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A DATABASE AS A SECOND

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ABSTRACT

Chess endgame databases have provided computer-chess researchers with perfect knowledge of many endgames. Grandmaster play, however, has been largely unaffected by their existence. In the 1992 Linares tournament, Timman and Speelman adjourned a position which could lead to the KBBKN endgame. With the aid of publications on computer analysis of this endgame, Timman successfully prepared for the human-to-human confrontation and defeated Speelman. This contribution describes the background of the KBBKN endgame, the sequence of events which led to Timman's victory, and presents analyses of the grandmasters' performance.

1. BACKGROUND

More than a century ago, Kling and Horwitz (1851) published the first thorough study of the KBBKN endgame. Their analysis showed that in the position of Diagram 1, Black can hold out indefinitely against White's attacks. They concluded that King and two Bishops cannot win if the weaker side can obtain the position of Diagram 1. The essential feature of this position is the King and the Knight's making up a fortress near a corner of the board, it being crucial that the Knight is on b7; this essence is maintained upon reflection in one or both of the board's medial lines. Kling and Horwitz (1851) asserted that Diagram 1 and its reflections provided an exception, and that, Black failing to achieve Diagram 1, White was bound to win. Their false claim would stand unchallenged for 130 years to come.

In tournament practice the endgame, though rare, has occurred several times. In the match Tal'-Botvinnik (Moscow, 1961), Tal' achieved an adjourned game with two Bishops against a Knight (see Diagram 2). However, his opponent's King and Knight were not in a position to build the fortress with due speed and hence Botvinnik lost in accordance with the accepted wisdom of the times (Van den Herik, 1984).

A further serious and prolonged attempt to win with the two Bishops was made by IGM D. Bronstein playing IM J. Pinter in Budapest, in 1978 (Roycroft, 1988b). In spite of his efforts, Bronstein had to accept a draw declared after 50 moves of fruitless attempts. His opponent seemed to be well aware of the Kling-Horwitz position and reached it three times during his defence, at different corners of the board. Thus, the over-a-century-old analysis had withstood the attacks of a strong IGM.

In 1983 Ken Thompson (Thompson and Roycroft, 1983; Thompson, 1986) created an endgame database for the KBBKN endgame. Contrary to what the chess world was led to believe after Kling and Horwitz, Thompson showed that Black is not ultimately safe even in the Kling-Horwitz position. Rather, he found that the win was always for White with a few degenerate exceptions in which White speedily loses the use of a Bishop.

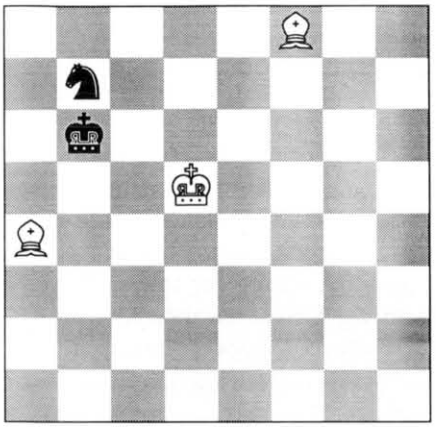

Diagram 1: The Kling-Horwitz position.

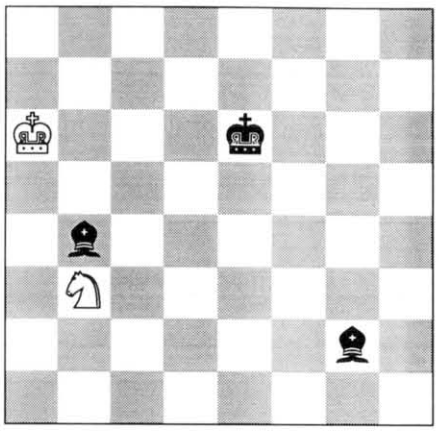

Diagram 2: Botvinnik-Tal', Moscow 1961.

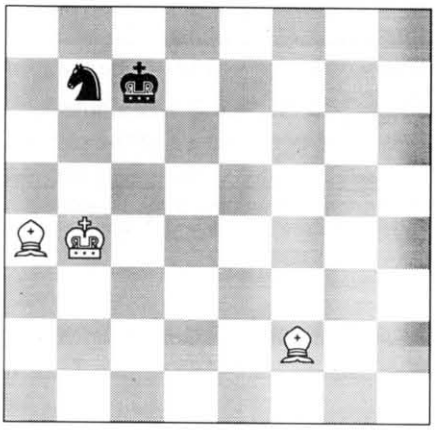

Diagram 3: BTM loses in 39 moves.

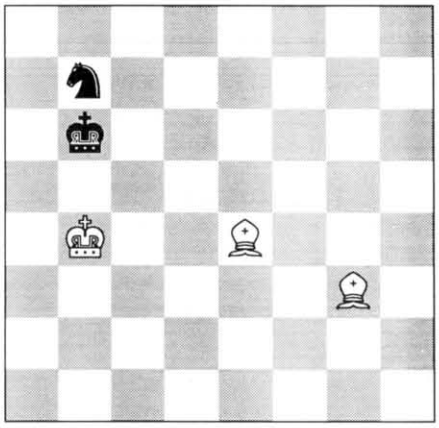

Diagram 4: BTM loses in 38 moves.

