

# The TCEC18 Computer Chess Superfinal: a perspective

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## 1 THE TCEC18 PREMIER DIVISION

This season's Premier Division hinted at surprises but somehow still managed to deliver the same finalists as in Season 17! This time, STOOFVLEES got off to a flying start, notching up five smooth early wins. This was surprising as it had not been updated from Season 17. However, by the time the second double round-robin started, an until now becalmed STOCKFISH had warmed up and surged into the lead with a series of powerful wins. Its magnificent win against ALLIESTEIN – the best game of Division P by far – in which it followed up a pretty but not too difficult double exchange sacrifice with some astonishingly precise play in a QB vs QR endgame, was a stark warning of what its SuperFinal opponent would have to endure!

Meanwhile, STOOFVLEES was falling away after a bad loss to ROFCHADE and an endgame blunder in a drawn position against LEELA. That fortunate win gave LEELA the edge in the race for second place against the impressive ALLIESTEIN, and second place was more or less settled once KOMODO (yet again) ruined ALLIESTEIN's chances with a fantastic win on the White side of the Advance Caro-Kann.

From the results in Division P, it seemed to me that STOCKFISH was a slight favourite: LEELA looked very solid, but lacked a cutting edge whereas STOCKFISH looked awesome with the initiative. Of the other engines an honourable mention goes to newcomer ROFCHADE which recovered from a disastrous start to acquit itself respectably in this very tough tournament.

## 2 THE TCEC18 SUPERFINAL

The long-awaited rematch between Season 17 champion LEELA CHESS ZERO and STOCKFISH ended in a convincing 53.5-46.5 victory for STOCKFISH, winning 23 games to LEELA's 16. Going into the match, it was clear that STOCKFISH was in great shape – the STOCKFISH developers had produced updates for STOCKFISH between Div P and the SuperFinal at a furious pace - and was going to win plenty of games with its exceptional tactical vision. The key to the match was going to be STOCKFISH's defence with the Black pieces: would it manage to resist the LEELA squeezes in openings like the French, Benoni and King's Indian? As it turned out, the attritional STOCKFISH defence of old – which had been fallible in Season 17 - was back in business! Although STOCKFISH did lose some squeezes, it also held some very ugly-looking Frenches while its play on the Black side of the King's Indian seemed much improved: at times it looked like a proper King's Indian player!

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For all that, the match was reasonably close until the half-way stage but - just as in Season 17 - a burst by the eventual winner stretched the gap to a clear margin.

As always, Jeroen Noomen's opening book for the SuperFinal attracted much interest and comment. The book was somewhat sharper than in Season 17 and delivered a huge amount of excitement and spectacle! Congratulations! And a big thank you as well to all the TCEC volunteers who make this event such a pleasure to watch. The saga of STOCKFISH against the NNs is a fascinating never-ending drama and the TCEC format is a wonderful way to follow and be part of it!

After a quiet first couple of games, the SuperFinal burst into life with the King's Indian.

**Games 3 and 4. 1.d4 Nf6 2.c4 g6 3.Nc3 Bg7 4.e4 d6 5.Nf3 0-0 6.Be2 e5 7.Be3 Nc6 8.d5 Ne7.** This was the last move of the TCEC book and gives White the opportunity to set up an ideal anti-King's Indian piece structure with 9.Nd2: an opportunity that both engines took. **9.Nd2**, Fig. 1a, after which the White bishops are ideally-placed:

1. The light-squared bishop stops ...Nh5 and ...Ng4 and also supports an advance of the White kingside pawns with g4 and h4-h5,
2. The dark-squared bishop supports the c5 break, and
3. the knight on d2 is perfectly placed to join in an attack on d6 with Nc4 after c5.

It's hardly a winning advantage but White has got all it wants from the first nine moves. It's the reason Black normally plays a move like 7...Ng4 to prevent White from establishing this structure rather than 7...Nc6.

Both engines were exceedingly impressive from this position in their own ways: LEELA gained space on the kingside and then squeezed on the queenside, while STOCKFISH unleashed a bewildering series of tactics. The one worrying thing from the STOCKFISH point of view was how quickly its defence collapsed as Black - 46 moves! This did not seem to augur well for its chances in the slower openings.

**Games 5 and 6.** This worry was alleviated by the very next mini-match where STOCKFISH as Black managed to hold this French Winawer disaster without ever looking seriously troubled, see for example Fig. 1b.

In the reverse, STOCKFISH simply took pieces as LEELA struggled to get freedom for its pieces and took a lead it was never to relinquish! This lead was extended in the following game which was one of the two absolute gems of the SuperFinal! The analysis could easily fill tens of pages so forgive me if I just give a small summary!

**Game 8. 1.d4 d5 2.c4 c6 3.Nf3 e6 4.Nc3 dxc4 5.Bg5 f6**, a very risky move which neither Ruslan Scherbakov nor Mikhail Krasenkow - two big experts on the Triangle System - approve of. **6.Bd2 b5**, the last move of the TCEC book.

**7.a4.** The rare move 7.e4 was chosen by LEELA in its White game ... 7...a5 8.a4 Bb4 9.axb5 Bxc3 10.Bxc3 cxb5 11.Nh4 g6 12.b3 f5 - amazing play from STOCKFISH! Only pawn moves! 13.d5 Qxh4 14.Bxh8 Qxe4+ 15.Be2 Qxd5 16.bxc4 Qxd1+ 17.Bxd1 b4 ½-½ after 71 moves. After 17 moves, all the pieces are either on the 1st or 8th rank! Black has to be careful of White's two bishops but STOCKFISH held this without any difficulty.

**7...b4 8.Ne4 f5**, a fighting move from LEELA. With its position already full of weakness, it puts everything on active counterplay. **9.Ng3 Nf6 10.e3 Ba6 11.Be2**, a clever move. By delaying the attack

on c4, White challenges Black to find a mode of development that is both natural and also gives the opportunity to fight for the defence of the c4–pawn when White finally chooses to attack it in concerted fashion. LEELA reacts in a very aggressive way! **11...c5 12.dxc5 Nbd7**. The maximalist approach: once the knight reaches c5, it turns the c4–pawn from a weakness into a provider of outposts on b3 or d3. **13.c6**. The pawn on c6 takes away - shogi-style - the escape square on d7 from the Black king. This will be important later! **13...Nc5 14.Nd4 f4**. Again, LEELA is trying to extract the maximum from its position.

14...g6 was a more solid alternative, removing options from the knight on g3 and preparing to drive away the d4-knight with ...e5. 14...Qd5 and 14...h5 are other alternatives. 15.0–0 e5 16.Nc2 (16.Nb5 Nb3 17.Qc2 Bxb5 18.axb5 Qxd2 19.Rxa7 Rxa7 20.b6 Bd6 21.Qxc4 Qd5 22.bxa7 Ke7 23.Qxd5 Nxd5 24.Bc4 Nd2 25.Bxd5 Nxf1 26.c7 Nxc3 27.hxc3 Bxc7 28.a8Q Rxa8 29.Bxa8 ½–½ (36) *STOOFVLEES II A13 – STOCKFISH 11 2020 were the amazing tactics in one of my engine games!*) 16...c3 17.Bxa6 Nxa6 18.bxc3 b3 19.Nd4 exd4 20.exd4 b2 21.Rb1 Be7 22.Bh6 Kf7 23.Rxb2 turned out well for White in another of my engine games, but the position is very unclear.

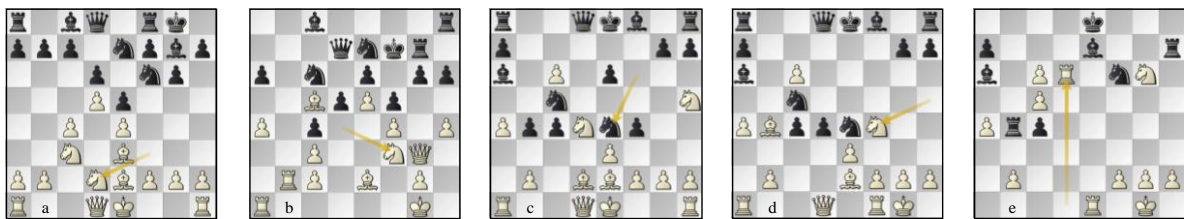


Fig. 1. (a) game 3 position 9b; (b) game 5 position 24b; game 8 positions (c) 16w, (d) 18b and (e) 26b.

