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ANNOTATED PAIRING RULES

FOR THE

FIDE SWISS TEAM PAIRING SYSTEM

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Contents

Acronyms

CA .... Chief Arbiter
CD .... Colour difference (see Article 1.6)
CO .... Chief Organiser
GP .... Game Points
MP .... Match Points
PAB ...... Pairing Allocated Bye (see Article 1.4)
SD .... Score difference
TPN ...... Tournament Pairing Number (see Article 1.1 and C.04.2:2.3)
TPS .... FIDE Swiss Team Pairing System
UF .... Upfloater (see Articles 1.3.2, 1.5)

FOREWORD

The pairing rules for team Swiss tournaments, which we present here, fill a gap in the FIDE Swiss Systems rules (FIDE Handbook C.04). In fact, until today there were no FIDE rules for the Swiss pairing of team tournaments except for the Olympiad pairing rules – but those are, of course, special rules, created to deal with an event with unique needs, 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 created for use in individual tournaments (often, the FIDE (Dutch)), but this cannot be the best choice. In general, those systems are unnecessarily complex, and tend to deal with details that are not overly important in team tournaments – e.g., colour assignment and floats, which are usually made less important by the frequent changes in the team composition (fielded players change often, sometimes even at every round). The new Team Swiss rules consider the peculiar needs of a team tournament, avoiding unnecessary complexities.

The Rules for the FIDE Team Swiss Pairing System includes the following sections:

(0) <u>Preface</u>: this is an essential technical description of the system that also enunciates some important principles. The contents of this Section should be digested before proceeding into the rules.

(1) <u>Introductory Remarks and Definitions</u>: this section contains the basic concepts about the system and its control variables.

(2) <u>Pairing Criteria</u>: this part defines pairing constraints and limitations established to enforce pairing quality. Some of those limitations are common to all FIDE Swiss pairing systems, while others are specific to the team system. Those criteria fall into two distinct categories. The first consists of constraints that must be strictly adhered to (Absolute criteria, Completion criterion). The second relates to criteria that should be met as far as possible but, when necessary, can be relaxed to some extent (Quality criteria).

(3) <u>Pairing rules</u>: this part explains how to select the PAB-assignee and build a candidate pairing, determine its quality by checking it against the pairing criteria, and how to improve the quality of the pairing when necessary (i.e., how to look for better candidates). The first paragraphs (Article 3.1-3.3) give some definitions and a brief introduction to the pairing process, which will be regulated in detail by this section.

(4) <u>Colour Allocation Rules</u>: after the completion of the pairing, each team receives its colour according to these rules.

Happy reading!

C.04.6
SWISS TEAM PAIRING SYSTEM

Approved by the Council on
Applied from 1st February 2026

0. PREFACE

The Swiss Pairing System Rules specified in the Basic Rules for Swiss Systems and in the Articles 1, 2.4, 2.5, 3 and 4 of the General Handling Rules for Swiss Tournaments are for individuals, but can also be applied mutatis mutandis to teams, with one significant exception: the Articles 6 and 7 of the Basic Rules for Swiss Systems never apply.

Those last rules protect the (single) player against "bad" colour distribution. In a team tournament, players' assignment to boards may change at every round, so that such control on individual basis is utterly impossible. Control is only made on "team colour"- and, as we will see momentarily, even this is not a strict one.

In fact, for teams, the colours are less important. This is mainly because individuals in a team can be substituted or shifted between the various boards, and because teams are often composed of an even number of players, resulting in each team having an equal number of players playing with White and Black. That is why the rules presented here display various lower-strength colour preferences than those described in the individual rules, and of different varieties, to facilitate various forms of team competitions. There may be competitions where colours have no importance at all (for instance because each individual plays one game with White and one with Black); other competitions where having a particular colour is not a decisive factor (for instance, because teams have an even number of players and all teams play in the same geographical place); and still others, where the colour is more meaningful (for instance, because the composition of the teams cannot be changed, or teams have an odd-number of players, or having a particular colour may mean a home or a road match). In any case, the colour will never be a factor so decisive as to prevent two teams from playing against each other. Therefore, there are no absolute colour preferences outlined in these regulations.

In the end, the importance of colour depends on the nature of the specific tournament, so no general rule can be given. This is why these rules leave to the CO ample freedom to decide how much importance colours should have, and how to deal with them.