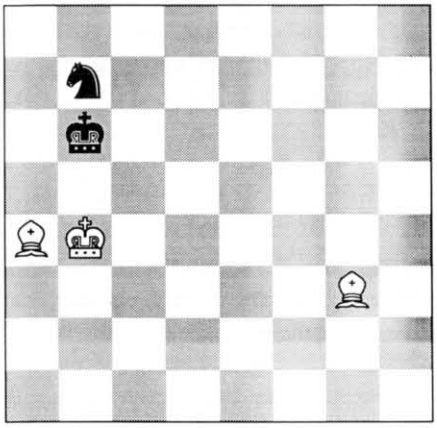

Diagram 5: BTM loses in 38 moves.

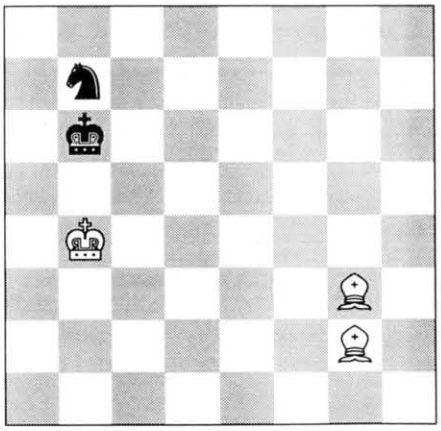

Diagram 6: BTM loses in 40 moves.

Evenso, it is a far cry from a computer enumeration of millions of positions to a coherent scheme for the Bishops to cooperate so as to defeat the lone Knight. Timman, aware of Thompson's database result, was one victim of the difference between knowing *the* result and knowing *how* to achieve it. The incident occurred during Timman's analysis of Popovich's game against Korchnoi in Sarajevo, 1984. The result of the game would have been crucial to Timman's own chances for the tournament's victory (Van der Wiel, 1984, p. 19). Timman was cognisant of Popovich's won position, but found himself unable to translate a proved win into a

winning line of play. The game ended in a draw, ultimately to Timman's disadvantage (Van den Herik, 1986).

John Roycroft, the chess-endgame specialist set out to master the patterns thought to be underlying the KBBKN database. The results of his efforts were published in Thompson and Roycroft (1983), Roycroft (1986a, 1986b, 1986c, 1988a, 1988b) and Michie and Bratko (1987a, 1987b). Briefly, he distinguished five phases in the process which would ultimately lead to mate or loss of the Knight. In the first phase, White seeks to lift any immobilization Black may have imposed on any of his pieces. In the second phase, Black retreats to the Kling-Horwitz position, in any of its reflected equivalents. The third phase consists of White manoeuvring the men into any of the BTM compulsory exits of the Kling-Horwitz position; the four known exits are shown in Diagrams 3, 4, 5 and 6. Phase four, the most difficult stage according to Roycroft (1988b), is "complex, fluid, lengthy and difficult". Black searches freedom, or a chance to reestablish the Kling-Horwitz configuration. White seeks to limit Black's freedom and ultimately is bound to push the black King to the edge of the board, near the corner, still accompanied by the Knight. In the fifth phase, the Knight has the options of leaving the King or staying in close proximity; the Knight is bound to be lost whatever the option exercised.

Thus matters stood early in 1992: games hinging on KBBKN had been played twice when aware of a faulty 1851 Kling-Horwitz analysis and analysed once in full awareness of Belle's correct and completely diverging results, though to little avail.

Against this background, the history of KBBKN was to have a chapter added to it on March 8-9, 1992. IGM Jan Timman played White against IGM Jonathan Speelman in round 10 of the Linares tournament. The game was adjourned in the position of Diagram 7. Clearly, Timman was able quickly to eliminate the two black Pawns against his last Pawn. Thus, from the adjourned position, the KBBKN endgame was to decide the game.

The sequence of events after the game was adjourned is described in Section 2. In Section 3, a computer-aided analysis is given of the second session of the game on March 9. In Section 4, the performance of the players is assessed, both from a computer standpoint, and the point of view of human players. Conclusions are mentioned in Section 5. A maximin variation of the first KBBKN position in the game is given in the Appendix.

2. THE SEQUENCE OF EVENTS

On the evening of March 8, Jan Timman was confronted by the position of Diagram 7, resulting from the moves listed below.

White: J.H. Timman
Black: J. Speelman
Linares, round 10.
1. d4 Nf6 2. c4 e6 3. Nf3 d5 4. Nc3 Nbd7 5. cxd5 exd5 6. Bf4 c6 7. Qc2 Be7 8. h3 O-O 9. e3 Ne4 10. Bd3 f5 11. O-O Bf6 12. b4 a6 13. Na4 Re8 14. Rab1 Nf8 of 15. Rfc1 g5 16. Bh2 Ng6 17. Nc5 h5 18. Nd2 g4 19. Nf1 Bh4 20. hxg4 hxg4 21. Nxe4 fxe4 22. Be2 Rf8 23. Ng3 Bd7 24. a4 Qg5 25. b5 axb5 26. axb5 Rxf2 27. Kxf2 Rf8+ 28. Ke1 Qxe3 29. Rb3 Qf2+ 30. Kd1 Qxd4+ 31. Qd2 Qxd2+ 32. Kxd2 Bg5+ 33. Kd1 Bxc1 34. bxc6 Bxc6 35. Kxc1 Rf2 36. Bf1 Nf4 37. Bg1 Ra2 38. Kb1 Ra8 39. Nf5 Rf8 40. Nh6+ Kg7 41. Bc5 Rd8 42. Nxg4 d4 43. Bb6 Rd7 44. g3 Ne6 45. Kc1 d3 46. Be3 Nd4 47. Rb2 Nf5 48. Bf4 Rd5 49. Kd2 Ra5 50. Ne3 Nd4 51. Bg2 Kf6 52. Nc4 Rc5 53. Nd6 Nb3+ 54. Ke3 Rc2 55. Nxe4+ Bxe4 56. Kxe4 Nc5+ 57. Kd5 Rxb2 58. Be5+ Kg5 59. Bxb2 Kg4 60. Bf1 b6 adjourned

