' I played black, perhaps a bit incautiously, but I found to my horror that white's pieces coordinated very strangely, and that I was going to be mated on the 12th move!

"I tried again, and I played a completely different opening that could not possibly result in such a position, but after a series of very queer-looking moves, once again I found my king surrounded, with mate to occur on the 12th move. I asked the man to wait while I ran downstairs and fetched Emanuel Lasker, who was world champion before me. He was extremely skeptical, but agreed at least to come and play. Along the way we snagged Alekhine, who was then world champion, and the three of us ran back up to the room.

"Lasker took no chances, but played as cautiously as could be. Yet, after a bizarre, pointless-looking series of maneuvers, he found himself hemmed in a mating net from which there was no escape. Alekhine tried his hand, too, but all to no avail.

"It was awful! Here we were, the finest players in the world, men who had devoted our very lives to the game, and it was all over! The tournaments, the matches, everything - chess had been solved, white wins. About this time Capa's friends would break in, saying 'Wait a minute, I never heard anything about all this! What happened?'"

As stated above the readers' completion of the story (i.e., their cliff hanger) is welcome and will be published in the section Correspondence (of course, depending on the quality). The Journal looks forward to receiving many visionary endings.

Jaap van den Herik

with gratitude to  
Frederico Pistono

The credits of the photographs in this issue are to: Jr-C. Chen, Shi-Jim Yen, and I-Chen Wu.

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