Articles 2.1-2.3 of the General Handling Rules for Swiss Tournaments, dealing with the initial order of the teams, have been deliberately omitted from the initial list shown above because there are too many variants to take into account to define an appropriate strength for teams, such as only using starters' ratings; including reserves; counting a fixed number of highest ratings; managing unrated players; and so on. In the end, it is preferable to leave any details out of the general rules and let the initial order of teams be determined by the rules of each specific competition.

Just as for colours, an Organiser also has ample freedom to set up rules about how a team can be managed. Based on the nature of the tournament, they may decide that players' fielding be strictly regulated or completely free and then write rules accordingly.

1. INTRODUCTORY REMARKS AND DEFINITIONS

1.1 Tournament Pairing Number ("TPN")

The TPN replaced the old player's pairing number, and is used both in individual and team tournaments. It is used throughout all pairing phases as the key identifier for the team.

(Besides team pairing numbers, the team tournament management may also use the usual players' ids. Those are irrelevant to the pairing process, still, they can be handy in keeping track of individual scores and standings, rating variations, and so on.)

1.1.1 Each team must have a different TPN, from 1 to the TPN corresponding to the number of teams.

TPNs are used by the system to sort teams during each phase of the pairing process. Although the absolute value of TPNs is irrelevant to the pairing, their order is important. In fact, it defines the "playing strength" of the team with regards to all other teams – the higher the TPN, the weaker the team!

1.1.2 The rules of the team competition shall describe how to assign a TPN to each team. Otherwise, it is a decision of the Chief Arbiter.

Note: This provision overrides Articles 2.1 to 2.3 of the General Handling Rules for Swiss Tournaments.

Nowadays, the commonly accepted way to define and measure the playing strength of individuals is based on their Elo chess rating (although several more rating systems have been used, e.g., DWZ, ECF, Glicko, Harkness, ICCF, Ingo, and so on).

Alas, there is no such agreement on how to measure the playing strength of a team. In fact, this strength depends not only on the choice of fielded players, but even on their position on the field (i.e., board number), and both those choices may (and do!) change from encounter to encounter. Moreover, all the usual factors that can improve or damage the performance of single players add up in making the team performance somewhat difficult to predict.

For a controlled Swiss pairing system to work correctly, the TPN should represent some kind of "measure" of the playing strength of the team. However, as mentioned, there is no universal definition of what the playing strength of a team is, let alone how it can be calculated. That's why these rules leave to Organisers the freedom to choose or devise a method of their own to measure the strength of the team. Of course, this measure has a profound influence on the next pairings. Therefore, it shall be defined in a clear and univocal way, and the event rules must establish both the definition and the procedure for its determination. Should the event rules fail to do so, a TPN is still required for each team. In this case, the responsibility to fill the gap is left with the Chief Arbiter, who must decide a method to classify and sort the teams. The possible choices are many, and each has its own pros and cons – e.g., we could use the average rating of all team members, or the average rating of the four (or any number) top (middle, bottom) members, or the average rating of the basic fielding, and so forth. The preparation of the event rules should duly consider the consequences of choosing a method rather than another.

1.1.3 Once defined, the TPN should not be modified (except as stated in Articles 2.4 and 2.5 of the General Handling Rules for Swiss Tournaments), unless the Chief Arbiter decides otherwise.

When TPNs are changed during the tournament, the task of checking the pairings and asserting their regularity becomes a difficult one. This rule makes the pairings easier to check. However, in a "real world" tournament, some latest information, or some error, can suggest that the TPNs initially assigned were wrong and should be changed, and the rules give to the Chief Arbiter the right to do so.

1.2 Score

1.2.1 The rules of the competition shall state which, between "match points" and "game points", is called "primary score" (or, more simply, "score"), and whether the other ("secondary score") is used for colour allocation (see Article 4.2.2).

1.2.2 The default is to use "match points" as the (primary) score and "game points" for colour allocation.

The choice of which score should be the primary score has a deep impact on the resulting pairings. For example, let's compare a team A with a previous match history {4-0, 1½-2½, 1½-2½}, i.e., 2 MPs and 7 GPs, with another team B with a history {2-2, 2-2, 2½-1½}, which has 4 MPs and 6,5 GP. According to the Organiser's choice of primary score, team A precedes (GP) or follows (MP) team B, and the pairings will differ consequently.

We should also mention that the Baku acceleration method (see FIDE-Approved Accelerated Systems, FIDE Handbook, C.04.7) can be used only when the primary score is "match points" and the score system is the traditional 2-1-0 or a multiple.