It is clear that the adjourned position will convert quickly into the KBBKN endgame, in which Black can reach the Kling-Horwitz position in the g2 region. Recalling his experience with the unsuccessful analysis of Popovich's game, Timman decided to get in touch with Jaap van den Herik. He asked Van den Herik if he could send him as much material on the endgame as he had. Timman's hope was that the omniscience of the computer databases might teach him how to play the endgame well enough to defeat Speelman.

Van den Herik thus telefaxed over 40 pages of publications to Timman, such as Thompson and Roycroft (1983), Van den Herik and Herschberg (1987), Roycroft (1984, 1986a, 1986b, 1986c, 1988a) and Michie and Bratko (1987a). From then, it was up to the grandmaster to interpret the raw material (maximin position, optimal lines of play) and the conclusions by John Roycroft.

He held that he was now much more knowledgeable about this endgame than on the day before. As against this he also experienced some pressure on his now *having* to win, being instructed by the computer as he was. In the opponent's camp, IGM Nigel Short expressed himself trustful of Speelman's defensive capabilities,

predicting that Timman would not be able to exploit the 75 moves allotted to him to achieve a win. (We note that KBBKN is one of the endgames listed in article 10.9 of the FIDE rules, to which a 75-move rule instead of the normal 50-move rule applies.) IGM Nigel Short was most definitely off the mark: after 6 moves capturing the Pawns, only 25 moves sufficed to see Speelman resign.

Of course, this is not tantamount to proving that Timman had mastered the endgame, but it may be adduced as evidence that he had understood it rather better than had his opponent. After his win, Timman stated (quite fairly in our view) that he would not claim an ability to win the endgame against a computer program providing optimal counterplay. Such an opponent, he stated, would at least force him into a longer game, possibly even exceeding the 75-moves limit.

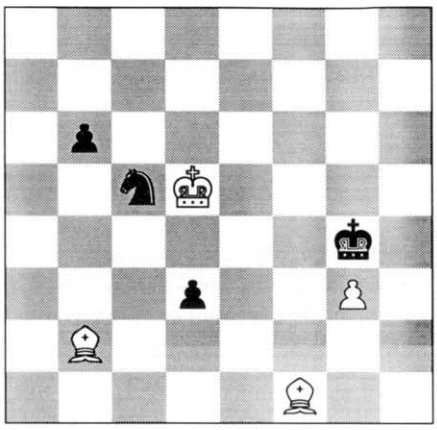

Diagram 7: The adjourned position.

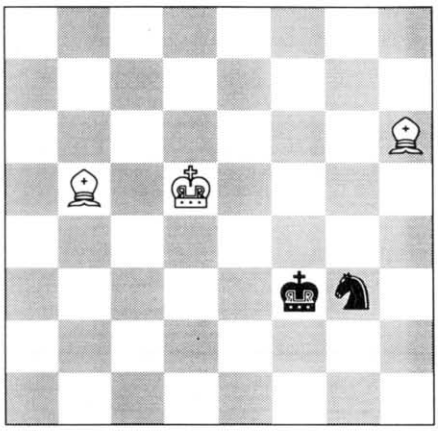

Diagram 8: Timman-Speelman after 66. Bxb5.

3. THOMPSON ANALYSIS

As stated before, the game resumed from the position of Diagram 7 led to Diagram 8 by the moves **61. Be5 Kf3 62. Bf4 d2 63. Bxd2 Ne4 64. Bh6 Nxg3 65. Bd3 b5 66. Bxb5** ending in a pure KBBKN endgame susceptible to analysis by the CD-ROM containing amongst others, that endgame's database as created by Thompson (1991).

For definiteness, we recall the five-fold graduation of White's aims as stated by Roycroft (1988b):

1. White lifts any constraints which may be imposed on him by Black; this may take up to 12 moves.
2. Black retreats, seeking refuge in one of the Kling-Horwitz positions; this phase may take up to approximately 8 moves.
3. White sets up one of the exits from the Kling-Horwitz position; Black is then forced out into the open; typically this phase lasts for 6 or 7 moves.
4. Black moves in an effort to gain full freedom of movement, to which he comes close were it not for White restraining him; White can and does prevent Black from achieving another Kling-Horwitz position; this may take some 23 moves.
5. The Knight is lost, regardless of whether it stays close to the King, or runs off. A dozen or so moves are required for a capture.

In the position of Diagram 8, neither of White's Bishops is under any constraint, nor can Black be prevented from reaching the Kling-Horwitz position in the g2 region. Therefore, White may skip phase 1 and can start with phase 2. Consultation of the database showed that this position can be won in 48 moves.

