Mario Held, IA

Mastering the FIDE Team Pairing System

A tournament example developed with C.04.6 FIDE Team Pairing System Rules

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1 Foreword

In year 2024, FIDE approved the pairing rules for team Swiss tournaments, thus filling a gap in the FIDE Swiss Systems rules. Prior to this, there was no FIDE approved pairing system specifically for team tournaments, except for the Olympiad pairing rules. However, the Olympiad system was created to meet the unique needs of that special event and cannot be profitably used for every team tournament. Everyday garden-variety tournaments, which usually also have a much smaller attendance, require different rules to cope with their needs. Until today, such tournaments were usually conducted using Swiss systems intended for individual tournaments (often, the FIDE Swiss (Dutch) System), but those are not the best option. In general, such systems waste much effort to deal meticulously with details that are not so important in team tournaments as they are in individual ones, such as colour assignment and floaters (fielded participants change often, sometimes even at every round, and, due to such frequent changes in team composition, those details are of lesser importance). The new Team Swiss rules consider the peculiar needs of a team tournament, avoiding unnecessary complexities. The outcome is a pairing system that is fairly simple when compared with systems like, e.g., FIDE Swiss (Dutch).

This paper illustrates the system through a step-by-step example of pairing for a Swiss tournament using the FIDE Team Pairing System (TPS), with the aim to help those who wish to become familiar with this new system. The methods and techniques of pairing are introduced through successive approximations, with more advanced concepts progressively incorporated as the text unfolds. Also, please note that the actual team line-up, although important in many ways (e.g., for the calculation of some tiebreakers), does not play a decisive role in the pairing process. Therefore, for the sake of simplicity, in this paper we will not consider the detailed composition of the paired teams.

A general knowledge of the system is required to follow the pairings, and the reader may want to keep a handy copy of the Rules. A natural companion to this paper is the *Annotated TPS Rules 2025* (by the same author), which examines the rules in detail and explains some critical points.

Happy reading!

Notice*: to help the reader, the text contains many references to relevant regulations. These references are printed in italics in square brackets "[...]" - e.g., [C.04.2:2.1] refers to the FIDE Handbook, Book C: "General Rules and Recommendation for Tournaments", Regulations 04: "FIDE Swiss Rules", Section 2: "General Handling Rules", rule 2.1. Since a great deal of our references will be made to section C.04.6: "Team Pairing System," these will simply point to the concerned article or subsection (e.g., [3.2.1]). All relevant regulations can be downloaded from the FIDE website www.fide.com.*

2 Initial Preparations (The List of Participants)

Contrary to what happens in individual Swiss tournaments, the pairing rules for a Team tournament can be somewhat customised by means of some parameters that must be defined in the event rules. Therefore, prior to any pairing-related operation, we should know the specific rules of the event. From the rules for our tournament, we gather the following.

- *The participant list shall be sorted, and TPNs assigned, based on the higher team strength, here defined as the average rating of its four strongest players. If two teams have identical strength, they shall be sorted based on the compared ratings of the fifth (sixth, ...) players. In case of persistent ties, alphabetical order shall be used.*
- *The primary score is "match-points," and the primary score system is 2-1-0 (two points for a win, one for a draw, none for a loss).*
- *The secondary score is "game points." It is used only for the determination of the first-team (see [4.2.2]) and for final standings (as first tiebreaker). The secondary score system is the usual 1-½-0.*
- *The tournament consists of nine rounds.*
- *Each team must field four players. When there are absent players, the participating players must occupy the topmost boards. The opponents of absent players get a forfeit win fully equivalent to a victory on-the-board.*
- *The Pairing Allocated Bye ("PAB") is worth one match point and two game points (half game point for each player).*
- *Type-A colour preferences are used.*
- *Half-Point Bye (HPB) is allowed only once, and only during the first six rounds. It is worth 1 MP and 2 GPs (half point per player).*

The preliminary stage of the pairing process consists essentially in the preparation of the list of participants. As directed by tournament rules, we calculate the average rating of the four strongest players in each team.

The FIDE Team Pairing System (**TPS** from now on) is a controlled Swiss system[1], so the pairings depend on the strength of participating teams, as represented by their respective TPN. Thus, in principle, to get a proper pairing, the team strength ought to be right. If this strength is based on ratings, those ratings must correctly represent players – so, we want to verify each of them. If a player does not have a rating, we should make an "educated guess" for it. For example, if a player has a national rating, we can convert that to an equivalent value (directly or by means of appropriate formulas). For players who have no rating at all, we need to estimate the playing strength according to current practices or national regulations.

The result of this preparations is a list of participants, which is then sorted based on team strength, as defined by the event rules. Finally, we assign to each team a progressive TPN,

[1] *A Controlled (or Seeded) Swiss Systems sorts the initial ranking list according to predetermined rules rather than by drawing of lots (as was usually done in old times).*

thus obtaining the initial list[2]. *To avoid any misunderstanding, let us note that #1 is the lowest TPN, while #16 is the highest – i.e., the lowest TPN corresponds to the highest ranked team, and vice versa (in the past, we used to call a "low pairing number" that of a participant sitting near the bottom of the rankings, even though that number was high rather than low).*

In this tournament, three teams ("*Queen's Sorority*," "*Flying Pieces*," and "*The King's Knights*") asked for an HPB for the first round. As directed per [C.04.2:2.4], they will be assigned a TPN only when they actually join the tournament in the second round. However, for our convenience, we insert them right away in their right place in the list (although, just now, without a TPN – they are just "placeholders"). Before pairing the second round, we shall reassign all TPNs, including the new teams in the list.

TPN	Team	Federation	Strength	More info…
1	The Chess Giants	FID	2397	
2	Board Masters	FID	2374	
3	Legendary Rooks	FID	2344	
4	Flaming Knights	FID	2297	
5	Deep Thinkers	FID	2265	
6	Check & Checkmate!	FID	2233	
7	The Archbishops	FID	2224	
8	Queen's Lions	FID	2178	
n/a	Queen's Sorority	FID	2164	
9	The Great Chess	FID	2141	
10	The Woodpeckers	FID	2139	
n/a	Flying Pieces	FID	2137	
11	Chess Passion	FID	2128	
n/a	The King's Knights	FID	1997	
12	Pawn But Powerful	FID	1918	
13	Best Or Bust	FID	1880	

Now, the pairing process requires neither detailed knowledge of the team composition, nor even the teams name – the TPN suffices. So, the crosstable, which we will use throughout the pairing process, is quite simple.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1																											
2																											
…																											
13																											

The number of rounds (here, nine) is established by the tournament regulations and *cannot be changed after the tournament has started*[3]. This number should ideally be (but, in fact, rarely is) in close relation with the number of participants, because a Swiss tournament can reasonably identify the winner only if the number N of participants is less than or at most

[2] *Please note that this list remains provisional until its closure, which can happen several rounds into the tournament. In case of late arrivals, the procedure is repeated, so that the new teams ("Late entries") get their correct place in the list (whatever the entry round!), and all pairing numbers are reassigned consequently. If any data need to be amended (namely, strengths), the assignment of TPNs should not be repeated after the fourth round has been paired (see [C.04.2:2.5]); however, in case of serious issues, the CA may decide differently [1.1.3].*

[3] *Unless, of course, some disaster occurs.*

equal to 2 raised to the number T of rounds: $N \leq 2^T$. As a rule of thumb, each additional round enables us to determine (approximately) one more position in the final standings. For example, with 7 rounds we can determine the winner among no more than 128 participants[4] (at best) – however, we can correctly select the second best among only 64 participants, and the third best only if participants are not more than 32. Thus, it is generally advisable to play one or two rounds more than the theoretical minimum. For example, for a tournament with 50 teams, 8 rounds are adequate, 7 are acceptable – while, strictly speaking, a 6 rounds tournament (which are the "bare minimum" with respect to the number of participants) would not be advisable[5].

The preliminary stage ends with the possible preparation of the "*pairing cards*," a useful aid for the management of manual pairings. The heading of the card contains team data (name, strength, possibly more information) and, of course, the TPN. The body of the card is comprised of a set of rows, one for each round to be played, in which all pairing data are recorded (opponent, colour, float status[6], match result and total primary and secondary scores. The card may be made in any of several ways, provided it is easy to read and to use. Here, we have a typical example.

(FID) FLAMING KNIGHTS **2297** **4**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	11	B	-	+	1-3	2	3
2	1	W	-	-	1½-2½	2	4.5
3	8	B	↓	+	1½-2½	4	7
4	5	W	↓	=	2-2	5	9
5	10	W	-	+	3-1	7	12
6	2	B	-	-	2½-1½	7	13.5
7	3	W	↑	=	2-2	8	15.5
8	6	B	↓	=	2-2	9	17.5
9	12	B	↓	+	½-3½	11	21

The basic advantage of pairing cards is that we can arrange them on the desk, sorting them by rank, then rearranging and pairing them in an easy and fast fashion. Since personal computers made manual pairing obsolete, their use became pretty rare. However, sometimes an unhappy participant asks for detailed explanations, so the arbiter must manually reproduce the pairing (normally made by a computer), to explain (or justify) it. With a little practice, we can do that right from the tournament board or crosstable – provided it contains *all* the necessary data, like a pairing card. Here, we will follow this method[7].

The last step in tournament preparations is the drawing-of-lots for the Initial-colour[8] *[4.1]*. This decides which colour will be assigned to each participant for the first round *[4.3.1]*.

4. *This is true only if in every game the stronger participant ends up as winner. In practice, the occurrence of different results, such as draws, forfeits and so on, may change the situation, making the individuation of a definite winner (the so called "convergence") either slower or faster, according to specific (and, usually, unpredictable) circumstances.*
5. *Of course, this is just a theoretical point of view. In real-life tournaments, the number of rounds is often dictated by other constraints. Most usually, the determination of the participants who end up in the winning positions of the final standings must be entrusted to tiebreak methods (which should therefore be chosen with utmost care).*
6. *See "Scoregroups and brackets," page 16 and ff.*
7. *However, Appendix II (page 56) contains the complete pairing cards for the tournament, for practice and study.*
8. *Some arbiters, misinterpreting the drawing of lots, assign colour at their own discretion. The Rules explicitly require the drawing of lots (which, by the way, may be at the centre of a nice opening ceremony, typically held during the preliminary Captains' Meeting).*

After that, we will be ready to begin the pairing for the first round. Let us say that a little child, preferably not involved in the tournament, drew White as Initial-colour.

Graphic conventions

Before getting into the core of the matter, we need some conventions to represent the different objects which we will be working with.

- *A team is represented by the corresponding Tournament Pairing Number (TPN), with a "numeric" ("#") sign placed before it – e.g., **#4** indicates team #4, "Flaming Knights". More information can be added as required[9].*
- *A pair of participants is usually represented by the two corresponding TPNs connected by a hyphen (no "#" symbol is required). Colours are only allocated in the last stage of the round-pairing process (see [1.9]), so the order of teams in a pair is irrelevant. After colour allocation, the first TPN designates White, the second, Black – e.g., **4-7** indicates the pair in which #4 is White, whereas #7 is Black. On occasions, we may add some useful information as mentioned above.*
- *Round brackets "**(**...**)**" indicate a pairing [3.3.1], candidate pairing, or part thereof, which consists of a set of pairs.*
- *Square brackets "**[**...**]**" indicate a pairing identifier [3.3.2].*
- *Curly brackets "**{**...**}**" indicate a scoregroup, a pairing bracket [1.3], or a generic set of participants indicated by their respective TPN.*

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[9] *E.g., on expected colour (see Colour preferences, page 28ff), or on float status (see Crosstable markings, page 14ff).*

3 The Making of the First Round (The Fundamentals)

Most FIDE Swiss systems obtain the pairing by dividing participants into two subgroups. In FIDE Swiss (Dutch), the most important of them, they are called S1 and S2; in a first round, the former contains the first half, rounded down, of the participants, while the latter contains the second half, rounded up[10]. The approach used by TPS is different in that its rules tell us to make pairings, and then give us instructions on sorting them in the right order – but they say nothing on *how* a pairing should be made. Pairing officers are expected to choose their preferred method[11]. In this paper we will use different methods, according to the specific circumstances, to make the process as easy as possible.

The pairing process is comprised of several consecutive phases:

1. As a preliminary, the list of teams is sorted by primary score and TPN, (temporarily) removing all the teams that will not take part in the round (e.g., teams known to be absent, or teams that requested a Half-Point Bye, or HPB, or a Zero-Point Bye, or ZPB).
2. If the number of teams is odd, one of them is assigned the Pairing-Allocated Bye (PAB), so that the number of teams becomes even.
3. The list of participants is then divided into scoregroups *[1.3]*, i.e., sets of teams with the same score.
4. Each scoregroup is then processed to obtain a pairing. We start with the highest scoregroup and proceed one by one, in order of descending score, until the lowest one.
   a. An appropriate set of (yet unpaired) teams from other scoregroups (such teams are called "upfloaters," see *[1.9.2]*) is chosen in compliance with the (relevant) pairing criteria and joined to the scoregroup to form a pairing bracket. This is done either if the number of teams in the scoregroup is odd, or if a complete pairing of the scoregroup is impossible for whatever reason. Also, this is done if, for whatever reason, the remaining teams cannot be paired. Of course, the upfloaters set may be empty.
   b. Then, the teams in the bracket are matched in compliance with the (relevant) pairing criteria *[2]*.
   c. At every instant[12] of this process, we check that we can legally pair *all* the remaining teams – i.e., those that belong to the remaining scoregroups. This is the *Completion criterion* (C3, *[2.2.1]*), also informally called the "*Requirement Zero*," and the check we perform is called a "*Completion test*."
5. Finally, each pair is analysed and assigned the appropriate colour.

With this roadmap at hand, we can begin our task. First, we amend the list of participants,

[10] Therefore, when the number of participants is odd, S2 will contain one participant more than S1. In later rounds, however, we can have floaters, so the situation becomes a bit more complex.

[11] And, therefore, we can also use the method mentioned, dividing participants in subgroups. What's important is that the result complies with all the rules and pairing criteria.

[12] In the real-world process, we perform the check in "strategic moments" only. In fact, we need to perform it only when we choose the upfloaters set. Once this set is chosen, nothing we can do changes the composition of the Rest, so there is no need to check completion again. As we will see later, this test is simple enough – but performing it repeatedly can be time-consuming, not to mention tedious.

excluding those teams that asked for an HPB and will not be paired (for our convenience, we write this info in our tournament board right away). Now, the number of teams to pair is odd. Hence, before starting the pairing, we single out the team that receives the *pairing-allocated bye* ("PAB"): one match-point, two game-points[13], no opponent, no colour (*[1.4.1], [C.04.1:3]*). In the first round, all teams have zero points[14] (no match was played yet!), so the PAB is assigned to the highest TPN, i.e., the last team of the list, #13. We mark this too on the tournament board.

The participant list is now {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}. Since all teams have zero points, this is also the top-scoregroup *[1.8]* (and the only one). Of course, it contains an even number of teams, every one of which can play with any of the others. Therefore, we need neither upfloaters, nor to worry about pairing criteria.

Now, we should build all possible pairings *[3.3.1]* (we call them "candidate pairings" or, simply, "candidates"); for each of them, we build the corresponding identifier *[3.3.2]*; and, finally, we sort the identifiers and the corresponding candidates *[3.3.3]*.

Lexicographical comparison

The comparison between two identifiers, or other such lists, is done by comparing the first element of one with the first element of the other and choosing the list that contains the lowest value (or the highest, as the case may be). If the first elements are equal, we move on to comparing the second ones, then the third ones, and so on. This is called a *lexicographical comparison*. We will use it on several occasions. When a pool of strings is sorted using this kind of comparison, we say that it is put in *lexicographical order*[15].

***

Now that candidates are sorted in the proper order, we must pick the first one that corresponds to a *perfect pairing*, which is *a candidate that complies with all pairing criteria*. Since this is the first round, all the pairing criteria are necessarily met, so, all we have to do is choose the very first candidate, whose identifier is essentially equal to the sorted list of participants[16], i.e., [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12].

Rolling back from pairing identifier to pairs

To find the candidate corresponding to a given identifier, we can work backwards, remembering the rules for constructing the identifier itself. This is composed by the list of the *top members* (*[3.3.1]*) of each pair, which are the members with the lowest TPN of each pair, sorted from lowest to highest, followed by the list of the TPNs of the *bottom members*, i.e., their opponents, *in the very same order*. Therefore, we split the identifier in two halves, let us call them UH for "Upper Half" and LH for "Lower Half," as follows.