**15.Nh5 Nfe4**, see Fig. 1c. 15...f3 was suggested by a TCEC viewer in the comments to my and Natasha's video on this game (Sadler and Regan, 2020a/b). It is an interesting idea. 16.Nxf6+ Qxf6 17.Nxf3 Nb3 18.Bc3 Qd8 (18...bxc3 19.Qd7#) 19.Bd4 Nxa1 20.Qxa1 is a clear advantage for White according to my engine, but it doesn't look 100% clear to me. **16.0–0 e5**. All in! d4 is hanging, the knight on h5 has no squares (and is thus vulnerable to ...g6) and the bishop on d2 is attacked too. **17.Bxb4 exd4 18.Nxf4**, Fig. 1d, an astonishing position! Judging from STOCKFISH's analysis it seems to be a clear to decisive advantage, but only STOCKFISH can show how!

**18...Rb8**, adding to the confusion by attacking an extra piece. I spent a lot of time on this position and ran a lot of engine games. The conclusion: as long as STOCKFISH was with you, White was always winning!

18...d3 19.Bh5+ g6 20.Nxc6 hxc6 21.Bxc6+ Ke7 22.Qf3 Kd6 23.Qxe4 Qh4 24.f4 Rd8 25.Bxc5+ Kxc5 26.b4+ Kb6 27.Qe5 Bxb4 28.Rab1 Qxh2+ 29.Kf2 Qh4+ 30.Kf3 was curtains for Black in one of my engine games. 1–0 in 39 moves, STOCKFISH 11 -STOOFVLEES II A13 2020.

18...Qf6 was the line I was looking at but it seems to fall short. 19.Nd5 Qxc6 20.Bh5+ g6 21.Qxd4 Rg8 22.Bxc5 Nxc5 23.Bf3 0–0–0 24.Rfd1 It doesn't look that bad for Black but Black cannot sit still or White will follow up with Rac1 and b2–b4, blasting open the queenside. Unfortunately, there doesn't seem to be anything to do that doesn't lose material. For example, 24...Bd6 25.Nb4 Bxh2+ (25...Qc7 26.Qg4+ Rd7 27.Nxa6 Nxa6 28.Rxd6 Qxd6 29.Qxc4+ forking the king on c8 and the rook on g8 is the great tactic!) 26.Kxh2 Qc7+ 27.Qf4 Qxf4+ 28.exf4 is a clear White advantage.

18...Nb3 also leads to unfathomable complications that again scored very heavily for White in my engine games. 19.Bh5+ g6 20.Qg4 Bxb4 21.Bxg6+ hxg6 22.Qxg6+ Ke7 23.Qxe4+ Kf7 24.Qg6+ Ke7 25.c7 Qg8 26.Qc6 d3 27.Nd5+ Kf7 28.Qxa6 Qg5 29.Nxb4 Nd2 30.Qc6 Rag8 31.Rfd1 Rxb2 32.g3 Rgh8 33.c8Q Rxc8 34.Qxc8 Nf3+ 35.Kf1 Qh5 36.Qxc4+ Kg7 37.Qc7+ Kh6 38.Qc6+ Kh7 39.Qb7+ Kh6 40.Qa6+ Kg7 41.Qxa7+ Kh6 42.Qa6+ Kg7 43.Qb7+ Kf8 44.Nxd3 1–0 in 50 moves. STOCKFISH 11 -STOOFVLEES II A13 2020.

**19.exd4 Rxb4 20.Re1.** Two pieces down, a quiet move! **20...Be7 21.Bh5+ g6 22.dxc5 Qxd1 23.Raxd1 Nf6.** If you asked me to assess this position in a flash, I'd approve of Black's last move - covering d5 - and thus stopping Nd5 - and assume that White had overstepped the mark! For STOCKFISH however, the position is easily winning! **24.Bxg6+ hxg6 25.Nxg6 Rh7.** I didn't see why this was so good during the game. White's next move is astonishing: **26.Rd6,** Fig. 1e, the key to the whole combination and simply superhuman! The rook attacks the knight on f6. Once White plays Rxf6, then Rf8 is mate on the following move. White also threatens c7, with the idea of both Rxa6 (when the c-pawn is threatening to queen) and Rd8+. Black is two pieces up in a queenless middlegame, his own pieces are reasonably active, and yet Black seems totally helpless! Witchcraft!

**26...Ne4. 26...Kf7 27.Nxe7. 27.Rxe4 Rxb2 28.h3 c3 29.Rf6.** Amazing that White has time for such a move with the c-pawn racing forwards but Rf8# is the threat! **29...Kd8 30.Nxe7 Rxe7 31.Rf8+ Kc7 32.Rxe7+ Kxc6 33.Rf6+ Kd5 34.Re3 Rb1+ 35.Kh2 c2 36.Rc3 Bd3 37.Rd6+ Ke4 38.Rdxd3 c1Q 39.Rxc1 Rxc1 40.Rd7 a5 41.Rf7 Rxc5 42.g4 Kd5 1–0.**

**Games 13 and 14.** When STOCKFISH picked up a win in game 9, a King's Gambit piece sacrifice variation, the lead had grown to three and we entered a frustrating period of the match for LEELA fans. LEELA would win a great game with White to close the gap, and then would be unable to hold the reverse. It started with the Modern in games 13 and 14.

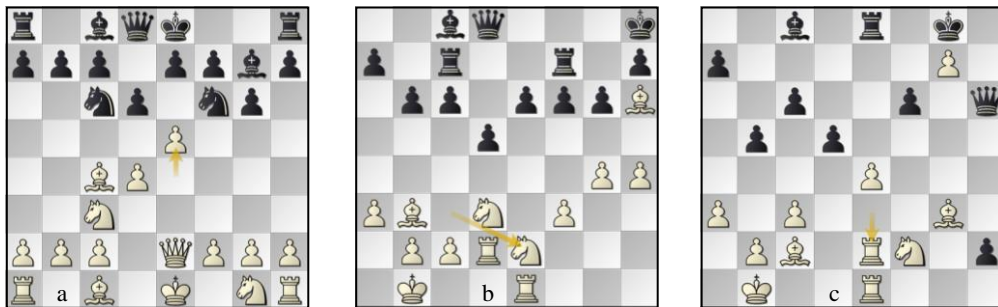


Fig. 2. Game 13, positions (a) 6b, (b) 23b and (c) 41b.

**1.e4 g6 2.d4 Bg7 3.Nc3 d6 4.Bc4 Nf6 5.Qe2 Nc6 6.e5,** Fig. 2a. This line was specified by the TCEC book - quite an evil choice by Jeroen Noomen because it asks the engines whether they are willing to give up three pieces for the queen! STOCKFISH took the bait - it always values the queen more highly than pieces - but was ground down beautifully by LEELA. **6...Nxd4 7.exf6 Nxe2 8.fxc7 Rg8 9.Ngxe2 Rxc7 10.Bh6 Kf8 11.0–0–0.** LEELA isn't interested in the rook: the rook will find it very hard to get active if LEELA gets its pieces placed right. **11...c6 12.Bb3 Kg8 13.h4 d5 14.Nf4 Kh8 15.f3 Bd7 16.Rhe1 e6 17.g3 Rc8 18.Rd2 Rc7 19.Nd3 Bc8 20.a3 f6 21.g4 Rg7 22.Kb1 b6 23.Ne2,** Fig. 2b.