1.3 Scoregroups and Pairing Brackets

1.3.1 A scoregroup is composed of all the teams with the same score.

1.3.2 A (pairing) bracket is an even numbered group of teams all to be paired. It is composed of teams coming from the same scoregroup (called resident teams) and (possibly) of teams coming from lower scoregroups (called upfloaters).

These definitions resemble those used for individual pairings, except of course that they address teams rather than players. In the FIDE (Dutch) System, as well as some other pairing systems, when a pairing bracket includes an odd number of participants (or, in fact, to smooth out any serious pairing difficulty), one or more players are "expelled" from the bracket and made to "float down" into the next bracket, to look for adequate opponents there. On the contrary, the Team Pairing System (TPS), like Dubov, makes the bracket "absorb" one or more participants (i.e., here, teams) from subsequent (i.e., lower-scored) scoregroups (we call them "upfloaters," see [1.5.1]).

1.4 Pairing-Allocated-Bye (PAB)

Should the number of teams to be paired be odd, one team is not paired. This team receives a pairing-allocated-bye: no opponent, no colour, and as many match points and game points as are rewarded for a draw, unless the regulations of the team competition state otherwise. These numbers of points shall be the same for all pairing-allocated byes *(See Article 3 of the Basic Rules for Swiss Systems).*

The "half-point PAB" is the most common choice in team tournaments, so this rule will be no big news for most tournaments. However, this is just a default – the CO can pre-empt it simply by specifying a different choice in the tournament rules.

1.5 Floaters

1.5.1 A floater is a team that plays against an opponent with a different primary score.

> *The definition given here is quite general. Contrary to most pairing systems, when two teams with different scores are paired (because the lower-scored team – we call it an "upfloater" – was absorbed into the higher scoregroup), they are both considered floaters, and the system makes no distinction between them.*
>
> *The reason for this quite simple approach is that the fielding of players may change at every round, so the real playing strength of the team is somewhat "fluid" – the same player who was playing the first board in the last round, might well be playing in the second, or third, board in the current round. In fact, a Team Captain often modulates the team strength according to that of the opposing team (to save energies, or to make weaker players get experience, and so on), so, there is little point in paying too much attention to floats.*

1.6 Colour Difference (CD)

1.6.1 A team is said to have (had) a colour (White or Black) in a match if the match was actually played and the player on the first board was scheduled to play with that colour.

> *The rule indicates the colour for the first board, but nothing is said about the colours given to the remaining team boards – in fact, the CO is at liberty to set up their own rules for the colour distribution. Several choices are possible. For example, a team could have the same colour on all boards, or a colour on the first and last boards and the opposite on the central boards. The most usual choice seems to be a colour on odd boards and the opposite on even boards.*

1.6.2 The colour difference of a team is the number of matches where the team had White minus the number of matches where the team had Black.

> *The colour difference is positive when the team had White more often than Black; negative when the team had Black more often than White; and, of course, null when colours are balanced.*

1.7 Colour Preference

Type A colour preferences are used unless the rules of the team competition specify that either Type B colour preferences shall be used, or colour preferences are not to be used at all.

> *Type A colour preferences, which are fairly simple, should be adequate for most tournaments and, therefore, are the default rule, to be implemented whenever the event rules give no specific instruction. Type B, which are more detailed, should be considered when the tournament has some special needs.*
>
> *The rules even explicitly allow the possibility that the pairings consider no colour preferences at all. This choice could bring to extremes in which a team gets a long string of White or Black colours in a row. This could easily bring negative reactions by the attendance and should therefore be made only with consideration.*
>
> *We should mention that the type of preferences to be used, if it is not the default one, must be explicitly provided for in the event rules – unlike many other tournament details, the Chief Arbiter has no right to change this choice.*

1.7.1 Type A colour preferences

1. A team has a simple (Type A) colour preference for White if its CD is less than -1, or, being its CD 0 or -1, the team had Black in the last two played matches.
2. A team has a simple (Type A) colour preference for Black if its CD is more than +1, or, being its CD 0 or +1, the team had White in the last two played matches.
3. In all other situations, the team has no (Type A) colour preference.

Type A preferences give a loose rule, consistent with the relatively small importance of colour in team competitions. The only type of preference considered is what in other systems would be called an "absolute preference" – and even this will be treated more as advice than as imposition. In all other cases, there is no preference at all. In this case, colours previously received by the team have no effect whatsoever on the pairing, but they influence the allocation of colours for the subsequent encounter.