[13] *This happens to be the default score for the PAB (see [1.4.1]). Please note that the Tournament regulations may provide for a different score.*
[14] *Unless some acceleration method is in use, of course, but this is not the case.*
[15] *This ordering is called "lexicographical" because it is the same order of words in a dictionary (words are compared starting from their first letter, and then proceeding letter after letter until we find a difference).*
[16] *It is easy to see that this sorted list is the first possible disposition of the given numbers in the lexicographical order.*

UH = [1, 2, 3, 4, 5, 6].
LH = [7, 8, 9, 10, 11, 12].

Then, we associate member to member in one-to-one fashion (i.e., the first element of UH with the first of LH, then the second with the second, and so forth), so we get back the candidate which the identifier comes from[17]: (1-7, 2-8, 3-9, 4-10, 5-11, 6-12).

***

To complete the pairing process, we assign to each participant their appropriate colour. Since no team can have a colour preference yet, all colour allocation shall be regulated per *[4.3.1]*.

The initial-colour, determined by drawing of lots before the start of the tournament[18], is White. We must determine which one is the first-team *[4.2]* in each pair (this is the higher ranked team in the pair). In our tournament, the selection criteria are the highest MP; then the highest GP; and, finally, the lowest TPN, in this order. Please note that the identifier is created looking only at the *numerical* value of TPNs – therefore, *the top member of the pair needs not be the higher ranked team*[19] and, in general, the *first-team can come from LH as well as from UH*. However, this is the first round, so all scores are zero and all teams in UH are ranked higher than those in LH.

In each pair, the first-team gets the initial-colour, if its TPN is odd; or the opposite colour, if the TPN is even. Thus, first-teams #1, #3, and #5 receive the initial-colour, which is White, while first-teams #2, #4, and #6 receive the opposite colour, which is Black. The opponents to each first-team receive the opposite colour. Thus, the complete pairing is

(1-7, 8-2, 3-9, 10-4, 5-11, 12-6).

Before publishing the pairing, we must sort *tables*[20] *[C.04.2:3.6]* according to the following criteria: (1) the primary score of the higher ranked team in the pair; (2) the sum of primary scores of both teams; and (3) the lowest TPN of the higher ranked team in the pair[21]. We will mark all results in GPs, which give complete information (MP results can be derived from GP results, but the inverse is not true).

Board	Teams	Result
1	**1 (0) - 7 (0)**	
2	**8 (0) - 2 (0)**	
3	**3 (0) - 9 (0)**	
4	**10 (0) - 4 (0)**	
5	**5 (0) - 11 (0)**	
6	**12 (0) - 6 (0)**	
	13 (0) - PAB	**2**

17 *In fact, those who know the FIDE individual pairing systems will probably recognise this as an "inverse procedure" of that that is used in those systems to build the pairing from the subgroups S1/S2 (see, e.g., [C.04.3:3.2]).*
18 *Typically, during the "Captains' Meeting" (see Chapter 2, "Initial Preparations", page 7ff).*
19 *For example, if team #2 has 6 points (MP) and team #5 has 7 points (MP), the top member of the pair 2-5 is #2, but the highest ranked team, and, thus, the first-team, is #5.*
20 *Each table, hosting two teams, is comprised of one chessboard per team player. The colour for the team determines the colours for the first chessboard. Colours for the subsequent ones, usually alternating, are determined by event rules.*
21 *The TPS may or may not generate pairs in the right order. In a first round the order is always correct – but, in later rounds, table sorting will be in order (see Sorting Tables, page 26).*

At last, we are almost ready to publish the pairing. Before doing that, we want to check it once again with utmost care, because *a published pairing may not be modified, except in quite special circumstances [C.04.2:4.4]*[22]. In general, in case of an error (wrong result, match played with wrong colours, wrong ratings, and so on), the correction will affect only the pairings yet to be done[23] and only if the error is reported by the end of the next round *[C.04.2:4.3]*. After that, it will be considered *only for purposes of rating calculation*. In such cases, even the final standings will include wrong results just as if they were correct!

Finally, we update the tournament board and crosstable, on which we will post pairings and results for each participant (this may be done while everyone is playing). When we renounce the use of pairing cards, as we do here, the board should also contain all information needed to compose the pairings for following rounds.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	W7																										
2	B8																										
3	W9																										
4	B10																										
5	W11																										
6	B12																										
7	B1																										
8	W2																										
9	B3																										
10	W4																										
11	B5																										
12	W6																										
13	PAB																										

Crosstable markings

For each match, we should indicate at least the opponent team, the assigned colours, and the result – and, possibly, additional useful information. The choice of symbols is free, as long as it is *clear, unambiguous, and uniform*[24]. Here, we will show each pairing by means of a group of symbols comprised of the result ("+", "=" or "-", with obvious meaning), then a letter indicating the assigned colour ("B" for Black, "W" for White, "F" for a forfeited match[25], i.e., a match that was scheduled but not played), followed by the opponent's TPN. Finally, we can have some optional "utility" symbols (e.g., "↑" and "↓" to indicate respectively a previous round played as upfloater or upfloater's opponent[26], see *[1.5]*). For

22 In some situations, the CA can decide to change the pairings. Those include unexpected circumstances that may damage the tournament, like for example accidental pairing of teams that have already met, cases when players are left without an opponent, late arrivals, sudden withdrawals in the top rankings, and other critical situations. In this regard, see also FIDE Handbook C.05: "FIDE Competition Rules," item 7.4.

23 The Swiss systems can "absorb" the effect of an error in the subsequent rounds. The problem becomes more acute if the error happens in the final rounds because, in such cases, there is no time to reach a new equilibrium. This is why [C.04.2:4.3] allows to change the pairing – but only in special circumstances.

24 All players and stakeholders should be able to understand the crosstable, and to use it to replicate the pairings.

25 A forfeited game in a match that was regularly played is usually treated as a regularly played game.

26 In the TPS, all floats are alike, be them upwards or downwards. However, when we check the pairings, e.g., in looking for errors, it can help to know which kind of float was that (for each upfloater there should be a corresponding opponent!).

example, “+B3” means that the team was paired against #3, had Black, and won the match; whereas “-F13” means that the team was paired against participant #13, but forfeited (did not attend) the match.

Unplayed matches, other than forfeits, are indicated in various ways, according to their nature. “PAB” indicates a Pairing-Allocated Bye, while “HPB” (“*Half Point Bye*”) or “ZPB” (“*Zero Point Bye*”) indicate announced leaves. In exceptional cases, we could find “FPB,” which indicates a “Full-Point Bye” (a leave for which the participant received the same score worth of a win). This is sometimes assigned by the arbiter as a “last resort” to correct some unforeseen circumstance. However, this is a ***deprecated practice***, to be used only in case of sheer necessity.

Since we do not make use of pairing cards, our crosstable or tournament board will also show the cumulative scores (both primary and secondary) for each round, to help us in the preparation of pairings (and, possibly, of intermediate standings).

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We should now collect and record the results of all matches.

Board	Teams	Result
1	**1 (0) - 7 (0)**	**3-1**
2	**8 (0) - 2 (0)**	**1½-2½**
3	**3 (0) - 9 (0)**	**2-2**
4	**10 (0) - 4 (0)**	**1-3**
5	**5 (0) - 11 (0)**	**2½-1½**
6	**12 (0) - 6 (0)**	**½-3½**
	13 (0) - PAB	**2**

Finally, we update the crosstable for the pairing of the next round. This will be a bit more laborious than usual because we must insert our three new teams, so many TPNs change. Beware of mistakes while updating the crosstable! This must be done with the utmost attention, and the results must be carefully verified before proceeding.

4 Second Round (Basic pairing and pairing criteria)

Here is the updated tournament board after the first round.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3																								
2	+B8	2	2.5																								
3	=W10	1	2																								
4	+B11	2	3																								
5	+W13	2	2.5																								
6	+B15	2	3.5																								
7	-B1	0	1																								
8	-W2	0	1.5																								
9	HPB	1	2																								
10	=B3	1	2																								
11	-W4	0	1																								
12	HPB	1	2																								
13	-B5	0	1.5																								
14	HPB	1	2																								
15	-W6	0	0.5																								
16	PAB	1	2																								

There are no absent teams in this round; so, the number of participants is even, and no team will get the PAB.

<u>Scoregroups and brackets</u>

Now participants have different scores. The basic principle of Swiss pairing systems states that *paired participants should have equal scores [C.04.1:5]*. In practice, this is not always possible – but, at least, scores should be as similar as possible. To achieve this result, we sort the list of participants according to their respective scores. We therefore define the <u>scoregroup</u>, which is a set of participants who, in a round, have identical scores *[1.3.1]*.

A scoregroup is the main component of a (pairing) <u>*bracket*</u> *[1.3.2]*, which is a set of participants to be paired among them. The pairing proceeds towards decreasing scores, one scoregroup at a time, from the upper one (i.e., the one with the maximum score), which is called the "top-scoregroup" (*[1.8]*), to the lower one (corresponding to the minimum score) – hence, the first task in pairing a round is to split participants into scoregroups.

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First, we sort participants in <u>*scoregroups*</u> *[1.3]* according to their score. Then, as mentioned, those scoregroups are processed ("paired") one after the other, always beginning with the topmost scoregroup, which contains the highest ranked participants. In the current round, those are the teams that scored two points. The next scoregroup is formed by the teams who scored one point. Last, we have the scoregroup of the teams who scored no points. So, we have:

2.0 {1, 2, 4, 5, 6}
1.0 {3, 9, 10, 12, 14, 16}
0.0 {7, 8, 11, 13, 15}

It is now time to begin the pairing proper. Since this is our first time, we will devote some time to the details of the process. Then, as we proceed in the tournament, we will skip over the more mundane tasks, to focus only on the more interesting ones.

In the first step of the round-pairing *[1.9]* we determine the assignee of the PAB (if any). In this round, as mentioned, the number of participants is even, so, no PAB is required and we can proceed directly to the teams pairing, bracket by bracket.

Determining the number of pairs

We always start with the top-scoregroup *[1.8]*, i.e., the scoregroup that contains the participants with the highest score among those that have not been paired yet. With it, we build the first bracket. We need to know the number of pairs to build in the bracket. This number cannot be smaller than half the number of teams in the scoregroup (rounded up, if needed), which therefore sets an "absolute theoretical minimum" to the pairs we must build. The actual number of pairs can be larger because:

– there may be participants who, for whatever reason, cannot play with *any* other team in the bracket. Such participants are said to be *incompatibles*.

– sometimes, a bracket contains participants who "compete" for the same opponent(s) in such a way that any, but not all, of them can be paired[27]. This situation is usually called "*semi–(in)compatibility*," or "*island-compatibility*."

For every participant that cannot be paired, we must look for an opponent somewhere else – in other words, for each of them, we need an *upfloater*, picked up from one of the next scoregroups. If, after this adjustment, the number of teams in the bracket is odd, we need one more upfloater to make it even, so that, in the end, we can give an appropriate opponent to each participant – *no team can remain unpaired*[28]. The "absolute theoretical maximum" to the number of pairs is therefore the number of teams in the scoregroup, and it is reached when *all* teams are incompatible between them (which sometimes happens).

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Our top-scoregroup consists of five teams, all of which can meet any other one in the group. Choosing the set of upfloaters is not always an easy task, but it definitely is now because there are no incompatibilities[29]. We just need one more team, to make their number even, then we will be able to build three pairs.

Selecting the upfloaters – The "Requirement Zero" and other criteria

It happens rather frequently that the number of teams is not even, or that one or more teams cannot be paired within their own scoregroup. We solve this problem by adding some teams

[27] *For example, consider the bracket {1, 2, 3, 4} in which teams #1, #2, and #3 can all play only with team #4. No team here is incompatible: we can pair any of them, but we cannot pair them all.*

[28] *Sometimes it happens that the bracket could be paired but we must create upfloaters only to allow the completion of the round-pairing. We will see examples of this in later rounds.*

[29] *In fact, it is too early in the tournament to have incompatibilities. In a second round, every team can still play with almost any other one. This is why, usually, we don't have incompatible participants yet – unless unusual circumstances arise. For example, let's suppose that in the first round only two teams drew against each other – in the second round, the one-point scoregroup is going to contain only those two teams, who are of course incompatible.*

to the bracket ("upfloaters", see *[1.3.2]*), picking them up from lower scoregroups in such a way that the current bracket can be completely paired and the remaining teams (i.e., all those teams belonging to lower scoregroups and not yet paired) can be paired also. Hence, we must first choose adequate upfloaters *[3.2]*. As we will see presently, this requires some knowledge of the next bracket – we need, so to speak, "to keep an eye on the future".

The selection of the upfloater set needed for the top-scoregroup usually requires a (moderately) complex procedure. However, this is only the second round, and pairing constraints are virtually non-existent – thus, we can use a most simplified procedure. In this exceedingly simple situation, we only need to remember that the upfloater(s) must, in order of importance,

- *be as few as possible,*
- *have a (primary) score as high as possible, and, finally,*
- *have a TPN as low as possible [3.2].*

We need just the one upfloater now. In the absence of any constraints, we simply draw the first team from the next scoregroup, so the upfloater is #3.

As the tournament progresses, things become more complicated, and the time will come when we need a more rigorous selection process. The above requirements on number and score of the upfloaters arise from pairing criteria C4 and C5 (*see, [2.3.2]*). Both the number and the scores of upfloaters are implicitly determined by these two criteria.

Criterion **C4** *[2.3.1]* minimises the number of upfloaters. The lower that number is, the better the set. Now, the current bracket is odd and, therefore, requires at least one upfloater to make it even – what this criterion says is, *if we need just one, we shall not use more than one*.

Criterion **C5** minimises the difference in score, taken in descending order, between upfloaters and their opponents[30]. Of course, this difference is always zero in any candidate pairing of a bracket that does not contain upfloaters, because all participants have, by definition, the same score – actually, this criterion is useless in such cases. It only applies when upfloaters – and, therefore, different scores – are involved. For any given upfloaters set, the sorted list of score differences is the same for all possible pairings. Therefore, this criterion only applies at the time upfloaters are selected (i.e., now!), its effect being to choose those with the highest possible score. The lists of score differences are compared lexicographically[31]. The requirement about the lowest TPN derives from the order imposed on identifiers by *[3.3.3]*.

In fact, there are still some more requirements, which are essentially irrelevant now (again, because this is only the second round and, therefore, there are still very few constraints on the pairing) but become more and more important in later rounds.

One of them, given by criterion **C6**, is that the choice of the upfloaters set must optimise the

[30] *An upfloater is never paired with another upfloater, because it is needed to match a resident team of the bracket – were not the upfloater needed for this purpose, it would have no reason to exist at all.*

[31] *See Lexicographical comparison, page 12ff.*

pairing in the next bracket[32] (*[2.3.3]*), meaning that our choice shall maintain the best possible quality of the pairings for the next bracket. This criterion maximises the number of pairs in the next bracket, and it is irrelevant in any bracket that does not require upfloaters[33]. In our case, it is easily verified that all the teams in the next scoregroup can be paired, so we need not worry about this.

Another requirement, given by criterion **C7**, is the need to minimise the number of upfloaters that were floaters also in the previous round (*[2.3.6]*), regardless of the float direction. This means that, if possible, the teams we choose as upfloaters should have been neither upfloaters, nor upfloater opponents in the previous round. However, there are no floaters in the first round, so this criterion is irrelevant now.

The most important requirement is that introduced by the Completion criterion C3 (*[2.2.1]*), which, in simple words, says that *any choice or operation we do on the bracket must allow the round-pairing [1.9], i.e., the complete pairing for the round, to be successful*. To enforce this requirement, we must prove that *at least one legal pairing exists* for all the remaining (i.e., yet unpaired) participants. This is informally called the "***Requirement zero***." Quality is no concern of ours in this test – we are not looking for the "right" pairing now, or even for a passable one – we only want *a legal pairing whatsoever*, and finding it is an easy task[34].

This check is called a "***Completion test***." It is often omitted in early rounds because the teams that already met each other are so few that it is virtually impossible that the pairing does not come to fruition. The test becomes increasingly important as the tournament progresses, especially if there are few participants.

For example, let us perform the test in the present case. First, we need to define the set of participants yet to be paired – we call it the "***Rest***." Looking into the crosstable, we readily find that the Rest is {9, 10, 12, 14, 16, 7, 8, 11, 13, 15}. Then, we look for a legal pairing of this Rest, e.g. (7-8, 9-10, 11-12, 13-14, 15-16). Of course, this is but a "random" pairing and, for sure, it is not the "right" one. Nevertheless, it tells us that at least one legal pairing exists – hence, indeed, this round-pairing can be completed.

Once the upfloaters set has been selected, there is nothing we can do in the bracket that will change the Rest (there are no downfloaters in TPS!). Therefore, we need to check for the Requirement Zero *only when we choose the upfloaters set*. The same holds true for all the criteria that only apply to the choice of the upfloaters set, namely C4, C5, C6 and C7.