In the analysis of the following subsections we have included the distance to conversion or mate (DTC) in parentheses. The distance is defined as the number of white moves still to be made. Thus, an optimal white move will decrease the distance by 1. Suboptimal moves will not decrease or even increase the DTC. Optimal Black moves keep the DTC unchanged, while suboptimal moves decrease the distance.

All optimal moves are listed in square brackets, whether they are at variance with the text move or are merely equi-optimal with the text move, then necessarily among the optimal ones.

3.1. Phase 2: reaching a Kling-Horwitz position

In this phase, Black retreats gradually to a Kling-Horwitz position. Since the position can be achieved in all four quadrants, Black can make counterplay more difficult for his opponent by keeping his pieces centered as long as possible. White's errors, if any, may then be reacted to by a switch to another quadrant, lengthening the game.

66.	...	**Nf5!**	(48)	[Nf5]

The best move. The Knight had to make at least three moves to reach g2. If Black would have made any other move, White can prevent his reaching g2. For instance, 66. ... Nh5 67. Ke5 impeding 67. ... Nf4. As a consequence, all other moves would have shortened the DTC by at least 23.

67.	**Bf8**		(51)	[Bg5 Bd2]

The Bishop should have stayed in control of the f4 square to prevent Black from setting up a *pseudo-fortress* with 67. ... Kf4 (see Diagram 9). Roycroft (1988b) defines a pseudo-fortress as *a position with "summed distances" of 3 or 4 to two distinct Kling-Horwitz positions.* The summed distance is the number of moves to be made with both the Knight and King to reach a Kling-Horwitz position. In Diagram 9, the distance to both the g2 and g7 Kling-Horwitz positions is just 3, explaining the long DTC of 51.

67.	...	**Ne3+**	(47)	[Kf4]

Apparently Speelman is not familiar with the pseudo-fortress concept. Since he does know the Kling-Horwitz concept, he is eager to play the Knight to g2 as quickly as possible. His play does shorten phase 2, though.

68.	**Kd4**		(47)	[Ke5]
68.	...	**Ng2**	(46)	[Nf5+]

This concludes phase 2 (see Diagram 10). Even though the black King is not on f2 or g3, it can reach these squares any time desired.

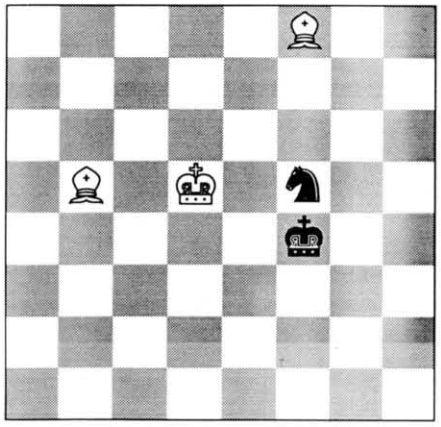

Diagram 9: A pseudo-fortress.

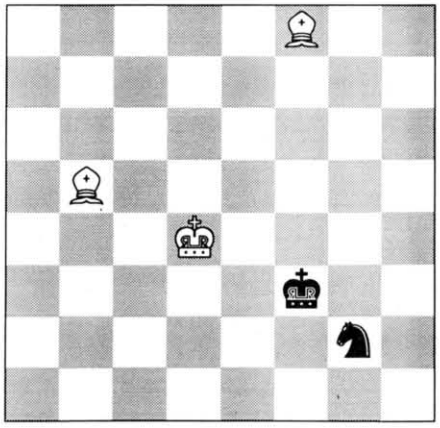

Diagram 10: End of phase 2.

3.2. Phase 3: extraditing Black from the Kling-Horwitz position

The Kling-Horwitz position has long been considered an impregnable fortress. Later, it was found that the fortress could be reduced, but it was then thought that the King driven out could, when thus forced into the open, reestablish the fortress in a symmetrically related position. Due to database research we now know that the fortress may be reduced and that a refuge in a similar fortress is not available. Accordingly, the aim of phase 3

is to expel the King from his fortress through known exits, characterized in advance.

69.	**Kd3?**		(53)	[Be7 Bd6 Bc5 Bb4 Bc6+]

69. Bc6+ is better. Speelman could have taken advantage of Timman's error by playing 69. ... Nf4+. Then White has five options, four of which are essentially different.

A. 70. Kd2 or 70. Kc3 is followed by 70. ... Ke4 71. Bg7 Kd5 and the black King is centered; effectively White must start phase 2 all over again.

B. 70. Kc2? Ne6! followed by 71. ... Nc4+ is a draw.

C. 70. Kd4? Ne6+ is a draw.

D. 70. Kc4 is White's best option as it prevents the black King from moving to d5. It can be followed by 70. ... Ke4 71. Bg7 Kf5.

However, Speelman seems anxious to stay in the Kling-Horwitz position.

69.	...	**Nf4+**	(53)	[Nf4+]
70.	**Kd2**		(56)	[Kc4]
70.	...	**Ng2?**	(44)	[Ke4]

Much better is 70. ... Ke4 71. Bg7 Kd5 72. Bb2 Kc5 73. Bf1 Ne6 74. Ke3 Kd5 75. Bg2+ Kc4 76. Bf6 Nc5, and Black has reached a pseudo-fortress. Speelman effectively does nothing, while Timman sets up the exit from the Kling-Horwitz position.