Type A preferences should be the preferred choice for general tournaments, especially when teams enjoy alternate colours on the boards.

1.7.2 Type B colour preferences

1. A team has a strong (Type B) colour preference for White if its CD is less than -1, or, being its CD 0 or -1, the team had Black in the last two played matches.
2. A team has a strong (Type B) colour preference for Black if its CD is more than +1, or, being its CD 0 or +1, the team had White in the last two played matches.
3. A team has a mild (Type B) colour preference for White if its CD is -1, or, if it is zero and it is not the last round, the team had Black in the last played match.
4. A team has a mild (Type B) colour preference for Black if its CD is +1, or, if it is zero and it is not the last round, the team had White in the last played match.
5. A team has no (Type B) colour preference when it has yet to play a match, or when its CD is zero when pairing for the last round.

Type B preferences are more complex, allowing a more delicate management of the pairings. In fact, preferences of this type resemble those commonly used in individual tournament pairing systems. In most cases, using such preferences would be overkill, but they could be advantageous in some unusual tournaments – e.g., in a tournament where all players of a team have the same colour, or where a particular colour means an away game.

2. PAIRING CRITERIA

This section contains rules that allow us to decide if a candidate pairing is legal at all, and to measure its quality. These criteria are grouped in three classes, according to the strictness of the restriction. First, we have Absolute criteria, which implement some restrictions from the Basic rules for Swiss Systems [FIDE Handbook C.04.1]. Then we have the Completion criterion, which is something different, in that it dictates a behavioural rule rather than a candidate selector. All the above simply allow or disallow a given pairing. Finally, the Quality criteria provide means to evaluate quantitatively the quality of a given candidate, thus allowing us to compare different pairings and determine which one is the best among them.

2.1 Absolute Criteria

No pairing shall violate the following absolute criteria:

As anticipated, these criteria enforce unbreakable rules. In fact, they implement respectively rules 2 and 4 of the Basic rules for Swiss Systems [C.04.1] and we cannot dispense with any of them. To comply with them, participants (i.e., teams) may float as required.

Sometimes, however, no pairing at all exists, which complies with the absolute criteria. In those exceptional circumstances, a pairing officer may have to break these rules, and act according to their best judgment to avoid the disruption of the tournament if possible.

2.1.1 [C1] See the Basic Rules for Swiss, Article 2 (*Two participants shall not play against each other more than once*).

2.1.2 [C2] A team that has already received a pairing-allocated bye or won a match by forfeit (or been given a FIDE-deprecated full-point bye) shall not receive the pairing-allocated bye.

2.2 Completion Criterion

This criterion implements the so-called Requirement Zero. Its deeper meaning is that, at any stage of the pairing process, a legal pairing must always exist for all teams not yet paired. This is an absolute criterion too, but in a class of its own. It requires that the choice of upfloaters (see [3.3]) allows the completion of the round-pairing, independent of the optimisation of the next bracket (sought for by criterion C6, see [2.3.3]). Please note that the Completion criterion precedes both the minimisation of the number of upfloaters (see C4, [2.3.1]) and that of the score differences (see C5, [2.3.2]). Thus, compliance with this criterion may cause a reduction in the number of pairs as well as an increase in the overall score differences.

2.2.1 [C3] A pairing complying with all the absolute criteria (see Article 2.1) shall always exist for all teams not yet paired.

This criterion makes us sure that, each time we pair a bracket, the remaining participants (we call them "The Rest") allow at least one legal pairing (i.e., a pairing compliant with all compulsory pairing restrictions) and thus, if the round-pairing was possible in the first place, it remains possible until the end of the pairing process.

Hence, before we begin to pair a bracket, we want to be already confident that (at least) one legal pairing exists ("Requirement Zero"), so we cannot get stuck. Therefore, the first thing we should do is check the existence of such legal pairing. This is called a Completion test and is usually simple because we need not look for the "right" pairing – we only want to make sure that a legal pairing (whatever!) exists.

We then apply this criterion again when we choose the upfloaters [1.3.2]. This choice alters the composition of the subsequent scoregroups, picking out participants from the Rest to accommodate the needs of the current bracket (see [3.2], [3.3.2]). Those participants must be selected in such a way that at least one legal pairing is available for the Rest. Doing so, in every phase of the pairing, we are sure that the round-pairing [3.3.1] can be successfully completed. This makes the logic of the pairings simpler but, on the other hand, we must perform a Completion test (see [2.2]) several times during each pairing, which causes some overhead.