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As mentioned, we choose team #3 as an upfloater. Now, we add it to the scoregroup and sort the bracket thus created. As indicated in *[3.3]*, the driver for the pairing is based on the

[32] *In fact, it would be nice to optimise the pairings round-wise rather than in the next bracket only, but this task would be too burdensome and is therefore impractical.*

[33] *One could think that, when the next scoregroup includes incompatible teams, we could optimise the bracket by transforming those incompatible teams in upfloaters (thus moving them into the current bracket). This is not the case, because creating more upfloaters does not maximise the number of paired teams (in fact, it diminishes it!).*

[34] *We need no special method to find this "test pairing" – provided it is legal, the first ugly mesh-up we can think of will be fine! For a simple method to perform this task, see Appendix 1 in "Mastering the Dutch", by same author.*

lexicographic order[35] of TPNs, so we need to sort the bracket by TPN, obtaining:

{1, 2, 3, 4, 5, 6}.

<u>*Candidates and identifiers*</u>

We already mentioned that each (pairing) candidate, which is a sequence of all pairs that can be made with the teams included in the bracket, is tagged with an identifier made as per *[3.3.2]*. Now, it is time to discuss in more depth the relationship between candidates and identifiers.

If the bracket contains ***n*** participants (where *n* is an even number by construction) and considering that all participants in the bracket shall be paired, we must make ***p = n/2*** pairs. If we have only two participants, only one candidate is possible[36]. If there are four participants, there are three ways to form the first pair, then the second pair remains automatically determined, so we have a total of three candidates. If we have six participants, there are five ways to form the first pair, then four participants remain, which can be paired in three ways, so we have a total of fifteen (5x3) candidates; and so on.

In general, then, the number of potentially useful candidates is $\boldsymbol{N_C(n) = (n\text{-}1)\cdot(n\text{-}3)\cdot \ldots \cdot 3\cdot 1}$, which is a number that grows really fast with the number of teams[37]. Of course, some of those candidates can contain forbidden pairs (e.g., teams that already played with each other), so, in fact, there can be fewer acceptable candidates than that.

However, the total number of candidates is *much* larger[38] - actually, it can be *extremely* large because it includes many candidates that differ only in the order of pairs or in the order of participants in the pairs, and both those differences are irrelevant to the pairing. When candidates differ only in this (now irrelevant) way, we call them <u>*equivalent*</u>.

<u>*Example*</u>

An example can shed some light on this matter. For convenience, let us consider a small bracket with only four participants, {1, 2, 3, 4}, which only gives three useful candidates, so it is easy to list them all.

(1-2,3-4) (1-3,2-4) (1-4,2-3).

Now, the list of all possible candidates is the following, noticeably longer.

(1-2,3-4)	*(1-2,4-3)*	*(2-1,3-4)*	*(2-1,4-3)*	*(3-4,1-2)*	*(3-4,2-1)*	*(4-3,1-2)*	*(4-3,2-1)*
(1-3,2-4)	*(1-3,4-2)*	*(3-1,2-4)*	*(3-1,4-2)*	*(2-4,1-3)*	*(2-4,3-1)*	*(4-2,1-3)*	*(4-2,3-1)*
(1-4,2-3)	*(1-4,3-2)*	*(4-1,2-3)*	*(4-1,3-2)*	*(2-3,1-4)*	*(2-3,4-1)*	*(3-2,1-4)*	*(3-2,4-1)*

This list includes the three "basic" candidates, together with a lot of "dead weight" that is nothing more than irrelevant variations. For example, for a bracket containing six teams, there are 47 useless replicas for each candidate – adding only

[35] *See <u>Lexicographical comparison</u>, page 12.*

[36] *In a candidate, 1-2 and 2-1 represent essentially the same pair. The allocation of colour will be made at a later stage in the process when the candidate already became <u>the</u> pairing. Also, candidates (1-2, 3-4) and (3-4, 1-2) are equivalent too – the order of pairs is established by a final sorting just before the round-pairing is published, i.e., well after the pairing process for the bracket is over (see [C.04.2:3.6]).*

[37] *This expression is called a "semi-factorial" and is indicated with a double exclamation mark, e.g., 7!! = 7 x 5 x 3 x 1. In our case,* $\boldsymbol{N_C = (n\text{-}1)\cdot(n\text{-}3)\cdot \ldots \cdot 3\cdot 1 = (n\text{-}1)!!}$.

[38] *This number is the total number of <u>dispositions</u> of n objects, which is given by* $\boldsymbol{D(n) = n\cdot(n\text{-}1)\cdot(n\text{-}2)\cdot \ldots \cdot 2\cdot 1.}$ *This expression is called a "factorial" and is indicated with an exclamation mark, e.g., 4! = 4 x 3 x 2 x 1. This function grows even more quickly than the semi-factorial (see note 37) – in fact, much faster because* $\boldsymbol{n! = n!!\cdot(n\text{-}1)!!}$

two teams to the bracket, the "useless replicas" grow to 383 per candidate! The following table shows some suggestive numbers.

	Number of teams in the bracket					
	2	*4*	*6*	*8*	*10*	*12*
Useful candidates	*1*	*3*	*15*	*105*	*945*	*10395*
Total candidates	*1*	*24*	*720*	*40320*	*3628800*	*479001600*
Useless:Useful	*0*	*7:1*	*47:1*	*383:1*	*3839:1*	*46079:1*

§§§

And now, we come to identifiers. The identifier for a candidate is built choosing the TPN of the top member [3.6.1] of each pair and then sorting them in (ascending) numerical order [3.6.2]. Let us clarify this with an example, building the identifier for the candidate (1-3, 2-4, 5-6). First, we pick all first members of the pairs, i.e., the lowest TPN in each pair, and then sort them and use them as the first half of the identifier, as in [1, 2, 5, x, y, z]. Then, we fill in the second half with the opponents of each top member, in (exactly) the same order of the top members, as in [1, 2, 5, 3, 4, 6], which is the required identifier.

Now, all those candidates, which differ between them only for the order of teams in the pairs, have the same set of top members – thus, after sorting the top members, we build the first half of the identifiers, which is identical for all the candidates. Also, the second parts of each identifier are identical too, because each top member have the very same opponent in all candidates. In short, *all equivalent candidates share the same identifier*.

Thus, the number of identifiers is equal to the number of potentially useful candidates, i.e., much lower than the total number of candidates. A corollary to this is that *not every possible disposition of a set of numbers is a valid identifier*.

Some rules of thumb can help us in recognising syntactically correct identifiers.

1. *the string must contain an even number of elements (i.e., numbers), all different,*
2. *the elements in the first half must be in strict ascending order,* and
3. *each element in the first half must be lower than the corresponding element in the second half.*

We will have the opportunity to apply these rules further on in this tournament.

Example

For example, the identifiers [1 2 3 6 5 4] and [1 2 4 3 5 6] are both syntactically correct (an identifier is syntactically correct if it complies with the construction rules [3.6.2]) and represent each a candidate, namely (1-6, 2-5, 3-4) and (1-3, 2-5, 4-6). On the contrary, the sequences [2 1 3 5 6 4] and [1 2 4 6 5 3] are not identifiers (i.e., they do not represent any candidate!) because no candidate can ever return that string as its identifier.

§§§

Preparation of the candidate

The TPS rules tell us to make pairings, and then give us instructions as to how to sort them so that the correct priority is established, guiding us in the process of choosing the perfect pairing. However, as mentioned before, they say nothing about *how* to build a candidate pairing, thus giving the pairing officer (or the programmer) complete freedom on the choice of the method to be used.

For example, we could build all the pairings, then sort them in the order provided for by their respective identifiers, and finally choose the right one by applying all the relevant pairing criteria in sequence[39] – and, since the choice of the upfloaters set is by now final, we will only have to address compatibility (C1), colours (C8, possibly C9) and upfloaters' opponents (C10). This method can be precious in small brackets, but it becomes impractical when the number of candidates is large – we need something that can be used also for large brackets. Also, we could borrow from the well-known method used by the FIDE Swiss (Dutch) system[40] – on occasions, we will do so in later rounds. However, since the TPS is inherently so simple, for now we can still use the method we applied for the pairing of the first round. Then, we followed a "*backwards method*," starting from the first possible identifier, working our way back to the corresponding candidate[41]. This was easy because the construction of the first identifier is straightforward – it is simply the list of all TPNs sorted in ascending order[42]. This ordered list is *always* a valid identifier, and it is always the first possible one.

The bracket to pair is **{1, 2, 3, 4, 5, 6}**, and we want to remember that #3 is an upfloater. The first identifier is [1, 2, 3, 4, 5, 6], which returns the candidate (1-4, 2-5, 3-6)[43].

Evaluation of the candidate

Now, having built a candidate, we must evaluate it against the relevant pairing criteria (*see [2], [3.6.4]*). First, we check it for compliance with absolute criterion C1 (about opponents that the participant already met *[2.1.1]*). Any candidate that does not comply with this criterion is illegal.

Criterion C2 *[2.1.2]* applies to the choice of the PAB-assignee, so, when it comes to pairing the bracket, its function is already exhausted (the PAB is allocated during the preliminary phase of the round-pairing, well before we begin to deal with brackets).

The Completion Criterion C3 *[2.2.1]*, which we already discussed[44], is in a class of its own, being more of an "operative instruction" than a "selector". In fact, this criterion is pure common sense, stating that a bracket pairing is not acceptable if it does not allow us to successfully complete the round-pairing.

39 *This is what we call "the Sieve pairing method." We will discuss it later, see The Sieve Pairing method, page 40ff.*
40 *See, for example, "Annotated pairing rules for the FIDE (Dutch) System (2025 Edition)" and "Mastering the Dutch".*
41 *See Candidates and identifiers, page 20ff.*
42 *Unlike other pairing systems (e.g., Dutch, Lim), the bracket sorting rules of the TPS ignore the participant's score.*
43 *Please note that the pairs in this candidate have not yet been assigned a colour. Colours are not important now – we will deal with their assignment at the end of the round-pairing [3.3].*
44 *See Selecting the upfloaters – The "Requirement Zero" and other criteria, page 17ff.*

This criterion is used several times during a round-pairing:

- first, at the very beginning of the round-pairing, to make sure that the latter can actually come to fruition[45],
- then, we use it when we allocate the PAB,
- finally, we use it every time we choose an upfloaters set, because this choice (and this only!) can impact on future pairings.

Thus, when it comes to evaluating a candidate, we can safely assume that the Rest (i.e., the set of participants that were not paired yet) can be paired, because we verified this during the selection of the upfloaters set.

A candidate that, as this one, complies with all the (relevant) absolute criteria, is said to be ***legal*** and may be evaluated for quality. (Conversely, a candidate that is not legal shall be immediately discarded.) Now that we know that all absolute criteria are met, we evaluate the compliance of the candidate with quality criteria C8–C10. This compliance is measured by means of ***Failure values***. Those are numerical values that describe "how good" the pairing is – usually, the lower the failure value is, the better is the candidate. Not all criteria need to be considered always – in several instances, some of them are irrelevant[46], so, usually, we limit our attention to the significant ones only.

Criterion C8 minimises the number of participants whose colour preference is disregarded. The natural failure value for this criterion is the number of participants that do not get their colour preference. In general, there is a minimum number of colour preferences that will unavoidably be disregarded in a bracket. This number, which we call ***x***, is often, but not always, zero. Our tournament rules require the use of Type-A colour preferences, and, therefore, a team cannot have a preference until after at least two matches. Since this is only the second round, no team can have a colour preference yet and the corresponding failure value is necessarily zero. So, we postpone the discussion of this topic to the next rounds.

Criterion C9 minimises the number of participants whose strong colour preference is disregarded. This criterion only applies when Type-B colour preferences are in use. Since our tournament adopts Type-A colour preferences[47], we simply ignore this criterion (the relevant failure value, which is the number of participants who do not get their strong colour preference, will always be zero.)

Criterion C10 minimises the number of teams that float twice in a row, regardless of the float direction. The failure value for this criterion is the number of teams that would be going to float again. Our bracket contains no teams that floated in the previous round, so the failure value is also zero.

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[45] *It may happen, although rarely, that a round allows no legal pairing at all. In such unfortunate circumstances, Article [3.3.3] gives to the Arbiter the responsibility to "do something" to solve the impasse (see Article 3.3.3 in {7} and the related comment).*

[46] *For example, criterion C10 does not apply in the last two rounds of the tournament.*

[47] *In fact, most usual team tournaments are expected to adopt Type-A colour preferences.*

Since all failure values are at a minimum, all criteria are complied with, and the candidate is perfect. We "promote" it to pairing, then move on to the next bracket.

The next scoregroup, containing the teams that scored one point, is[48] {9, 10, 12, 14, 16} and, again, it contains an odd number of teams. Thus, we pick an upfloater from the next (and last) scoregroup – again, there are no restraints, so we pick up the first one, which is team #7, add it to the scoregroup, sort, and obtain the bracket **{7, 9, 10, 12, 14, 16}**.

A preliminary scrutiny of the bracket shows that no participant met any other yet, so all can play all. The first possible identifier, which is [7, 9, 10, 12, 14, 16], corresponds to the candidate (7-12, 9-14, 10-16). It is easy to verify that this candidate is perfect, so we promote is at once and move on to the last bracket, which is **{8, 11, 13, 15}**. Using our "backwards method" once again, we obtain (8-13, 11-15) as first candidate. This is also perfect, so we can proceed to the last step in the pairing process.

Colour allocation

After all participants have been paired, we must complete the preparation of the round by assigning to each team its right colour. We need to examine all pairs, one by one, according to colour allocation criteria (*see section [4] of the Rules*), which are more detailed than in other pairing systems, to compensate for the simplicity of the colour management during the pairing process. First, we define the *first-team* *[4.2]* of each pair as the team whose ranking is higher than the opponent's. In our tournament, the rules require that the secondary score be used for colour allocation, so the comparison for the first-team is based on (1) *higher primary score*, (2) *higher secondary score*, and (3) *lower TPN*, in that order.

Sometimes, we need the *Colour history* of the teams, which is the list of colours the team had in all earlier rounds. In this list, regular matches are marked with W (for White) or B (for Black), while unplayed matches, which have no colour, are marked with a lowercase "u." Colour histories are compared ignoring (i.e., skipping) unplayed matches (*[C.04.2:3.4]*).

Now, there are several rules for the allocation of colours. For each pair, we use them in succession until we find the first one that applies, thus allowing us to determine the colours to assign to each team. Let us summarise them.

- If both teams are new entries[49], for want of a better reason, we assign the initial-colour to first-teams with odd TPN and the opposite colour to those with even TPN. The respective opponents receive the opposite colour *[4.3.1]*.
- If only one team has a colour preference, we make that team happy *[4.3.2]*.
- If both teams have a preference, but for opposite colours, of course we make them both happy *[4.3.3]*.
- If only one team has a strong colour preference, we comply with that *[4.3.4]* because a strong preference gest priority over a mild one *[1.7.2]*. Of course, this rule only applies

48 Of course, team #3 is no longer in the scoregroup because it upfloated, so we delete it from the list.

49 In pairing the first round, all teams are "new entries". In subsequent rounds, however, the teams involved are late entrants and previous assignees of byes (HPB, PAB, possibly ZPB or even FPB) or forfeits.

when Type-B preferences are in use, so we will never use it here.

- If a team has a lower colour difference[50] *[1.6]* than that of the opponent, we give it the white colour *[4.3.5]*. We will be using this rule when two teams have identical colour preference or no preference at all. (This happens often when using Type-A preferences.)
- If the colour differences are equal, we compare colour histories, alternating colours with respect to the last time they played with distinct colours (*[4.3.6]*, *see also [C.04.2:3.4]*). To do so, we compare colours one by one, starting from the most recent one and gradually going towards the oldest one. Colour histories can contain "holes" (corresponding to unplayed games). We skip such holes (which is tantamount to moving them to the beginning of the sequence) and look at the colour of the previous played game. Histories of different lengths are compared skipping all unplayed rounds, and only until the end of the shorter one[51].
- When histories are equivalent too, if the first-team has a colour preference, we grant it *[4.3.7]*, else we alternate the colour from the last round that the team played *[4.3.8]*.
- Finally, if the first-team has no previous match, we alternate the colour of the opponent.

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Now, we put together all the pairs: (1-4, 2-5, 3-6, 7-12, 9-14, 10-16, 8-13, 11-15). All the data we need are included in the tournament board. To make our job easier, we can prepare a simple recapitulatory table.