It's not easy to understand why or how, but LEELA is managing to place its pieces in such a way that STOCKFISH doesn't dare move any of its other pawns to the 4th rank. When it finally does so, its position is broken apart. **23...b5 24.Be3 e5 25.Ng3 h6 26.Rde2 Kg8 27.Bc5**, starting to settle its pieces on invulnerable outposts. **27...Rce7 28.g5**. For the second time in the game, LEELA refuses to give up its dark-squared bishop for a Black rook. **28...Re6 29.h5 gxh5 30.gxh6 h4 31.Nf5**. Next to c5, the f5 square has been secured for the knight. It's still extremely complicated but it's clear White is making much more progress than Black. **31...h3 32.c3 Qc7 33.Bc2 e4 34.Nf2 Qe5 35.Ng7 Rxc7 36.hxg7 Qh5 37.fxe4 h2 38.Re3 Re8 39.Bd6 Qh4 40.Bg3 Qh6 41.R3e2**, Fig. 2c.

Black's position is in ruins. It's never easy to finish, but LEELA made a great job of it. **41...f5 42.Rh1 Qh5 43.Ree1 Qf3 44.Bxh2 Qxf2 45.Ref1 Qxf1+ 46.Rxf1 fxe4 47.Kc1 Kxg7 48.Bg1 Kg6 49.Bxa7 Bh3 50.Rg1+ Kf5 51.Bd1 Ke6 52.Kd2 Bf5 53.Bd4 Rc8 54.b4 Ra8 55.Ke3 Rxa3 56.Kf4 Ra8 57.Rg7 Ra1 58.Bh5 Rf1+ 59.Kg5 Bh3 60.Rh7 e3 61.Rh6+ Kd7 62.Bxe3 Kc7 63.Rh7+ Kc8 64.Be2 Re1 65.Rxh3 Rxe2 66.Kf5 Kb7 1-0**.

The reverse started promisingly for LEELA as it deviated with **6...Ng4** and reached a good position with two bishops against two knights. However, as the position opened, instead of LEELA's bishops gaining influence it was STOCKFISH's knights which became mighty! STOCKFISH sacrificed a pawn, whirling its knights with tempo around the centre. As we join it, the position is still balanced but very tense! Fig. 3a: **26.b4**. STOCKFISH saw nothing decisive and played this strengthening move, tying down Black's c-pawn a little which may come in useful if White needs to switch the focus of attack from the kingside to the queenside. I was expecting a normal reaction like **26...Bb7** from Black which keeps the balance though not without a little effort. However, LEELA unfortunately played one of the worst moves on the board.

**26...Ra4**. This feels odd intuitively: in such a sharp position, you want your powerful pieces performing multiple tasks, not just one (attacking the not-so important b-pawn). In fact, even moves like **26...Ra3** and **26...Ra2** would have kept Black in the game. However, I still fell off my chair when STOCKFISH's evaluation jumped to 3.54 after its next move! **26...Be6** was the worst move, allowing **27.Nf6 h6 28.Rxe6 fxe6 29.Nxg6#** Remember that mating pattern!

**27.Rd3 c6**. **27...Bf5** gives White the opportunity for an exquisite mating pattern! **28.Rf3 c5 29.Rxf5 gxf5 30.Nf6 h6 31.Qh5 Rxb4 32.Qg6**, Fig. 3b. Aaah! Wonderful!



Fig. 3. Game 14 positions (a) 26w, (b) variation 32b and (c) 36b; (d) game 18 position 16b; (e) game 21 position 9w.

**28.Rf3 cxd5 29.Rxf7**. Ouch! Out of nowhere! In the coming tactics, the key point is that Black's eighth rank is insufficiently defended without the rook on a8. If Black had passed a move instead of **26...Ra4** then this combination would not have been possible! **29...g5 29...Bf5 30.Rxc7 Kxc7 31.Nxf5+ gxf5 32.Re7+ wins as 32...Rf7 33.Rxf7+ Kxf7 34.Qxd8 drops the queen. 30.Qxg5 Rxf7 31.Ng6+ hxg6**

**32.Qxd8+ Kh7** 32...Rf8 33.Re8 and again the absence of the rook from a8 costs Black a piece. 33...Rxe8 34.Qxe8+ Kh7 35.Qxc8.

**33.Qxc8 Bd4 34.Qe8 Raa7 35.Rf1 Bxf2+ 36.Kh1**, Fig. 3c. This position isn't easy for White to win but STOCKFISH has no equal with a queen in an open position! The finishing technique was of an amazing quality. **36...d4 37.Qe6 Rf4 38.Qc4 Ra3 39.b5 Rc3 40.Qb4 Bg3 41.Rb1 Rc2 42.Qa3 Rc3 43.Qa7+ Kh6 44.b6 Re4 45.b7 Rce3 46.Qa5 Re8 47.Kg1 d5 48.Rf1 Re2 49.Qb4 d3 50.Qb3 Re1 51.Qxd3 Rxf1+ 52.Qxf1 d4 53.h4 Kg7 54.Qa1 Kh6 55.Qa5 Kh7 56.h5 Kh6 57.hxg6 Kxg6 58.Qb4 Kh6 59.Qd2+ Kh5 60.Qd1+ Kh6 61.Qc1+ Re3 62.Qc6+ Kg7 63.Qd7+ Kf8 64.Qd8+ Kf7 65.Qd5+ Ke7 66.Qc5+ Ke6 67.Qb6+ Kd5 68.Qb5+ Ke6 69.Qc4+ Ke7 70.Qb4+ Kf7 71.b8Q Bh2+ 1-0.**

**Games 17 and 18.** The trend continued in the 6.Bg5 Najdorf Sicilian as both LEELA and STOCKFISH took turns to pummel a super-sharp main line that as far as I knew was still playable! **1.e4 c5 2.Nf3 d6 3.d4 cxd4 4.Nxd4 Nf6 5.Nc3 a6 6.Bg5 e6 7.f4 Be7 8.Qf3 Qc7 9.0-0 Nbd7 10.g4 b5 11.Bxf6 Nxf6 12.g5 Nd7 13.f5 Nc5 14.f6 gxf6 15.gxf6 Bf8 16.Rg1**, Fig. 3d. STOCKFISH made a better job of defending the Black side than LEELA, but I think that future books will refer to these games as the essential refutation of 13...Nc5.

**Games 21 and 22.** Both engines continued to defend the unusual positions they were given in their own manner. This was particularly striking in the set of games featuring a rare variation of the Ruy Lopez. **1.e4 e5 2.Nf3 Nc6 3.Bb5 Bc5 4.c3 Nge7**, the last move of the TCEC book. After White's next natural move, Black played a shocking concept. **5.0-0 d5 6.Nxe5 0-0 7.Bxc6 bxc6 8.d4 Bb6**, Fig. 3e. What on earth does Black have for the pawn? The two bishops of course but White has castled, has set up a strong centre and enjoys easy development. Quite disconcertingly, STOCKFISH made an easy draw from this position! **9.Nd2 c5 10.dxc5 Bxc5 11.Re1 Bb6 12.a4 Ng6 13.exd5 Qxd5 14.Ndf3 Qxd1 15.Rxd1 Nxe5 16.Nxe5 f6 17.Nd7 Rf7 18.Nxb6 axb6** and Black drew the opposite-coloured bishop ending without any problems.

As Black in game 22, LEELA started off with a tribute to Steinitz before moving onto something more ALPHAZERO-like! **1.e4 e5 2.Nf3 Nc6 3.Bb5 Bc5 4.c3 Nge7 5.0-0 Bb6 6.d4 Ng6**. LEELA plays in a completely different way, maintaining its central strong point and playing for a closed position. **7.Bg5 f6**, Fig. 4a. A very ugly move to play. The weakening of the a2-g8 diagonal gives White the opportunity to try and stop Black from castling kingside, but this does not prove easy to enforce and gradually Black emerges from its shell. **8.Be3 d6 9.Qb3 a6 10.Bd3 Na5 11.Qc2 0-0 12.Re1 Nc6 13.Nbd2 Kh8 14.a3 Bd7**. We are now back to a typical Ruy Lopez position in which White has some extra space but Black is extremely solid. **15.h3 a5 16.b3 Qc8 17.d5 Nce7 18.Bxb6 cxb6 19.c4**, Fig. 4b.

