C.04 FIDE Swiss rules

C.04.1 Basic rules for Swiss Systems

The following rules are valid for each Swiss system unless explicitly stated otherwise.

a   The number of rounds to be played is declared beforehand

b   Two players shall not play each other more than once

c   Should the total number of players be (or become) odd, one player is unpaired. He receives a bye: no colour and as many points as are rewarded for a win, unless the regulations of the tournament state otherwise

d   A player who, for whatever reason, has received any number of points without playing, shall not receive a bye.

e   In general, players are paired to others with the same score

f   For each player the difference of the number of black and the number of white games shall not be greater than 2 or less than –2.

   Each system may have exceptions to this rule in the last round of a tournament.

g   No player will receive the same colour three times in a row.

   Each system may have exceptions to this rule in the last round of a tournament.

h   1.   In general, a player is given a colour as many times as he is given the other colour.

   2.   In general, a player is given the colour other than that he was given the previous round.

i   The pairing rules must be such transparent that the person who is in charge for the pairing can explain them

C.04.2 General handling rules for Swiss Tournaments

A   Pairing Systems

1   The pairing system used for a FIDE rated tournament shall be either one of the published FIDE Swiss Systems or a detailed written description of the rules shall be explicitly presented to the participants.

2   While reporting a tournament to FIDE the Arbiter shall declare which of the official FIDE Swiss systems was used. If another system was used, the Arbiter has to submit the rules of this system for checking by the Swiss Pairing Committee.

3   Accelerated methods are acceptable if they were announced in advance by the organizer and are not biased in favour of any player.

4   The FIDE Swiss Rules pair the players in an objective and impartial way, and different arbiters or software programs following the pairing rules should arrive at identical pairings.

5   It is not allowed to vary the correct pairings in favour of any player.
   Where it can be shown that modifications of the original pairings were made in favour of a player to

achieve a norm, a report may be submitted to the Qualification Commission to initiate disciplinary measures through the Ethics Commission.

B Initial Order

1   Before the start of the tournament a measure of the player's strength is assigned to each player. The strength is usually represented by rating lists of the players. If one rating list is available for all participating players, then this rating list should be used.

It is advisable to check all ratings supplied by players. If no reliable rating is known for a player the arbiters should make an estimation of it as accurately as possible.

2   Before the first round the players are ranked in order of, respectively

[a]   Strength (rating)

[b]   FIDE-title (GM-IM- WGM-FM-WIM-CM-WFM-WCM-no title)

[c]   alphabetically (unless it has been previously stated that this criterion has been replaced by another one)

3   This ranking is used to determine the pairing numbers; the highest one gets #1 etc.

C Late Entries

1   According to FIDE Competition Rules, any prospective participant who has not arrived at the venue of a FIDE competition before the scheduled time for the drawing of lots shall be excluded from the tournament as long as he does not show up at the venue in time before a pairing of another round.

An exception may be made in the case of a registered participant who has given written notice in advance that he will be unavoidably late.

2   Where the Chief Arbiter decides to admit a Late Entrant,

- if the player's notified time of arrival is in time for the start of the first round, the player is given a pairing number and paired in the usual way.

- if the player's notified time of arrival is in time only for the start of the second (or third) round, then the player is not paired for the rounds which he cannot play. Instead, he receives no points for unplayed rounds (unless the regulations of the tournament say otherwise), and is given an appropriate pairing number and paired only when he actually arrives.

3   In these circumstances, the Pairing Numbers that were given at the start of the tournament are considered provisional. The definitive Pairing Numbers are given only when the List of Participants is closed, and corrections made accordingly in the results charts.

D Pairing, colour and publishing rules

1   Adjourned games are considered draws for pairing purposes only.

2   Byes, and pairings not actually played, or lost by one of the players due to arriving late or not at all, will not be taken in account with respect to colour. Such a pairing is not considered to be illegal in future rounds.

3   Unplayed games do not count in any situation where the colour sequence is meaningful. So, for instance,

if a player has a colour history of BWB=W (i.e. no valid game in round-4) will be treated as if his colour history was =BWBW. WB=WB will count as =WBWB, BWW=B=W as ==BWWBW and so on.

4   A player who is absent without notifying the arbiter will be considered as withdrawn unless the absence is explained with acceptable arguments before the next pairings are published.

5   Players who withdraw from the tournament will no longer be paired.

6   Players known in advance not to play in a particular round are not paired in that round and score 0 (unless the regulations of the tournament say otherwise).

7   The results of a round shall be published at the usual place of communication at announced time due to the schedule of the tournament.

8   If either
    • result was written down incorrectly, or
    • a game was played with the wrong colours, or
    • a player's rating has to be corrected (and playing numbers possibly recomputed as in C.3),

    and a player communicates this to the arbiter within a given due time delay after publication of results, these facts have to be used for the standings and the pairings of the round to come. The time delay shall be fixed in advance due to the timetable of the tournament.

    If the error notification is made after the pairing but before the end of the next round, this will affect the next pairing to be done.

    If the error notification is made after the end of the next round, the correction will be made after the tournament for submission to rating evaluation only.

9   After a pairing is complete sort the pairs before making them public.

    The sorting criteria are (with descending priority)
    • the score of the higher player of the pairing involved;
    • the sum of the scores of both players of the pairing involved;
    • the rank according to the Initial Order (C.04.2.B) of the higher player of the pairing involved.

10 The pairings once published shall not be changed unless two players have to play the second time.

C.04.3 Swiss Systems officially recognized by FIDE

C.04.3.1. Dutch System

Version as agreed by the 83rd FIDE Congress in Istanbul 2012

A **Introductory Remarks and Definitions**

A.1 Initial ranking list

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

A.2 **Order**

For pairings purposes only, the players are ranked in order of, respectively

    a. score
    b. pairing numbers assigned to the players accordingly to the initial ranking list and subsequent modifications dependent on possible late entries

A.3 **Score brackets**

Players with equal scores constitute a homogeneous score bracket. Players who remain unpaired after the pairing of a score bracket will be moved down to the next score bracket, which will therefore be heterogeneous. When pairing a heterogeneous score bracket these players moved down are always paired first whenever possible, giving rise to a remainder score bracket which is always treated as a homogeneous one.
A heterogeneous score bracket of which at least half of the players have come from a higher score bracket is also treated as though it was homogeneous.

A.4 **Floats**

By pairing a heterogeneous score bracket, players with unequal scores will be paired. To ensure that this will not happen to the same players again in the next two rounds this is written down on the pairing card. The higher ranked player (called downfloater) receives a downfloat , the lower one (upfloater) an upfloat.

A.5 **Byes**

Should the total number of players be (or become) odd, one player ends up unpaired. This player receives a bye: no opponent, no colour , 1 point or half point (as stated in the tournament regulations).

