TCEC Cup 7

Article

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TCEC Cup 7

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The TCEC Cup 7 knockout event was the penultimate event of TCEC Season 19 , begun on Oct. 31st 2020 with the usual brisk Rapid tempo of 30′+5″/move. It involved 32 of the top 35 engines of the TCEC19 championship as FIRE, VAJOLET and CHIRON sat this one out, see Fig. 1. It used the rules of TCEC Cup 6 (Haworth and Hernandez, 2020a-d). Matches were 'best of four' and tie-breaks consisted of further 'same opening' mini-matches of two games.

For the second time, the 'equal distance' pairing was used, with seed s playing seed $s+2^{5-r}$ (rather than $2^{6-r}-s+1$) in round r if the wins all went to the higher seed. Thus, seed s_1 plays s_{17}, s_9, …, s_2 if all survive long enough. The higher seed is listed first in Table 1. This pairing also adheres to the Postponement Principle of keeping top seeds apart but stiffens the competition for the top quarter of the seeds and reduces the likelihood of protracting matches far into a tie-break – at least, in the early rounds. Seed s is of course not sentient here and therefore not in a position to wish it was seed $s+1$.

Second author Nelson allocated openings of 4, 8, 12 and 16 ply to the first four rounds: Jeroen Noomen's openings for the finals came from his Superfinal books for TCEC seasons 9-19. Both chose randomly with some regard for frequency over the board providing the usual variety of play.
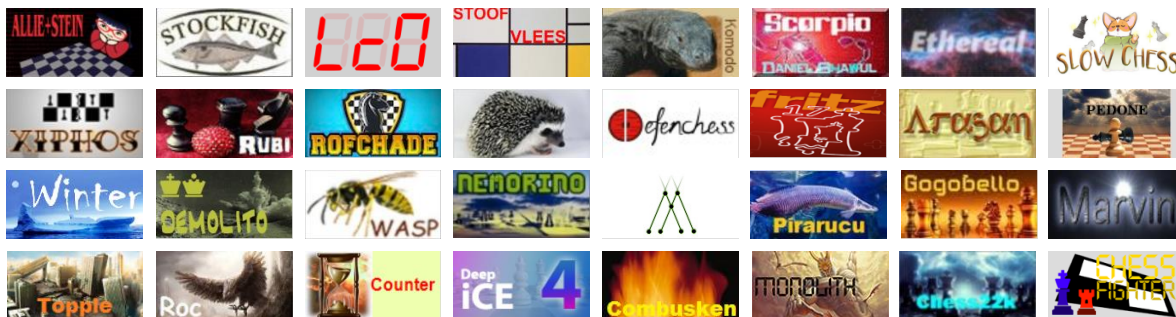
Fig. 1. The TCEC Cup 7 engines (CPW, 2020) in seed order (ALLIESTEIN → STOCKFISH → … → CHESSFIGHTER).

As in previous TCEC Cup events, interest focused on engine's actual performance *%P* compared with their expected performance *E%P* implied by TCEC Elo difference *Elo Δ*. Would we see any upsets of the seedings? The accuracy of the TCEC Elos is always a matter for debate, especially for the newer engines including now the latest adoptions of NNUE technology. Eighteen engines were upgraded for this event – 'kudos' to their enthusiastic authors. The influence of the random openings (even when games are repeated with colours flipped) and 'small sample size' can also affect the match results.

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1   ROUND 1

Table 1. TCEC Cup 7: round one results from the winner's perspective.[2]