71.	**Bc6+**		(43)	[Bc6+ Be7]
71.	...	**Kf2**	(43)	[Kf2]
72.	**Bd6**		(44)	[Be7 Bc5+ Bb7]

This position resembles the fourth exit of the Kling-Horwitz position (see Diagram 6), although it has a somewhat longer DTC.

72.	...	**Nh4!**	(44)	[Nh4]

The best move. Every other move shortens the distance to conversion or mate by at least 37 moves. In these cases the difficult phase 4 would have been skipped altogether.

73.	**Bc5+**		(43)	[Bc5+ Kd3]
73.	...	**Kg3!**	(43)	[Kg3]

73. ... Kf1 is bad in view of a tempo move along the white main diagonal. E.g., 74. Bd5 and now:

A. 74. ... Ng2? 75. Bc4+ mate.

B. 74. ... Nf5 75. Be6 Nh4 76. Bh3+ Ng2 77. Kd3 (see Diagram 11) and Black loses his Knight.

C. 74. ... Ng6 75. Ke3 Ke1 (75. ... Nh4 76. Kf4) 76. Bc4 Nh4 77. Bb4+ Kd1 78. Be2+ Kc2 79. Bd3+ Kb3 80. Bd2 and the white King will capture the Knight in three more moves.

D. 74. ... Nf3+ 75. Ke3 Ng1 76. Bb4 Nh3 77. Be7 Ng1 78. Bh4 Nh3 79. Kf3 Ng1+ 80. Kg3 Ne2+ 81. Kh2! (see Diagram 12) and Black loses the Knight: 81. ... Nf4 82. Bc4+ Ne2 83. Kh3.

74.	**Bb6**		(48)	[Kd3]

Better is 74. Kd3 Ng2 (74. ... Kf4 75. Bd6+ Kg5 [75. ... Kf5 76. Bd7+ and the black King cannot move to e4] 76. Ke4) 75. Bb6.

74.	...	**Ng2?**	(40)	[Kf4]

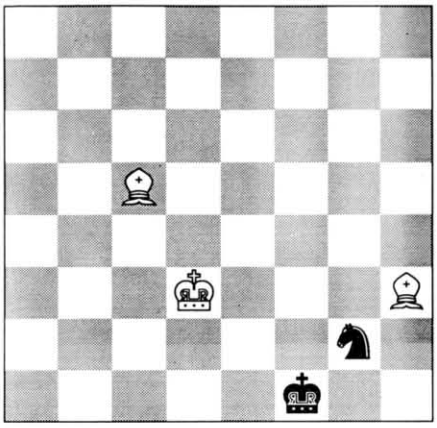

Diagram 11: Black is about to lose his Knight.

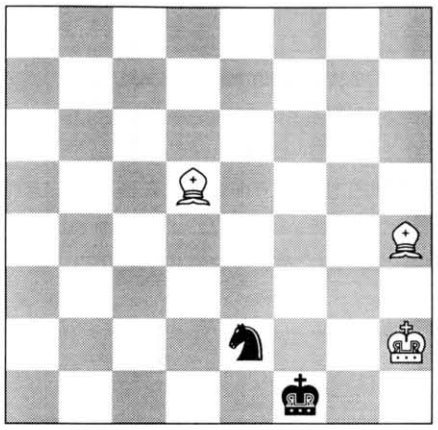

Diagram 12: Black is about to lose his Knight.

74. ... Kf4 is better: 75. Bc7+ Kf5 76. Ke3 Ke6 77. Ke4 Nf5 78. Bd5+ Kf6 79. Bd8+ Kg6 80. Ke5 Ng7 and Black has again reached a Kling-Horwitz position (see Diagram 13).

75.	**Bd5**		(41)	[Bc7+]
75.	**...**	**Nh4**	(37)	[Nf4]

75. ... Nf4 prevents Ke2 and attacks the white Bishop. Black has nothing to fear from 76. Bc7. After 76. ... Kg4 77. Be4 Ne6 78. Bd6 Kg5 79. Ke3 Kf6 80. Bc2 Ng7 Black seems almost to have reached a Kling-Horwitz position, but the illusion is dispelled in two more plies.

76.	**Ke2**		(36)	[Ke2]
76.	**...**	**Kf4**	(36)	[Kf4]

Black has been forced out of the Kling-Horwitz position (see Diagram 14), and cannot recuperate to a Kling-Horwitz position henceforth. This achieves the aims of phase three. The most difficult part, however, is still to come.

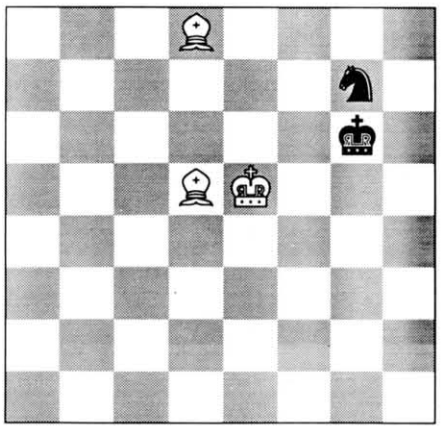

Diagram 13: Black reaches a Kling-Horwitz position.

