Understanding Tie-breaks

By Steven Craig Miller

When two chess players with the same score tie for an award of a trophy, medal, or ribbon, it is often necessary to use tie-breaks to determine who gets the award. Frequently, one tie-break method alone will not break the tie, and it is necessary to use a secondary or even a tertiary method.

1. Modified Median
2. Solkoff
3. Cumulative
4. Cumulative of Opposition

The USCF recommends using these four tie-breaks, and in this order, to break ties in Swiss tournaments. Tie-breaks are only used when players have the same score; secondary tie-breaks are only used when the first tie-break is the same; and tertiary tie-breaks are only used when the secondary tie-break is the same; etc.

(#2) The Solkoff Tie-breaking System

Ephraim Solkoff popularized a tie-breaking system in the US, which now bears his name, in the early 1950s, which had been previously used in England. This system sums the number of points earned by the player's opponents to create the Solkoff tie-breaking points. The rationale for this system of tie-breaks is that one measure of the strength of a player's opposition is their tournament score.

The Harkness Median Tie-breaking System

Kenneth Harkness devised a tie-breaking system similar to the Solkoff system; this is called the Median tie-breaking system. Like the Solkoff system, this system sums the number of points earned by the player's opponents, but first it discards the highest and lowest of these scores. This is the "median" scores of one's opponents. Actually, Harkness devised this method only for Swiss tournaments with less than 9 rounds; for tournaments with 9 to 12 rounds, the two highest scores and the two lowest scores were discarded; and for tournaments with over 12 rounds, the three highest and the three lowest scores were discarded.

(#1) The Modified Median Tie-breaking System

The Modified Median tie-break is similar to the Median system, except: (a) players with more than 50% score have only their lowest-scoring opponent's score discarded; (b) players with less than 50% score have only their highest-scoring opponent's score discarded; and (c) players with exactly 50% score are handled as in the regular Median system. The rationale for this system is that someone who finishes in the top 50% might have had an unlucky pairing where they played an opponent who did very poorly, by discarding the lowest score, one eliminates having such an unlucky pairing influence the tie-break. Conversely, someone who finished in the bottom 50% might have had a lucky pairing where they played an opponent who did exceptionally well, by discarding the highest score; one eliminates having such a lucky pairing influence the tie-break.

(#3) The Cumulative Tie-break System

Cumulative tie-break sums the running score for each round. For example, if a player has (in order) a win, loss, win, draw, and a loss; his round-by-round cumulative score will be 1, 1, 2, 2½, 2½. The sum of these numbers is 9. This system places more weight on games won in the early rounds and the least weight on games won in the final rounds. The rationale for this is that a player who scored well early in the tournament has most likely faced tougher opponents in later rounds.

(#4) Cumulative of Opposition

The cumulative scores for each opponent are added together to create this tie-break.

Illinois High School Association's Tie-breakers

For individuals, tie-breakers are applied at the State tournament as recommended by the USCF: "Ties for individual places will be broken according to the following tie-breakers, applied in this order: modified median, Solkoff, cumulative, and opponents' cumulative" (Terms and Conditions, X.b.2).

But for team tie-breakers at the State tournament, IHSA uses a unique tie-breaker system, although the basic principle is fairly common. For the US Amateur Team events, team tie-break points are the number of match points scored against a team multiplied by the final score of that team.

IHSA Team Tie-Break System
1. If two or more teams are tied on tournament points, the following tie-break is to be used to determine final place standings:
For each match played, multiply a team's match points plus ten (10), by one (1) plus the square of the opponent's tournament points, divided by one hundred (100); then add these points for each round played in the tournament.
Example:

Rd	Opp	Team's Match Points	Tournament Points of Opponent		Team's Tie-Breaks
1	A	(60+10)x	(3^2+1)	/100=	7.00
2	B	(35+10)x	(3^2+1)	/100=	4.50
3	C	(10+10)x	(6^2+1)	/100=	7.40
4	D	(50+10)x	(4^2+1)	/100=	12.10
5	E	(68+10)x	(3^2+1)	/100=	7.80
6	F	(33+10)x	(5^2+1)	/100=	11.18
7	G	(24+10)x	(6^2+1)	/100=	12.58
			Team's total Tie-Breaks		60.66

For tie-break calculations, each team's score is adjusted for unplayed matches (scored as draws for tie-break purposes).

At the IHSA state tournament, a team can win anywhere from 0 to 68 match points. By adding 10 points, the variable on the left side of the equation is from 10 to 78 points.

Given that this state tournament has seven rounds, a team can win from 0 to 7 tournament points. Squaring the tournament points and adding one gives a value from 1 to 50.

By multiplying the modified match points by the modified tournament points and then dividing that by 100, one gets the team's tie-breaking points for that round. Add the tie-breaking points for each round and one gets a team's total tie-breaks.