αβ	#	'new'	Elo Δ	Elo	Tier	Seed	Round 1 Pairings	Round 1 Results	#g	Winner's E%P	%P	par..
AS	01	×	197	3532	P	01	AllieStein v0.8-120f959_net-15.0	AllieStein, 2½-1½: 1==	4	75.47	62.50	–
Wi		✓		3335	2	17	Winter 9.1					
Xi	02	×	216	3432	1	09	Xiphos 0.6.1	Xiphos, 2½-½: =11	3	77.52	83.33	=
To		×		3216	3	25	Topple 0.7.5-20200605					
Ko	03	✓	213	3501	P	05	Komodo 2602.00	Komodo, 3-1: ==11	4	77.20	75.00	=
Mi		×		3288	3	21	Minic 2.46					
De	04	×	166	3383	1	13	Defenchess 2.3_dev2	Defenchess, 3-1: 1==1	4	71.94	75.00	=
Cm		✓		3217	Q	29	Combusken 1.3.1					
Lc	05	×	272	3546	P	03	LCZero v0.26.3_T60.SV.JH.92-270	LCZero, 3-0: 111	3	82.95	100.00	+
Wa		✓		3274	3	19	Wasp 4.03					
rf	06	✓	241	3426	1	11	rofChade 2.308	rofChade, 2½-½: 1=1	3	80.05	83.33	=
Co		✓		3185	Q	27	Counter 3.7dev					
Et	07	✓	235	3467	1	07	Ethereal 12.75	Ethereal, 3-0: 111	3	79.46	100.00	+
Go		×		3232	3	23	Gogobello 2.2					
Ar	08	✓	91	3319	2	15	Arasan 22.1_fc11cab	Arasan, 2½-½: =11	3	62.49	83.33	+
c22		×		3228	Q	31	chess22k 1.14					
St	09	✓	319	3587	P	02	Stockfish 2020102823_nn-2eb2e0707c2b	Stockfish, 3-0: 111	3	86.79	100.00	+
Dm		✓		3268	2	18	Demolito dev-20201019					
Ru	10	×	114	3381	2	10	Rubichess 1.8	Rubichess, 3-0: 111	3	65.51	100.00	++
Rc		×		3267	3	26	Roc 20200804					
Sc	11	✓	248	3467	P	06	ScorpioNN 3.0.10	ScorpioNN, 3-1: 1011	4	80.73	75.00	+
Pi		×		3219	2	22	Pirarucu 3.3.5					
Fr	12	✓	138	3385	1	14	Fritz 17_20200830	Fritz, 2½-½: 1=1	3	68.55	83.33	+
Mo		×		3247	3	30	Monolith 20200804					
Sv	13	×	259	3503	P	04	Stoofvlees II a14	Stoofvlees, 3-0: 111	3	81.77	100.00	+
Ne		✓		3244	3	20	Nemorino 6.00_Classical					
Ig	14	✓	268	3449	1	12	Igel 2.9-dev-0_ign-0-b5e80071	Igel, 2½-½: 11=	3	82.59	83.33	=
iC		×		3181	Q	28	iCE 4.0.853					
Sl	15	✓	177	3418	1	08	SlowChess Blitz Classic 2.26	Slowchess, 3-0: 111	3	73.22	100.00	++
Ma		✓		3241	3	24	Marvin 5.0.0-a5					
Pe	16	×	138	3331	2	16	Pedone 20200814	Pedone 2½-1½: 101=	4	68.55	62.50	=
CF		✓		3193	Q	32	ChessFighter 3.6.0					

The higher seeds, being the first named, were again given the privilege of playing White first, increasing the chances of an opening win. They were more dominant than in previous TCEC Cup events and only five matches went to the fourth game: average *Elo Δ* was 206 and six engines failed to trouble the scorer. We should note that WINTER did better than expected with three draws against Cup holder ALLIESTEIN and that PIRARUCU and CHESSFIGHTER managed to win a game before being eliminated.

2   ROUND 2

Ten 'refreshed' engines proceeded to round 2: six were as in the TCEC19 league event. Again, there were no surprise match results so the top eight seeds proceeded to the quarterfinals, see Table 2. The NNUE-improved IGEL won against STOOFVLEES before capitulating but otherwise, the favourites won at the first attempt in three games despite average Elo difference narrowing to 114.

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[2] In these tables, the first-named engine played White first except where indicated by a '*'. Alongside the '%P' column, '+' ('−') indicates an unexpected excess (shortfall) of a ½-point in the winner's score. '#g' ≡ number of games.

