

## CHESS ENDGAME UPDATE

G.M<sup>c</sup>C. Haworth<sup>1</sup>

Reading, UK

John Nunn received the EGT for KRPKNP just in time to analyse the subtleties of the Kramnik-Topalov World Chess Championship Game 2 (Chessbase, 2006a) which saw the players trade a half point back and forth at moves 53b and 55w. In a demonstration of the power of the web-fuelled community, all 6-man endgame tables have now been promulgated to a considerable degree by Kyrill Kryukov's (2008) peer-to-peer initiative. Nunn (2009) is the first volume of his much anticipated second trilogy on the endgame: there is no-one better at discerning and distilling the themes which are key to good endgame play, attack or defense.

No sooner had the 6-man endgame tables been essentially completed than they were banned from the Kramnik-FRITZ contest (Chessbase, 2006b). Kramnik, like Kasparov before him, opted for a *Sanctuary Chess* variant of the game in which the machine could not use more than 5-man EGTs and could not even pursue a win in a theoretically drawn but challenging 5-man endgame. Had this event occurred, e.g., in KNNKP, KQPKQ, KRBKR or KRPKR, the audience could have been denied an exhibition of endgame mastery.

A legitimate form of forward-search is to work back from known facts. We may therefore anticipate future engines creating SHREDDER-style bit-tables and EGTs at runtime: Konoval's single-threaded code generates a KQPKQ DTC EGT in 10 minutes (Bourzutschky, 2009): a modification of the code working to the DTZ metric would allow parallelization at the level of 'fixed pawns' EGT-slices, doing KQPKQ in about one minute.

Haworth (2009) announced an algorithm to meet a longstanding requirement, the detection of value-preserving but time-wasting *dual* moves in studies. Bleicher and Haworth (2009) revisited the definition of *zugzwang* and discovered three new types of very rare *en passant enabled* zug. They mined sub-7-man chess EGTs for all zugs and posted the positions and statistics at ICGA (2007) under *Western Chess - Endgame*. Elkies contributed some zugs created by castling rights, and first CQL searches on the zug pgn-file highlighted some 5- and 6-man positions which were found to be dezugged by the addition of castling rights.

Beasley (2009) reports that Bourzutschky continues to generate 7-man Konoval DTC(onversion) EGTs, now with Pawns but with 7-man P=Q promotion only. A '~' on the EGT name here indicates this constraint. MaxDTC White win figures include those for KQNKRBN (517), KQNNKQB (272), KQNNKQN (282), KQPPKQP~ (222), KQBPQKB~ (138), KQBPQKN~ (123), KQNPQKB~ (191) and KQNPQKN~ (146). Bourzutschky intends to analyse all games and studies with significant sub-8-man play.

Bleicher and Haworth have used CQL, pgn2fen and the EGTs (Bleicher, 2007) to identify all studies in van der Heijden's remarkable database (2006) ending in the sub-7-man zone. This exercise raised questions about some 2,950 of the 67,691 studies, about half of which were already known to be flawed or mis-transcribed. In a further 2,485 win-studies, White was seen to play a non-optimal move indicating some sort of dual.

### References

- Bleicher E. (2007). <http://www.k4it.de/index.php?topic=egtb&lang=en>. EGT-query site.
- Beasley, J.D. (2009). More seven-man computer progress. *British Endgame Study News*, Vol. 14, No. 2, p427.
- Bleicher, E. and Haworth, G.M<sup>c</sup>C. (2009). 6-man Chess and Zugzwangs. *Proc. Advances in Computer Games 12*. Pamplona, Spain.
- Bourzutschky, M. (2009) Private Communication (February).
- Chessbase (2006a). <http://www.chessbase.com/newsdetail.asp?newsid=3362>. Topalov-Kramnik game 2 report.
- Chessbase (2006b). <http://www.chessbase.com/newsdetail.asp?newsid=3282>. The Kramnik-FRITZ match.
- Haworth, G.M<sup>c</sup>C. (2009). The Scorched Earth Algorithm. Presentation to the Endgame Circle, London
- Heijden, H. van der (2006). <http://home.studieaccess.nl/heijd336/home.html>. Study Database III in pgn format.
- Kryukov, K. (2008). <http://kirill-kryukov.com/chess/tablebases-online/> EGTs Online p2p initiative.
- Nunn, J. (2009). *Understanding Chess Endgames*. Gambit. ISBN-10 1-906454-11-6.

<sup>1</sup> The University of Reading, Berkshire, UK, RG6 6AH. email: [guy.haworth@bnc.oxon.org](mailto:guy.haworth@bnc.oxon.org).