A.6 **Subgroups - Definition of P0, M0**

    a   To make the pairing, each score bracket will be divided into two subgroups, to be called S1 and S2, where S2 is equal or bigger than S1 (for details see C.2 to C.4)
                S1 players are tentatively paired with S2 players.

    b   P0 is the maximum number of pairs that can be produced in each score bracket.
                P0 is equal to the number of players divided by two and rounded downwards.

    c   M0 is the number of players moved down from higher score groups (it may be zero)

A.7 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.
After a round the colour preference 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 latest 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 or -1.
    The strong colour preference is white when the colour difference is -1, black otherwise

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.
    Before the first round the colour preference of one player (often the highest one) is determined by lot.

d   While pairing an odd-numbered round players having a strong colour preference (players who have had an odd number of games before by any reason) shall be treated like players having an absolute colour preference as long as this does not result in either additional floaters or floaters with an higher score or pairs with a higher score difference of the paired players.

e   While pairing an even-numbered round players having a mild colour preference (players who have had an even number of games by any reason) shall be treated and counted as if they would have a mild colour preference of that kind (white resp. black) which reduces the number of pairs where both players have the same strong colour preference.

f   Players who did not play the first rounds have no colour preference (the preference of their opponents is granted)

A.8 Definition of X1, Z1

Provided there are P0 (see A6) pairings possible in a score bracket:

a   the minimum number of pairings which must be made in the score bracket, not fulfilling all colour preferences, is represented by the symbol X1.

b   in even rounds the minimum number of pairings which must be made in the score bracket, not fulfilling all strong colour preferences (see A7.e), is represented by the symbol Z1

X1 and, in even rounds, Z1 can be calculated as follows:

w   in odd rounds: 0; in even rounds: number of players who had an odd number of unplayed games which have a mild colour preference for white (see A7.e)
b   in odd rounds: 0; in even rounds: number of players who had an odd number of unplayed games which have a mild colour preference for black (see A7.e)
W   (remaining) number of players having a colour preference white
B   (remaining) number of players having a colour preference black
a   number of players who have not played a round yet

$$X1 \quad \text{If } B+b > W+w \quad X1 = P0 - W - w - a,$$
$$\text{then} \qquad\qquad X1 = P0 - B - b - a.$$
$$\text{else} \qquad\qquad X1 = 0$$

If X1 < 0 then
In even rounds:
Z1   If B > W   then   Z1 = P0 - W - b - w - a
*   else   Z1 = P0 - B - b - w - a.*
*   If Z1 < 0   then   Z1 = 0*

A.9   **Transpositions and exchanges**

a   In order to make a sound pairing it is often necessary to change the order in S2. The rules to make such a change, called a transposition, are in D1

b   In a homogeneous score bracket it may be necessary to exchange players from S1 to S2. Rules for exchanges are found under D2. After each exchange both S1 and S2 are to be ordered according to A2.

A.10 **Definitions: Top scorers, Backtracking**

Top scorers are players who have a score of over 50% of the maximum possible score when pairing the last round.
Backtracking means to undo the pairings of a higher score bracket to find another set of floaters to the given score bracket.

A.11 **Quality of Pairings - Definition of X and P**

The rules C1 to C14 describe an iteration algorithm to find the best possible pairings within a score bracket.
Starting with the extreme requirement:
P0 pairings with P0 – X1 pairings fulfilling all colour preferences and meeting all requirements B1 to B6
If this target cannot be managed the requirements are reduced step by step to find the best sub-optimal pairings.
The quality of the pairings is defined in descending priority as

   o   the number of pairs
   o   the closeness of the scores of the players playing each other
   o   the number of pairs fulfilling the colour preference of both players (according to A7)
   o   fulfilling the current criteria for downfloaters
   o   fulfilling the current criteria for upfloaters

During the algorithm two parameters represent the progress of the iteration:
P is the number of pairings required at a special stage during the pairings algorithm. The first value of P is P0 or M0 and is decreasing.
X is the number of pairings not fulfilling all colour preferences which is acceptable at a special stage during the pairings algorithm. The first value of X is X1 (see A8) and is increasing.

B **Pairing Criteria**

Absolute Criteria
(These may not be violated. If necessary players will be moved down to a lower score bracket.)

B.1   a   Two players shall not meet more than once.

      b   A player who has received a point or half point without playing, either through a bye or due to an opponent not appearing in time, is a downfloater (see A4) and shall not receive a bye.

B.2   Two players with the same absolute colour preference (see A7.a) shall not meet (therefore no player's colour difference will become >+2 or < -2 nor a player will receive the same colour three times in row)

Note: If it is helpful to reduce the number of floaters or the score of a floater when pairing top scorers

B2 may be ignored.
If a top scorer is paired against a non-top scorer, the latter is considered a top scorer for colour allocation purposes.

Relative Criteria
(These are in descending priority. They should be fulfilled as much as possible. To comply with these criteria, transpositions or even exchanges may be applied, but no player should be moved down to a lower score bracket).

B.3 The difference of the scores of two players paired against each other should be as small as possible and ideally zero *(note for programmers: see section D.4 regarding how to use this criterion after repeated application of rule C.13)*

B.4 As many players as possible receive their colour preference

B.5 No player shall receive an identical float in two consecutive rounds.

B.6 No player shall have an identical float as two rounds before.

C Pairing Procedures

Starting with the highest score bracket apply the following procedures to all score brackets until an acceptable pairing is obtained. The colour allocation rules (E) are used to determine which players will play with white.

C.1 Incompatible player

If the score bracket contains a player for whom no opponent can be found within this score bracket without violating B1 (or B2, except when pairing top scorers) then:

- o if this player was moved down from a higher score bracket apply C12.
- o if this score bracket is the lowest one apply C13.
- o in all other cases: move this player down to the next score bracket

C.2 Determine P0, P1, M0, M1, X1, Z1

a   Determine P0 according to A6.b. Set P1 = P0
       Determine M0 according to A6.c. Set M1= M0

b   Determine X1 according to A8.a
       In even rounds: determine Z1 according to A8.b

C.3 Set requirements P, B2, A7d, X, Z, B5/B6

a   In a homogeneous score bracket set P = P1
       In a heterogeneous score bracket set P = M1

b   (top scorers) reset B2

c   (odd rounds) reset A7.d

d   Set X = X1
       (even numbered rounds) Set Z = Z1

e   (bracket produces downfloaters) reset B5 for downfloaters

f   (bracket produces downfloaters) reset B6 for downfloaters

g   (heterogeneous score brackets) reset B5 for upfloaters

h   (heterogeneous score brackets) reset B6 for upfloaters

C.4 Establish sub-groups

Put the highest P players in S1, all other players in S2.

C.5   **Order the players in S1 and S2**

According to A2.

C.6   **Try to find the pairing**

Pair the highest player of S1 against the highest one of S2, the second highest one of S1 against the second highest one of S2, etc. If now P pairings are obtained in compliance with the current requirements the pairing of this score bracket is considered complete.

    o   in case of a homogeneous or remainder score bracket: remaining players are moved down to the next score bracket. With this score bracket restart at C1.

    o   in case of a heterogeneous score bracket: only M1 players moved down were paired so far. Mark the current transposition and the value of P (it may be useful later).
Redefine $P = P1 - M1$
Continue at C4 with the remainder group.

C.7   **Transposition**

Apply a new transposition of S2 according to D1 and restart at C6.

C.8   **Exchange**

a   In case of a homogeneous (remainder) group: apply a new exchange between S1 and S2 according to D2 and restart at C5.

b   In case of a heterogeneous group: if M1 is less than M0, choose another set of M1 players to put in S1 according to D3 and restart at C5

C.9   **Go back to the heterogeneous score bracket (only remainder)**

Terminate the pairing of the homogeneous remainder. Go back to the transposition marked at C6 (in the heterogeneous part of the bracket) and restart from C7 with a new transposition.