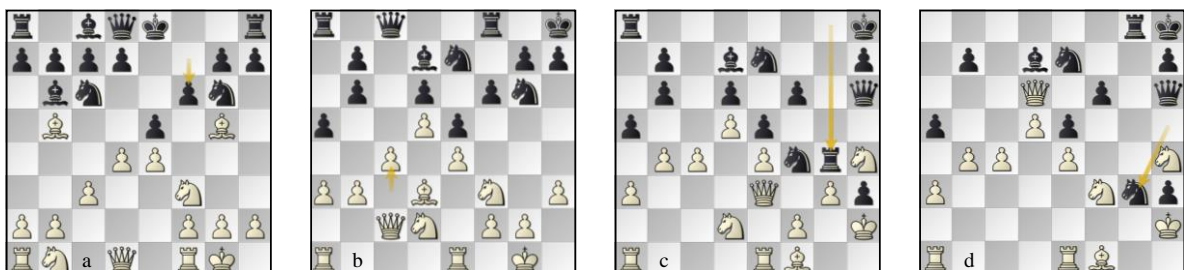


Fig. 4. Game 22 positions (a) 8w, (b) 19b, (c) 27w and (d) 31w.



STOCKFISH's decision to close the centre and play for a queenside break with b3–b4 and c4–c5 frees Black's pieces for action on the kingside and LEELA wastes no time in getting its counterplay going! **19...Nf4 20.Bf1 g5 21.Qc3 Rg8 22.b4 g4 23.Nh4 Qf8 24.g3 gxh3 25.Kh2 Qh6 26.Qe3 Rg4**, Fig. 4c. Black has made some inroads into the White kingside but still needs to detonate the dark squares in order to break through and that is not easy without pawn breaks. Meanwhile STOCKFISH typically starts creating chaos on the queenside with its queen, forcing Black to accelerate the attack still further. **27.Qxb6 Rag8 28.Qxd6 Nh5**, a really good move, opening the attack of the queen on h6 on the knight on d2 and bringing more pressure to bear on g3. **29.Ndf3 Rxxg3 30.fxxg3 Nxxg3**, Fig. 4d.

Suddenly White's position seems critical as ...Qf4 is coming next. However, there has been method to STOCKFISH's pawn-grabbing madness as the White queen turns out to be in exactly the right place to counter this threat! **31.Nxe5 Qd2+**. 31...Qf4 32.Nf7+ is the point! **32.Bg2** and now the most aesthetic finish to the game would have been 32...Nf1+ ... 33.Rxf1 Rxxg2+ 34.Kh1 Rh2+ 35.Kg1 Rg2+ with a draw by perpetual!

**32...fxe5 33.Qxe5+ Rg7 34.Rad1 Qc2 35.Re3 hxxg2 36.Rxxg3 g1B+ 37.Kxxg1 Qxd1+ 38.Kh2 Qd2+ 39.Rg2 Qh6 40.Qxxg7+ Qxxg7 41.Rxxg7 Kxxg7 42.Kg3** gave Black an extra piece in the game but no way to convert it, the game being drawn in 105 moves.

**Games 23 and 24.** STOCKFISH continued to move ahead with the double whammy of a successful attritional 175 move rearguard action as Black followed by a powerful demolition job as White.

At Fig. 5a, this moment shocked me as LEELA played **40.g4** in this position, essentially ruling out its most powerful break in the position (f2-f4) without any reason to do so. After this, LEELA made virtually no progress.

We join game 24 at position 35w, Fig. 5b. LEELA's position had been getting looser and looser with every move so it was no surprise that STOCKFISH found an attacking option. As always in this match however, the sheer speed of STOCKFISH's attack was breathtaking. **35.f5 Ng5 36.Qa2+ Kg7 37.Bxxg5 fxxg5 38.Qxa7 g4 39.Qxb6 gxf3 40.Rxd6 fxxg2+ 41.Kg1 gxf5**, Fig. 5c. LEELA's defending is really not bad at all: White's king has been exposed, the knight on c3 is loose and the bishop on a8 could become a valuable asset if the pawn on e4 disappears. However, STOCKFISH is simply too strong in such positions, already evaluating the position at 6.68 (!) compared to LEELA's 0.77. Even allowing for the general deflation of LEELA's evaluation, that's still a big difference in insight.

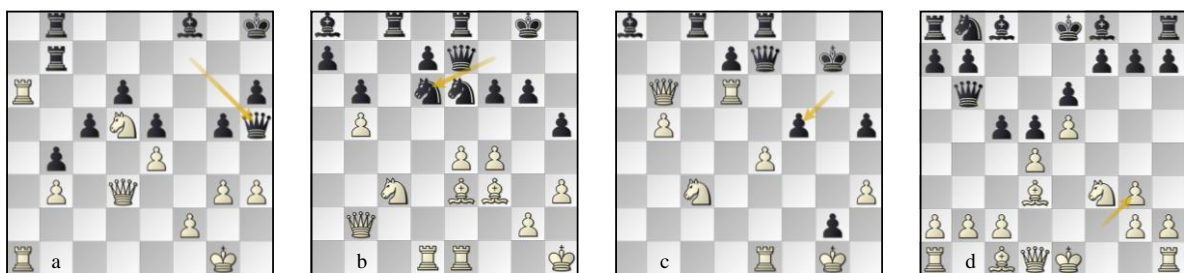


Fig. 5. (a) Game 23 position 40w; game 24 positions (b) 35w and (c) 42w; (d) game 25 position 9b.

**42.Red1 Qe5 43.Rg6+ Kf8 44.Rf6+ Kg8 45.Rxf5 Qg7 46.Rxd7. Bang!** That's the key. **46...Qxd7 47.Rg5+ Qg7 48.Rxxg7+ Kxxg7 49.Qd4+ Kh7 50.Qd7+ Kh6 51.Qd2+ Kg6.** This position is one that

could easily cause technical problems in a human game, but once again STOCKFISH is simply the master in such situations with a queen and an open king to milk for improving checks. **52.h4 Kh7 53.Qg5 Rf8 54.Qxh5+ Kg8 55.Qg6+ Kh8 56.Ne2 Rc2 57.Qh5+ Kg8 58.Qg5+ Kh7 59.Qe7+ Kg8 60.Nf4 Rc1+ 61.Kxg2 Re1 62.Kh2 Bxe4 63.Ng2 Rf2 64.Qd8+ Kh7 65.Qc7+ Kh8 66.Qb8+ Kh7 67.Qa7+** and this fork of the king and rook ends the game! **67...Kg6 68.h5+ Kh6 69.Qxf2 Rh1+ 70.Kxh1 Bf3 1-0.**

**Games 25 and 26.** Wins were traded here, interestingly starting from an opening novelty found by LEELA and recommended by KOMODO co-author Larry Kaufman (2019) in his recent book *Kaufman's New Repertoire for Black and White*. **1.e4 c6 2.Nc3 d5 3.Nf3 Nf6 4.e5 Ne4 5.Ne2 Qb6 6.d4 e6 7.Ng3 c5 8.Bd3 Nxc3 9.fxc3**, Fig. 5d. 9.fxc3 sacrifices the d4-pawn but opens the f-file and certainly proved its worth in this mini-match. STOCKFISH was unable to hold this French-type position as Black but neither was LEELA so this was essentially another favourable LEELA opening that went to waste.

However, from this point on, a period of the match began that gave LEELA fans hope, as LEELA slowly reeled STOCKFISH in, winning a lovely positional game in the Pirc (game 29) and then winning the Dragon mini-match (again!) by destroying STOCKFISH as White and then sacrificing a queen for three pieces (again!) as Black.

**Game 34. 1.e4 c5 2.Nf3 d6 3.d4 cxd4 4.Nxd4 Nf6 5.Nc3 g6 6.Be3 Bg7 7.f3 0-0 8.Qd2 Nc6 9.Bc4 Nd7**, Fig. 6a. Such an opening - moving a piece away from the kingside with STOCKFISH facing you - feels like a recipe for a short, sharp disaster but LEELA finds an intriguing tactical idea. **10.h4 h5 11.0-0 Qa5 12.Kb1 Qb4 13.Nd5 Qxc4 14.b3 Qxd4 15.Bxd4 Nxd4 16.Nxe7+ Kh7 17.c4 a5 18.Qe3 Nc6 19.Nxc8 Rfxc8 20.Rxd6 Nde5**, Fig. 6b. Once again STOCKFISH has queen and two pawns for three pieces and its evaluation after its next move, **21.f4**, was 2.41 and continued to climb even when LEELA established a fortress 20 moves later, see Fig. 6c.

