

C.04.4.2 Burstein System

Preface:

The BURSTEIN Swiss Pairing System is designed to maximize the fair treatment of players - in the sense that players having the same score should have met an average opposition as equal as possible during a tournament.

The system evaluates the strength of the opposition by means of an Index that only uses current data of the tournament, and is based on tie-break derived method(s) (Ratings are taken into account only when everything else is equal - see articles A.6-A.7). If this Index gives a nearly equal evaluation of all players in the same scoregroup, the goal is reached. Nevertheless, since a Swiss System is a more or less statistical system, this goal can only be reached approximately.

The approach is to attempt to equalize the Index of all players in a given scoregroup. Once the system is properly seeded (by pairing a number of early rounds using traditional methods - see A.5), the Index becomes a good evaluator of players' strength. Henceforth, in each round, the system will try to pair players who have a high Index with players who have a low Index within the same scoregroup. Although the immediate effect of this manoeuver is negligible (the Index is based on opponents' scores, and the players paired together often have equal scores), in the long run the desired effect is achieved (approximately, as mentioned above).

A. Introductory Remarks and Definitions

A.1 Initial ranking list

See C.04.2.B (General Handling Rules - Initial order)

A.2 Scoregroups and pairing brackets

A scoregroup is composed of all the players with the same score.

A (pairing) bracket is a group of players to be paired. It is composed of players coming from a scoregroup (called resident players) and (possibly) of players who remained unpaired after the pairing of the previous bracket (called incoming floaters).

A.3 Byes

See C.04.1.c (*Should the number of players to be paired be odd, one player is unpaired. This player receives a pairing-allocated bye: no opponent, no colour and as many points as are rewarded for a win, unless the regulations of the tournament state otherwise*).

A.4 Colour differences and colour preferences

The colour difference of a player is the number of games played with white minus the number of games played with black by this player.

The colour preference (*also called: due colour*) is the colour that a player should ideally receive for the next game. It can be determined for each player who has played at least one game.

- a. An absolute colour preference occurs when a player's colour difference is greater than +1 or less than -1, or when a player had the same colour in the two last rounds he played. The preference is white when the colour difference is less than -1 or when the last two games were played with black. The preference is black when the colour difference is greater than +1, or when the last two games were played with white.
- b. A strong colour preference occurs when a player's colour difference is +1 (preference for black) or -1 (preference for white).
- c. A mild colour preference occurs when a player's colour difference is zero, the preference being to alternate the colour with respect to the previous game he played.
- d. Players who did not play any games have no colour preference (the preference of their opponents is granted).

A.5 Seeding Rounds

In order to properly seed the system, some initial rounds, called seeding rounds, are paired following the rules of the FIDE (Dutch) System (*see C.04.3*).

The number of seeding rounds is equal to half the number of rounds in the tournament (rounded down) or 4 (four), whichever is lower.

A.6 Opposition Evaluation

During the pairing process, the players in a bracket need to be sorted (*see B.0.e, E.0, E.4, or section D*), by applying some or all of the methods defined here, as directed by article A.7.a.

a. Sorting Methods

1. Buchholz

It is the sum of the (current) scores of the opponents the player met.

2. Sonneborn-Berger

It is the sum of the products given by the points the player earned against each opponent times the (current) scores of that opponent.

Note If the standard scoring system is used, the above means the sum of the score of the opponents a player has defeated plus half the sum of the score of the opponents with whom he has drawn.

b. Common Rules

1. Unplayed games

If a player does not play in a round, the round shall be considered as one in which that player played against himself getting the result (win, draw, loss) that yields the same number of points as registered for the standings (and the future pairings).

Exception: if a player has a series of consecutive zero-point-byes up to the current round, each of the ones gathered in previous rounds, for the benefit of the player's actual over-the-board opponents, is considered as a draw.

2. Acceleration methods

If virtual points are used (*e.g. with the Baku Acceleration Method - see C.04.5.1*), such virtual points shall be excluded from the computation of any method.

A.7 Ranking Order

After the seeding rounds (*see A.5*), for pairings purposes only, the players in a bracket are ranked in order of, respectively:

- a (Opposition Evaluation) Index, which is a sequence of the methods seen in A.6.a, to be applied in the following order (*any subsequent method is used when preceding method(s) yield equal values*):
 1. Buchholz (*see A.6.a.1*)
 2. Sonneborn-Berger (*see A.6.a.2*)
- b pairing numbers assigned to the players according to the initial ranking list (*see A.1*) and subsequent modifications depending on possible late entries or rating adjustments.