Pair	1-4	2-5	3-6	7-12	9-14	10-16	8-13	11-15
First-team	*1*	*2*	*6*	*12*	*9*	*10*	*8*	*11*
MP, GP	2, 3	2, 2.5	2, 3.5	1, 2	1, 2	1, 2	0, 1.5	0, 1
Colour hist	W	B	B	--	--	B	W	W
Colour diff	+1	-1	-1	0	0	-1	+1	+1
Colour pref	--	--	--	--	--	--	--	--
Opponent	*4*	*5*	*3*	*7*	*14*	*16*	*13*	*15*
MP, GP	2, 3	2, 2.5	1, 2	0, 1	1, 2	1, 2	0, 1.5	0, 0.5
Colour hist	B	W	W	B	--	--	B	W
Colour diff	-1	+1	+1	-1	0	0	-1	+1
Colour pref	--	--	--	--	--	--	--	--

We select the first-team:

- based on primary score, for pairs 3-6, 7-12
- based on secondary score, for pair 11-15
- based on TPN, for all other pairs, i.e., 1-4, 2-5, 9-14, 10-16, 8-13.

Let us now examine each pair, remembering that no team has a colour preference.

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50 *If the teams have the same number of matches, this rule is equivalent to give White to the team that had it fewer times. However, it is different when the teams played a different number of rounds.*

51 *For example, in the comparison between the colour histories of two participants, the sequence uWuB is equivalent to both BWWB and WBWB – but the latter two are not equivalent to each other!*

1-4 The teams played one game. Hence, we need to apply *[4.3.5]*. The lower colour difference *[1.6]* is that of #4, so we assign colours as **4-1**.

2-5 Again, *[4.3.5]* yields **2-5**.

3-6 Again, *[4.3.5]* yields **6-3**.

7-12 Again, *[4.3.5]* yields **7-12**.

9-14 Here, both teams are new entries, so [4.3.1] applies. The first-team is #9, which is odd. We give them the initial-colour (here, White), obtaining **9-14**.

10-16 Again, *[4.3.5]* yields **10-16**.

8-13 Again, *[4.3.5]* yields **13-8**.

11-15 The teams have the same colour difference, so we move on to *[4.3.6]*. Alas, the colour histories are also identical, and there are no colour preferences that *[4.3.7]* can discriminate, so we proceed straight to *[4.3.8]*, alternating the colour of the first-team – in conclusion, we have **15-11**.

<u>*Sorting Tables*</u>

The pairing is now complete. Before publishing it, we must sort pairs. Since the tournament rules made no different provision, we use the default sort rules *[C.04.2:3.6]*. Contrary to most pairing systems, the pairs in TPS are generated in a wrong order somewhat often[52]. So, before publishing the round, we must always sort the boards in the correct order. The sorting rules are the following.

1. the highest score of the higher ranked participant in the pair
2. the highest sum of the scores of both participants in the pair
3. the lowest TPN (i.e., highest initial ranking) of the highest ranked participant in the pair

We use primary score as the reference score. For convenience, we mark the first-team in each pair. Let us now check the sorting parameters board by board.

Pair	**4-<u>1</u>**	**<u>2</u>-5**	**<u>6</u>-3**	**7-<u>12</u>**	**<u>9</u>-14**	**16-<u>10</u>**	**13-<u>8</u>**	**15-<u>11</u>**
Score of the higher ranked participant	2	2	2	1	1	1	0	0
Sum of the scores of both participants	4	4	3	1	2	2	0	0
TPN of the higher ranked participant	1	2	6	12	9	10	8	11

Now, we sort the round before publishing it.

Pair	**4-<u>1</u>**	**<u>2</u>-5**	**<u>6</u>-3**	**<u>9</u>-14**	**<u>10</u>-16**	**7-<u>12</u>**	**13-<u>8</u>**	**15-<u>11</u>**
Score of the higher ranked participant	2	2	2	1	1	1	0	0
Sum of the scores of both participants	4	4	3	2	2	1	0	0
TPN of the higher ranked participant	1	2	6	9	10	12	8	11

***

[52] *This is due to the systematic use of the upfloat together with the fact that we ignore scores when sorting the bracket.*

Finally, we publish the pairing (indeed, to cut a long story short, we post results too).

Board	Teams	Result
1	4 (2) - 1 (2)	1½-2½
2	2 (2) - 5 (2)	2-2
3	6 (2) - 3 (1)	1-3
4	9 (1) - 14 (1)	3-1
5	10 (1) - 16 (1)	4-0
6	7 (0) - 12 (1)	2½-1½
7	13 (0) - 8 (0)	2-2
8	15 (0) - 11 (0)	1½-2½

We can now proceed to the next round.

5 Third Round (Colour preferences – Allocating the PAB)

We have now reached the third round. We already had a little practice, so we can go a bit faster – but without neglecting any of the necessary checks and cautions!

The updated tournament board is as follows.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5																					
2	+B8	2	2.5	=W5	3	4.5																					
3	=W10	1	2	+B6↑	3	5																					
4	+B11	2	3	-W1	2	4.5																					
5	+W13	2	2.5	=B2	3	4.5																					
6	+B15	2	3.5	-W3↓	2	4.5																					
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5																		
8	-W2	0	1.5	=B13	1	3.5																					
9	HPB	1	2	+W14	3	5																					
10	=B3	1	2	+W16	3	6																					
11	-W4	0	1	+B15	2	3.5																					
12	HPB	1	2	-B7↓	1	3.5																					
13	-B5	0	1.5	=W8	1	3.5																					
14	HPB	1	2	-B9	1	3																					
15	-W6	0	0.5	-W11	0	2																					
16	PAB	1	2	-B10	1	2																					

Team #7 asked for an HPB for this round, so, the number of participants is odd. Therefore, before we pair the round, we must assign the PAB to a team – but, even before that, we have some preparations to do. Our first task is sorting the list of participants according to score and TPN, then we can divide the list into scoregroups. For future reference, we also mark the floaters (if any) of the previous round.

4 {1}
3 {2, 3↑, 5, 9, 10}
2 {4, 6↓, 11} *(team #7 is absent, so it is not listed)*
1 {8, 12↓, 13, 14, 16}
0 {15}

<u>*Colour preferences*</u>

Since our tournament rules adopt Type-A colour preferences *[1.7.1]* (which are quite loose), only a few participants will have a <u>*colour preference*</u>[53] in this round. To determine the preference, if any, we need the <u>*colour difference*</u> $\boldsymbol{C_D}$ *[1.6]*, which is the difference between the number W of rounds in which the team played[54] as White, and the number B of those played as Black: $\boldsymbol{C_D = W - B}$. This difference is positive for a participant who played as White more often than as Black, negative for a participant who had Black more often than White, and zero if (team) colours are balanced. The latter case is our ideal goal, and the pairing shall pursue it, although in a somewhat relaxed way.

[53] *A colour preference is sometimes also called <u>due colour</u> or <u>expected colour</u>.*
[54] *As always, we only count matches that were actually played on-the-board.*

There is only one type of colour preference, determined as follows:

– A participant has a *colour preference* *[1.7.1]* when $C_D > 1$ or $C_D < -1$ – that is, when the team had a colour (at least) twice more than the other one – or when the team had the same colour for two matches in a row and its colour difference is not pointing in the opposite direction[55]. The preference is towards the colour that was received fewer times or the colour that the participant did not receive in the last two played matches. In both cases, the participant *should preferably* receive the due colour, if possible and if no stronger reason prevents it[56].

– In all other cases, the participant has no colour preference at all.

The remarkably simple structure of these colour preferences is partly compensated for by the colour allocation rules, which, as mentioned, are a bit more complex than usual.

Colour preferences may be disregarded, when necessary, so that the team might also get the colour opposite to the preferred one. During the pairing process, we need to keep a handy record of colour preferences for each participant. To avoid the use of yet another table, we temporarily record all colour preferences in the tournament board, e.g., in the column bound to the pairing for the round (when it is time to post the pairings, we will not need the colour preferences anymore).

Now, we need a code to indicate the preference[57]:

– a “w” or “W” indicates a colour preference for White,
– a “b” or “B” indicates a colour preference for Black,
– an “a” or “A” indicates that the participant has no colour preference.

***

We now proceed to determine the colour preference (if any) for each team. To do that, we examine the colour history of each team, taking into consideration only those matches that were played on-the-board and disregarding all others.

At this point, a warning is in order: as we proceed into the tournament, we will collect more and more data, and overlooking something important becomes easier and easier... We should pay utmost attention while posting data on the board, and we also want to check everything several times – making a mistake here is all too easy!

Not surprisingly, most teams have no colour preference. Only #15 played twice in a row as White and thus has a colour preference for Black.

[55] *For example, a colour history WWWBB would seemingly suggest a preference for White. However, the colour difference is $C_D=+1$, thus pointing towards Black, so the team has no colour preference at all. Please note that, as always, we refer only to games that were played on-the-board: the colour initially allocated for a game that was forfeited is irrelevant and shall be ignored. By the way, this is what the individual pairing systems would call an "absolute colour preference." Here, it is the only preference, and it is not even absolute. The rationale behind this is that in most team tournaments there are four players per team, and two of them play with White while the other two play with Black, so colours are intrinsically balanced. When a tournament needs a finer management of colour allocation, Type-B preferences should be preferred.*

[56] *This is formally analogous to the behaviour of a mild preference in individual pairing systems. However, since most teams have no preference at all, we should probably think of it as somewhat similar to a strong preference.*

[57] *This is a "local" convention only, far from universal – others may use completely different codes.*

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+7W	2	3	+4B	4	5.5	A																				
2	+8B	2	2.5	=5W	3	4.5	A																				
3	=10W	1	2	+6B↑	3	5	A																				
4	+11B	2	3	-1W	2	4.5	A																				
5	+13W	2	2.5	=2B	3	4.5	A																				
6	+15B	2	3.5	-3W↓	2	4.5	A																				
7	-1B	0	1	+12W↑	2	3.5	HPB																				
8	-2W	0	1.5	=13B	1	3.5	A																				
9	HPB	1	2	+14W	3	5	A																				
10	=3B	1	2	+16W	3	6	A																				
11	-4W	0	1	+15B	2	3.5	A																				
12	HPB	1	2	-7B↓	1	3.5	A																				
13	-5B	0	1.5	=8W	1	3.5	A																				
14	HPB	1	2	-9B	1	3	A																				
15	-6W	0	0.5	-11W	0	2	PAB																				
16	PAB	1	2	-10B	1	2	A																				

As mentioned, team #7 is absent, so, the number of participants is odd in this round. For our convenience, let us repeat here the list of scoregroups, now augmented with colour preferences.

4	{1A}
3	{2A, 3A↑, 5A, 9A, 10A}
2	{4A, 6A↓, 11A}
1	{8A, 12A↓, 13A, 14A, 16A}
0	{15B}

Before proceeding to the pairing proper, we must now assign the PAB.

<u>*Allocating the PAB*</u>

In the first round, teams were still "all alike" – they all had zero points, and there were no incompatibilities, so we assigned the PAB to the last team of the ranking. Now, teams have different scores, and not every one of them can play everyone else. Therefore, there are some restrictions to the choice of the PAB-assignee. We must choose a recipient that:

- did not receive either a previous PAB, or a forfeit win, or a Full-Point Bye (*C2, see [2.1.2]*). This is an absolute criterion, and therefore it shall be complied with. Please note that a requested bye, like a Half-Point Bye ("HPB") or an announced absence ("Zero-Point Bye" or "ZPB"), does not prevent the allocation of a PAB in a subsequent round, although it makes it less probable because of rule *[3.4.3]*.
- allows the round-pairing to come to fruition [3.4.1]. This is the so-called "*Requirement Zero*," strictly related to the Completion criterion C3.
- has a score as low as possible[58] *[3.4.2]*.
- has the minimum number of unplayed games[59] *[3.4.3]*.

[58] This is to prevent, if possible, that the PAB ends up to a leading participant. In fact, most people would expect the PAB to go to the lower positions of the ranking.

- has the highest TPN, which corresponds to the lowest initial ranking.

All these requirements are applied in sequence, in this order, until only one team remains available. As soon as this happens, the process ends, and that team will be the PAB-assignee.

***

Let us now apply the above procedure to the current round. First, we exclude teams #16, which already had a PAB. The next rule, minimising the score of the PAB-assignee, determines that, if possible, the PAB should go to a team with 0 MP (this is the last and lowest scoregroup). There is only one possible recipient team in that scoregroup, #15. Before finalising the choice, however, we must make sure that this PAB would allow the round-pairing completion. We do that by performing a Completion test (excluding this team from the list of participants). This is easy – for example, we can have the legal pairing[60] (1-2, 3-4, 5-6, 8-9, 10-11, 12-13, 14-16). Since the check is successful, we assign the PAB to #15, marking it on the tournament board.

Now, we can begin the pairing. The first scoregroup (4 MP) is {1} and contains an odd number of teams (in fact, just one!). We need to make it even and, since we must minimise the number of upfloaters (C4), we shall have only one. Moreover, since we must minimise the difference in scores, this single upfloater must be picked up, if possible, from the very next scoregroup. No team in that group is critical in this sense (all teams can play several others), so there is no special constraint on the choice. Once again, we choose the first team of the list, i.e., #2. This leaves the Rest pairable. Thus, we have the bracket **{1, 2}**, which yields the pairing 1-2.

The next scoregroup, {3, 5, 9, 10}, is even. Its pairing is straightforward and gives (3-9, 5-10).

The following scoregroup, {4, 6, 11}, is odd, so we need an upfloater. Again, the first available one is the winner, and the bracket, after sorting, is **{4, 6, 8, 11}**. The pairing yields (4-8, 6-11).

The last scoregroup (and bracket) is **{12, 13, 14, 16}**, yielding (12-14, 16-13). Thus, the complete pairing is (1-2, 3-9, 5-10, 4-8, 6-11, 12-14, 13-16, 15-PAB).

Now we must allocate colours to each pair:

1-2: neither team has a colour preference, and colour differences are both null, so we apply [4.3.6] obtaining **1-2**.

3-9: there is no colour preference, so we apply [4.3.5]. The colour difference is null for team #3, whereas it is +1 for #9, so we assign White to #3: **3-9**.

5-10: we apply [4.3.6] again, obtaining **5-10**.

4-8: we apply [4.3.6] again, obtaining **8-4**.

6-11: we apply [4.3.6] again, obtaining **11-6**.

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[59] *The underlying idea is that a participant, who already played less than the others, should not, if possible, get another unplayed round.*

[60] *Let us remember that we do not care in the least how bad this pairing may be (and, by the way, it often is). If it is legal, this is all we need to be certain that at least one legal pairing exists.*

12-14: both teams have no preference, $C_D = -1$, and identical colour history uB. We must then apply [4.3.8], alternating the colour of the first-team. The latter is #12, because of its higher secondary score [4.2.2], so we have **12-14**.

13-16: here we have different colour differences, so [4.3.5] applies, yielding **16-13**.

Before we publish the round pairing, it must be sorted[61].

Pair	**1-2**	**3-9**	**5-10**	**11-6**	**8-4**	**12-14**	**16-13**	**15-PAB**
Score of the higher ranked participant	4	3	3	2	2	1	1	--
Sum of the scores of both participants	7	6	6	4	3	2	2	--
TPN of the higher ranked participant	1	3	5	6	4	12	13	--

We are done! After checking everything (as usual), we may publish the pairing and let the round begin.

Board	Teams	Result
1	**1 (4) - 2 (3)**	**2-2**
2	**3 (3) - 9 (3)**	**3-1**
3	**5 (3) - 10 (3)**	**1-3**
4	**11 (2) - 6 (2)**	**2-2**
5	**8 (1) - 4 (2)**	**1½-2½**
6	**12 (1) - 14 (1)**	**3½-½**
7	**16 (1) - 13 (1)**	**1-3**
	15 (0) - PAB	**2**
	7 (2) - HPB	**2**

[61] *See Sorting Tables, page 26ff.*

6 Fourth Round (Allocating the PAB – Choosing the Best Candidate)

After the third round, our tournament board, completed with information on colour preference[62] and past floats, is as follows. For our best convenience in composing scoregroups, from now on the tournament board will be sorted by descending primary score and ascending TPN.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	A																	
3	=W10	1	2	+B6↑	3	5	+W9	5	8	A																	
10	=B3	1	2	+W16	3	6	+B5	5	9	A																	
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	A																	
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	A																	
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	A																	
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	A																	
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	A																	
9	HPB	1	2	+W14	3	5	-B3	3	6	A																	
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	A																	
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	A																	
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	A																	
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	A																	
14	HPB	1	2	-B9	1	3	-B12	1	3.5	W																	
15	-W6	0	0.5	-W11	0	2	PAB	1	4	B																	
16	PAB	1	2	-B10	1	2	-W13	1	3	A																	

The scoregroups now are[63]:

5 {1A↓, 3A, 10A}
4 {2A↑, 4A↓}
3 {5A, 6A, 7A, 9A, 11A, 12A, 13A}
1 {8A↑, 14W, 15B, 16A}

Before the pairing, we check that the Requirement Zero is satisfied by performing the usual Completion test – we must verify that at least one legal pairing exists for all the participants. For example, we may have the pairing (1-3, 2-10, 4-5, 6-7, 9-11, 12-13, 8-14, 15-16). Of course, we anticipate that this pairing might be quite different from the correct one – still, we proved that at least one legal pairing exists, so we may proceed.