C.10   **Lowering requirements**

a   (heterogeneous score brackets)
            Drop B6 for upfloaters and restart from C.4

b   (heterogeneous score brackets)
            Drop B5 for upfloaters and restart from C.3.h

c   (bracket produces downfloaters)
            Drop B6 for downfloaters and restart from C.3.g

d   (bracket produces downfloaters)
            Drop B5 for downfloaters and restart from C.3.f

e   (odd numbered rounds)
            If $X < P1$, increase X by 1 and restart from C.3.e
        (even numbered rounds)
            If $Z < X$, increase Z by 1 and restart from C.3.e.
            If $Z = X$ and $X < P1$, increase X by 1, reset $Z=Z1$ and restart from C.3.e

f   (odd numbered rounds)
            Drop A7.d and restart from C.3.d

g   (top scorers)
            Drop B2 and restart from C.3.c

Any criterion may be dropped only for the minimum number of pairs in the score bracket

C.11 **Deleted**

(see C.10.e)

C.12 **Backtrack to previous Score bracket**

If there are moved down players: backtrack to the previous score bracket. If in this previous score bracket a pairing can be made whereby another set of players of the same size and with the same scores will be moved down to the current one, and this now allows P1 pairings to be made then this pairing in the previous score bracket will be accepted.
Backtracking is disallowed when already backtracking from a lower score bracket

C.13 **Lowest Score Bracket**

In case of the lowest score bracket: if it is heterogeneous, try to reduce the number of pairable moved-down players (M1), as shown in C14.b2. Otherwise backtrack to the penultimate score bracket. Try to find another pairing in the penultimate score bracket which will allow a pairing in the lowest score bracket. If in the penultimate score bracket P becomes zero (i.e. no pairing can be found which will allow a correct pairing for the lowest score bracket) then the two lowest score brackets are joined into a new lowest score bracket. Because now another score bracket is the penultimate one, C13 can be repeated until an acceptable pairing is obtained.
Such a merged score bracket shall be treated as a heterogeneous score bracket with the latest added score bracket as S1.

C.14 **Decrease P1, X1, Z1, M1**

a   **For homogeneous score brackets**:
As long as P1 is greater than zero, decrease P1 by 1.
If P1 equals zero the entire score bracket is moved down to the next one. Start with this score bracket at C1
Otherwise, as long as X1 is greater than zero, decrease X1 by 1.
In even rounds, as long as Z1 is greater than zero, decrease Z1 by 1.
Restart from C3.a

b   **For heterogeneous score brackets:**

1   If the pairing procedure has got to the remainder at least once, reduce P1, X1 and, in even rounds, Z1 as in the homogeneous score brackets and restart from C3.a

2   Otherwise, as long as M1 is greater than 1, reduce M1 by 1 and restart from C3.a
If M1 is one, set M1=0, manage the bracket as homogeneous, set P1=P0 and restart from C2.b.

D **Transposition and exchange procedures**

D.1 **Transpositions**

D1.1   **Homogeneous or remainder score brackets**

Example: S1 contains 5 players 1, 2, 3, 4, 5 (in this sequence)
S2 contains 6 players 6, 7, 8, 9, 10, 11 (in this sequence)

Transpositions within S2 should start with the lowest player, with descending priority

0.   6 – 7 – 8 – 9 – 10 – 11
1.   6 – 7 – 8 – 9 – 11 – 10
2.   6 – 7 – 8 – 10 – 9 – 11
3.   6 – 7 – 8 – 10 – 11 – 9
4.   6 – 7 - 8 – 11 – 9 – 10

5.	6 – 7 – 8 – 11 – 10 – 9
6.	6 – 7 – 9 – 8 – 10 – 11
7.	6 – 7 – 9 – 8 – 11 – 10
8.	6 – 7 – 9 – 10 – 8 – 11
9.	6 – 7 – 9 – 10 – 11 – 8
10.	6 – 7 – 9 – 11 – 8 – 10
11.	6 – 7 – 9 – 11 – 10 – 8
12.	6 – 7 – 10 – 8 – 9 – 11
13.	6 – 7 – 10 – 8 – 11 – 9
14.	6 – 7 – 10 – 9 – 8 – 11
15.	6 – 7 – 10 – 9 – 11 – 8
16.	6 – 7 – 10 – 11 – 8 – 9
17.	6 – 7 – 10 – 11 – 9 – 8
18.	6 – 7 – 11 – 8 – 9 – 10
19.	6 – 7 – 11 – 8 – 10 – 9
20.	6 – 7 – 11 – 9 – 8 – 10
21.	6 – 7 – 11 – 9 – 10 – 8
22:	6 – 7 – 11 – 10 – 8 – 9
23.	6 – 7 – 11 – 10 – 9 – 8
24.	6 – 8 – 7 - …..

To be continued. (at all 720 figures)

719.	11 – 10 – 9 – 8 – 7 – 6

D1.2   Heterogeneous score brackets

The algorithm is in principle the same as for homogeneous score brackets (See D1.1),
especially when S1 = S2,
If S1 < S2 the algorithm must be adapted to the difference of players in S1 and S2.

Example: S1 contains 2 players 1, 2,   (in this sequence)
                 S2 contains 6 players 3, 4, 5, 6, 7, 8 (in this sequence)

The transpositions within S2 are the same as in D1.1. But only the S1 first listed players of
a transposition may be paired with S1. The other S2 – S1 players remain unpaired in this
attempt.

D.2   Exchange of players (homogeneous or remainder score bracket only)

When applying an exchange between S1 and S2 the difference between the numbers exchanged should
be as small as possible. When differences of various options are equal take the one concerning the
lowest player of S1. Then take the one concerning the highest player of S2.

General procedure:

- o Sort the groups of players of S1 which may be exchanged in decreasing lexicographic order as
  shown below in the examples (List of S1 exchanges)
- o Sort the groups of players of S2 which may be exchanged in increasing lexicographic order as
  shown below in the examples (List of S2 exchanges)
- o The difference of numbers of players concerned in an exchange is: (Sum of numbers of players
  in S2) – (Sum of numbers of players in S1).
  This difference shall be as small as possible.
- o When differences of various options are equal:
  - • Take at first the option top down from the list of S1 exchanges.
  - • Take then the option top down from the list of S2 exchanges.

- o   After each exchange both S1 and S2 should be ordered according to A2

Remark: Following this procedure it may occur that pairings already checked will appear again. These repetitions are harmless because they give no better pairings than at their first occurrence.

Example for the exchange of one player:

		S1				
		5	4	3	2	1
	6	1	3	6	10	15
	7	2	5	9	14	20
S2	**8**	4	8	13	19	24
	9	7	12	18	23	27
	10	11	17	22	26	29
	11	16	21	25	28	30

1.   exchange player 5 from S1 with player 6 from S2 : difference 1
2.   exchange player 5 from S1 with player 7 from S2 : difference 2
3.   exchange player 4 from S1 with player 6 from S2 : difference 2
Etc.