Note: Players' scores are not used in the pairing ranking order.

A.8 Round-Pairing Outlook

Note This outlook is valid after the seeding rounds (see A.5) have been completed.

The pairing of a round (called round-pairing) is complete if all the players (except at most one, who receives the pairing-allocated bye) have been paired and the absolute criteria C1-C3 have been complied with.

The pairing process starts with the assignment of the pairing-allocated-bye (*see B.0*) and continues by pairing the top scoregroup, and then bracket by bracket until all the scoregroups, in descending order, have been used and the round-pairing is complete.

If it is impossible to complete a round-pairing, the arbiter shall decide what to do.

Section B describes the pairing procedures.

Section C defines all the criteria that the pairing of a bracket has to satisfy (in order of priority).

Section E defines the colour allocation rules that determine which players will play with White.

B. Pairing Procedures

Pairing-Allocated-Bye assignment

- B.0** The pairing-allocated-bye is assigned to the player who:
- has neither received a pairing-allocated-bye, nor scored a forfeit win in the previous rounds (see C.2)
 - allows a complete pairing of all the remaining players (see C.4)
 - has the lowest score
 - has played the highest number of games
 - occupies the lowest ranking (*according to A.7*)

Pairing Process for a bracket

- B.1** The pairing of a bracket is composed of pairs and outgoing floaters. Determine the maximum number of pairs that can be obtained in the current bracket while complying with criteria from C.1 to C.5. This automatically determines the number of outgoing floaters.
- B.2** Choose the first pairing (as ordered according to D.1) that complies best with all the pairing criteria (C.1 to C.8). Consider that a pairing is better than another if it better satisfies a quality criterion (C.5-C.8) of higher priority.

C. Pairing Criteria

Absolute Criteria

No pairing shall violate the following absolute criteria:

- C.1** see C.04.1.b (*Two players shall not play against each other more than once*)
- C.2** see C.04.1.d (*A player who has already received a pairing-allocated bye, or has already scored a (forfeit) win due to an opponent not appearing in time, shall not receive the pairing-allocated bye*).
- C.3** two players with the same absolute colour preference (*see A.4.a*) shall not meet (*see C.04.1.f and C.04.1.g*).

Completion Criterion

- C.4** choose the set of outgoing floaters in order to complete the round-pairing.

Quality Criteria

To obtain the best possible pairing for a bracket, comply as much as possible with the following criteria, given in descending priority:

- C.5** maximize the number of pairs (*equivalent to: minimize the number of outgoing floaters*)
- C.6** first maximize the number and then the scores of the incoming floaters that can be paired.

- C.7 choose the outgoing floaters so that in the following bracket C.4, C.5 and C.6 are complied with in the best possible way (*i.e., besides C.4 compliance, the number of pairs must be maximized, and all these floaters must be paired - or, at least, the ones with the highest scores*).
- C.8 minimize the number of players who do not get their colour preference.

D. Order of pairings

All players in the bracket shall be tagged with consecutive in-bracket sequence-numbers (BSN for short) representing their respective ranking order (*according to A.7*) in the bracket (*i.e. 1, 2, 3, 4, ...*).

The bracket is then extended, adding a number of virtual players equal to the number of outgoing floaters (*see C.5*). All those virtual players are assigned a BSN equal to zero, meaning that their opponent shall float.

- D.1 In order to sort all the possible pairings, apply the following rule: a pairing precedes another if its BSN #1's opponent has a higher BSN (*i.e. lower ranking*) than the other's. If BSN #1's opponents are the same, then compare BSN #2's opponents; and so on.

E. Colour Allocation rules

Initial-colour

It is the colour determined by drawing of lots before the pairing of the first round.

For each pair apply (with descending priority):

- E.0 When both players have yet to play a game, if the higher ranked player (*according to A.7*) has an odd pairing number, give him the initial-colour; otherwise give him the opposite colour.

Note: Always consider sections C.04.2.B/C (Initial Order/Late Entries) for the proper management of the pairing numbers.

- E.1 Grant both colour preferences.
- E.2 Grant the stronger colour preference.
- E.3 Taking into account C.04.2.D.5, alternate the colours to the most recent time in which one player had white and the other black.
- E.4 Grant the colour preference of the higher ranked player (*see A.7*).