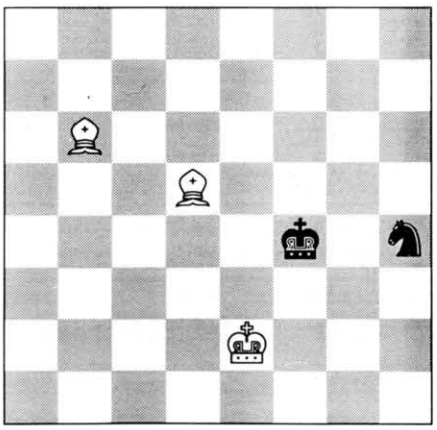

Diagram 14: End of phase 3.

3.3. Phase 4: trapping Black at the edge

In phase four, White must force Black to the edge, without allowing him to reach another Kling-Horwitz position. The notion of progress in this phase is quite difficult to define. Many pitfalls exist where all progress can be immediately lost by one inaccurate move.

77.	**Bb3**	(35)	[Bb3 Ba2 Bc7+]

77.	...	**Nf5**	(33)	[Ng6]

Black has set up a pseudo-fortress. In this case, however, careful white play can prevent Black from reaching the g2 or g7 Kling-Horwitz position. The white King can control g2, while the Bishops prevent the Knight from reaching g7 safely.

78.	**Bc7+**		(32)	[Bc7+]

Now Black cannot put the white King off-side by playing 78. ... Ke4 because the Knight is lost after 79. Bc2+.

78.	...	**Kg5**	(31)	[Kg4]
79.	**Be5**		(30)	[Be5]

An important move. It prevents Black from reaching the Kling-Horwitz position at g7 with 79. ... Ng7.

79.	...	**Kg4**	(30)	[Kg4 Ne7]

After 79. ... Kg6 White should play 80. Bc2+ to prevent Ng7.

80.	**Bc2**		(31)	[Kf2]
80.	...	**Ng3+**	(29)	[Nh4 Ne7]
81.	**Kf2**		(28)	[Kf2]
81.	...	**Nf5**	(28)	[Nf5]
82.	**Bd1+**		(27)	[Bd1+]
82.	...	**Kg5!**	(27)	[Kg5]

The best move. After 82. ... Kh4 83. Bf6+ Kh3 84. Bd8 Ng3 85. Kf3 Black's position is cramped.

83.	**Kf3**		(26)	[Kf3]
83.	...	**Nh4+**	(25)	[Ne7]
84.	**Ke4**		(24)	[Ke4]
84.	...	**Nf5**	(24)	[Nf5]
85.	**Ba4**		(26)	[Bc2]

85. Bc2 is slightly better. It prevents 85. ... Kg6 by 86. Kf4.

85.	...	**Ne7**	(22)	[Kg6]

85. ... Kg6 is better: 86. Be8+ Kg5 87. Bd7 Ne7 88. Be6 Ng6 89. Bc3.

86.	**Bd7**		(25)	[Bc3]
86.	...	**Ng8**	(25)	[Ng8]

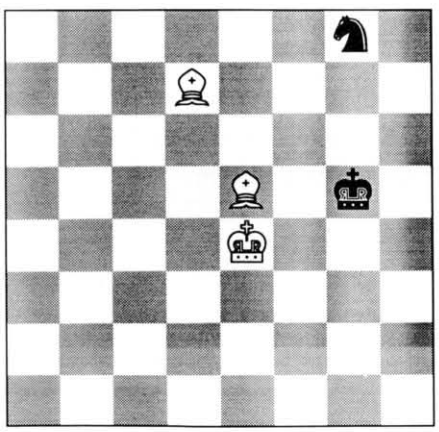

Diagram 15: Timman-Speelman after 86. ... Ng8.

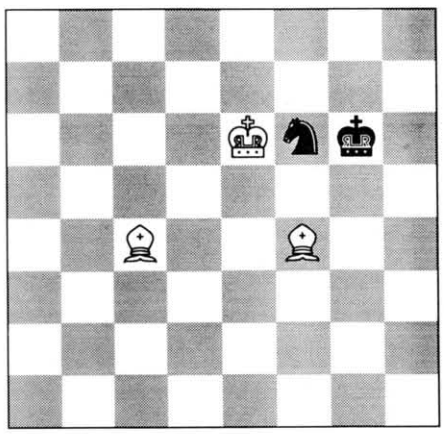

Diagram 16: Speelman resigns.

87.	**Bf4+!**		(24)	[Bf4+]

The text move is the only move from the position of Diagram 15. All other moves allow Black to reach the Kling-Horwitz position and thus lengthen the DTC by 22 moves or more.

87.	**...**	**Kg6**	(19)	[Kf6]

87. ... Kf6 is better. It temporarily prevents the white King from getting closer with 88. Ke5.

88.	**Ke5**		(18)	[Ke5]
88.	**...**	**Nf6**	(18)	[Nf6]
89.	**Bb5!**		(17)	[Bb5 Ba4]

The Bishop was attacked and had to move. Since White wants to play this Bishop to the a2-g8 diagonal at the next move, only 89. Bb5 and 89. Ba4 are good moves. All other moves throw away all the progress White has made, since Black can then just reach the safety of the Kling-Horwitz position.