Example for the exchange of two players:

		S1									
		5,4	**5,3**	**5,2**	**5,1**	**4,3**	**4,2**	**4,1**	**3,2**	**3,1**	**2,1**
	6,7	1	3	7	14	8	16	28	29	45	65
	6,8	2	6	13	24	15	27	43	44	64	85
	6,9	4	11	22	37	25	41	60	62	83	104
	6,10	9	20	35	53	39	58	79	81	102	120
	6,11	17	32	50	71	55	76	96	99	117	132
	7,8	5	12	23	38	26	42	61	63	84	105
	7,9	10	21	36	54	40	59	80	82	103	121
S2	**7,10**	18	33	51	72	56	77	97	100	118	133
	7,11	30	48	69	90	74	94	113	115	130	141
	8,9	19	34	52	73	57	78	98	101	119	134
	8,10	31	49	70	91	75	95	114	116	131	142
	8,11	46	67	88	108	92	111	126	128	139	146
	9,10	47	68	89	109	93	112	127	129	140	147
	9,11	66	87	107	123	110	125	137	138	145	149
	10,11	86	106	122	135	124	136	143	144	148	150

1. Exchange 5,4 from S1 with 6,7 from S2: difference = 4
2. Exchange 5,4 from S1 with 6,8 from S2: difference = 5
3. Exchange 5,3 from S1 with 6,7 from S2: difference = 5
4. Exchange 5,4 from S1 with 6,9 from S2: difference = 6
5. Exchange 5,4 from S1 with 7,8 from S2: difference = 6
6. Exchange 5,3 from S1 with 6,8 from S2: difference = 6
Etc.

Example for the exchange of three players:

List of S1 exchanges:

5,4,3	5,4,2	5,4,1	5,3,2	5,3,1
5,2,1	4,3,2	4,3,1	4,2,1	3,2,1

List of S2 exchanges:

6,7,8	6,7,9	6,7,10	6,7,11	6,8,9	6,8,10
6,8,11	6,9,10	6,9,11	6,10,11	7,8,9	7,8,10
7,8,11	7,9,10	7,9,11	7,10,11	8,9,10	8,9,11
8,10,11	9,10,11				

1. Exchange 5,4,3 from S1 with 6,7,8 from   S2: difference = 9
2. Exchange 5,4,3 from S1 with 6,7,9 from   S2: difference = 10
3. Exchange 5,4,2 from S1 with 6,7,8 from   S2: difference = 10
4. Exchange 5,4,3 from S1 with 6,7,10 from S2: difference = 11
5. Exchange 5,4,3 from S1 with 6,8,9 from   S2: difference = 11
6. Exchange 5,4,2 from S1 with 6,7,9 from   S2: difference = 11
Etc.

Exact procedure for exchange of N (N= 1,2,3,4..) players in a scoregroup of P players

o   Sort all possible subsets of N players of S1 in decreasing lexicographic order to an array S1LIST which may have S1NLIST elements.
o   Sort all possible subsets of N players of S2 in increasing lexicographic order to an array S2LIST which may have S2NLIST elements
o   To each possible exchange between S1 and S2 can be assigned a difference which is a number defined as:

$$\text{(Sum of numbers of players in S2, included in that exchange)} - \text{(Sum of numbers of players in S2, included in that exchange)}$$

In functional terms:

$$\text{DIFFERENZ}(I,J) = \text{sum of numbers of players of S2 in subset J } - \text{ sum of numbers of players of S1 in subset I}$$

This difference has   a minimum   DIFFMIN = DIFFERENZ (1,1)

and   a maximum DIFFMAX = DIFFERENZ (S1NLIST, S2NLIST)

Now the procedure to find the exchanges in correct order:

1   DELTA = DIFFMIN
2   I=1 J=1
3   If DELTA = DIFFERENZ(I,J) then do this exchange, after that goto 4
4   if J < S2NLIST then J=J+1 goto 3
5   if I<S1NLIST then I=I+1, J=1 goto 3
6   DELTA =DELTA+1

7   if DELTA > DIFFMAX goto 9
8   goto 2
9   The possibilities to exchange N players are exhausted

After each exchange both S1 and S2 should be ordered according to A2

D.3   Moved-down players exchange

Example: M0 is 5; The players originally in S1 are {1, 2, 3, 4, 5}

The elements in S1 start with the M1 highest players, then with descending priority:

	S1 elements in descending priority				
	M1 = 5	M1 = 4	M1 = 3	M1 = 2	M1 = 1
	1-2-3-4-5	1-2-3-4	1-2-3	1-2	1
		1-2-3-5	1-2-4	1-3	2
		1-2-4-5	1-2-5	1-4	3
		1-3-4-5	1-3-4	1-5	4
M0 = 5		2-3-4-5	1-3-5	2-3	5
			1-4-5	2-4	
			2-3-4	2-5	
			2-3-5	3-4	
			2-4-5	3-5	
			3-4-5	4-5	

D.4   Note for programmers: B.3-factor in the lowest score bracket

After repeated applications of rule C13, it is possible that the lowest score bracket (LSB) contains players with many different scores and that there are multiple ways to pair them.

Such a bracket either is homogeneous (when the number of players coming from the penultimate score bracket is equal or higher than the number of LSB players) or eventually produces a homogeneous remainder.

The following rule must be followed by pairing programs: **The best pairing for such a homogeneous score bracket or remainder is the one that minimizes the sum of the squared differences between the scores of the two players in each pair** *(called B3-factor)*. **Getting the bye is equivalent to face an opponent with one point less than the lowest ranked player (even if this is resulting in -1).**

Example: Let the following be the players in the LSB:

    3.0 : A
    2.5 : B, C
    2.0 : D
    1.5 : E
    1.0 : F

    F can only play against A.

The pairing will initially start with S1={A,B,C} S2={D,E,F} and, after a few transpositions, it will move to **Png1: [S1={A,B,C} S2={F,D,E}]**. Work is not finished, though. Some exchanges must be applied to get to **Png2: [S1={A,B,D} S2={F,C,E}]** which is the best possible pairing. This is because of the B3-factor. Let us compute it:

Png1: (A-F, B-D, C-E) => (2.0*2.0 + 0.5*0.5 + 1.0*1.0) = 5.25
Png2: (A-F, B-C, D-E) => (2.0*2.0 + 0.0*0.0 + 0.5*0.5) = 4.25

Warning: if there is a seventh player (G) with less than 2.5 points, who is the only one who can get the bye, the LSB is heterogeneous and no exchanges in S1 are allowed. In such an instance, the pairing of the LSB is: A-F, B-D, C-E, G(bye)

Remark: This algorithm is nothing especial. It is the best mathematical method to find the pairings which an arbiter seeing all the player's data naturally will achieve.

E Colour Allocation rules

For each pairing apply (with descending priority):

E.1   Grant both colour preferences

E.2   Grant the stronger colour preference

E.3   Alternate the colours to the most recent round in which they played with different colours

E.4   Grant the colour preference of the higher ranked player

E.5   In the first round all even numbered players in S1 will receive a colour different from all odd numbered players in S1

C.04.3.2. Lim System

Approved by the General Assembly of 1987.
Amended by the 1988, 1989, 1997, 1998 General Assemblies and 1999 Executive Board.

B. General Pairing Rules

8   Awarding the Bye

   8.1   In addition of what is stated in the basic rules (C.04.1.c), the Bye is awarded to the player
            with the lowest rank in the lowest score-group.