Now we can begin the pairing proper. The first scoregroup is {1A↓, 3A, 10A}, and teams #3 and #10 already met in the first round. Thus, we need one upfloater to make the bracket even (just one because, according to C4, we must minimise their number), and this upfloater must be able to meet one of these two teams. To minimise the score difference (*C5*), the upfloater should come from the very next scoregroup. The first team of the next scoregroup, #2,

62 *Again, only few teams have a colour preference – this is inherent to the Type-A preferences of the pairing system and concurs to the system's simplicity.*

63 *In passing, let us observe that the central scoregroup is more numerous than the top and bottom ones. This happens because of the very nature of all Swiss systems. Such systems reduce the number of participants in top and bottom groups at every round, so participants gradually pile up in the central scoregroups.*

satisfies these requirements and all the relevant pairing criteria[64] too – and, in particular, the Completion criterion – so we can complete the bracket as **{1A↓, 2A↑, 3A, 10A}**. There are no obstacles to the natural pairing is (1-3, 2-10).

The next scoregroup is {4A↓}. It contains an odd number of participants, so, once again, it needs an upfloater. We easily verify that the best choice is the first team of the next scoregroup, so that we obtain the bracket **{4A↓, 5A}**. There is only one possible pairing in the bracket and, of course, it is legal by construction, so we accept it and proceed.

The next scoregroup is **{6A, 7A, 9A, 11A, 12A, 13A}**. The number of teams is even, and there are no incompatibilities, so we need no upfloaters. Using again our "backwards method," we can build the first candidate, which is (6-11, 7-12, 9-13). Alas, the teams #6 and #11 met in the third round, while the teams #7 and #12 met in the second round – thus, this candidate is not legal. We must discard it at once and proceed to look for a better one.

Looking for a better candidate

As we mentioned in discussing the making of the first round, the TPS rules do not give detailed instructions on how to compose a candidate, so we are free to choose our preferred method. In this round, we will adopt a simplified version of the procedures used by FIDE Swiss (Dutch) system[65]. A brief, simplified description of these procedures follows. In the first step, we divide the participants of the sorted bracket in two subsets, named S1 and S2, which contain respectively the first and the second half of the participants comprised in the bracket. Then, these subgroups are combined by pairing the first element of S1 with the first element of S2, then the second one with the second one, and so on, until all the participants in both subgroups have been used up. In this way, the first candidate is generated. It is easy to verify that the identifier for this first candidate is the first possible one – i.e., we obtain the very same candidate yielded by the "backwards method" that we used in previous rounds.

For our bracket, we obtain the following.

S1	6A	7A	9A
S2	11A	12A	13A

This returns, as mentioned, the first candidate[66] (6-11, 7-12, 9-13), and we already know that this candidate is not legal. Therefore, we proceed to the next step, which consists in applying a transposition to the subgroup S2 – we alter the order in the subgroup S2, thus changing the resulting pairs, looking for a perfect candidate (or, at least, for one that is legal). After each alteration, we build and evaluate a new candidate in the same way as before. We want to try all the possible transpositions, one after the other, until we find one that gives a perfect pairing. As

64 *Please note that both teams in the next scoregroup floated in the previous rounds, so criterion C7 cannot discriminate between them. On the other hand, the minimisation of the score difference dictated by C5 has higher priority than C7, so we cannot go and pick our floater up from subsequent scoregroups.*

65 *Differently from what happens in the Dutch system, here we have a bracket containing an even number of teams, and all of them can be paired (the set of upfloaters that was selected in the preliminary phase of the bracket pairing sees to that!). Thus, the composition of the candidate is greatly simplified.*

66 *As usual, colours are not important now – we will deal with their assignment later.*

soon as we find a perfect candidate, we end our quest and promote that candidate to pairing[67].

Transpositions change the order of the teams in S2, starting with the last participant and then gradually moving towards previous ones until an acceptable solution is found. The easiest way to generate transpositions in the correct order is to label temporarily each participant with a progressive number, representing the team's position in the subgroup. The successive transpositions correspond to the numbers composed with those labels. An example will clarify the matter. In our bracket, we have three teams in S2, which we can label from 1 to 3.

S2	11A	12A	13A
labels	1	2	3

Now, all the possible transpositions can be constructed, in the correct order, by making all numbers that can be made with those three digits, in ascending order:

123, 132, 213, 231, 312, 321.

The first transposition always coincides with the basic order – and therefore with the basic pairing. All subsequent candidates can be obtained by replacing the label with the corresponding team's TPN, so we have the following.

[11, 12, 13]; [11, 13, 12]; [12, 11, 13]; [12, 13, 11]; [13, 11, 12]; [13, 12, 11].

In fact, we used labels just to make the explanation clearer, but there is no real need for them, we can do it using the TPNs – and, indeed, we will usually do so.

It is easily proved that the candidates obtained with this procedure have strictly ascending identifiers[68], in full compliance with [3.3.3]. In fact, using transpositions is equivalent to altering the order of elements in the second half of the identifier (i.e., the part containing higher TPNs) and, which is most interesting, *all the generated strings are valid identifiers*[69] and *all the generated candidates are distinct* – i.e., in the process of transposition there is no duplication of identifiers (or candidates). Alas, *such transpositions cannot yield all the possible candidates* – thinking of identifiers, we can see that, during transpositions, the teams corresponding to the first half of the identifier are always the same, and no transposition can move them. To obtain all possible candidates, we should extend the process to shuffle also elements of the first half of the identifier. Doing that, we obtain all the possible identifiers – but with the annoying side effect that *most* strings generated in this way are not valid identifiers!

We try all the transpositions, one by one, and examine the resulting candidates until we find a viable one. The process stops as soon as we find the first perfect candidate (or when the list of transpositions is used up – in this case, there are still other chances, but we need not discuss them now).

As soon as we find a legal candidate, even if it is not perfect, still maybe there is nothing better, so that candidate could be the required pairing. Therefore, as soon as we find a legal

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67 Please note that this simple procedure may fail to yield an acceptable result. In this case, we must apply some different method (e.g., exchange participants between subgroups S1 and S2).

68 This is because we sort the TPNs of participants in the first phase of the bracket pairing.

69 See Candidates and identifiers, page 20ff.

candidate, we save it as "*provisional-best*" (or "*champion*") and proceed to look for a better one. If we find no better candidate, this one will still be usable.

As we build more candidates, we evaluate them against the current provisional-best, keeping the best of the two (i.e., the one that best complies with all pairing criteria) as the new provisional-best. If, at any time, a perfect candidate appears, we promote it at once and discard any possible provisional-best. However, if the list of all possible candidates is used up and still there is no perfect candidate, the surviving provisional-best is the *best possible candidate* and, therefore, the one to be used as the actual pairing.

***

Now we proceed to examine the candidates returned by the transpositions, in due order. We want to remember that the pairs 6-11 and 7-12 are forbidden.

S1	6A	7A	9A
S2	11A	12A	13A

→ (6-11, 7-12, 9-13)

This is the basic candidate. We already examined this, and it is illegal.

S1	6A	7A	9A
S2	11A	13A	12A

→ (6-11, 7-13, 9-12)

Again, this is illegal.

S1	6A	7A	9A
S2	12A	11A	13A

→ (6-12, 7-11, 9-13)

At last, this candidate contains no illegal pairs[70].

We must evaluate it against all the pairing criteria, which is easy. We already know that the Rest can be paired (e.g., 8-14, 15-16), so the Completion criterion C3 is satisfied[71]. There are no colour preferences, so C8 does not apply. Last, no floaters are involved, so C10 does not apply either.

To conclude, this candidate is perfect, so we approve it and proceed.

The last bracket is **{8A↑, 14W, 15B, 16A}**. Here, we find some colour preferences at last, so this is a time as good as any to introduce the "colour matching" parameter ***x***, which helps us manage those preferences[72] (even if this bracket is so simple that it requires no help at all).

The distribution of colour preferences in a bracket is not always so favourable that all

[70] *We could have observed that, to avoid illegal pairs, we had to reach a transposition in which participants #11 and #12 were dislocated, thus skipping the (useless) previous passes, and reaching the required transposition at once. Such shortcuts are most useful in manual pairings but must be used with caution.*

[71] *We checked this during the choice of the upfloaters set. In fact, we chose an empty set – were the Rest not pairable, we would have had to choose a set that made pairing possible. This possibly includes incrementing the number of upfloaters, which is tantamount to pair some "problematic" teams in the current bracket rather than in their own scoregroup.*

[72] *When Type-B colour preferences are in use, in addition to mild colour preferences we also have strong ones, which take priority over mild ones. Thus, we also want to know the minimum number **z** of strong colour preferences that cannot be complied with. As we are using Type-A colour preferences, we will not discuss this parameter further here. Interested readers can find further clarifications and details in {7} (see the comment to Article 2.3.6).*

participants can have their colour preferences complied with[73]. Criterion C8 requires that the number of participants whose colour preference is disregarded be at a minimum. We wish to know this minimum number, which is usually called ***x***, because this is also the number of disregarded colour preferences in a perfect pairing[74]. If ***M*** is the number of the majority of colour preferences, and P is the number of pairs to be made in the bracket, we have:

x = max (0, M – P) [75]

When using Type-A colour preferences, most teams have no colour preference (especially in early rounds), so ***x*** is often null. Also, it may happen that all the colour preferences be for the same colour. In such cases, ***x*** is useless, and we may simply omit its calculation. The same applies when only one participant in a bracket expects a different colour than all the other participants. In such cases, we may simply ignore criterion C8.

Let us go back to our bracket, {8A↑, 14W, 15B, 16A}. Here, we have one preference for White, one for Black, while two teams have no preference at all. Hence, ***x*** = 0, i.e., the pairing must comply with all colour preferences (and, in fact, there is no way to break a colour preference in this bracket).

The natural candidate is (8-15, 14-16), and it is perfect.

Now we put together all the pairs, thus obtaining the complete pairing (1-3, 2-10, 4-5, 6-12, 7-11, 9-13, 8-15, 14-16) and, finally, we allocate colours. In the pair 1-3 both teams have no colour preference, and they have equal colour histories (thus, also equal colour differences). Therefore, we must apply *[4.3.8]* and, to do so, we need to know which one is the first-team. Both teams have 5 MPs, but #3 has 8 GPs, whereas #1 has 7.5 GPs. Therefore, the first team is #3. Now, we alternate the colour of the first-team, #3, giving it Black, so the required pair is indeed **1-3**. The situation is similar in 2-10, but now team #2 is an upfloater (hence, it has a lower score), so the first team is #10 and the pair is **10-2**. In pair 4-5, the colour histories are respectively BWB for #4 and WBW for #5, so, by applying [4.3.5], we obtain **4-5**. Likewise, 6 (BWB) – 12 (uBW) yields **6-12**; 7 (uBW) – 11 (WBW) yields **7-11**; 9 (uWB) – 13 (BWB) yields **13-9**. Finally, in both 8-15 and 14-16 there is a single colour preference, so *[4.3.2]* gives **8-15**, **14-16**.

After the usual double check of pairings, board order, and so on, we start the round.

Twist! Team #8 did not show in time to play, thus forfeiting the match. We need to fix the pairing cards (if used) and the tournament board to reflect this mishap, especially in the light of the fact that *both teams had no colour in this round and, moreover, the pairing between #8 and #15, not having come true, may be repeated in a future round*.

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73 For example, if we had four teams expecting Black with only two expecting White, a team with a preference for Black must necessarily play as White instead.

74 The x teams, whose colour preference will be disregarded, should all have preference for the majority colour – else, the number of disregarded colour preferences will be (unavoidably) larger than the minimum.

75 See comment to Article 2.3.5 in {7}.

Board	Teams			Result
1	**1 (5)**	**-**	**3 (5)**	**2-2**
2	**10 (5)**	**-**	**2 (4)**	**1-3**
3	**4 (4)**	**-**	**5 (3)**	**2-2**
4	**6 (3)**	**-**	**12 (3)**	**2½-1½**
5	**7 (3)**	**-**	**11 (3)**	**2-2**
6	**13 (3)**	**-**	**9 (3)**	**2-2**
7	**8 (1)**	**-**	**15 (1)**	**0F-4F**
8	**14 (1)**	**-**	**16 (1)**	**2½-1½**

7 Fifth Round (Choosing the PAB – The Sieve Pairing Method)

After the fourth round is played out, the tournament board, updated and integrated with the colour preferences for the next round, is as follows (from now on, for our best convenience, we mark as A+ and A- those teams that have no colour preference, but whose colour difference is respectively positive or negative).

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	=W3	6	9.5	B														
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	+B10↑	6	9.5	W														
3	=W10	1	2	+B6↑	3	5	+W9	5	8	=B1	6	10	A														
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	=W5↓	5	9	A														
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	+W12	5	9	A														
10	=B3	1	2	+W16	3	6	+B5	5	9	-W2↓	5	10	A														
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	=B4↑	4	7.5	A														
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	=W11	4	7.5	B														
9	HPB	1	2	+W14	3	5	-B3	3	6	=B13	4	8	W														
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	=B7	4	7.5	HPB	5	9.5												
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	=W9	4	8.5	A														
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	-B6	3	8.5	A-														
14	HPB	1	2	-B9	1	3	-B12	1	3.5	+W16	3	6	A-														
15	-W6	0	0.5	-W11	0	2	PAB	1	4	+F8	3	8	B														
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	-F15	1	5	A+														
16	PAB	1	2	-B10	1	2	-W13	1	3	-B14	1	4.5	A-														

Team #11 obtained an HPB for this round.

As usual, we check that at least one legal pairing exists[76] (e.g., 1-6, 2-3, 4-10, 5-9, 7-13, 12-16, 14-15, 8-PAB), then we sort the participants into scoregroups:

6 {1B, 2W↑, 3A}
5 {4A↓, 6A, 10A↓}
4 {5A↑, 7B, 9W, 13A}
3 {12A-, 14A-, 15B}
1 {8A+, 16A-}

Since the number of participants is odd, we must allocate a PAB. In the last scoregroup, only team #8 is a possible candidate to PAB (team #16 already had one). We just need to check that the round-pairing can be completed without this team. This is easily done because our test pairing was just like that. We can then finalise the PAB allocation to team #8 and proceed to the pairing proper.

The first scoregroup is {1B, 2W↑, 3A} and its number of teams is odd. Not all the teams belonging to this scoregroup are incompatible (the pair 2-3 is legal), so we need just one upfloater (C4), to be paired with #1. We must form all sets that comply with C4 and C5,

[76] *As mentioned, any legal pairing would do. However, this test is performed repeatedly in the round-pairing, wasting precious time. A "smart" pairing can be used repeatedly, thus minimising the nuisance. It is always worth our while to devote some time to build such a clever test pairing right from the start – this is especially true with the TPS because this system is so simple that, in several instances, the test pairing is not too different from the real one.*

which contain only one upfloater. A first choice upfloater should come from the nearest scoregroup (C5), which is {4A↓, 6A, 10A↓}. The list of possible sets is short: {[4], [6], [10]}.

Team #4 cannot be paired in the bracket; therefore, we choose the next set, which contains team #6. This allows the pairing in the current bracket, optimises the pairing in the following one (i.e., maximises the number of pairs, C6), complies with the Completion criterion (C4), and contains no previous floater (C7). We finalise the choice and obtain the bracket **{1B, 2W↑, 3A, 6A}**. The first candidate, whose identifier is [1, 2, 3, 6], is (3-1, 2-6). Since this candidate is illegal, we proceed to the next one[77], whose identifier is [1, 2, 6, 3] – hence, the candidate is (1-6, 2-3). Criteria C3-C7 are satisfied by construction, no colour preferences are disregarded (C8), and no float is repeated (C10) – thus, this candidate satisfies all pairing criteria, and it is perfect.

The next scoregroup is **{4A↓, 10A↓}**. The two teams are compatible and can be paired at once, so no upfloater is required.

The next scoregroup is **{5A↑, 7B, 9W, 13A}**. Again, the number of teams is even, and the teams are compatible, so no upfloater is required, provided that the Rest complies with the Completion criterion (C3). To prove this, we can use again the test pairing we prepared at the beginning of the round-pairing. Since there is only a small number of potential candidates, this bracket is a good study case for the Sieve pairing method.

The Sieve Pairing method

The *Sieve pairing* is an alternative method that is simple and most convenient for brackets with only a few participants[78]. First, we generate all the possible candidates[79]. Then, we generate their identifiers (deleting all duplicates in the process) and sort them and the corresponding candidates according to [3.3.3]. Now, we have all candidates in due order. Starting with criterion C1 and proceeding one by one through all the (relevant) pairing criteria, we check the failure values[80] of each candidate, and keep only those candidates *whose failure value is not worse than the best failure value for that criterion*, discarding all others. In this way, we gradually reduce the number of acceptable candidates, until we are left with only one (which is thus immediately approved), or with a small group of them. In the latter case, we simply select the first one because they were already sorted in due order according to [3.3].