The gap was down to two but in successive King's Indian and French games, LEELA failed to make any impression. The Trompovsky produced a wild couple of games and I almost thought that LEELA might have a chance for a rare Black win.



Fig. 6. Game 34 positions (a) 10w, (b) 21w and (c) 41w; game 40 positions (d) 14b and (e) 26w.

**Game 40. 14.g5**, Fig. 6d. White's setup has been extremely aggressive and Black's counterplay has yet to start. LEELA finds a wonderful way to activate all of its pieces, starting with the acceptance of a damaged pawn structure and following up with two further pawn sacrifices. **14...Nh5 15.Nxh5 gxh5 16.Be2 e6 17.f4 Ng4 18.dxe6 fxe6 19.0-0 c4+ 20.Kg2 Qc6 21.Nxc4 b5 22.Nxd6 b4 23.c4 Rd8 24.Nxc8 Rbxc8 25.Qc2 Rd4**, Fig. 6e. Black has generated lots of play for the two pawns. White has difficulties developing the queenside and its king's position is quite airy. However, STOCKFISH found a precise tactical path to equality sacrificing its queen for rook and bishop.



LEELA's win in game 41 in a line of the Scotch (**1.e4 e5 2.Nf3 Nc6 3.d4 exd4 4.Nxd4 Qh4**) that was contested by Blackburne and Steinitz (!) brought it agonisingly close to within one point, but STOCKFISH was ruthless in the reverse. A fine positional squeeze against the Modern in game 46 (1-point gap again!) was neutralised just as smoothly by STOCKFISH from the White side.

**Games 47 and 48** next, featuring an ALPHAZERO–STOCKFISH opening! **1.Nf3 Nf6 2.c4 e6 3.Nc3 d5 4.d4 c6 5.Bg5 Be7 6.e3 h6 7.Bf4 0–0 8.Qc2 Nbd7 9.g4**, Fig. 7a. Here **9...dxc4 10.Rg1 Nd5 11.g5 Nxf4 12.gxh6 Nh5 13.hxg7 Nxg7 14.0–0–0** was the sacrificial continuation of an ALPHAZERO–STOCKFISH game analysed in *Game Changer* (Sadler and Regan, 2019) which ALPHAZERO won quickly. Both this STOCKFISH and LEELA CHESS ZERO varied in their own ways. STOCKFISH played **9...Qa5 10. g5 hxg5 11. Bxg5 Re8 12. O-O-O dxc4 13. Rg1 Qf5 14. Ne5 Qxc2+ 15. Kxc2** exchanging off queens with a complicated queenless middlegame. LEELA's choice also led to a sharp position after **9...dxc4 10. g5 hxg5 11. Bxg5 e5 12. O-O-O e4 13. Nd2 Nb6 14. Bxf6 Bxf6 15. Qxe4**, both games ending in draws.

There was a feeling at this stage that LEELA was in the ascendancy and might carry on chipping away at the STOCKFISH lead, but from game 50 onwards the match turned and STOCKFISH pulled away with three convincing wins. The first was in a Sicilian Pin Variation where LEELA oddly decided that it had nothing to fear and nothing to improve and simply waited for STOCKFISH to pile up its pieces!

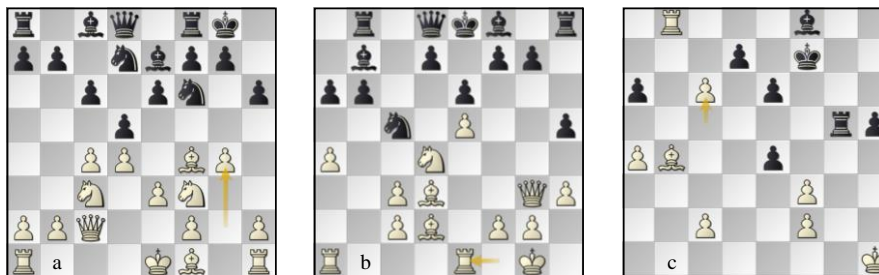


Fig. 7. (a) games 47–48 position 9b; game 52 positions (b) 16b and (c) 39b.

**Game 52. 16.Rfe1**, Fig. 7b. **16...Ba8 17.Bf4 Rc8 18.Bd2 Qc7 19.Rab1 Bb7 20.Rb4 Ba8 21.h4 Bd5 22.Reb1 Ba2 23.R1b2 Bd5 24.Rb1 Ba2 25.R1b2 Bd5 26.c4 Ba8**. That's eight consecutive moves with the bishop! Not surprisingly, once the tactics start, Black is not in the best position to resist. **27.Rb1 Ne4 28.Bxe4 Bxe4 29.Rxb6 f6 30.c5**, a great move with a cunning endgame point. **30...Qxe5**.

**30...Qxc5 31.Nxe6 dxe6 32.exf6**: the Black queen has been deflected from c7 so exf6 no longer allows the exchange of queens. **32...gxf6 33.Rxe6+ Kf7 34.Rxe4** wins.

**31.Qxe5 fxe5 32.Rb8 Rxb8 33.Rxb8+ Kf7 34.Nf3 Bxf3 35.gxf3 Rg8 36.Bb4**. This fantastic move was the point, STOCKFISH evaluating the position already at 5.35! **36...g5. 36...Be7 37.Rxg8 Kxg8 38.c6 Bd8 39.Be7 Bc7 (39...Bxe7 40.c7) 40.cxd7** wins. **37.hxg5 Rxg5+ 38.Kh1 e4 39.c6**, Fig. 7c, the same trick again. **39...Bxb4 40.c7 Rc5 41.c8Q Rxc8 42.Rxc8** and STOCKFISH had no problem converting.

Games 55 and 56 were again disappointments for LEELA fans as LEELA failed to convert a clear extra pawn while STOCKFISH did! And finally, in game 58, STOCKFISH made it three wins without reply by blasting through LEELA's defences in an opposite-coloured bishop middlegame. However, LEELA came back swinging and the next two mini-matches' openings saw wins traded, before LEELA started to reel STOCKFISH in again with (finally!) a good squeeze on the White side of the French in game 63 before

playing the second gem of the SuperFinal featuring a double pawn sacrifice and a positional queen sacrifice in game 65.

**Game 65. 1.d4 Nf6 2.c4 e6 3.Nf3 Bb4+ 4.Nbd2 0–0 5.a3 Be7 6.e4 d5 7.e5 Nfd7 8.Bd3 c5 9.h4.** The last move of the TCEC book signals the start of a sharp and topical line of the normally solid Bogolian. White's immediate threat with the 'caveman' 9.h4 is the standard 'Greek Gift' sacrifice on h7. Black must react either with **9...g6** (played by STOCKFISH in this game) or 9...h6 (played by LEELA in the reverse) to counter this threat.

**9...g6 10.0–0**, Fig. 8a. A mind-boggling idea. White advances the rook's pawn on the 9th move and then doesn't bother to advance it further on the next move but castles - when its rook can no longer support a quick attack along the h-file - abandoning the rook's pawn to its fate! It's something however that I noticed in ALPHAZERO games: both a willingness to use the rook's pawn to start operations on the wing and a total insouciance about losing the pawn! What is LEELA going to gain for the pawn? First of all, the h-file is opened: it isn't impossible to think that White might play g3, Kg2 and Rh1 later to launch an attack on that channel ... stranger things have happened in ALPHAZERO games! Secondly, capturing the pawn essentially costs Black two tempi: a move to capture and a move to retreat the bishop to safety. These two tempi are not disastrous but - as we shall see in the game - the lack of these two tempi inhibits Black from developing in the ideal manner.