9   Pairing a Score-group

   9.1   Two players who have not yet played each other are said to be compatible provided that the
            pairing will not require either player to have the same colour in three successive rounds, or to
            have three more of one colour than the other.
   9.2   The players with the same score form a score-group. The Median Score-group is the score-
            group with players having the score equal to half the number of rounds that have been
            played. Pairing begins with the highest score-group and proceeds downward until just before
            the Median Score-group, then continues with the lowest score-group and proceeds upwards
            to the Median Score-Group which is paired last. The Median-Score-group is paired
            downward.
   9.3   Before the players in a score-group are paired, the players in the score-group who have no
            suitable opponents for the following reasons are identified and transferred to a neighbouring
            score-group:

            a. the player has already played all the players of his score-group; or
            b. the player has already received two more of one colour over an equal allocation and
                there is no compatible opponent available in the score-group to enable him to have a
                permissible colour; or
            c. the player has already received the same colour in the previous two rounds and there
                is no compatible player in the score-group to enable the player to have the alternate
                colour; or
            d. it is necessary to make even the number of players in the score-group.

            Such a transferred player is described as a floater. Rules on how to select the floater, if a
            choice is available, are given in the section on "Floater Selection Rules".

   9.4   The players in a score-group, after transfer of players where necessary, are arranged in the
            order of their pairing numbers and the players in the top half are tentatively paired with the
            players in the bottom half. These pairings are said to be proposed pairings, to be confirmed
            after scrutiny for compatibility and proper colour. If the players in a score-group are
            numbered : 1, 2, 3 ... n, then the proposed pairings are (ignoring colours): 1 v (n/2 + 1), 2 v

(n/2 + 2), 3 v (n/2 + 3) ... n/2 v n.

9.5   Where a proposed pairing would result in the pairing of players who have already played each other, the lower numbered player of the two is exchanged for another within the same score-group. Further exchanges of opponents may be made to allow alternation or equalisation of colours where possible. How players are exchanged is described in the "Exchange Rules".

9.6   Pairing a blocked median score-group
        If the median score-group cannot be paired it should be extended step by step under the following rules:

        • if the number of floaters from higher score-groups is larger than the number of floaters from lower score-groups the next pairing of the lower score-group shall be cracked and the players of this pairing shall be treated as additional floaters from the lower score-group. Then the pairing of the median score-group is started again.
        • if the above condition is not fulfilled, then the next pairing of the higher score-group shall be cracked and the players of this pairing shall be treated as additional floaters from the higher score-group. Then the pairing of the median score-group is started again.

10 Floater Selection Rules

10.1   The "floater" is a player who is transferred to another score-group in accordance with Rule 3, or because a compatible opponent cannot be found for the player in spite of exchanges in the score-group.

10.2   When pairing proceeds downward, the floater is transferred to the next lower score-group. When pairing proceeds upwards, the floater is transferred to the next higher score-group. When making even a score-group, determine the due colours of the players and select as the floater a player who would tend to equalise the number of players due different colours.
        (In Maxi-tournaments, when pairing downward, the difference in rating between the chosen player and the lowest numbered player in the score-group must differ by 100 points or less, otherwise the lowest numbered player in the score-group is chosen as the floater. When pairing upwards, the difference in rating between the player chosen and the highest numbered player in the score-group must differ by 100 points or less, otherwise the highest numbered player is chosen as the floater.)
        If the number of players due white equals the number of players due black, the lowest numbered player is chosen as the floater when pairing downward, and the highest numbered player is chosen as the floater when pairing upwards.

10.3   If there is a choice as to which player floats to a lower group, the player chosen is the lowest numbered player in the score-group who has a compatible opponent in the lower score-group, after excluding the opponents of other floaters who have higher scores or higher pairing numbers than the proposed floater.

10.4   If there is a choice as to which player floats to a higher score-group, the player chosen is the highest numbered player in the score-group who has a compatible opponent in the higher score-group, after excluding the opponents of other floaters who have lower scores or lower pairing numbers than the proposed floater.

10.5   If a proposed floater has no compatible opponent in the adjacent score-group, he shall, if possible, be exchanged for another player in his score-group; otherwise he shall be floated to a further score-group.

10.6   When pairing a group that includes floaters from a higher score-group, the floater with the highest score is paired first, or the floater with the highest pairing number, if scores are equal.

    10.6.1   When pairing a group that includes down-floaters (DF) from a higher score-group, the floater with the higher pairing number is paired first.

    10.6.2   When pairing a group with DF coming from different higher score-groups, the floater coming from the highest score group is paired first (not always the one with the highest pairing number).

    10.6.3   When there are DF and UF (up-floaters) in the same score-groups (this should normally happen in the median score-group) in the upper half of score-groups or in the median group, first pair the DF, then the UF and finally the remaining players.

10.7   When pairing a group that includes floaters from a lower score-group, the floater with the lowest score is paired first, or the floater with the lowest pairing number, if scores are equal.

    10.7.1   When pairing a group that includes UF from a lower score-group (in the 2nd half) the floater with the lowest pairing number is paired first.

    10.7.2   When pairing a group that includes UF coming from different lower groups, the UF coming from the lowest score-group is paired first (not always the player with the highest pairing number).

    10.7.3   When there are UF and DF in the same score group in the second half of score-groups, first pair the UF, then the DF, and finally the other remaining players.

10.8   When pairing downward, the floater is paired with the highest numbered player available who is due the alternate colour (provided, in Maxi-tournaments, that the ratings of proposed opponents who are exchanged for this purpose differ by 100 points or less). When pairing upwards, the floater is paired with the lowest numbered player available who is due the alternate colour (provided, in Maxi-tournaments, that the ratings of proposed opponents who are exchanged for this purpose differ by 100 points or less).

10.9   Due to their origin and their compatibility in the adjacent score-group there are 4 types of floaters listed in descending order of disadvantages.

    a. a floater who has already floated to the score-group just being handled and has no compatible opponent in the adjacent score-group.
    b. a floater who has already floated to the score-group just being handled and has a compatible opponent in the adjacent score-group.
    c. a floater who has no compatible opponent in the adjacent score-group.
    d. a floater who has a compatible opponent in the adjacent score-group.

If there is a choice the floaters should be chosen to minimise the disadvantages using the following priorities.

a. avoid floater(s) of type a
b. avoid floater(s) of type b
c. avoid floater(s) of type c

10.10   A floater who has floated the round just before shall not be floated due to section 9.3.d
provided:

- this will not produce other floaters of the types a, b, c of section 10.9
- this will not decrease the number of pairings of that score-group

11. Exchange Rules

11.1   The proposed pairings of players obtained according to Rule 9.4 are scrutinised in turn for
compliance with the compatibility statement (see 9.1). And,

a. when pairing downward, scrutiny of proposed pairings begins with the highest
numbered player; if the pairing is found not to comply with 9.1, the lower numbered
player is exchanged until a compatible pairing is found; or,
b. when pairing upwards, scrutiny of proposed pairings begins with the lowest
numbered player; if the pairing is found not to comply with 9.1, the higher numbered
player is exchanged until a compatible pairing is found.