Incidentally, the Sieve pairing method proves to be convenient even when there is no perfect candidate because it always allows us to choose the best candidate easily and safely.

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For this bracket, which is quite simple, the different candidates are just three – all other candidates are equivalent to one of those three (of course, colours are irrelevant now).

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77 See Looking for a better candidate, page 34.

78 The Sieve method may always be used, whatever the number of participants. However, although undoubtedly useful for small brackets, it can be tedious for large ones. For a discussion about the relationship between number of participants and number of candidates, see Candidates and identifiers, page 20ff.

79 The reverse route is also possible – i.e., we could create all valid identifiers and then trace back to candidates – so we should choose the most convenient method on a case-by-case basis.

80 See Evaluation of the candidate, page 22ff.

Pairing	Identifier	Failure values	Comment
5A↑-9W, 7B-13A	[5, 7, 9, 13]	None	perfect
5A↑-13A, 7B-9W	[5, 7, 13, 9]	C1 failure on 5-13	discarded
5A↑-7B, 9W-13A	[5, 9, 7, 13]	C1 failure on 9-13	discarded

Here, we have only one perfect candidate, (9-5, 7-13), which is immediately accepted.

The next scoregroup is {12A, 14A, 15B}, and requires one upfloater. Since team #8 received the PAB, the only possible upfloater is #16, which yields the (last) bracket **{12A, 14A, 15B, 16A}**. Let us apply the Sieve pairing method again.

Pairing	Identifier	Failure values	Comment
12A-15B, 14A-16A	[12, 14, 15, 16]	C1 failure on 14-16	discarded
12A-16A, 14A-15B	[12, 14, 16, 15]	None	perfect
12A-14A, 15B-16A	[12, 15, 14, 16]	C1 failure on 12-14	discarded

Again, there is but one legal candidate, (12-16, 14-15) – which is perfect.

Now we collect all pairs and assign colours. Pairs 1-6 and 2-3 contain a colour preference each, so [4.3.2] applies, yielding 6-1 and 2-3. In the pair 4-10, we must alternate the colour of the first-team (*[4.3.8]*), which is #10 because of its higher secondary score, so the pair is 4-10. Pairs 9-5 and 13-7 contain a colour preference each, so [4.3.2] applies, yielding 9-5 and 13-7. In pair 12-16, Article [4.3.8] applies and we have 12-16. Team #15 has a colour preference for Black, so we have 14-15. Finally, we sort all pairs, thus obtaining the round-pairing[81] (2-3, 6-1, 4-10, 9-5, 13-7, 14-15, 12-16).

Board	Teams	Result
1	**2 (6) - 3 (6)**	**2-2**
2	**6 (5) - 1 (6)**	**1½-2½**
3	**4 (5) - 10 (5)**	**3-1**
4	**9 (4) - 5 (4)**	**2-2**
5	**13 (4) - 7 (4)**	**1-3**
6	**14 (3) - 15 (3)**	**2-2**
7	**12 (3) - 16 (1)**	**1½-2½**
	8 (1) - PAB	**2**
	11 (4) - HPB	**2**

[81] *It is worth noting that, except for the allocated colours, the final pairing is identical to the Completion test pairing. This is not usual, but also not unheard of, especially in tournaments with few participants and many rounds, and becomes more and more probable as we proceed through the rounds. On this, see also note 76, page 39.*

8 Sixth Round (Choosing the Upfloaters)

After the fifth round, the tournament board is as follows:

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	=W3	6	9.5	+B6↓	8	12	A+											
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	+B10↑	6	9.5	=W3	7	11.5	A-											
3	=W10	1	2	+B6↑	3	5	+W9	5	8	=B1	6	10	=B2	7	12	W											
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	=W5↓	5	9	+W10	7	12	B											
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	=W11	4	7.5	+B13	6	10.5	A											
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	=B4↑	4	7.5	=B9	5	9.5	W											
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	+W12	5	9	-W1↑	5	10.5	B											
9	HPB	1	2	+W14	3	5	-B3	3	6	=B13	4	8	=W5	5	10	A											
10	=B3	1	2	+W16	3	6	+B5	5	9	-W2↓	5	10	-B4	5	11	A-											
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	=B7	4	7.5	HPB	5	9.5	A											
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	=W9	4	8.5	-W7	4	9.5	B											
14	HPB	1	2	-B9	1	3	-B12	1	3.5	+W16	3	6	=W15	4	8	B											
15	-W6	0	0.5	-W11	0	2	PAB	1	4	+F8	3	8	=B14	4	10	A+											
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	-B6	3	8.5	-W16↓	3	10	A											
16	PAB	1	2	-B10	1	2	-W13	1	3	-B14	1	4.5	+B12↑	3	7	W											
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	-F15	1	5	PAB	2	7	A+											

No byes were requested for this round, so, all teams will take part and no PAB is required. As usual, we perform the preliminary Completion test (e.g., 1-5, 2-4, 3-7, 6-10, 9-11, 13-14, 12-15, 8-16), then we sort teams into scoregroups:

8	{1A+↓}
7	{2A-, 3W, 4B}
6	{7A}
5	{5W, 6B↑, 9A, 10A-, 11A}
4	{13B, 14B, 15A+}
3	{12A↓, 16W↑}
2	{8A+}

Now we start the pairing, beginning as always from the first scoregroup, {1A+↓}, which is odd – so we need one upfloater[82]. The first scoregroup that contains a possible opponent for #1 is the one with five points (all teams with a score higher than that already met #1 in past rounds). The pool of sets among which we must choose the upfloater is[83] {[5], [9], [10], [11]}.

We choose the first set, which leaves a pairable Rest (C3) and does not include teams that were floaters in the previous round (C7) (whereas criterion C6, which optimises the next bracket, does not apply here because we are not picking upfloaters from the next scoregroup). This set yields the bracket **{1A+↓, 5W}**, giving (1-5).

[82] *As it often happens, in the final rounds the top (and bottom) teams float repeatedly, because they already met many other teams with similar scores. This is unavoidable. In such cases, criterion C10, which minimises repeated floats, can sometimes be irrelevant.*

[83] *The set [6] is not included in this pool because the match 6-1 happened in the previous round.*

The next scoregroup is **{**2A-, 3W, 4B**}**, and the match 2-3 already happened. Again, we need one upfloater, and the first scoregroup that can satisfy our needs is that with six points, which contains just one team. So, we have the bracket **{2A-, 3W, 4B, 7A}**. Again, the pairing is straightforward and yields (2-4, 3-7).

The following bracket is **{6B↑, 9A, 10A-, 11A}**. It hides no skeletons in the cupboard, the pairing is (6-10, 9-11).

The next scoregroup, {13B, 14B, 15A+} needs one upfloater. Both the teams in the next scoregroup can be paired in the current bracket, both leave a viable Rest (C3), and both floated in the previous round. We simply choose the lower TPN, obtaining, after sorting, the bracket **{12A↓, 13B, 14B, 15A+}**. The first candidate is (12-14, 15-13), with identifier [12, 13, 14, 15]. This candidate is illegal because of C1 on 12-14, so we proceed to the next one, whose identifier is [12, 13, 15, 14]. Our "backwards method"[84] returns, for this identifier, the candidate (13-14, 12-15), which is legal[85] but has a failure for C8 (colour preferences) on 13-14. We store it as provisional-best[86] (maybe there is nothing better!) and proceed. The next identifier is [12, 14, 13, 15], which yields the candidate (12-13, 14-15). This is illegal because of C1 on 14-15, so we discard it at once. Now, there are no more candidates – we can easily verify that there are no more valid identifiers[87]. In the end, we have only one legal candidate, our temporary-best. Although it is not perfect, there is nothing better – hence, we promote it to pairing.

The next scoregroup, {16W↑}, needs one upfloater too, and there is only one possible, so the last bracket is **{16W↑, 8A+}**, yielding (8-16).

Now, as usual, we put together all the pairs and allocate colours.

Team #5 has a colour preference for White, so [4.3.2] yields 5-1. Likewise, we have 2-4, 3-7, 10-6. The colour histories for 9-11 are respectively uWBBW and uWBWB[88], so they have no preference and null colour difference. Article [4.3.6] applies, so we must compare histories, starting from the last match backwards, and alternate colour with respect to the last time they were different. Thus, we obtain 11-9. In 13-14, both teams have a colour preference for black, so the first rule that can apply is [4.3.5]. We assign White to team #14, whose colour difference is lower, thus obtaining 14-13. In 12-15, no team has a colour preference, so rule [4.3.5] applies again. We assign White to team #12, whose colour difference is lower, so we have 12-15. Finally, in 8-16 we have one colour preference, which yields 16-8.

Thus, we obtain (5-1, 2-4, 3-7, 10-6, 11-9, 14-13, 16-8), and, after sorting tables and double-checking everything as usual, we start the round.

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84 See Rolling back from pairing identifier to pairs, page 12ff.

85 Here, we can fully appreciate the effects of the "loose" management of colour preferences in TPS. For example, this pairing would be forbidden in FIDE Swiss (Dutch) – and, since also all other pairings of #14 are illegal in this bracket, we would have had to choose a different upfloater to make the pairing possible.

86 See Looking for a better candidate, page 34ff.

87 For example, the string [12, 14, 15, 13], next in the lexicographic order, is not a valid identifier because no candidate can return it as its identifier. See the syntax rules for identifiers in Candidates and identifiers, page 20ff.

88 The colour history WBWBu becomes uWBWB by rule of Article [C.04.2:3.4].

Board	Teams	Result
1	5 (5) - 1 (8)	2-2
2	2 (7) - 4 (7)	2½-1½
3	3 (7) - 7 (6)	3-1
4	10 (5) - 6 (5)	2-2
5	11 (5) - 9 (5)	2½-1½
6	14 (4) - 13 (4)	3-1
7	12 (3) - 15 (4)	3-1
8	16 (3) - 8 (2)	½-3½

9 Seventh Round (Incompatibilities)

After the sixth round, the tournament board is as follows.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	=W3	6	9.5	+B6↓	8	12	=B5↓	9	14	A								
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	+B10↑	6	9.5	=W3	7	11.5	+W4	9	14	B								
3	=W10	1	2	+B6↑	3	5	+W9	5	8	=B1	6	10	=B2	7	12	+W7↓	9	15	A								
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	=W5↓	5	9	+W10	7	12	-B2	7	13.5	A								
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	=B7	4	7.5	HPB	5	9.5	+W9	7	12	A+								
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	=B4↑	4	7.5	=B9	5	9.5	=W1↑	6	11.5	A								
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	+W12	5	9	-W1↑	5	10.5	=B10	6	12.5	A								
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	=W11	4	7.5	+B13	6	10.5	-B3↑	6	11.5	W								
10	=B3	1	2	+W16	3	6	+B5	5	9	-W2↓	5	10	-B4	5	11	=W6	6	13	A								
14	HPB	1	2	-B9	1	3	-B12	1	3.5	+W16	3	6	=W15	4	8	+W13	6	11	B								
9	HPB	1	2	+W14	3	5	-B3	3	6	=B13	4	8	=W5	5	10	-B11	5	11.5	A-								
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	-B6	3	8.5	-W16↓	3	10	+W15↑	5	13	B								
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	-F15	1	5	PAB	2	7	+B16↑	4	10.5	A								
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	=W9	4	8.5	-W7	4	9.5	-B14	4	10.5	A								
15	-W6	0	0.5	-W11	0	2	PAB	1	4	+F8	3	8	=B14	4	10	-B12↓	4	11	W								
16	PAB	1	2	-B10	1	2	-W13	1	3	-B14	1	4.5	+B12↑	3	7	-W8↓	3	7.5	A-								

We perform the usual Completion test, e.g. (1-11, 2-6, 3-4, 5-7, 10-14, 9-8, 12-13, 15-16), then we sort teams into scoregroups:

9 {1W↓, 2B, 3A}
7 {4A, 11A+}
6 {5A↑, 6A, 7A-↑, 10A, 14B}
5 {9A-, 12B↑}
4 {8A↑, 13A, 15W↓}
3 {16A-↓}

Now, the first scoregroup is {1A↓, 2B, 3A}. All teams already played each other, so we need three upfloaters.

<u>*Choosing the upfloaters set*</u>

Now, for the first time, we need a complex upfloaters set, so this is a suitable time to discuss the formal procedure to do that. First, let us observe that in the following scoregroup there are only two teams, and we need three, so, the set we need will necessarily contain teams belonging to different scoregroups. The first step is building the upfloaters sets. Since there are a lot of sets, at first we make only those that best comply with criteria C4 (minimum number of floaters) and C5 (minimum score difference) – i.e., all those sets containing as many upfloaters as are strictly required coming from the highest possible scoregroups[89]. Only if these sets cannot provide a viable pairing, we will build more, always minimising

[89] *To be precise, the rule makes us maximise the score of the <u>lower-scored</u> upfloater first, then the next lower, and so on. For example, a set containing one team with 4 points and two teams with 6 points is worse than a set containing three teams with 5 points, because we must first maximise the <u>lowest</u> score by choosing between four or five points (and, of course, four is less than five!). Only in next steps we look at the other teams and their scores.*

the highest score difference and so on (C5). Then, we sort the sets in lexicographic order (*[3.2.3]*) by descending score and then by ascending TPN.

The sets we want, already sorted in the required order, are the following – all other sets of three players from those or other scoregroups would include lower scores.

{4A, 11A+, 5A↑}
{4A, 11A+, 6A}
{4A, 11A+, 7A-↑}
{4A, 11A+, 10A}
{4A, 11A+, 14B}

Before proceeding, we could as well discard those sets that do not allow the pairing of the current bracket and, hence, are useless. To make the task easier, we prepare a list of the possible opponents (among the viable upfloaters, of course):

Opps (1): 11, 10, 14
Opps (2): 11, 6, 7, 14
Opps (3): 4, 11, 5, 14

The first set is not viable – team #4 can play only with #3, but the same is true for team #5, so we cannot get a pairing. The next set, {4A, 11A+, 6A}, looks more promising, allowing for (1-11, 2-6, 3-4) – provided, of course, that it complies with the Completion test (which it does) and with C6. Thus, we want to check that it allows the maximum number of pairs in the following scoregroup. However, the next scoregroup is now empty (all its teams are going to be used as upfloaters), so the maximum number of pairs is nought. Also, this set includes no teams that floated in the previous round, thus complying with C7.

Let us note that *compliance with C6 and C7 is the last decisive factor in the selection of the upfloaters set* (*see [3.5.5]), while all subsequent criteria are irrelevant*. For example, there could be some following sets with the same scores that yield a better pairing for the bracket (e.g., one with a better colour matching) – nevertheless, lower priority criteria (i.e., those on colour and float of upfloaters' opponents) are cut out from this decision.

***

Having now chosen the upfloaters set, we build the bracket **{1A↓, 2B, 3A, 4A, 6A, 11A+}**. Again, it is convenient to determine all the possible opponents. We have the following.

Opps (1): 11
Opps (2): 11, 6
Opps (3): 4, 11

It is readily apparent that the only legal pairing is (1-11, 2-6, 3-4), which is then accepted. The next bracket is **{5A↑, 7A-↑, 10A, 14B}**. The basic pairing (5-10, 7-14) is illegal because of C1 on 5-10. The next candidate is (5-14, 7-10) and it is perfect, so we accept it.

The next scoregroup is {9A-, 12B↑}. It seems to require no upfloaters (the two teams are compatible). However, the Rest would be {8A↑, 13A, 15W↓, 16A-↓}, which fails the Completion test because of a semi-incompatibility[90]:

Opps (8): {15}
Opps (13): {15}
Opps (15): {8, 13, 16}
Opps (16): {15}

The conclusion is that, here, *an empty set of upfloaters does not allow the Rest to be paired*. Hence, we must choose a set of upfloaters with some teams in it. First, we must determine how many upfloaters are needed. Of course, their number must be even, because the scoregroup itself is even – and must stay so. Since upfloaters should always be as few as possible (C4), we need only two upfloaters. Since the Rest contains few teams, we can easily build all the possible sets, which are the following.

{8, 13} {8, 15} {8, 16} {13, 15} {13, 16} {15, 16}

Now, we sort the sets by descending score and then ascending TPN (just as we did for the first scoregroup) as per [3.2.3], thus obtaining the following list.