For example, Black is unable to develop the light-squared bishop to the active a8–h1 diagonal and has to content itself with developing the bishop to d7. This increases the risk of ending up in a passive position. Thirdly, Black's kingside dark squares have been weakened by the reaction ...g6 to h4 and this may cause problems for Black's development as Black continually needs to keep an eye on the f6 and d6 squares. None of this is concrete but it adds to the richness of possibilities available to White in the position. And as we have remarked before about ALPHAZERO: an attack with a rook's pawn is a low cost way of starting an attack. If it 'fails' and you lose the rook's pawn, it won't be immediately felt in contrast to the effect of losing the g-pawn in front of the king!

10.h5 has been the normal - and scary - continuation and has scored very well for White. However, recently a number of strong players have been switching to LEELA's move so some - as yet unknown to me - discoveries must have been made in this line. 10...cxd4 11.Qc2 g5 is the amazing suggestion of my engine after analysing for six hours! 12.cxd5 exd5 13.Nb3 Nc6 14.Bxh7+ Kh8 15.Nfxd4 Ndx5 16.Bd2 Bf6 17.Bc3 Nxd4 18.Nxd4 Qb6 19.0–0 Nc6 with just a slight edge for White!

**10...Nc6 11.Nb3 Bxh4 12.Bh6**, exploiting the kingside dark square weaknesses created by Black's response to 9.h4 - 9...g6 - for rapid development. **12...Re8 13.Re1**. White ensures that the key to White's position and space advantage - the pawn on e5 - is maintained. **13...cxd4 14.Qc2**, a new move in this position. The queen on c2 is more obviously prophylactic than the 14.Rc1 followed by Qd2 played earlier. The queen on c2 and Bd3 combine against the pawn on g6, preventing Black from ever liquidating the e5–pawn with ...f6 due to Bxg6. White might also have the tactic cxd5 ...exd5, e6! to force matters around the kingside light squares. The queen on c2 also dissuades Black from playing ...b6 due to the potential pressure against the loose knight on c6. Finally, d1 is freed for the White queen's rook, bringing all White's pieces into play and intending to recapture the pawn on d4 at some stage.

14.Qd2 Be7 15.Qf4 was another interesting and typically aggressive idea played in my engine matches. 15...Qb6 16.Nbx4 Nxd4 17.Nxd4 Bc5 18.Nf3 Bxf2+ 19.Kh1 Bxe1 20.Rxe1 with very dangerous play for the sacrificed material. 1–0 (31) STOOFLVES II A13–STOCKFISH 11 2020.

**14...dxc4.** 14...a6 was LEELA's main line but it also ends up looking a bit dodgy 15.Rad1 Be7 16.cxd5 exd5 17.e6 Nf8 18.exf7+ Kxf7 19.Nbxd4 Nxd4 20.Nxd4 Bf6 21.Ne2 (21.Rxe8 Qxe8 22.Nf3 Kg8 23.Qd2 Be6 24.Ng5 Bd7 25.Re1 Ne6 26.Bc2 Bxg5 27.Bxg5 Bc6 28.Bb3 Qf7 29.Bh6 Re8 30.Bxd5 was LEELA's PV with just a plus of 0.44.) 21...Bg5 22.Bc4 Be6 23.Rxd5 Bxd5 24.Rd1 Re5 25.Bxd5+ Rxd5 26.Qb3 Bxh6 27.Rxd5 Qe8 28.Rd8+ Qe6 29.Qf3+ Kg8 30.Rxa8 was one of my engine games 1-0 (41) STOCKFISH 11 -STOOFVLEES II A13 2020.

**15.Bxc4 Nb6 16.Rad1,** another unexpected move, acquiescing to the exchange of Black's knight for White's light-squared bishop and thus conceding the bishop pair to Black. In this position however, the dark squares are the most important and by exchanging the light-squared bishop for the king's knight that stood on d7 (from where it protected f6) White further weakens Black's protection of this colour complex. **16...Bd7 17.Nc5,** Fig. 8b. Another unexpected idea, eschewing the recapture of the d4-pawn - and thus remaining two pawns down - and preferring instead to bring the knight within striking range of the d6 outpost (either via b7 or e4) and the f6-outpost (via e4). It was another LEELA special: neither STOCKFISH nor ALLIESTEIN were expecting this idea. 17.Nbxd4 is what my STOCKFISH engine expects, analysing for six hours. **17...Rc8 18.b4 Nxc4.** 18...Be7 was perhaps a more accurate way of defending but you would have to have seen the idea in the game!

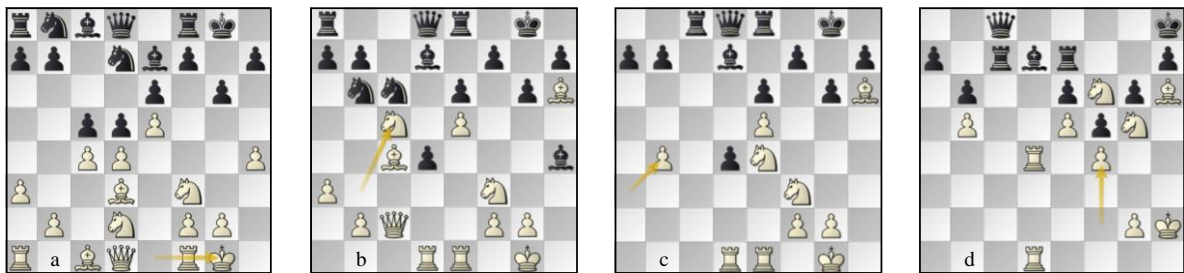


Fig. 8. Game 65 positions (a) 10b, (b) 17b, (c) 22b and (d) 34b.

**19.Qxc4.** Nxd7 is now the threat when the bishop on h4 is loose. Black must thus spend a tempo bringing the errant dark-squared bishop back into the fold. **19...Be7 20.Ne4,** another LEELA special! We have seen many tactical solutions from STOCKFISH in this match that it alone saw while other engines were blind. This game shows a similar effect with LEELA evaluating at +0.81, STOCKFISH on +0.50. **20...Nxb4;** STOCKFISH takes up the challenge.

20...Qb6 threatening ...Nxe5. 21.Qd3 a6 preventing b5 (21...Red8 22.b5 Na5 23.Nfg5 looks very strong, with the idea of either Qf3 or Qh3.) 22.Nfg5 Nxe5 23.Qh3 f5 (23...f6 24.Nxh7 Kxh7 25.Bg5+ Kg8 26.Nxf6+ Bxf6 27.Bxf6 Nf7 28.Qg4 looked winning to me.) 24.Nc5 looked very awkward for Black. 24...Bxg5 25.Bxg5 Nf7 26.Nxd7 Nxc5 27.Nxb6 Nxh3+ 28.gxh3 ...and the big drawback to 21...a6 becomes manifest: the queen on b6 is no longer defended!

20...Nb8 was another idea that appealed to me 21.Qb3 was preferred by ALLIESTEIN (21.Qxd4 Ba4 22.Nd6 Bxd1 23.Rxd1 Nc6 24.Qf4 also looks quite dangerous as 24...Bxd6 25.Rxd6 Qe7 26.Rd7 looks winning. How useful it is to have already created a bolt hole for the White king on h2 by jettisoning the h-pawn so early! 26...Qxd7 (26...g5 27.Qg4) 27.Qf6) 21...Bc6 22.Rxd4 Bd5 23.Qb2 Rc4 24.Rxc4 Bxc4 25.Nd6 Bxd6 26.exd6 f6 27.b5 is unpleasant for Black.

20...a5 was expected by LEELA 21.b5 Nb4 22.Qxd4 Nc2 23.Qxd7 Nxe1 24.Nxe1 Rc7 25.Qd4 Qxd4 26.Rxd4 Rd8 27.Ra4 b6 28.Be3 Rd5 29.Bxb6 Rc1 30.Bxa5 Rxb5 31.Bd2 was LEELA's main line with that evaluation of +0.81.