Table 2. TCEC Cup 7: round two results from the winner's perspective.

αβ	#	'new'	Elo Δ	Elo	Lg/D	Seed	Round 2 Pairings	Round 2 Results	#g	Winner's E%P	%P	par..
AS	01	✗	100	3532	P	01	AllieStein v0.8-120f959_net-15.0	AllieStein, 2½-½: =11	3	63.68	83.33	+
Xi		✗		3432	1	09	Xiphos 0.6.1					
Ko	02	✓	118	3501	P	05	Komodo 2602.00	Komodo, 2½-½: 1=1	3	66.02	83.33	+
De		✗		3383	1	13	Defenchess 2.3_dev2					
Lc	03	✓	120	3546	P	03	LCZero v0.26.3_T60.SV.JH.92-270	LCZero, 3-0: 111	3	66.28	100.00	++
ro		✓		3426	1	11	rofChade 2.308					
Et	04	✓	148	3467	1	07	Ethereal 12.75	Ethereal, 3-0: 111	3	69.78	100.00	++
Ar		✓		3319	2	15	Arasan 22.1_fc11cab					
St	s	s	206	3587	P	02	Stockfish 2020102823_nn-2eb2e0707c2b	Stockfish, 2½-½: 11=	3	76.45	83.33	=
Ru		✗		3381	2	10	Rubichess 1.8					
Sc	06	✓	82	3467	P	06	ScorpioNN 3.0.10	ScorpioNN, 2½-½: =11	3	61.29	83.33	+
Fr		✓		3385	1	14	Fritz 17_20200830					
Sv	07	✗	54	3503	P	04	Stoofvlees II a14	Stooofvlees, 2½-1½: 101=	4	57.50	62.50	=
Ig		✓		3449	1	12	Igel 2.9-dev-0_ign-0-b5e80071					
Sl	08	✓	87	3418	1	08	SlowChess Blitz Classic 2.26	Slowchess Blitz Classic, 2½-½: 1=1	3	61.96	83.33	+
Pe		✗		3331	2	16	Pedone 20200814					

3 THE QUARTER-FINALS, SEMI-FINALS, BRONZE FINAL AND FINAL

There were several surprises in the four matches of the quarterfinals. First, KOMODO took its chance with its first White, see Table 3. Two moves too late, at move 35, the cup holder ALLIESTEIN realised that all was lost. It did not have a reply in the remaining two games. The outstanding performance of TCEC Cup 7 was certainly that SCORPIONN took STOCKFISH to eight games, holding the multiple TCEC champion to six draws before losing ground with **16…Be7** in game 7. LEELA won in routine fashion but STOOFVLEES also went to six games with newcomer SLOWCHESS BLITZ CLASSIC.

Table 3. TCEC Cup 7: quarterfinal results from the winner's perspective.

αβ	#	'new'	Elo Δ	Elo	Lg/D	Seed	Quarter-final Pairings	Quarter-final Results	#g	Winner's E%P	%P	par..
AS	01	✗	31	3532	P	01	AllieStein v0.8-120f959_net-15.0	Komodo, 2½-1½: =1==	4	45.68	62.50	+
Ko		✓		3501	P	05	Komodo 2602.00					
Lc	02	✓	79	3546	P	03	LCZero v0.26.3_T60.SV.JH.92-270	LCZero, 2½-1½: =1=	4	60.89	62.50	=
Et		✓		3467	P	07	Ethereal 12.75					
St	03	✓	120	3587	P	02	Stockfish 2020102823_nn-2eb2e0707c2b	Stockfish, 4½-3½: ====, =1=	8	66.28	56.25	—
Sc		✓		3467	P	06	ScorpioNN 3.0.10					
Sv	04	✗	85	3503	P	04	Stoofvlees II a14	Stoofvlees, 3½-2½: ====, 1=	6	61.70	58.33	=
Sl		✓		3418	1	08	SlowChess Blitz Classic 2.26					