{8, 13} {8, 15} {13, 15} {8, 16} {13, 16} {15, 16}

Next, we try sets one by one, looking for the first that complies with criteria C3-C7. The first upfloaters set {8, 13}, leaves {15, 16} as Rest, which passes the Completion test (i.e., it can be paired). Criteria C4 and C5 are complied with by construction. Also, criterion C6 is complied with because the next scoregroup now contains only one team (so no pairs are expected). Finally, the only one team that was not a floater in the previous round is included in the set, which therefore also complies with C7. Thus, we accept it and proceed to build and pair the bracket, which is **{8A↑, 9A-, 12B↑, 13A}**. The basic candidate is (8-12, 9-13) with identifier [8, 9, 12, 13], and it is illegal because of C1 on the pair 9-13. The next candidate, with identifier [8, 9, 13, 12], is (8-13, 9-12), and it is illegal because of C1 on the pair 8-13.

The next candidate[91] is (8-9, 12-13), with identifier [8, 12, 9, 13]. This is perfect at last, so we approve it and proceed.

The following scoregroup is {15W↓}. It requires an upfloater and there is only one possible, so the last bracket is **{15W↓, 16A-↓}**, which yields (15-16).

Finally, we assign colours:

- 1-11: Only #1 has a colour preference, which is for White, so we have 1-11 *[4.3.2]*.
- 2-6: Only #2 has a colour preference, for Black, so we have 6-2 *[4.3.2]*.

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[90] *This is also called a semi-compatibility or an island incompatibility. See Determining the number of pairs, page 17.*

[91] *This candidate is a typical example of the result of an exchange (see note 67, page 35). Incidentally, we should observe that this was the last possible candidate. Using the rules illustrated in Candidates and identifiers, page 20, it easy to prove that none of the following strings [8, 12, 13, 9], [8, 13, 9, 12], … [13, 12, 9, 8] is a valid candidate. Thus, if this candidate were not viable, we would have gone ahead to the next upfloaters set.*

- 3-4: Both teams have no preference and null colour difference, so rule [4.3.6] applies and we should compare the colour histories, which are respectively WBWBBW for #3 and BWBWWB for #4. Therefore, we assign White to team #4, obtaining 4-3.
- 5-14: only #14 has a colour preference (for Black), so we have 5-14 *[4.3.2]*.
- 7-10: only #7 has a colour preference (for White), so we have 7-10 *[4.3.2]*.
- 8-9: only #9 has a (negative) colour difference, so we have 9-8 *[4.3.2]*.
- 12-13: only #12 has a colour preference (for Black), so we have 13-12 *[4.3.2]*.
- 15-16: only #15 has a colour preference (for White), so we have 15-16 *[4.3.2]*.

Now, as usual, we put all pairs together and sort them, double-check and, finally, we obtain (1-11, 6-2, 4-3, 5-14, 7-10, 9-8, 13-12, 15-16). We can now publish the pairings and start the round.

Board	Teams	Result
1	**1 (9) - 11 (7)**	**3½-½**
2	**4 (7) - 3 (9)**	**2-2**
3	**6 (6) - 2 (9)**	**2-2**
4	**5 (6) - 14 (6)**	**3-1**
5	**7 (6) - 10 (6)**	**1½-2½**
6	**9 (5) - 8 (4)**	**2-2**
7	**13 (4) - 12 (5)**	**2-2**
8	**15 (4) - 16 (3)**	**2-2**

10 Eighth Round (Almost there)

After the seventh round, the crosstable is updated as follows.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	=W3	6	9.5	+B6↓	8	12	=B5↓	9	14	+W11↓	11	17.5	A+					
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	+B10↑	6	9.5	=W3	7	11.5	+W4	9	14	=B6↓	10	16	A-					
3	=W10	1	2	+B6↑	3	5	+W9	5	8	=B1	6	10	=B2	7	12	+W7↓	9	15	=B4↓	10	17	A-					
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	=W5↓	5	9	+W10	7	12	-B2	7	13.5	=W3↑	8	15.5	A+					
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	=B4↑	4	7.5	=B9	5	9.5	=W1↑	6	11.5	+W14	8	14.5	B					
10	=B3	1	2	+W16	3	6	+B5	5	9	-W2↓	5	10	-B4	5	11	=W6	6	13	+B7	8	15.5	A-					
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	+W12	5	9	-W1↑	5	10.5	=B10	6	12.5	=W2↑	7	14.5	A+					
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	=B7	4	7.5	HPB	5	9.5	+W9	7	12	-B1↑	7	12.5	A					
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	=W11	4	7.5	+B13	6	10.5	-B3↑	6	11.5	-W10	6	13	A					
9	HPB	1	2	+W14	3	5	-B3	3	6	=B13	4	8	=W5	5	10	-B11	5	11.5	=W8↓	6	13.5	A					
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	-B6	3	8.5	-W16↓	3	10	+W15↑	5	13	=B13↓	6	15	A					
14	HPB	1	2	-B9	1	3	-B12	1	3.5	+W16	3	6	=W15	4	8	+W13	6	11	-B5	6	12	A					
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	-F15	1	5	PAB	2	7	+B16↑	4	10.5	=B9↑	5	12.5	W					
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	=W9	4	8.5	-W7	4	9.5	-B14	4	10.5	=W12↑	5	12.5	A+					
15	-W6	0	0.5	-W11	0	2	PAB	1	4	+F8	3	8	=B14	4	10	-B12↓	4	11	=W16↓	5	13	A+					
16	PAB	1	2	-B10	1	2	-W13	1	3	-B14	1	4.5	+B12↑	3	7	-W8↓	3	7.5	=B15↑	4	9.5	W					

We have now reached the last two rounds. Therefore, criterion C9 does not apply any longer, so we can stop recording float events[92].

No participants announced their absence, so there will be no PAB. As usual, we first execute the Completion test, which is successful (e.g., 1-10, 2-11, 3-5, 4-6, 7-14, 8-12, 9-16, 13-15), then proceed to the round-pairing. The scoregroups are:

11 {1A+}
10 {2A-, 3A-}
8 {4A+, 5B, 10A-}
7 {6A+, 11A}
6 {7A, 9A, 12B, 14A}
5 {8W, 13W, 15W}
4 {16B}

The first scoregroup contains a single participant, so an upfloater is required. The highest scoregroup that contains possible opponents for #1 is that at 8 MPs, and there is only one such possible opponent, #10, so the choice is easy. The resulting bracket is **{1A+, 10A-}**, which yields the pairing (1-10).

The next scoregroup is {2A-, 3A-}, and the teams are incompatible, so two upfloaters are required. Team #3 can play against #5, but #2 already played against both #4 and #5, and against #6 too – by means of the usual procedure, we find that the required upfloaters set

92 *In fact, we never needed this criterion in our tournament, mainly because there are so few teams that, most of the time, there was no alternative – often, in small tournaments, chances are that the choice of upfloaters is forced. In larger tournaments, however, there are usually several teams available for floating, so a choice is usually required.*

shall contain team #5, with 8 MPs, and team #11, with 7 MPs. Therefore, the bracket is **{2A-, 3A-, 5B, 11A}** and the only legal pairing available, (2-11, 3-5), is perfect.

The next scoregroup, or rather what little remains of it from the previous pairings, is {4A+}, and it needs an upfloater, which will be the solitary survivor of the next scoregroup, thus yielding the bracket **{4A+, 6A+}**. The pairing is straightforward and yields (4-6).

Now, we find again a problem we encountered in the previous round – the next scoregroup, {7A, 9A, 12B, 14A}, would need no upfloaters *per se* – but, if we had no upfloaters, then the Rest could not be paired, failing C3. Thus, we select a set of two upfloaters to obtain a pairable Rest. Both teams #8 and #13 have team #15 as sole possible opponent (once again, an island incompatibility), while team #16 is downright incompatible in the Rest. Thus, the upfloaters shall be #8 and #16, which leave a pairable Rest. In the end, the bracket, properly sorted, is **{7A, 8W, 9A, 12B, 14A, 16B}**. Again, we list possible opponents for each team:

Opps (7): 8, 9, 14, 16
Opps (8): 7, 12, 14
Opps (9): 7, 12, 16
Opps (12): 8, 9
Opps (14): 7, 8
Opps (16): 7, 9

Looking at this list, we see that the number of legal candidates is quite small. In fact, we have only (7-14, 8-12, 9-16) and (7-16, 8-14, 9-12) – all other combinations are illegal. The corresponding identifiers are respectively [7, 8, 9, 14, 12, 16] and [7, 8, 9, 16, 14, 12], and a direct comparison shows that the first candidate precedes the second in the lexicographic order, so, we check it first – and, since it is perfect, we accept it. The pairing for the bracket is therefore (7-14, 8-12, 9-16).

The last scoregroup, and bracket, is **{13W, 15W}**, which yields (13-15).

Now we collect pairs and allocate colours, which reserve no surprises. Only the case of 4-6 is a bit unusual, as the teams have identical history – Article [4.3.8] yields 6-4. In conclusion, we have 10-1, 2-11, 3-5, 6-4, 14-7, 8-12, 16-9, 15-13.

Now, sorting tables, we have the complete pairing.

Board	Teams	Result
1	10 (8) - 1 (11)	2-2
2	2 (10) - 11 (7)	3-1
3	3 (10) - 5 (8)	2½-1½
4	6 (7) - 4 (8)	2-2
5	14 (6) - 7 (6)	1-3
6	8 (5) - 12 (6)	2½-1½
7	16 (4) - 9 (6)	1-3
8	15 (5) - 13 (5)	2-2

11 Ninth Round (The final round)

At last, we reached the final round.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	=W3	6	9.5	+B6↓	8	12	=B5↓	9	14	+W11↓	11	17.5	=B10	12	19.5	A		
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	+B10↑	6	9.5	=W3	7	11.5	+W4	9	14	=B6↓	10	16	+W11	12	19	A		
3	=W10	1	2	+B6↑	3	5	+W9	5	8	=B1	6	10	=B2	7	12	+W7↓	9	15	=B4↓	10	17	+W5	12	19.5	A		
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	=W5↓	5	9	+W10	7	12	-B2	7	13.5	=W3↑	8	15.5	=B6	9	17.5	A		
10	=B3	1	2	+W16	3	6	+B5	5	9	-W2↓	5	10	-B4	5	11	=W6	6	13	+B7	8	15.5	=W1	9	17.5	A		
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	=B4↑	4	7.5	=B9	5	9.5	=W1↑	6	11.5	+W14	8	14.5	-B3	8	16	A		
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	+W12	5	9	-W1↑	5	10.5	=B10	6	12.5	=W2↑	7	14.5	=W4	8	16.5	B		
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	=W11	4	7.5	+B13	6	10.5	-B3↑	6	11.5	-W10	6	13	+B14	8	16	A-		
9	HPB	1	2	+W14	3	5	-B3	3	6	=B13	4	8	=W5	5	10	-B11	5	11.5	=W8↓	6	13.5	+B16	8	16.5	A-		
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	-F15	1	5	PAB	2	7	+B16↑	4	10.5	=B9↑	5	12.5	+W12	7	15	A		
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	=B7	4	7.5	HPB	5	9.5	+W9	7	12	-B1↑	7	12.5	-B2	7	13.5	W		
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	-B6	3	8.5	-W16↓	3	10	+W15↑	5	13	=B13↓	6	15	-B8	6	16.5	W		
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	=W9	4	8.5	-W7	4	9.5	-B14	4	10.5	=W12↑	5	12.5	=B15	6	14.5	PAB	7	16.5
14	HPB	1	2	-B9	1	3	-B12	1	3.5	+W16	3	6	=W15	4	8	+W13	6	11	-B5	6	12	-W7	6	13	A+		
15	-W6	0	0.5	-W11	0	2	PAB	1	4	+F8	3	8	=B14	4	10	-B12↓	4	11	=W16↓	5	13	=W13	6	15	B		
16	PAB	1	2	-B10	1	2	-W13	1	3	-B14	1	4.5	+B12↑	3	7	-W8↓	3	7.5	=B15↑	4	9.5	-W9	4	10.5	ZPB	4	10.5

Team #16 announced their withdrawal, so, there will be a PAB in this round. As usual, the first thing to do is the Completion test, which is successful (e.g., 1-9, 2-7, 3-8, 4-12, 10-11, 5-15, 6-14, 13-PAB), then we proceed with the round-pairing. The scoregroups are:

12	{1A, 2A, 3A}
9	{4A, 10A}
8	{5A, 6B, 7A-, 9A-}
7	{8A, 11W}
6	{12W, 13W, 14A+, 15A}

The first step is allocating the PAB. Because of the lowest-score requirement (*[3.4.2]*), the candidate teams are {12, 13, 14} (#15 already got a PAB in the third round, so C2 excludes it from the pool). Both #12 and #14 had an HPB, so they have one match less (*[3.4.3]*). Thus, the PAB should be preferably assigned to team #13. Since this leaves a pairable round (*[3.4.1]*), we can finalise the allocation and mark the PAB into the tournament board.

The first scoregroup is {1A, 2A, 3A} and all teams are incompatible, so, we need three upfloaters (C4). The first step in determining them (*[3.5.2]*) is finding the possible upfloaters sets that comply with C4 and C5 (number and scores of upfloaters). There is no possible opponent in the 9 MP scoregroup, and there are not enough possible opponents in the 8 MP scoregroup. Thus, according to criterion C5, the upfloaters set will include teams from the 8 MP and from the 7 MP also.

Excluding teams #5 and #6, which are incompatible in the top-scoregroup, the possible upfloaters are {7, 9, 8, 11}. The upfloaters sets are then {7, 9, 8 (8,8,7)}, {7, 9, 11 (8,8,7)}, {7, 8, 11 (8,7,7)}, {9, 8, 11 (8,7,7)}. For our best convenience, for each set we indicated the respective team score list (in parentheses), already sorted in descending order. Now, to comply with C5, we want to maximise the upfloaters' scores, taken in ascending order. The last element is equal for all our score lists, but the second is different, so we choose the highest ones, and thus the first two sets. Before proceeding, we check that the selected sets comply with the Completion criterion (C3) – since both are successful[93], we proceed to the next step.

Now we sort the upfloaters in each set according to their scores and TPN *[3.2.3]*. In fact, we already constructed the sets in this way, so there is nothing to do. Then, we sort sets lexicographically (*[3.2.4]*) – but, again, we already constructed them in this way. To conclude, the list of upfloaters sets between which we should choose is: **{7, 9, 8}**, **{7, 9, 11}**.

In the next, and final, step of upfloaters choice (*[3.5.5]*), we peek the first set, {7, 9, 8}, and verify its compliance with criteria C6 (optimisation in the next bracket) and C7 (float repetitions). With regards to C6, we should note that the next scoregroup, which is {4A, 10A}, is not involved in this process – so, this criterion does not apply. Moreover, none among the prospective upfloaters floated in the previous round, so C7 is satisfied too. In conclusion, this set is approved, and we can proceed with the pairing.

The first set yields the bracket **{1A, 2A, 3A, 7A-, 8A, 9A-}**. Here, both teams #7 and #9 already met team #3, which must then be paired to #8. Now, #1 already met #7, so the only possible pairing is to team #9. Finally, #2 is paired to the only survivor, #7. All relevant criteria are complied with, so we accept the (only possible) pairing (1-9, 2-7, 3-8).

The next scoregroup, {4A, 10A}, requires two upfloaters. Both teams #5 and #6 are incompatible, while #7, #9, and #8 are already taken. We must pick our upfloaters up from the subsequent scoregroups, {11W} and {12A+, 14A+, 15A}. The first useful set is {11, 12}. This yields the bracket **{4A, 10A, 11W, 12W}**, with its only possible candidate (4-12, 10-11).

The next scoregroup is {5A, 6B}. Once again, the scoregroup could be paired but would not leave a pairable Rest, so we need two upfloaters. Since there are only two teams left, we have no choice, and the resulting bracket, **{5A, 6B, 14A+, 15A}**, becomes the last one. The pairing only requires one transposition, yielding (5-15, 6-14).

Putting all pairs together, adjusting colours and sorting boards as usual, we obtain the complete pairing (9-1, 7-2, 8-3, 11-10, 12-4, 5-15, 14-6).

Board	Teams	Result
1	9 (8) - 1 (12)	1½-2½
2	7 (8) - 2 (12)	1-3
3	8 (7) - 3 (12)	2-2
4	11 (7) - 10 (9)	2-2
5	12 (6) - 4 (9)	½-3½
6	5 (8) - 15 (6)	3-1
7	14 (6) - 6 (8)	1½-2½
	13 (6) - PAB	2
	16 (4) - ZPB	0

And now, people, please start the clocks for the final round!

[93] *For example, we can have (1-9, 2-7, 3-8, 4-15, 5-16, 6-14, 10-12, 11-13) for {7, 9, 8} and (1-9, 2-7, 3-11, 4-13, 5-12, 6-16, 8-15, 10-14) for {7, 9, 11}.*

12 Final Steps

The tournament is over. The final pairing operations consist of harvesting results and completing the tournament board.