89.	**...**	**Kf7**	(17)	[Kf7]
90.	**Bc4+!**		(16)	[Bc4+]

A crucial moment. Timman could have played many wrong moves. 90. Be2 is slightly worse than 90. Bc4+. 90. Kf5 lengthens the DTC by 11 moves. All other moves allow Black to reach the Kling-Horwitz position and DTC increases by at least 27 moves. A possible variation is 90. Bd3? Nh5 91. Bd2 Ng7.

90.	**...**	**Kg6**	(16)	[Kg6]

90. ... Ke7? looses after 91. Bg5, while after 90. ... Kg7 91. Kf5 Nh7 92. Be5+ Kh6 Black's position is cramped.

91.	**Ke6!**		(15)	[Ke6]

There are two other good moves: 91. Bd3+ and 91. Bb5. Both moves prevent Black from playing his Knight to g7. All other moves lengthen the DTC by at least 28 moves. For instance 91. Bb3? Nh5 92. Be3 Ng7 and Black has reached a Kling-Horwitz position.

After the text move, Speelman resigned (see Diagram 16). One can argue that his resignation is a bit early, since capturing the Knight is still 15 moves off. Given the way Timman has played the fourth and most difficult phase, however, it is likely that Speelman was convinced of Timman's ability in the final phase.

The analysis of the next subsection shows how the Knight can be captured, starting from the position of Diagram 16.

3.4. Phase 5: capturing the Knight.

If Speelman would have tried forcibly to reach the Kling-Horwitz position, the Knight is lost quickly.

A. 91. ... Nh5 92. Bd3+ Kg7 93. Bd6 Kh6 94. Kf5 Ng7+ 95. Kg4 and Black is bound to lose the Knight (see Diagram 17), e.g., 95. ... Ne8 96. Bf8+ Ng7 97. Kf4.

B. 91. ... Ne8 92. Bd3+ Kh5 (92. ... Kg7 93. Ke7) 93. Kf7 Kg4 94. Be5 and again the Knight is lost.

However, better alternatives exist. In Ligterink (1992) the following variation was presented.

91.	...	Ng4	(15)	[Ng4]
92.	Be2		(14)	[Be2 Bd2 Bb5 Bd5]
92.	...	Nh6!	(14)	[Nh6]

The only move to keep the Knight close to the King. Both 92. ... Nf6? 93. Bd3+ Kg7 94. Be5 and 92. ... Kh5? 93. Kf5 Kh4 94. Bg5+ lose the Knight.

93.	Bd2		(13)	[Bd2 Be3 Bc1 Bf3 Bd1]

...	Kg7	(11)	[Ng8]
Bh5		(12)	[Bd3]

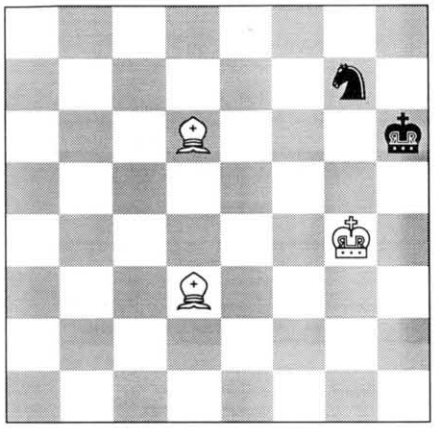

Diagram 17: Black is about to lose his Knight.

Better is 94. Bd3 Ng8 95. Bc3+ Kf8 96. Bg6 Nh6 97. Bh5 Ng8 98. Bd4 Nh6 99. Kf6 Ng8+ 100. Kg6 Ne7+ 101. Kh7 Nf5 102. Bc5+ Ne7 103. Kh6!.

94.	...	Ng8	(12)	[Ng8]
95.	Be3		(11)	[Be3 Bc3+]
95.	...	Nh6	(8)	[Nf6 Kh7]

Better is 95. ... Nf6 96. Be2 Ng8 97. Bd3 Nh6 98. Bd4+ Kf8 99. Bg6 Ng8 100. Bh5 Nh6 and the position after 98. ... Nh6 in the variation of 94. Bd3 above is reached.

96.	Bd4+		(7)	[Bd4+]
96.	...	Kh7	(7)	[Kh7]
97.	Be2?		(13)	[Kf6]

Much better is 97. Kf6 reaching the position after 100. Kf6 as in the maximin variation at the end of this section.

97.	...	Kg8?	(6)	[Kg6]

Much better is 97. ...Kg6 98. Bf6 Ng8 99. Bd3+ Kh6 100. Bh4 Kg7 101. Bf2 Nh6 102. Bd4+ and the position after 98. Bd4+ in the variation after 95. ... Nf6 is reached.

98.	Kf6		(5)	[Kf6]
98.	...	Kh7	(5)	[Kh7 Kf8]
99.	Bd3+		(4)	[Bd3+]
99.	...	Kg8	(4)	[Kg8]
100.	Kg6		(3)	[Kg6]
100.	...	Ng4	(3)	[Ng4]
101.	Bg7		(2)	[Bg7 Be2 Bf5]
101.	...	Ne3	(2)	[Ne3]
102.	Be4		(1)	[Be4]

Black is mated on the next move.

The optimal defence for Black takes slightly longer than in the previous analysis. A maximin variation from the position of Diagram 16 is given below.