11.2   In the following example of a score-group with six players, and pairing downward, the
attempt is first made to find a compatible opponent for Player #1, the highest numbered
player in the score-group.
Six players in a score-group with proposed pairings as follows:
1 v 4
2 v 5
3 v 6
If the pairing 1 v 4 is not compatible, for example, because the players had met in an earlier
round, the positions of Player #4 and Player #5 are exchanged so that we have:
1 v 5
2 v 4
3 v 6
If the pairing 1 v 5 is also not compatible, a further exchange is made. The original proposed
pairing and possible exchanges made to find a compatible opponent for Player #1 are as
follows:
Proposed Pairing (col. 1) and Possible exchanges to find compatible opponent for #1

1 v 4	1 v 5	1 v 6	1 v 3	1 v 2
2 v 5	2 v 4	2 v 4	2 v 5	3 v 5
3 v 6	3 v 6	3 v 5	4 v 6	4 v 6

11.3   After a compatible opponent, for example, #6, has been found for Player #1, the proposed
pairing for Player #2 is scrutinised. Exchanges to find a compatible opponent for Player #2
are as follows:
Proposed Pairing (col. 1) and Possible exchanges to find compatible opponent for #2

```
1 v 6   1 v 6   1 v 6   1 v 3   1 v 2
2 v 4   2 v 5   2 v 3   2 v 6   3 v 5
3 v 5   3 v 4   4 v 5   4 v 5   4 v 6
```

11.4   The exchanges to find a compatible opponent for Player #2 must at the same time leave Player #1 with a compatible opponent. If this cannot be done, for example, if Player #1 and Player #2 have previously played each other and all the other players except Player #6, then the original pairing of Player #1 with Player #6 is retained and Player #2 is floated. And,

   a. if the score-group originally had uneven members and the lowest numbered player was floated to make even the number of players in the score-group, #2 is exchanged with the floater, originally #7 in the score-group, or,
   b. if the score-group was originally even, then the lowest numbered player remaining must be floated in company with #2 to maintain an even number of members in the score-group.

   Other examples of exchanges can be found in section C.04.3.1.D.

12. Colour allocation rules

12.1   Where possible, and by means of exchanges, each player shall be given the alternate colour; at the end of each even-numbered round each player shall have had an equal number of whites and blacks. Moreover,

   a. no player shall be given the same colour in three successive rounds, and
   b. no player shall be given three more of one colour than the other.

12.2   After the first scrutiny and exchanges necessary to establish that all pairings in a score-group are new pairings, a second scrutiny with exchanges where necessary is undertaken to give each player, if possible, the alternating colour and at the same time, the equalising colour.

12.3   If one of the players in a pairing had the same colour in the previous two rounds, he must be given the alternating colour. If both players had the same colour in the previous two rounds and compatible opponents in the score-group are not available, then one or both players must be floated.

12.4   If both players in a pairing had the same colour in the previous round, then the colours they had in earlier rounds, going back in sequence, shall decide who is given the alternate colour. If players in the median score-group or above had identical histories, then the higher ranked is given the alternate colour, or, in even-numbered rounds, the equalising colour. If the players below the median score-group had identical histories, then the lower ranked player is given the alternate colour, or, in even numbered rounds, the equalising colour.

12.5   In the odd-numbered rounds, whenever possible, each player shall be given the colour which gives him one more only of one colour than the other.

12.6   In the even-numbered rounds, whenever possible, each player shall be given the colour that gives him an equal number of whites and blacks.
        When both players of a pairing are due the same equalising colour, and further exchanges are not possible, the colour history will decide who is given the equalising colour, as in Rule 12.4. One player will then have two more of one colour than the other colour.
        This is allowed but care must be taken not to violate Rules 12.1(a) and 12.1(b), and to

equalise the player's colours at the earliest opportunity.

12.7 (In Maxi-tournaments, an exchange of opponents to find, for example, one who is due the alternate colour is allowed only if the ratings of the opponents to be exchanged differ by 100 points or less.)

13. Exceptions applicable to the last round
In the last round, the general principle C.04.1.E, requiring players with the same score to be paired if they had not met in an earlier round, shall have priority over alternation and equalisation of colours, even if it is necessary for one of the players to be given the same colour for the third round in succession, or to be given three more of one colour than the other.

C. Brief examples of pairing

14. Pairing Round One

14.1 If the number of players is uneven the lowest rated player in the Pairing List is given the Bye.

14.2 The colour to be given to Player #1 is decided by drawing lots; the other odd-numbered players in the upper half of the Pairing List are then given the same colour as Player #1. Player #2 together with the other even-numbered players in the upper half of the Pairing List are given the other colour.
Depending on the draw, the pairings for the first round in a tournament of forty players would be either 1 v 21, 22 v 2, 3 v 23, 24 v 4, ... 40 v 20; or 21 v 1, 2 v 22, 23 v 3, 4 v 24 ... 20 v 40, where the player having white is mentioned first. This is the only occasion when colours need be decided by lot.

14.3 Players who have won their games are each awarded one point; each of those who have drawn receives 0.5 point. Each of those who have lost receives 0 point.

15. Round Two

15.1 The players are arranged in groups of the same score.

15.2 Awarding the Bye
If the number of players is uneven, then the Bye is awarded as in Rule 8.

15.3 Pairing begins with the highest score-group (1 point), continues with the lowest score-group (0 point) and finishes with the Median Score-group (0.5 point).
Detailed instructions for pairing Round Two and subsequent rounds are above.

C.04.3.3. Dubov System

Approved by the 1997 General Assembly.

Preface:

The DUBOV Swiss Pairing System is designed to maximise the fair treatment of the players. This means that a player having a higher rating performance than another player during a tournament should have more points as well.

If the average rating of all players is nearly equal, like in a round robin tournament, the goal is reached. As a Swiss System is a more or less statistical system, this goal can only be reached approximately.

The approach is the attempt to equalise the average rating of the opponents of all players of a score group. Therefore the pairing of a round will pair players who have played low rated players before with players having high ratings now.

1. Introductory definitions

    "R" is the rating of a player

    "ARO" is the average rating of a player's opponents. ARO must be calculated after each round as basis of the pairings.

    The "due colour of a player is white",

    - if he has played more games with black than with white before
    - if these numbers are equal and he has played black his previous game.

    The "due colour of a player is black",

    e. if he has played more games with white than with black before
    f. if these numbers are equal and he has played white his previous game.

2. Pairings limitations *(see Basic Rules, section C.04.1, rules b, c, d, g, f)*

    2.5 Apart from the last round a player cannot be transferred to a higher score group two times running and more than three times (if the tournament has less than 10 rounds) or four times (if the tournament has more than 9 rounds) during one tournament.

    2.6 A player shall not be transferred from the subgroup due to a colour to the subgroup due to the other colour if this would violate the limitations C.04.1.f or C.04.1.g.

3. Colour allocation.

    Pairing two players the colour allocation shall regard with descending priority:

    - give both players their due colour
    - equalise the numbers of black and white games played before
    - alternate the colours of both players regarding the first difference of their colour history going back from the previous round to the first round.
    - assign white to the player with the higher ARO
    - assign white to the player with the lower R

4. Odd number of players at the tournament

    The player from the lowest score group, who has the lowest R will get the bye.