2.3 Quality Criteria

In order to best pair all teams of the top-scoregroup (see Article 3.2), comply as much as possible with the following criteria, given in descending priority:

The criteria in paragraphs [2.1] and [2.2] set conditions that must be obeyed. A candidate pairing that does not comply with them either is not legal or prevents the completion of the round-pairing; therefore, it is immediately discarded. The following criteria are of quite different kind, in that they establish a frame of reference for a quantitative evaluation of the quality of the pairings. This is done by setting a sequence of "test points," in order of decreasing importance, checking the pairing in accordance with the internal logic of the system. The level of compliance with each one of the following criteria is not a binary quantity (yes/no) but rather a numerical quantity. We measure it by means of a "failure value," whose meaning is tightly connected to the criterion itself (e.g., the number of upfloaters for C4, or the number of teams not getting their colour preference for C8, and so forth). When we compare two candidates, in fact we compare the failure values of the candidates for each criterion, one by one, in the exact sequence given by the Rules. If the two failure values for a given criterion are identical, we proceed to the next criterion. If they are different, the best failure value identifies the best candidate. It seems worth noting that a candidate having a better failure value on a higher criterion is selected, even if the failure values for the following criteria are far worse. In fact, the optimisation with respect to a higher-priority criterion can have a dramatic impact on the remaining failure values – and, we may add, the optimisation with respect to a criterion is always only relative to the current status, because even a small difference in a higher criterion may change the scenario completely. Relative criteria are not so important as absolute ones, and they can be disregarded, if this is needed to achieve a complete pairing. They are not important enough to make a participant float – in fact, the first one of them, and hence the most important, instructs us to do just the very opposite, minimising the number of upfloaters!

2.3.1 [C4] Minimise the number of upfloaters.

The first quality factor is the minimisation of floaters because this is a general, fundamental principle of all Swiss systems. The spare team in odd brackets and incompatible or semi-incompatible teams require "inevitable" upfloaters. The challenge is choosing the smaller possible number of upfloaters in such a way to obtain the best possible overall quality of the pairing for the current bracket and then the next one, at the same time allowing the completion of the round-pairing.

A priori, we don't know how many upfloaters are needed – this depends on the presence of incompatible teams in the scoregroup and, of course, on the total number of teams, which in the end must be even. Also, the choice of the floaters can alter their number. (For example, consider a situation in which a team in the current bracket can meet a specific opponent, and only that one, but there is another team somewhere that needs either that same opponent or a team in the current bracket. Then we may have to make both those teams float, thus possibly having more upfloaters than we would have expected.)

2.3.2 [C5] Minimise the score differences (taken in descending order) in the pairs involving upfloaters, i.e. maximise the scores (taken in ascending order) of the upfloaters.

This important criterion is related to Article 5 of the Basic rules for Swiss Systems ([C.04.1]). Now, we already know how many upfloaters we need (we found this number in compliance with C4). If the bracket requires upfloaters, a different choice *of the upfloaters set can lead to diverse scores differences (we want to keep in mind that each upfloater will be paired to a resident team and, of course, all residents share the same score). Scores are then essential in the selection of the upfloaters set (see [3.2.3]) – however, once the set was chosen, the subsequent pairing of the bracket is based only on TPNs of participants (see [3.3.1]) – which means that the score is no more of issue.*

An example may shed some light on the actual use of this criterion. For a bracket with resident score of, say, 8 points, let us consider an upfloater set, A, containing teams with respectively {7, 7, 4} points; another, B, with {6, 6, 5} points; and yet another, C, with {6, 5, 5} points. The question is – which one among those sets is to be chosen. This criterion gives the answer.

Since all residents in the bracket have, by definition, the same score, the score differences for the three upfloaters sets are, respectively, D_A={1, 1, 4}, D_B={2, 2, 3}, D_C={2, 3, 3}. We must minimise the score differences in descending order. So, first we minimise the highest, thus ruling out D_A, while D_B and D_C are equivalent in this respect. Hence, we proceed to minimise the second highest difference – the lowest one belongs to set B, so, this is the set we must choose.

Alternatively, since all residents share the same score, the differences are determined only by the score of the upfloaters – the higher the score, the lower the difference. Thus, when we choose the upfloaters set with the highest bottom score, we are also choosing a maximum score difference as low as possible. Thus, in the first step we exclude set A, whose bottom score is 4 – which is the lowest one. Then, in the second step, we exclude set C, because the second lowest score, which is 5, is less than that of set B, which is 6.