91. ... Ng4 92. Be2 (Bd2 Bb5 Bd5) Nh6 93. Bd2 (Bc1 Be3 Bd1 Bf3) Ng8 94. Be3 (Bb5) Nh6 95. Bb5 Ng8 (Ng4 Kg7) 96. Bd4 Nh6 (Kh5 Kg5) 97. Be8+ Kh7 98. Bh5 Ng8 99. Kf7 Nh6+ 100. Kf6 Ng8+ 101. Kg5 Ne7

102. Bf3 Kg8 103. Kf6 Nc8 104. Bc5 Kh7 (Kh8) 105. Bb7 (Bg4) Na7 (Nb6 Nd6 Ne7 Kh8 Kh6 Kg8) 106. Bxa7.

4. TIMMAN's AND SPEELMAN's PERFORMANCE ASSESSED

Let us first consider some statistics. The KBBKN endgame lasted 25 moves. Both grandmasters played several suboptimal moves. If they are classified as errors, the error rate is: Timman 10, Speelman 11. However, this is a crude assessment indeed. Let us analyse more closely then, say by the plans Roycroft recognized.

In phases two and three, moves 66 to 76, Timman made 7 suboptimal moves. Two of these, 69 and 74, would have meant major setbacks against a perfect adversary. Being a human adversary, Speelman responded once by a suboptimal countermove so that after the move incriminated the DTC decreased nevertheless. The Grandmasters' play may be loosely paraphrased as we grant that Timman deviated from optimality, but we know that Speelman also deviated, even more tellingly in return. The relatively large number of Timman's suboptimal moves in the first two phases seems to indicate that Speelman had the edge in that part of the game.

Turning to the fourth and most difficult phase, comprising fifteen moves, Timman played suboptimally (i.e., delaying the end) on three occasions, whereas Speelman hastened the end on six occasions.

Summarizing, one can fairly conclude that both players had concentrated on parts of the required strategy. Timman, for his part, had concentrated on building up the pressure to force Speelman out of the Kling-Horwitz position. In spite of three minor slips, the pressure was increased to the point of forcing Black into a breakdown. Speelman concentrated on achieving the Kling-Horwitz position. When he had found that a Kling-Horwitz position was not reachable, he abandoned his resistance.

By hindsight, it is doubtful whether Speelman and Timman met in a common challenge. Speelman was not a true competitor where Timman was weakest. Instead of resisting moves to confine him to the Kling-Horwitz position, he submitted to being confined. In some ways, the match was not therefore a challenge between equals and the question thus remains open whether Timman could have won the game against a perfectly playing omniscient program.

5. CONCLUSIONS

A few tentative conclusions are proffered.

- An endgame database, the results of which have been analysed by Roycroft, has enabled Timman to prepare a KBBKN endgame and to win it against Speelman.
- The conclusion must be qualified by finding that
  - •• in phases two and three Speelman offered little resistance, while
  - •• Timman's play in the fourth, most difficult and decisive phase was nearly perfect,

  this in spite of 40 percent of Timman's moves being suboptimal.
- In at least the present instance and, we expect, in many more instances to come, a grandmaster can fully rely on a second as knowledgeable as a database program when made fit for human consumption by a human expert.

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APPENDIX

A maximin variation (from Diagram 8):

66. ... Nf5 67. Bg5 (Bd2) Ne3+ 68. Kd4 (Ke5) Ng2 69. Bc6+ (Ba4 Bc4 Bf6 Be7 Bd8) Kg4 (Kf2) 70. Bd8 (Bf6 Be7) Kg3 71. Bc7+ (Bb6 Ba5 Be7 Bf6 Bd5 Be4 Ke4 Kd3) Kf2 72. Kc3 (Bb6) Ne1 (Nh4) 73. Bb6+ Kg3 74. Kd2 Ng2 75. Bc7+ Kf2 76. Bd5 Nh4 77. Bb6+ Kg3 78. Ke2 Kf4 79. Bb3 (Bc7+ Ba2) Ng6 80. Bc7+ Kf5 81. Bc2+ Kf6 82. Bd8+ Kf7 83. Ke3 Ne7 84. Bb3+ Ke8 85. Bc7 Kd7 86. Bf4 Kc6 87. Kd4 Kd7 88. Bh2 (Bd1) Nf5+ 89. Ke5 Nd6 90. Bg3 Kc6 91. Bd5+ Kd7 92. Bf3 Nb5 93. Bf2 (Bf4 Bh4 Be1) Nc3 94. Be3 Nb5 95. Bh5 Nc7 96. Bd1 Na6 (Na8) 97. Ba4+ Kc7 98. Be8 Nb8 (Nb4) 99. Kd5 Nd7 100. Bf4+ Kd8 101. Bg6 Ke7 102. Bg5+ Kf8 103. Bf5 Ke8 104. Bg4 Nf8 105. Bh5+ Kd7 106. Bd2 Kc7 107. Ba5+ Kd7 108. Ke5 Nh7 (Kc8) 109. Bd2 Nf8 (Kd8) 110. Bb4 (Kf6) Nh7 111. Kf5 Kc6 112. Kg6 (Bg6 Be2) Kb5 113. Be7 Kc6 (Ng5 Nf6 Nf8+ Ka6 Ka4 Kc4 Kb6 Ka5) 114. Kxh7

Note that the position after 78. ... Kf4 actually occurred in the Timman-Speelman game, viz. after 76. ... Kf4.

GRANDMASTER JAN TIMMAN PUSHING HIS BRAINS.

A two Bishops' win made him second in Linares (1992).

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