    If there are players with the lowest R in both the colour subgroups, then the player to get the bye

must be due to the dominating colour and in case there are several players with equal R, the player to get the bye must have the higher ARO

5. Pairing for the first round
The player's list calculated before is divided into two equal parts: The players from the upper part of the list are placed on the left and those from the lower part, on the right. The first player from the left-hand list plays the first player from the right-hand list, the second plays the second, etc. After that, the colour of the pieces is determined by drawing lots for one of the pairs, for example, for the first pair. In such a case, all odd-numbered pairs have the same colours as the first pair, whereas all even-numbered pairs have the other colour.
If the number of the players is odd, the last player in the list gets the bye having no colour.
This pairing procedure leads to identical results as the procedures used within the other FIDE Swiss Systems

6. The standard pairing procedure for the remaining rounds.

6.1 Standard requirement (Special cases see below chapter 7.):
The number of players having the same score is even and the number of players with due colour white and black is the same. Each player in the score group has at least one possible opponent in the score group

6.2 First attempt
The players who should play with the white pieces are arranged in order of increasing ARO , the ARO being the same the player with the lower R is placed higher. If ARO and R coincide completely, the players are to be placed alphabetically
The players who should play the black pieces are arranged in order of decreasing R, if R is the same, the player with the higher ARO is placed higher. If ARO and R coincide completely, the players are to be placed alphabetically.
Two columns of numbers are written down, thereby arranging the pairs.
For example:

White (ARO)	Black (R)
2310.0	2380
2318.4	2365
2322.3	2300
2333.7	2280
2340.5	2260
2344.6	2250

The names of the players are then written down, and only one fact is checked - whether the players have not played their opponents before

6.3 Improvements
If the players have already played each other, then the "white" player is paired with the first "black" player whom he has not played before, from the lower rows;
If such a coincidence takes place in the last row for a group of players with the same score, then

the last but one row is changed.

If a coincidence takes place in a row No. k of a group with the same score and all the "blacks" from the lower group have already played with the "white" No. k, then we change the pairing in row No. k - 1, if this does not work, in row No.k-2, etc.

If the "white" No. k has already played with all the "blacks", we look for an opponent for him, beginning with the "white" No.k+1 down to the end of the column, and then, beginning with the "white" No. k -1 down to the "white" No.1. The colours of the pairings are assigned due to the colour allocation rules.

6.4 Floater

The aim of the pairing procedure is to pair all players within a score group.

If that cannot be achieved the remaining unpaired players are transferred to the next lower score group and treated according to chapter 8.

If there is a choice the floaters should be chosen due to these characteristics with decreasing preference:

  e. the player was not floater from higher score groups and can be paired in the lower score group
  f. the player was not floater from higher score groups and cannot be paired in the lower score group
  g. the player was floater from higher score groups and can be paired in the lower score group
  h. the player was floater from higher score groups and cannot be paired in the lower score group

7. Transfer of players to meet the requirement of Chapter 6

If the requirement of the standard pairing procedure is not fully fulfilled the following transfers shall be carried out in the order listed below

7.1 If a player has already played with all the players of his own score group, a player from the next possible lower score group is transferred to the score group to be paired who has not yet played with the player in question and can be paired according to the colour allocation rules
The player to be transferred should fulfil the following requirements with descending priority:

  d. the due colour is opposite to the due colour of the player in question.
  e. if there is a choice, then the player with the highest R is to be transferred.
  f. if there are more than one players having the same R then the one with the lowest ARO will be transferred.

7.2 If the number of players of the score group odd, a player from the next possible lower score group shall be transferred to the score group to be paired, who has not yet played with at least one of the players of the higher score group and is allowed to be paired according to the colour allocation rules.
This player to be transferred should fulfil the following requirements with descending priority:

  • his due colour is opposite to the dominating due colour of the higher score group.
  • if there is a choice, then the player with the highest R is to be transferred.
  • if there are more than one players having the same R then the one with the lowest ARO will be transferred

7.3 If the number of players in the score group is even and the number of Whites exceeds the Blacks by 2n, then n "white" players, who have the lowest ARO, are transferred to the black group. If their ARO is equal, the player with the higher R is chosen. Should both (ARO and R) coincide completely, the list of the players is arranged alphabetically, the transfer being made from the upper half.

7.4 If the number of players with the same score is even and the number of Whites is smaller than the number of Blacks by 2n, then n "black" players, who have the highest ARO, are transferred to the white group. If their ARO is equal, the player with the lower R is chosen. Should both (ARO and R) coincide completely, the list of the players is arranged alphabetically, the transfer being made from the upper half

8. Treatment of floaters

8.1 Priority of floater-pairing
The floaters having due colour white are arranged according to chapter 6.2
The floaters having due colour black are arranged according to chapter 6.2
Beginning with the highest "white" floater the floaters are paired one by one going down to the lowest floater alternating between "white" and "black".

8.2 Pairing the floaters
Each of the floaters is paired with the player having the highest R, if possible having the opposite due colour. If there are more than one player with equal R, the player with the lowest ARO is chosen

9. Final remarks
The list of AROs should be published after each round to make it possible for the players to calculate the pairings on their own.
A situation which cannot be directly resolved by using the given instructions, the referee should proceed wisely and impartially in the spirit of the basic principles outlined above.

C.04.3.4. Burstein System

Preface:
The BURSTEIN Swiss Pairing System is designed to maximize the fair treatment of the players. This means that players having the same score should have met as equal opposition as possible during a tournament.
If the Sonneborn-Berger and/or Buchholz and/or Median, of all players in the same score-group, is nearly equal, the goal is reached. As a Swiss System is a more or less statistical system, this goal can only be reached approximately.
The approach is the attempt to equalize the strength of the opponents of all players in a given score group. Therefore the pairing of each round will tend to pair players who have high Sonneborn-Berger (or Buchholz or Median) with players having low Sonneborn-Berger (or Buchholz or Median) in the same score-group.
The ratings of the players should be taken into consideration only when the Sonneborn-Berger (or Buchholz or Median) is equal (e.g. in the first two rounds); otherwise, only current data of the tournament itself should be the basis for measuring the "strength" of the players and making the pairings thereafter.

1. **Introductory definitions:**
   "R" is the rating of a player
   "SG" (Score Group) is the group of players having the same number of points.
   The "due colour of a player" is the colour he played less times than the other colour. If he played the same number of both colours, than the "due colour of a player" is the alternate colour of which he played in the previous round.

2. **Unfinished games:**
   Unfinished (or temporarily non played) games shall be considered as draws for pairing purposes.

3. **Basic pairings principles:**
   3.1 Two players who have played each other shall not be paired again.

   3.2 Before making the pairings in each round, players in every SG (including "floaters" from another SG) shall be arranged in the order of their (1) Sonneborn-Berger (SB); (2) Buchholz; (3) Median (4) rating. The player with the highest SB shall be No. 1 in the SG. Players with the same SB shall be arranged in the order of their Buchholz and so on.

   3.3 For accelerating pairing, in the first two rounds, an 'imaginary' point shall be added to the score of each of the players in the top half of the initial list of participants (arranged in the order of their R). This imaginary point shall then be deducted before making the pairings of the third round.

4. **Odd number of players at the tournament:**
   4.1 A player who has already received a point without playing shall not receive a bye.

   4.2 The player from the lowest SG, who has the lowest SB, will get the bye.

   4.3 If there are players with the same lowest SB in the lowest SG, then the player with the lowest Buchholz will get the bye and so on.

   4.4 The bye has no colour.

5. Colour Allocation:

5.1 In the first round the colour assigned to player No.1 shall be decided by drawing a lot. All other odd numbered players in the top half of the initial list shall receive the same colour.