2.3.3 [C6] Unless all the teams in the following scoregroup became or are upfloaters (thus this scoregroup is now empty), choose the set of upfloaters so that criteria [C1], [C3] and [C4] (see Articles 2.1.1, 2.2.1 and 2.3.1) are complied with in the bracket where this (not empty) scoregroup is paired.

Note: Only the mentioned scoregroup is involved, even though some of the upfloaters come from lower scoregroups.

When we get here, we already complied with the absolute criteria; made sure that the round-pairing can be completed; and optimised the most important pairing quality parameters (number of upfloaters, score differences). Before proceeding to optimise colours and floaters treatment, we take a look at the next bracket, keeping in mind that we will not be back to the current bracket ever again. To put it briefly, we make sure that the choice of upfloaters is such that the pairing of the next scoregroup will not suffer because of it.

For example, let us suppose that a team in the next scoregroup has no possible opponent but the chosen upfloater, so that, if we actually pick that upfloater up, the number of pairs that will be possible in the next scoregroup is reduced (and, because of this, the number of floaters required in the next bracket will be larger). The core meaning of this criterion is, therefore – if only possible, choose another upfloater!

This optimisation is to be extended only to the next scoregroup/bracket. In fact, there are situations in which a minor change in an earlier pairing would bring in large benefits – but looking several brackets ahead would be too much difficult an *operation to be executed every time. So, the rules settle for a partial optimisation, renouncing those that are out of reasonable reach.*

2.3.4 [C7] With the exception of the last two rounds, minimise the number of upfloaters that were floaters in the previous round (see Article 1.5).

Article 5 of the Basic rules for Swiss Systems stipulates that, in general, participants should meet opponents with the same score. This is best achieved by pairing each team inside its own bracket. However, there are situations in which a team cannot be paired in the bracket to which it belongs and must therefore meet an opponent with different score. This happens either because the team is required for the pairing of another team in a previous (i.e., higher) scoregroup, thus becoming an upfloater, or because it has no opponent available in its own bracket, so it must be paired to an upfloater. In either case, the team (in fact, both the teams that are paired together) becomes a floater.

Criterion C7, used in that phase of the pairing process when we choose the upfloaters (see [3.5]), is companion to C10 (2.3.7), which operates during the (subsequent) pairing of the bracket (see [3.6]). Together, C7 and C10 enforce the protection of teams against floating twice or more in a row – however, they are quite weak criteria, and the first to be ignored in case of need.

When there are two or more sets that show the best possible compliance with all relevant higher priority criteria (C3, C4, C5, C6), we use criterion C7 to choose the set that contains fewer teams that were floaters in the previous round (independent of the direction of floating).

Please note that this criterion is seldom useful in small tournaments because the pool of upfloaters sets is usually small, whereas it can become important in larger tournaments, with more teams.

2.3.5 [C8] Minimise the number of teams whose colour preference, if any, is not fulfilled.

*We can have an idea about the minimum number **x** of participants that cannot get their colour preference by inspecting the bracket prior to the pairing.*

The number of teams in the bracket is even by construction, and the bracket must be fully paired (it already contains the required upfloaters), so the number P of pairs to build is simply half the number of teams in the bracket.

Let us suppose that M teams prefer a colour while N prefer the other one, with, say, $M \geq N$ (we call M the majority colour, while N is the minority colour). Now, unlike what typically happens in individual tournaments, in team tournaments that use "Type A" colour preferences (see [1.7.1]) it is rather common for a team to have no colour preference. Thus, in addition to teams expecting White or Black, the bracket will have a number of teams that have no colour preference at all – and, therefore, may get any colour (for want of a better term, we call them "neutral").

Now, the M "majority" teams can all have their colour preference met only if $M \leq P$, because only in this case an opponent with opposite or neutral colour preference is available for each majority team. On the contrary, when $M > P$, there are M-P teams whose preference cannot be met with "suitable" opponents. Those teams shall unavoidably receive the colour opposite to the preferred one. (Think of this as if P majority teams were going to be paired with P other teams, among which a number

M-P has the same colour preference and thus cannot be satisfied.) Hence, we obtain a general definition for x:

x = max (0, M – P)

A perfect pairing always has exactly x disregarded colour preferences – no more (it would not be perfect!), no less (we can't!). Actually, there might be more pairs in which a team does not get its preference. This follows from incompatibilities due either to absolute criteria or to stronger relative ones. Thus, at first, we propose to make the minimum possible number of such pairs, but we may need to increase this number, to find our way around various pairing difficulties.