**21.Qxb4 Bxb4**, LEELA on +1.46, SF on 0.19. **22.axb4**, Fig. 8c. An amazing position. Black has queen and 3 pawns for two pieces but essentially seems lost! White's long-term mating plan of Nf6+ (forcing the king into the corner) then Ng5 and Rd3-h3 followed by an eventual mate on h7 is very hard to stop. **22...f5**, LEELA: +1.69. SF: 2.41 (!) 22...Rc4 is the defence all the engines jump on at first, but after prolonged analysis it turns out that Black is simply losing. 23.Nf6+ Kh8 24.Ng5 Qe7 illustrates nicely what Black can expect to happen! 25.Rd3 Ba4 26.Rh3 d3 27.Ngxh7 Rd8 28.Nf8 Bd1 29.Rxd1 Qxb4 30.Bf4+ Kg7 31.Nxe6+ fxe6 32.Rh7+ Kf8 33.Bh6# was the gorgeous end to one of my engine games 1-0 in 33 moves. STOCKFISH 11 -STOOFVLEES II A13 2020. **23.Nf6+ Kh8**. 23...Kf7 24.Rxd4 Bc6 would have been a more STOCKFISH-like desperate defence, aiming to survive with a material deficit but no forced mate.

The game continuation is hopeless though it still requires some nifty mating patterns to prove it! **24.Rxd4 Rc7 25.Red1 Re7 26.b5**. 26.Ng5 a6 27.Rh4 Qc8 28.Ngxh7 Rxh7 29.Bg7+ was a very direct way to a win given by STOCKFISH in analysis. **26...b6 27.Kh2 Rb7 28.Ng5 Qc8 29.R1d2 Rc7 30.Rd6 Rb7 31.R2d4 Rc7 32.Rd1 Rb7 33.R6d4 Rc7 34.f4**, Fig. 8d.

**34...Rb7 35.Nxe6 Rxe6 36.Nxd7 Kg8 37.Nf6+ Kf7**. 37...Rxf6 38.Rd8+ Rf8 39.Bxf8 Qc2 40.Bh6+ Kf7 41.Rf8+ Ke6 42.Rd6+ Ke7 43.Rdd8 Ke6 44.Rfe8+ Kf7 45.e6+ Kf6 46.Bg5+ was another of my engine games. 1-0 in 46 moves. STOCKFISH 11 -STOOFVLEES II A13 2020.

**38.Rd8 Qc5 39.Nxh7** threatening the wonderful mate Ng5+ followed by Bf8#! **39...Re8 40.e6+ Rxe6 41.Ng5+ Kf6 42.Rf8+ Qxf8 43.Bxf8**. Unfortunately for Black, its king is still caught in a mating net. The rook on e6 cannot move away due to Rd6+ so Black's position is totally hopeless. **43...Rc7 44.Rd4 Rb7 45.Kg3 Rc7 46.Rd3 Rb7 47.Kh4 Rc7 48.Kg3 Rc4 49.Rd7 Re3+ 50.Kf2 Rxf4+ 51.Kxe3 Ra4 52.Be7+ Ke5 53.Kf3** 1-0. Together with game 8, the absolute high point of the SuperFinal in terms of beauty and creativity.

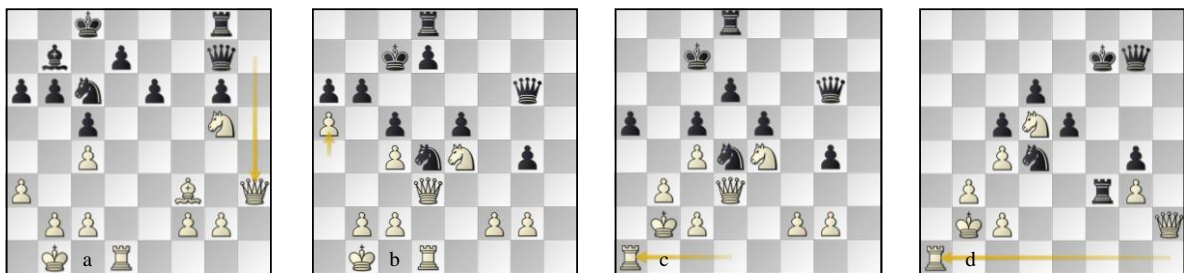


Fig. 9. Game 68 positions (a) 24b, (b) 35b, (c) 39b and (d) 59b.

**Game 68.** The gap was now down to three but it was never going to get closer than that again! STOCKFISH's powerful performance in this game stretched its lead to four. **24.Qh3**, Fig. 9a. Already at this stage, STOCKFISH evaluated the position as 1.64 and the evaluation rose inexorably the further the game proceeded. Black's king is somewhat awkward due to the hard-to-parry manoeuvre of the knight to d6, but I was surprised to see such a high evaluation already. However, it's hard to find a place in the ensuing moves where Black could have improved substantially.

24...Nd4 25.Bxb7+ Kxb7 26.Qd3 Rd8 27.Qe4+ Kc7 28.Qf4+ Kc8 29.Ne4 g5 30.Nd6+ Kb8 31.Qg3 e5 32.Qd3 g4 33.a4 Kc7 34.Ne4 Qg6 35.a5, Fig. 9b. Beautiful play by STOCKFISH, gradually unravelling the protection of Black's king bit by bit. Black needed to play ...e6–e5 to drive away the knight from d6 but now White has gained a great outpost on d5 for the knight. 35...d6 36.axb6+ Kxb6 37.b3 a5 38.Kb2 Kc7 39.Ra1, Fig. 9c. Great play again, finding an original way to create an additional way for White to pressure Black's position! Note that White can simply win a pawn at many points here with the discovered attack Nxc5, but STOCKFISH prefers to keep the queens on.

39...Nc6 40.g3 Rf8 41.Qe3 Qf5 42.Rd1 Rd8 43.Nc3 Nd4 44.Qd2 Rf8 45.Nd5+ Kd7 46.Rc1 Qxf2 47.Qxa5. The useless backward f-pawn has been traded for an entry path into the Black position. It still doesn't look easy to convert as Black has combined pressure against c2, but this proves impossible to maintain in the light of White's mating threats with queen and knight. 47...Ke6 48.Qa7 Qf7 49.Qb6 Qf3 50.Qb7 Qf7 51.Nc7+ Kf6 52.Rf1+ Nf5 53.Qe4 Kg5 54.Nd5. This great regrouping by White has eliminated any pressure against White's own king, rendering Black completely passive. The only question is how White will finish off the job. 54...Qg7 55.Qe1 Nd4 56.Rh1 Rf3 57.Qd2+ Kg6 58.Qh2 Kf7 59.Ra1, Fig. 9d. Fantastic mobility and whole board play, using both the a- and h-files! 59...Ke6 60.Ra8 e4 61.c3 Nc6 62.Qh5 Ne5 63.Qe8+ Kf5 64.Qc8+ Kg5 65.Qd8+ Kh6 66.Qxd6+ Kh7 67.Qd8 Nf7 68.Qe8 Qg5 69.Nf4 Rf2+ 70.Ka3 Rxf4 71.gxf4 Qxf4 72.Qg8+ Kh6 73.Ra6+ Kh5 74.Qh7+ Nh6 75.Qg6+ Kh4 76.Qxh6+ and the game ended very soon after.

After two extremely entertaining games (69 and 70) in the King's Indian Samisch – the opening again taken from ALPHAZERO–STOCKFISH games analysed in *Game Changer* – more blood was spilt on the Black side as both the Latvian and the Scandinavian were dismantled by LEELA and STOCKFISH. However, one of the rare openings exits favouring Black proved LEELA's undoing as STOCKFISH's tactical prowess paid off in a crazy opening position. During the game I was astounded once again by STOCKFISH's evaluation and its justification of it!

**Game 77.** Fig. 10a. Of course, I understood that there was danger for White and that STOCKFISH would not enter this without a concrete idea, but -9.79 still took me by surprise! Black's plan is very simple in fact: ...Rb8–b6–a6! 31...Rb8 32.Ka3 Rb6 33.Qxa7+ Kf8 34.Bc8 Qc6 threatening ...Qb5–b4 mate as well as simply capturing on c8! 35.b3 c3 36.Qa5. 36.Rf1 f6 looks ugly but Black's king is perfectly safe! 36...Qxc8 37.Qxc3. 37.Qxb6 Qa8+ mates! 37...Qa6+ 38.Kb2 Qxe2+ 39.Qc2 Qxc2+ 40.Kxc2 and the rook ending was won without any difficulties.