TPN	1			2			3			4			5			6			7			8			9		
	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP	Pair	MP	GP
1	+W7	2	3	+B4	4	5.5	=W2↓	5	7.5	=W3	6	9.5	+B6↓	8	12	=B5↓	9	14	+W11↓	11	17.5	=B10	12	19.5	+B9	14	22
2	+B8	2	2.5	=W5	3	4.5	=B1↑	4	6.5	+B10↑	6	9.5	=W3	7	11.5	+W4	9	14	=B6↓	10	16	+W11	12	19	+B7	14	22
3	=W10	1	2	+B6↑	3	5	+W9	5	8	=B1	6	10	=B2	7	12	+W7↓	9	15	=B4↓	10	17	+W5	12	19.5	=B8	13	21.5
4	+B11	2	3	-W1	2	4.5	+B8↓	4	7	=W5↓	5	9	+W10	7	12	-B2	7	13.5	=W3↑	8	15.5	=B6	9	17.5	+B12	11	21
10	=B3	1	2	+W16	3	6	+B5	5	9	-W2↓	5	10	-B4	5	11	=W6	6	13	+B7	8	15.5	=W1	9	17.5	=B11	10	19.5
5	+W13	2	2.5	=B2	3	4.5	-W10	3	5.5	=B4↑	4	7.5	=B9	5	9.5	=W1↑	6	11.5	+W14	8	14.5	-B3	8	16	+W15	10	19
6	+B15	2	3.5	-W3↓	2	4.5	=B11	3	6.5	+W12	5	9	-W1↑	5	10.5	=B10	6	12.5	=W2↑	7	14.5	=W4	8	16.5	+B14	10	19
9	HPB	1	2	+W14	3	5	-B3	3	6	=B13	4	8	=W5	5	10	-B11	5	11.5	=W8↓	6	13.5	+B16	8	16.5	-W1	8	18
7	-B1	0	1	+W12↑	2	3.5	HPB	3	5.5	=W11	4	7.5	+B13	6	10.5	-B3↑	6	11.5	-W10	6	13	+B14	8	16	-W2	8	17
8	-W2	0	1.5	=B13	1	3.5	-W4↑	1	5	-F15	1	5	PAB	2	7	+B16↑	4	10.5	=B9↑	5	12.5	+W12	7	15	=W3	8	17
11	-W4	0	1	+B15	2	3.5	=W6	3	5.5	=B7	4	7.5	HPB	5	9.5	+W9	7	12	-B1↑	7	12.5	-B2	7	13.5	=W10	8	15.5
13	-B5	0	1.5	=W8	1	3.5	+B16	3	6.5	=W9	4	8.5	-W7	4	9.5	-B14	4	10.5	=W12↑	5	12.5	=B15	6	14.5	PAB	7	16.5
12	HPB	1	2	-B7↓	1	3.5	+W14	3	7	-B6	3	8.5	-W16↓	3	10	+W15↑	5	13	=B13↓	6	15	-B8	6	16.5	-W4	6	17
15	-W6	0	0.5	-W11	0	2	PAB	1	4	+F8	3	8	=B14	4	10	-B12↓	4	11	=W16↓	5	13	=W13	6	15	-B5	6	16
14	HPB	1	2	-B9	1	3	-B12	1	3.5	+W16	3	6	=W15	4	8	+W13	6	11	-B5	6	12	-W7	6	13	-W6	6	14.5
16	PAB	1	2	-B10	1	2	-W13	1	3	-B14	1	4.5	+B12↑	3	7	-W8↓	3	7.5	=B15↑	4	9.5	-W9	4	10.5	ZPB	4	10.5

As a parting thought, we should consider that the inversion of roles between primary and secondary scores would deeply impact the pairings. Moreover, if we inverted the primary and secondary score, the standings could be significantly different. The choice of primary and secondary scores is of paramount importance and requires careful consideration.

That's all!

13 Bibliography

All cited titles can be found on FIDE Handbook or on FIDE Technical Commission website.

{1} FIDE – C.04.1 Basic rules for Swiss Systems

{2} FIDE – C.04.2 General handling rules for Swiss Tournaments

{3} FIDE – C.04.3 FIDE (Dutch) System

{4} FIDE – C.04.6 Swiss Team Pairing System

{5} FIDE – C.05. General Regulations for Competitions

{6} FIDE – D.02.02. Olympiad Pairing Rules

{7} Held, Mario – Annotated pairing rules for the FIDE Swiss Team pairing system

{8} Held, Mario – Annotated pairing rules for the FIDE (Dutch) system

{9} Held, Mario – Mastering the Dutch

14 Appendix I - Round Pairings and Results

	ROUND 1			
Board	**Teams**			**Result**
1	1 (0)	-	7 (0)	3-1
2	8 (0)	-	2 (0)	1½-2½
3	3 (0)	-	9 (0)	2-2
4	10 (0)	-	4 (0)	1-3
5	5 (0)	-	11 (0)	2½-1½
6	12 (0)	-	6 (0)	½-3½
	13 (0)	-	PAB	2

	ROUND 2			
Board	**Teams**			**Result**
1	4 (2)	-	1 (2)	1½-2½
2	2 (2)	-	5 (2)	2-2
3	6 (2)	-	3 (1)	1-3
4	9 (1)	-	14 (1)	3-1
5	10 (1)	-	16 (1)	4-0
6	7 (0)	-	12 (1)	2½-1½
7	13 (0)	-	8 (0)	2-2
8	15 (0)	-	11 (0)	1½-2½

	ROUND 3			
Board	**Teams**			**Result**
1	1 (4)	-	2 (3)	2-2
2	3 (3)	-	9 (3)	3-1
3	5 (3)	-	10 (3)	1-3
4	11 (2)	-	6 (2)	2-2
5	8 (1)	-	4 (2)	1½-2½
6	12 (1)	-	14 (1)	3½-½
7	16 (1)	-	13 (1)	1-3
	15 (0)	-	PAB	2
	7 (2)	-	HPB	2

	ROUND4			
Board	**Teams**			**Result**
1	1 (5)	-	3 (5)	2-2
2	10 (5)	-	2 (4)	1-3
3	4 (4)	-	5 (3)	2-2
4	6 (3)	-	12 (3)	2½-1½
5	7 (3)	-	11 (3)	2-2
6	13 (3)	-	9 (3)	2-2
7	8 (1)	-	15 (1)	0F-4F
8	14 (1)	-	16 (1)	2½-1½

	ROUND5			
Board	**Teams**			**Result**
1	2 (6)	-	3 (6)	2-2
2	6 (5)	-	1 (6)	1½-2½
3	4 (5)	-	10 (5)	3-1
4	9 (4)	-	5 (4)	2-2
5	13 (4)	-	7 (4)	1-3
6	14 (3)	-	15 (3)	2-2
7	12 (3)	-	16 (1)	1½-2½
	8 (1)	-	PAB	2
	11 (4)	-	HPB	2

	ROUND 6			
Board	**Teams**			**Result**
1	5 (5)	-	1 (8)	2-2
2	2 (7)	-	4 (7)	2½-1½
3	3 (7)	-	7 (6)	3-1
4	10 (5)	-	6 (5)	2-2
5	11 (5)	-	9 (5)	2½-1½
6	14 (4)	-	13 (4)	3-1
7	12 (3)	-	15 (4)	3-1
8	16 (3)	-	8 (2)	½-3½

	ROUND 7			
Board	**Teams**			**Result**
1	1 (9)	-	11 (7)	3½-½
2	4 (7)	-	3 (9)	2-2
3	6 (6)	-	2 (9)	2-2
4	5 (6)	-	14 (6)	3-1
5	7 (6)	-	10 (6)	1½-2½
6	9 (5)	-	8 (4)	2-2
7	13 (4)	-	12 (5)	2-2
8	15 (4)	-	16 (3)	2-2

	ROUND 8			
Board	**Teams**			**Result**
1	10 (8)	-	1 (11)	2-2
2	2 (10)	-	11 (7)	3-1
3	3 (10)	-	5 (8)	2½-1½
4	6 (7)	-	4 (8)	2-2
5	14 (6)	-	7 (6)	1-3
6	8 (5)	-	12 (6)	2½-1½
7	16 (4)	-	9 (6)	1-3
8	15 (5)	-	13 (5)	2-2

	ROUND 9			
Board	**Teams**			**Result**
1	9 (8)	-	1 (12)	1½-2½
2	7 (8)	-	2 (12)	1-3
3	8 (7)	-	3 (12)	2-2
4	11 (7)	-	10 (9)	2-2
5	12 (6)	-	4 (9)	½-3½
6	5 (8)	-	15 (6)	3-1
7	14 (6)	-	6 (8)	1½-2½
	13 (6)	-	PAB	2
	16 (4)	-	ZPB	0

15 Appendix II – Pairing Cards

(FID) THE CHESS GIANTS 2397 **1**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	7	W	-	+	3-1	2	3
2	4	B	-	+	1½-2½	4	5.5
3	2	W	↓	=	2-2	5	7.5
4	3	W	-	=	2-2	6	9.5
5	6	B	↓	+	1½-2½	8	12
6	5	B	↓	=	2-2	9	14
7	11	W	↓	+	3½-½	11	17.5
8	10	B	*	=	2-2	12	19.5
9	9	B	*	+	2½-1½	14	22

(FID) BOARD MASTERS 2374 **2**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	8	B	-	+	1½-2½	2	2.5
2	5	W	-	=	2-2	3	4.5
3	1	B	↑	=	2-2	4	6.5
4	10	B	↑	+	1-3	6	9.5
5	3	W	-	=	2-2	7	11.5
6	4	W	-	+	2½-1½	9	14
7	6	B	↓	=	2-2	10	16
8	11	W	*	+	3-1	12	19
9	7	B	*	+	1-3	14	22

(FID) LEGENDARY ROOKS 2344 **3**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	10	W	-	=	2-2	1	2
2	6	B	↑	+	1-3	3	5
3	9	W	-	+	3-1	5	8
4	1	B	-	=	2-2	6	10
5	2	B	-	=	2-2	7	12
6	7	W	↓	+	3-1	9	15
7	4	B	↓	=	2-2	10	17
8	5	W	*	+	2½-1½	12	19.5
9	8	B	*	=	2-2	13	21.5

(FID) FLAMING KNIGHTS 2297 **4**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	11	B	-	+	1-3	2	3
2	1	W	-	-	1½-2½	2	4.5
3	8	B	↓	+	1½-2½	4	7
4	5	W	↓	=	2-2	5	9
5	10	W	-	+	3-1	7	12
6	2	B	-	-	2½-1½	7	13.5
7	3	W	↑	=	2-2	8	15.5
8	6	B	*	=	2-2	9	17.5
9	12	B	*	+	½-3½	11	21

(FID) DEEP THINKERS 2265 **5**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	13	W	-	+	2½-1½	2	2.5
2	2	B	-	=	2-2	3	4.5
3	10	W	-	-	1-3	3	5.5
4	4	B	↑	=	2-2	4	7.5
5	9	B	-	=	2-2	5	9.5
6	1	W	↑	=	2-2	6	11.5
7	14	W	-	+	3-1	8	14.5
8	3	B	*	-	2½-1½	8	16
9	15	W	*	+	3-1	10	19

(FID) CHECK & CHECKMATE! 2233 **6**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	15	B	-	+	½-3½	2	3.5
2	3	W	↓	-	1-3	2	4.5
3	11	B	-	=	2-2	3	6.5
4	12	W	-	+	2½-1½	5	9
5	1	W	↑	-	1½-2½	5	10.5
6	10	B	-	=	2-2	6	12.5
7	2	W	↑	=	2-2	7	14.5
8	4	W	*	=	2-2	8	16.5
9	14	B	*	+	1½-2½	10	19

(FID) THE ARCHBISHOPS 2224 **7**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	1	B	-	-	3-1	0	1
2	12	W	↑	+	2½-1½	2	3.5
3	HPB	-	-	=	2	3	5.5
4	11	W	-	=	2-2	4	7.5
5	13	B	-	+	1-3	6	10.5
6	3	B	↑	-	3-1	6	11.5
7	10	W	-	-	1½-2½	6	13
8	14	B	*	+	1-3	8	16
9	2	W	*	-	1-3	8	17

(FID) QUEEN'S LIONS 2178 **8**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	2	W	-	-	1½-2½	0	1.5
2	13	B	-	=	2-2	1	3.5
3	4	W	↑	-	1½-2½	1	5
4	~~15~~	~~W~~	-	-	0F-4F	1	5
5	PAB	-	-	=	2	2	7
6	16	B	↑	+	½-3½	4	10.5
7	9	B	↑	=	2-2	5	12.5
8	12	W	*	+	2½-1½	7	15
9	3	W	*	=	2-2	8	17

(FID) QUEEN'S SORORITY 2164 **9**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	HPB	-	-	=	2	1	2
2	14	W	-	+	3-1	3	5
3	3	B	-	-	3-1	3	6
4	13	B	-	=	2-2	4	8
5	5	W	-	=	2-2	5	10
6	11	B	-	-	2½-1½	5	11.5
7	8	W	↓	=	2-2	6	13.5
8	16	W	*	+	3-1	8	16.5
9	1	W	*	-	2½-1½	8	18

(FID) THE GREAT CHESS 2141 **10**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	3	B	-	=	2-2	1	2
2	16	W	-	+	4-0	3	6
3	5	B	-	+	1-3	5	9
4	2	W	↓	-	1-3	5	10
5	4	B	-	-	3-1	5	11
6	6	W	-	=	2-2	6	13
7	7	B	-	+	1½-2½	8	15.5
8	1	W	*	=	2-2	9	17.5
9	11	B	*	=	2-2	10	19.5

(FID) THE WOODPECKERS 2139 **11**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	4	W	-	-	1-3	0	1
2	15	B	-	+	1½-2½	2	3.5
3	6	W	-	=	2-2	3	5.5
4	7	B	-	=	2-2	4	7.5
5	HPB	-	-	=	2	5	9.5
6	9	W	-	+	2½-1½	7	12
7	1	B	↑	-	3½-½	7	12.5
8	2	B	*	-	3-1	7	13.5
9	10	W	*	=	2-2	8	15.5

(FID) FLYING PIECES 2137 **12**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	HPB	-	-	=	2	1	2
2	7	B	↓	-	2½-1½	1	3.5
3	14	W	-	+	3½-½	3	7
4	6	B	-	-	2½-1½	3	8.5
5	16	W	↓	-	1½-2½	3	10
6	15	W	↑	+	3-1	5	13
7	13	B	↓	=	2-2	6	15
8	8	B	*	-	2½-1½	6	16.5
9	4	W	*	-	½-3½	6	17

(FID) CHESS PASSION 2128 **13**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	5	B	-	-	2½-1½	0	1.5
2	8	W	-	=	2-2	1	3.5
3	16	B	-	+	1-3	3	6.5
4	9	W	-	=	2-2	4	8.5
5	7	W	-	-	1-3	4	9.5
6	14	B	-	-	3-1	4	10.5
7	12	W	↑	=	2-2	5	12.5
8	15	B	*	=	2-2	6	14.5
9	PAB	-	*	=	2	7	16.5

(FID) THE KING'S KNIGHTS 1997 **14**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	HPB	-	-	=	2	1	2
2	9	B	-	-	3-1	1	3
3	12	B	-	-	3½-½	1	3.5
4	16	W	-	+	2½-1½	3	6
5	15	W	-	=	2-2	4	8
6	13	W	-	+	3-1	6	11
7	5	B	-	-	3-1	6	12
8	7	W	*	-	1-3	6	13
9	6	W	*	-	1½-2½	6	14.5

(FID) PAWN BUT POWERFUL 1918 **15**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	6	W	-	-	½-3½	0	0.5
2	11	W	-	-	1½-2½	0	2
3	PAB	-	-	=	2	1	4
4	~~8~~	~~B~~	-	+	0F-4F	3	8
5	14	B	-	=	2-2	4	10
6	12	B	↓	-	3-1	4	11
7	16	W	↓	=	2-2	5	13
8	13	W	*	=	2-2	6	15
9	5	B	*	-	3-1	6	16

(FID) BEST OR BUST 1880 **16**

more info...

Rnd	Opp	Col	Flt	Res	Score	MP	GP
1	PAB	-	-	=	2	1	2
2	10	B	-	-	4-0	1	2
3	13	W	-	-	1-3	1	3
4	14	B	-	-	2½–1½	1	4.5
5	12	B	↑	+	1½-2½	3	7
6	8	W	↓	-	½-3½	3	7.5
7	15	B	↑	=	2-2	4	9.5
8	9	B	*	-	3-1	4	10.5
9	ZPB	-	*	-	0	4	10.5

NOTES

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NOTES

Mario Held, IA

Mastering the FIDE Team Pairing System

A tournament example developed with

C.04.6 FIDE Team Pairing System Rules

Venice, 2026