*It is worth mentioning that, unlike what happens in individual tournaments, in team events it is possible to have triplets of consecutive colours, or triple differences in colours, in line with the lesser importance of colour in this type of competition – a "Type A" colour preference would be an absolute one in an individual event. Usually, such "absolute" preferences are but few – and this is why **x** is often zero when using "Type A" colour preferences.*

*In team tournaments where "Type B" colour preferences are in use, mostly, teams have a colour preference (except, of course, when pairing the first and last rounds), so, usually, the number of teams with no colour preference is small. Our line of reasoning remains valid, but **x** will not be zero so often, and it will be a little more difficult to comply with the restraints it imposes.*

2.3.6 [C9] (Type B only) Minimise the number of teams whose strong colour preference, if any, is not fulfilled.

We already maximised the number of pairs with good colour matching, so now we can set our attention to satisfying as many <u>strong</u> colour preferences as possible. Of course, this criterion applies only in events where Type B colour preferences are in use (the only ones in which strong colour preferences exist).

Let us represent the minimum number of teams not getting their strong colour preference by z. Of course, this number is a part of the total number x of disregarded colour preferences (see note to C8, [2.3.5]) – i.e., z is at most equal to x.

When using Type B colour preferences, apart from the last round, the number of teams that have no colour preference is small, if any. Thus, we can keep our approach simple and count teams with no colour preference just as if they had a minority colour preference (see comment to C8, [2.3.5], above) – however, during the last round, or on some other occasion, several teams can have no colour preference. In those instances, we will have to adapt our reasoning in a suitable way.

We can reason out the value of z along the lines of what we did for x. Let S_M be the number of strong preferences for the majority colour preference (the strong preferences for the minority colour can of course all be accommodated, at least in principle). Of course, $S_M \leq M$. Now, let P be the number of pairs. If $S_M \leq P$, then we can pair each team with a strong preference for the majority colour with a viable opponent. When, on the contrary, $S_M > P$, then $S_M - P$ teams with a strong preference shall meet an equal strong preference. Hence,

$z = max (0, S_M - P)$

With a careful choice of the candidate, we should be able to minimise the number of disregarded strong preferences. Since the total number of disregarded preferences *cannot change (we cannot have it smaller, and we do not want it to grow larger), this may only happen at the expense of the same number of mild preferences. A brief example may shed some light on the matter. Consider the bracket {1B, 2b, 3B, 4b}, where B is a strong colour preference, b is a mild one. Here, we have x=2, but z=0. This means that we can build the pairs in such a way that any one of them contains no more than one strong colour preference. For several reasons, the number of teams that cannot get their strong preference may be greater than that.*

2.3.7 [C10] With the exception of the last two rounds, minimise the number of upfloaters' opponents that were floaters in the previous round (see Article 1.5).

Criterion C10, companion to C7 (see [2.3.4]), operates during the pairing of the bracket to enforce the protection of teams against floating twice or more in a row. In this phase, the choice of upfloaters was already made, so we need not worry about it. However, we did not choose upfloaters' opponents yet. To comply with this criterion, we must choose opponents that were not floaters in the previous round (independent of the direction of floating), besides complying at best with all relevant higher priority criteria (C1, C8, C9).

This criterion, like C7, is seldom used in small tournaments (where brackets are usually small) but it can be important in larger tournaments.

3. PAIRING DEFINITIONS AND RULES

This Article delves into the practical details of how a bracket is paired. After an introduction giving some background definitions and an overview of the process, the article develops in three steps, each dealing with a key aspect of the pairing process.

(1) The first step, also first in the process timeline, is the assignment of PAB when needed. This step is preliminary and is executed only once, at the very beginning of the entire process. After it has been performed, the PAB is assigned finally, and we will move on to examine the scoregroups one by one, top-down (i.e., from the top score to the bottom score).

(2) The next step is the preparation of the bracket, which needs to have an even number of participants, each of which must find a viable opponent in the bracket – no team should remain unpaired. To ensure this result, we will pick participants from the lower scoregroups as needed and insert them in the bracket. This can be a tricky choice, involving several pairing criteria and requiring some care.