By now even the most hardened LEELA fan could see the writing on the wall, but the games still fascinated! Most notably, both LEELA and STOCKFISH did their bit to keep the Polugayevsky variation of the 6.Bg5 Najdorf afloat!

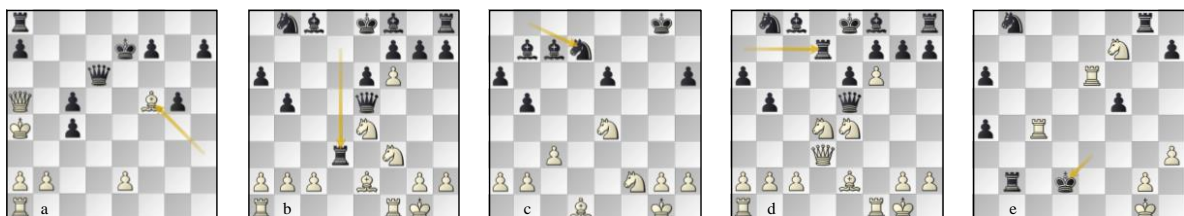


Fig. 10. (a) Game 77 position 31b; game 83 positions (b) 16w and (c) 27w; game 84 positions (d) 15w and (e) 36w.



**Game 83.** 1.e4 c5 2.Nf3 d6 3.d4 cxd4 4.Nxd4 Nf6 5.Nc3 a6 6.Bg5 e6 7.f4 b5 8.e5 dxe5 9.fxe5 Qc7 10.exf6 Qe5+ 11.Be2 Qxg5 12.0–0 Ra7 13.Qd3 Qe5 14.Ne4 Rd7 15.Nf3 Rxd3, Fig. 10b. This unusual move by STOCKFISH leads to an ending in which Black is a pawn down but the two bishops offer some compensation. LEELA didn't manage to make anything of the White side. 16.Nxe5 Rd4 17.fxg7 Bxg7 18.Nxf7 0–0 19.Nfg5 Rxf1+ 20.Bxf1 h6 21.c3 Rd8 22.Nh3 Be5 23.Nhf2 Bc7 24.Be2 Bb7 25.Rd1 Rxd1+ 26.Bxd1 Nd7, Fig. 10c, and the game was drawn 40 moves later.

**Game 84.** Here, LEELA sailed a little closer to the wind but also navigated a path to an equal ending. Fig. 10d: 15.Nf3 Qc7. 15...Qxb2 has been played quite a lot but Jeroen Noomen indicated that engines virtually refute this move after long thought. Neither STOCKFISH nor LEELA wanted to risk it! 16.Qe3 Qa7. This was the move Jeroen Noomen considered to be best. 16...Bb7 has been the main alternative.

17.Qxa7 Rxa7 18.a4 gxf6 19.Nxf6+ Ke7 20.Nh5 bxa4 21.Ng5 f5 22.Bc4 Rc7 23.Bxe6 Bxe6 24.Rfe1 Rc6 25.Nf4 Rxc2 26.Nfxe6 Rxb2 27.Nxf8+ Kxf8 28.Rac1 Kg7 29.Rc7+ Kg6 30.Nf7 Rg8 31.Re6+ Kh5 32.Rh6+ Kg4 33.h3+ Kf4 34.Rc4+ Ke3 35.Re6+ Kd2, Fig. 10e, and although White still managed a lot of checks, there was never remotely a chance of mate!

A couple of losses for LEELA - as White in a crazy King's Gambit (game 88) and a Cochrane Gambit (game 95) as well as another lost mini-match in the French (!) - finally extinguished any hope of a close result. In between, STOCKFISH also won a beautiful game on the White side of the Classical Dutch, dominating from start to finish and prosecuting a very powerful attack.

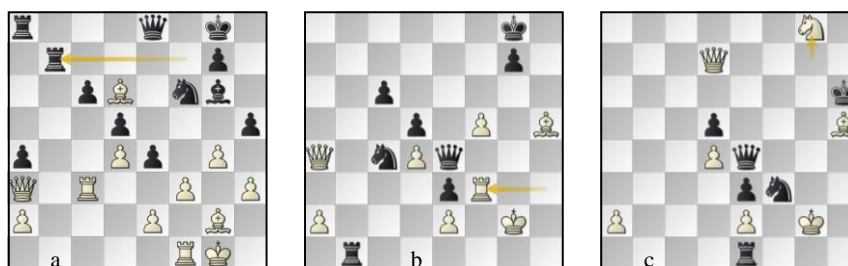


Fig. 11. Game 94 positions (a) 28w, (b) 39b and (c) 46b.

**Game 94.** Fig. 11a. White enjoys a clear advantage due to the two bishops and the plethora of dark square weaknesses in the Black position. STOCKFISH's transformation of these advantages into a king-side attack is very impressive. 28.f4 hxg4 29.hxg4 Nxg4 30.f5 Bh5 31.Rg3, preparing Bh3 and driving away the knight from g4 so that the queen can transfer to the kingside via e3. 31...e3 32.Rh3, switching to an even more powerful plan. 32...Ra6 33.Bf3 Rab6 34.Kg2 freeing the f1-rook to move to h1 attacking the bishop on h5! Black must react to prevent this. 34...Rb1 35.Rxb1 Rxb1 36.Be5. A great decision! It's not easy to give up the bishop that is dominating a colour complex but the light-squared bishop is even more important for penetrating into the Black kingside. 36...Nxe5 37.Bxh5 Nc4 38.Qxa4 Qe4+ 39.Rf3, Fig. 11b.

At a cursory glance, Black seems to be generating some counterplay but STOCKFISH was already at 14.80! 39...Re1. 39...Nd2 40.Qa8+ Kh7 41.Bg6+ Kh6 42.Qh8+ Kg5 43.Qh5+ Kf6 44.Be8 is decisive 44...Nxf3 45.Qg6+ Ke7 46.Qf7+ Kd8 47.Qd7# 40.Qa8+ Kh7 41.Qxc6 Kh8 42.f6 Nd2 43.Qc8+ Kh7

**44.Qd7 Kh6 45.fxg7**, a glorious mating idea! **45...Nxf3**. 45...Rxe2+ 46.Kh3 and the king is safe from checks. **46.g8N+**, Fig. 11c. **46...Kg5**. 46...Kxh5 47.Nf6+ Kg5 48.Nxe4+ dxe4 49.exf3 wins. **47.Qg7+ Kh4 48.Qg3+** forcing the king to a square where a knight fork is possible! **48...Kxh5 49.Nf6+ Kh6 50.Nxe4 Rg1+ 51.Kxf3 dxe4+ 52.Kg4 Rd1 1-0**.

LEELA still had time to win a routine King's Indian where STOCKFISH played very oddly with its king playing **12...Bh6, 13...Kg7, 15...Kh8, 16...Bg7, 17...h6** and **20...Kh7** while LEELA built up its position on the queenside. However, the remaining games were drawn leaving STOCKFISH the clear and deserved winner.

All-in-all, a tremendous Sufi with some games that deserve entry into any Best Games collection. An updated LEELA has been promised for the Cup.... can't wait!

## REFERENCES

Kaufman, L. (2019). *Kaufman's New Repertoire for Black and White: A Complete, Sound and User-Friendly Chess Opening Repertoire*. New in Chess.

Sadler, M. and Regan, N. (2019). *Game Changer: AlphaZero's Groundbreaking Chess Strategies and the Promise of AI*. New in Chess. See also <https://www.youtube.com/watch?v=FW-hDMbZHAY>.

Sadler, M. and Regan, N. (2020a). <https://www.youtube.com/watch?v=cpHVzIq5Hw4> 'Chess Giant' video-commentary CG#29 on Superfinal game 8.

Sadler, GM M. and Regan, WIM N. (2020b). <https://tinyurl.com/icga060>. 'Chess Giant' video-commentaries on TCEC Premier League and Superfinal games, especially CG#21-35.