5.2 The difference of the number of black and the number of white games shall not be greater than 2 or less than –2.

5.3 A player shall not have the same colour three times in a row.

5.4 After pairing two players' colours shall be assigned based on giving descending priority to:

giving both players their due colour equalizing the numbers of black and white games played before alternating the colours of both players regarding the first difference of their colour history going back from the previous round to the first round. Assigning his due colour to the player with the higher SB assigning his due colour to the player with the higher Buchholz, and so on.

6. Paring procedures:

6.1 In each SG priority shall be given to pair the highest player (i.e. the player with the highest SB) with the lowest player in that SG that he has not already played. The second highest player shall be paired with the second lowest player, etc.

6.2 To illustrate the procedure, suppose there are six players in a SG, ordered 1 through 6 as described in rule 3.2. There will be 15 combinations of pairing within the group, in the following descending order of priority:

1	1*6	2*5	3*4
2	1*6	2*4	3*5
3	1*6	2*3	4*5
4	1*5	2*6	3*4
5	1*5	2*4	3*6
6	1*5	2*3	4*6
7	1*4	2*6	3*5
8	1*4	2*5	3*6
9	1*4	2*3	5*6
10	1*3	2*6	4*5
11	1*3	2*5	4*6
12	1*3	2*4	5*6
13	1*2	3*6	4*5
14	1*2	3*5	4*6
15	1*2	3*4	5*6

6.3 If there is an uneven number of players in the SG, the same procedure is followed and the remaining player is floated to the next SG (provided he is not a floater from another SG) and is

paired within this SG according to the same procedure.

6.4 To illustrate the procedure, suppose there are five players in a SG, ordered 1 through 5 as described in rule 3.2. There will be 15 combinations of pairing within the group, in the following descending order of priority ("F" = floater):

1	1*5	2*4	3*F
2	1*5	2*3	4*F
3	1*5	3*4	2*F
4	1*4	2*5	3*F
5	1*4	2*3	5*F
6	1*4	3*5	2*F
7	1*3	2*5	4*F
8	1*3	2*4	5*F
9	1*3	4*5	2*F
10	1*2	3*5	4*F
11	1*2	3*4	5*F
12	1*2	4*5	3*F
13	2*5	3*4	1*F
14	2*4	3*5	1*F
15	2*3	4*5	1*F

[If, for example, No. 2 is a floater from another SG, combinations (3), (6) & (9) are not valid].

6.5 In each SG maximum number of players should get their due colours. Suppose, for example, that the due colour of players 2, 4 and 5 is white, and that of the others is black; then the valid combination is No. (4) in rule 6.2 or No. (2) in rule 6.4.

6.6 If the SG from which the floater has been dropped is such that a complete pairing of all remaining teams in the SG cannot be made (or if the floater has already played every player in the next SG), then the floater shall be moved back to its original SG, trying the next possible combination according to the order of priority. If a complete pairing of all teams in two adjacent SG's cannot be made, then these two SG's shall be considered as one SG, and rules 6.1 – 6.5 shall accordingly apply.

C.04.4 The endorsement procedure and the officially endorsed programs

Introduction
To perform big Swiss tournaments the use of Computer programs for handling the players' data, the pairings and the results is necessary.

To avoid misunderstandings and to support the organisers and arbiters, FIDE recommends the use of computer programs which are endorsed by FIDE after a successful endorsement procedure.

The endorsement will last as long as it is not withdrawn because the program does no longer meet the requirements.

The endorsement process

In 2011 the SPP defined a new methodology to conduct the endorsement process. Now if the authors of a pairing program (in the following: *candidate*) want their software to be endorsed by FIDE, they are involved in a process that consists essentially in two phases.

With the assistance of a SPP representative that is assigned to that specific endorsement procedure, the first phase is carried out by the authors themselves. If they wish, they could be helped by an auxiliary tool, named *javafo[1]*, that is useful to understand whether the pairings generated by the *candidate* are compliant with the rules.

This phase is divided essentially in two steps. In the first one, the authors use self-generated TRF[2](s) related to some tournaments that have very precise peculiarities (usually lot of rounds and a variable number of players, just to see how the *candidate* reacts in very stressful conditions).

In the second step, the SPP representative may give them some further TRF(s) that the *candidate* has to correctly identify whether they contain good or wrong pairings.

During the first phase, the SPP representative deals very scarcely with the *candidate* as a program. He fully trusts the authors, assuming that the TRF(s) generated are produced by the *candidate*. His only goal is to check if the pairings are correct. The real check of the program is made during the second phase, by other SPP representatives, usually two or more, once that the *candidate* passes the first phase.

Back to it. As said above, the authors can check the TRF(s) produced by the *candidate* with *javafo*. If the latter does not complain, fine. Otherwise the authors are requested to understand why there is a discrepancy (they can obviously ask for help by the SPP representative). Their analysis can open essentially three possibilities:

[1]   the *candidate* generates wrong pairings: fine, the authors correct their program and repeat the process

[2]   *javafo* generated wrong negatives; fine again, the problem will be reported to the author of *javafo* requesting a correction in a reasonable time

[3]   the rules are not written very clearly; they may have some holes which can be interpreted in different ways by the *candidate* and by *javafo*; in such instances, it is the SPP duty to fix the wording of the rules as soon as possible, in order to avoid this kind of discrepancies

When the TRF(s) produced by the *candidate* get to the SPP representative, only discrepancies depending on the second or the third type can be accepted. If there are still discrepancies depending on errors of the *candidate*, the

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[1] JaVaFo is both a pairing engine and a pairing-verification tool authored by Roberto Ricca, the current SPP Secretary. As a verification tool it is available at *javafo.tornelo.com*, but more skilled user can directly interface JaVaFo from a command prompt (either DOS or unix - as JaVaFo is written in java, it runs on every platform). JaVaFo binaries are available at *www.rrweb.org/javafo/current/javafo.jar* with a user manual in *www.rrweb.org/javafo/aum/JaVaFo_AUM.pdf*.

[2] TRF stands for Tournament Report File. It is the file used to exchange tournament data with the Rating Server. Such file is formatted with the data-exchange format specification defined by the SPP chairman, Christian Krause, and approved by the Executive Board at Dresden in 2005. The definition of the format can be found on the FIDE website at *ratings.fide.com/download/fidexchg.txt*

endorsement process will either be suspended or fail. The authors will be notified when they can resume a suspended procedure (usually it will be some time after the first incoming Congress) or restart a new endorsement process for their software (after about one year).

The authors are strongly recommended to develop a **checker** on their own, in order to give testers the possibility to input TRF(s) to the *candidate* and receive a response telling whether the input pairings are right.

Currently Endorsed Programs

Below is the list of endorsed programs (supported by Microsoft Windows), the pairings system they support and the date where their endorsement is going to be withdrawn unless it is confirmed by the Tromso Congress.

Program	Author	Fed.	Dutch	Ending Date	Dubov
SWISS MASTER	Koninklijke Nederlandse Schaakbond	NED	■	2014	
SWISS MANAGER	Heinz Herzog	AUT	■	2014	
WINSWISS	Franz-Josef Weber	GER	■	2014	
TURNERING SERVICE	Harald Heggelund	NOR	■	2014	
TOURNAMENT DIRECTOR	Neil Hayward	ENG	■	2014	
VEGA	Luigi Forlano	ITA	■		■
JAVAPAIRING	Eugenio Cervesato	ITA	■		

■ *The program is currently subjected to a re-endorsement evaluation*