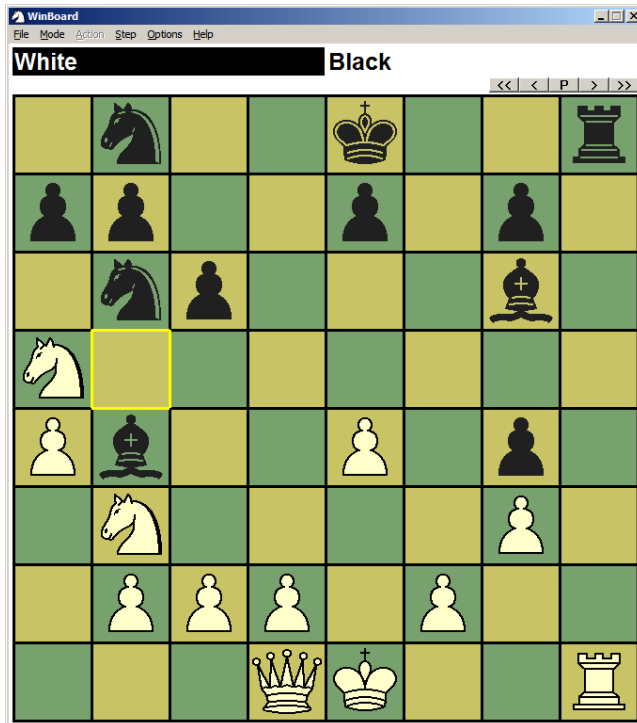# CHESS T' MINIT puzzle – December 2011

You need to prove that it is not possible in the position below (following normal and legal moves) for both White and Black to be able to castle.

(Peter Wong, 1984)

Solution:

- The black bishop on (square) b4 was promoted (pawns on e7 and g7)
- The promotion square had to be g1.
- To get to b4 the bishop had to move before the pawn which is now on g3 got there, and it needed to get there by g2-g3 move rather than capture
- Hence the g1 promotion move was a capture
- 4 white units (2 bishops, one pawn, one rook) have been captured, including the bishop at c1 which was captured at home.
- It must have been black's h pawn which was promoted as any other pawn would have required more captures than possible (the pawn on g4 required a capture)
- If the g1 promotion-capture was of whites QR, then the KR needed to move to allow it to get there, so white can't castle
- If the g1 promotion-capture was of whites KR, then the rook at h1 needed to move to get there, so white can't castle
- If the g1 promotion-capture was of another piece, this had to be a promoted white pawn. If both h pawns promoted, then they had to get out of each others' way. There are insufficient white missing pieces for black's h pawn to have made 3 captures, so white's h pawn has captured 2 or 3 times.
- If the pawn has captured twice: promotion was either at f8 or h8. If this is the case, then either the king has moved (f7 check) or the rook has moved (h8 promotion) so black can't castle
- If the pawn has captured three times: the pawn captured the missing Q, R and d-pawn, the latter promoting first. To promote, the d-pawn could capture only one available white piece, so it promoted on e1 and whites king must have moved (so white can't castle).