In the semi-finals, it was LEELA's turn to be favourite in what was expected to be a close match. KOMODO was again the opponent and once more we were treated to six opening draws. Then matters were concluded in the most dramatic fashion, see Table 4. LEELA unexpectedly won both sides of a Benoni though it is not clear that the mandated opening of 16 ply was responsible for this. The evaluation curves of the semi-final's three decisive games are shown in Fig. 2: the red line is from the kibitzing CRYSTAL. The first of these suggests that KOMODO lost ground around move 41; the second suggests that KOMODO, now Black, was gradually overpowered in a more strategic way. Fig. 3 gives positions from the last five decisive games where the win was arguably 'sighted on the horizon' by at least the winner. Readers and their own chess engines may need more convincing but then, they are not driving their search and evaluation processes with the same computing power.

Table 4. TCEC Cup 7: semi-final results from the winner's perspective.

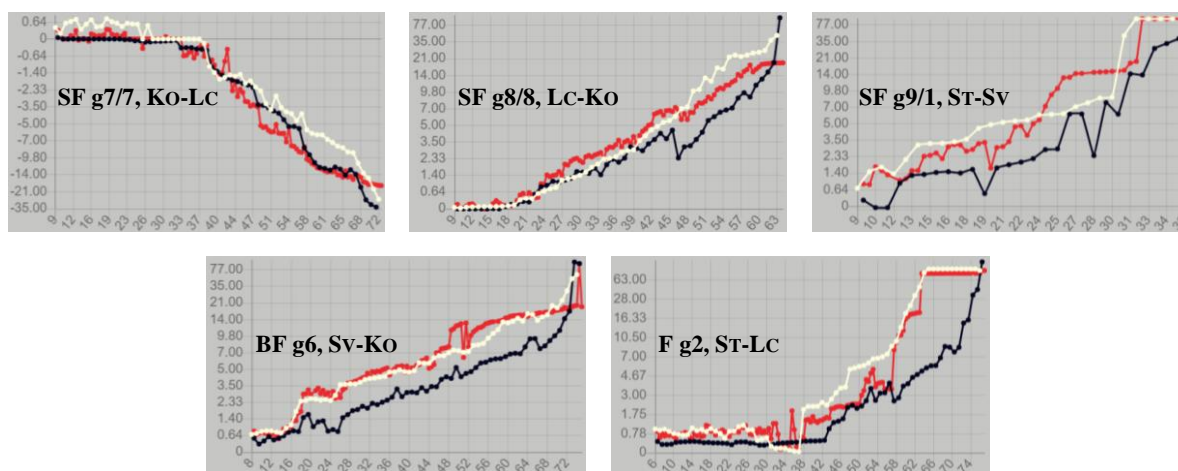| αβ	#	'new'	Elo Δ	Elo	Lg/D	Seed	Semi-final Pairings	Semi-final Results	#g	Winner's E%P	%P	par..
Ko	01	✓	-45	3501	P	05	Komodo 2602.00	LCZero, 5-3: ===, =11	8	56.28	62.50	+
Lc		✓		3546	P	03	LCZero v0.26.3_T60.SV.JH.92-270					
St	02	✓	84	3587	P	02	Stockfish 2020102823_nn-2eb2e0707c2b	Stockfish, 2½-1½: 1===	4	61.56	62.50	=
Sv		×		3503	P	04	Stoofvlees II a14					

Fig. 2. Evaluation curves: Semi Finals games 7-9, Bronze Final game 6 and Final game 2 (TCEC, 2020).

Fig. 3. 'Win on horizon' positions in the last five decisive games: Semi-finals, a) game 7 Ko-Lc pos. 41b, (b) g8 Lc-Ko p32w, (c) g9 St-Sv p13w; (d) Bronze final g6 Sv-Ko p17w; (e) Final g2 St-Lc p37b.

The play-off for the Bronze medal between STOOFVLEES and KOMODO involved adjacent seeds 4 and 5 with an Elo difference of only 2. Statistically then, it was the hardest match of the event to predict, especially as STOOFVLEES has treated us to both the most spectacular wins and the most horrendous blunders. However, here, the two contestants conjured five draws against the odds before STOOFVLEES finally broke through. Again, Figs. 2 and 3 show the game trend and a key position.

Table 5. TCEC Cup 7: the STOOFVLEES – KOMODO play-off and the STOCKFISH – LEELA CHESS ZERO final.

αβ	#	new	Elo Δ	Elo	Lg/D	Seed	Bronze Final & Final Pairings	Results	#g	Winner's E%P	%P	par..
Ko	02	✓	-2	3501	P	05	Komodo 2602.00	Stoofvlees, 3½-2½: ====, =1	6	50.28	58.33	+
Sv		×		3503	P	04	Stoofvlees II a14					
Lc	01	✓	-41	3546	P	03	LCZero v0.26.3_T60.SV.JH.92-270	Stockfish, 2½-1½: =1==	4	55.70	62.50	+
St		✓		3587	P	02	Stockfish 2020102823_nn-2eb2e0707c2b					

After a suspensful pause, while the invaluable operations manager 'Aloril' checked the computer platforms and waited for a prime-time television spot, the match for the seventh TCEC Cup commenced. STOCKFISH was obviously the favourite after its fine all-round performance in the TCEC19 Superfinal, especially in losing only one mini-match. LEELA had to get lucky and it did not, losing its opening game as Black, see Table 5. Congratulations once again to STOCKFISH which, in this TCEC Season took both titles. Its team is entitled to eat all the pies. NNUE is setting new standards.

4   IN CONCLUSION

The TCEC Cup 7 knockout event was another enjoyable celebration of chess. It is worth reminding ourselves of the fact that, even at this Rapid tempo, these engines are in the main still playing better than the best Grandmasters in Classic tempo. A TCEC engine with this platform on Blitz tempo against a top GM team on Classic tempo would surely make for an interesting game and commentary.

Once again, our thanks to all who made this TCEC Season possible, engaging and entertaining. All the games are available with analysis and kibitzer-engine commentary (TCEC, 2020). The pgn files of the games are also available with the decisive games played out (Haworth and Hernandez, 2020d). The usual tableau of shortest/longest games, highlighting the long and unexpected round 1 draw between WINTER and ALLIESTEIN, is given in Table 6 below.

Table 6. The shortest and longest 1-0, drawn and 0-1 games in each phase of TCEC Cup 7:
'35/2' in row 1, column 2 for example means 'game 35 in the pgn, game 2 in the match'.

Round	1-0						½-½						0-1					
	Shortest			Longest			Shortest			Longest			Shortest			Longest		
	Game		#mv	Game		#mv	Game		#mv	Game		#mv	Game		#mv	Game		#mv
1	35/2	Pi-Sc	34	16/1	Lc-Wa	105	13/2	Co-De	42	2/2	Wi-AS	175	11/4	Mi-Ko	37	37/4	Pi-Sc	90
2	3/3	AS-Xi	46	4/1	Ko-De	99	5/1	De-Ko	37	16/1	Sc-Fr	113	8/2	ro-Lc	45	11/2	Ar-Et	67
QF	15/7	St-Sc	47	21/5	Sv-Sl	60	8/4	Et-Lc	43	10/2	Sc-St	84	—	—	—	—	—	—
SF	9/1	St-Sv	35	8/8	Lc-Ko	63	6/6	Lc-Ko	38	3/3	Ko-Lc	111	7/7	Ko-Lc	72	7/7	Ko-Lc	72
Bronze F.	6	Sv-Ko	74	6	Sv-Ko	74	1	Ko-Sv	35	3	Ko-Sv	115	—	—	—	—	—	—
Final	2	St-Lc	76	2	St-Lc	76	1	Lc-St	54	3	Lc-St	71	—	—	—	—	—	—
Overall	1, 35	Pi-Sc	34	1, 16	Lc-Wa	105	BF, 1	Ko-Sv	35	1, 2	Wi-AS	175	1, 11	Mi-Ko	37	1, 37	Pi-Sc	90

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