(3) Now the bracket is ready, and we know by construction that the teams can be paired. The last step gives instructions to choose the pairing that gives the best match.

The entire process is governed by the pairing criteria (discussed in Article 2) that determine which candidate is the best. This process is iterative – we build a candidate pairing for the bracket, then examine its quality and compare it with what we already obtained, until we find a perfect pairing (i.e., one that complies with all the pairing criteria) or there are no more candidates available – in this case, we use what best we could find.

The system does not require that a specific algorithm be used – the pairing officer, or software developer, is free to choose among a wide range of implementations, as far as they follow all the given rules and criteria.

3.1 Legal Pairing

3.1.1 A pairing is legal when the absolute criteria [C1] and [C2] (see Article 2.1) are complied with.

3.1.2 During the pairing, the completion criterion [C3] (see Article 2.2) is also to be complied with.

3.2 Top-Scoregroup

During the pairing, it is the group of one or more teams that have the highest score among the teams that are yet to be paired.

After we are finished with the pairing of a bracket (except for the last, of course), some participants remain to be paired – we usually call these "the Rest." Among those teams, which can have different scores, we select all those that have the highest score and call them the top-scoregroup. Therefore, the latter contains the teams that reside in the bracket to be paired. The remaining teams of the Rest will supply the floaters required to pair the top-scoregroup – floaters that must be chosen in such a way that what teams remain can be subsequently all paired (see C3, [2.2.1]).

3.3 Round-Pairing Outlook

It is easy to underestimate the importance of this article that seems simple, almost harmless. In fact, it is at the very heart of the pairing rules. By giving an essential description of how participants are paired, it creates a framework in which all pairing rules fit.

3.3.1 The pairing of a round (called round-pairing) is complete if all the teams (except at most one, which receives the pairing-allocated bye) have been paired and the absolute criteria [C1] and [C2] (see Article 2.1) have been complied with.

This article establishes the most basic pairing rule – no team must remain unpaired – along with the inalienable requirements that teams can neither meet twice, nor have a double PAB, or a PAB after getting, in one single round, without playing, as many points as are rewarded for a win.

3.3.2 The pairing process consists of the following steps:

1. The first step in the pairing process is the assignment of the pairing-allocated-bye (if needed) by applying Article 3.4.

The allocation of a PAB is a preliminary step of the pairing. This means that the choice must be a well-reasoned one, to avoid the risk to get a subsequent pairing failure. Thus, besides the already mentioned rule that forbids us to give it to a team that already had one (or a forfeit win), there are several "quality" constraints (see [2.3], [3.1]) and, above all, a rule enforcing the so-called Requirement Zero – at any stage of the pairing process, a complete, legal pairing must be possible for all the remaining teams (i.e., all those not paired yet).

2. Then, the top-scoregroup is combined, when needed, with a set of upfloaters (selected according to Article 3.5), to form a bracket that is paired according to Article 3.6.

This is the core of the process. We single out the teams belonging to the top-scoregroup and try to pair them.

If this is not possible, because some team(s) cannot find a viable opponent, or simply because the number of teams is odd, we take some upfloaters [1.3.2] from the Rest (see [2.2.1]) and make them join the top-scoregroup.

The choice of upfloaters is a delicate matter, and there are several quality constraints for it too – above all, the Requirement Zero is enforced. This makes us sure that, after a bracket has been paired, we will never need to go back to that bracket again, so that the pairing process is truly top-down.

Article 3 will get into the matter of pairing a bracket in depth.

3. The previous step-2 is then repeated until the round-pairing is complete.

This rule completes the previous one, setting up a cycle that, starting from the higher score, processes all the scoregroups, one after another, until the round-pairing is complete. (From a procedural point of view, this defines the closure of the iterative part of the algorithm.)

4. Colours are then assigned according to Article 4.

The assignment of colours is the last act of the pairing process. When each team has been paired with its befitting opponent, it comes the time to decide which colour each of them should have. In practice, we don't really need to wait the completion of the round-pairing – since the enforcement of Requirement Zero makes us sure that the pairing for a bracket is final as soon as it is completed, and will never need to be changed, we could as well assign the appropriate colours right at this stage.

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

This is certainly not a frequent occurrence; however, it does happen sometimes, and we must be ready to face and manage it. When a round-pairing does not come to a successful end, there simply is no pairing available for the group of teams.

On the other hand, at every stage of the pairing process we check that a legal pairing exists for all the remaining teams; so, this condition cannot arise halfway through a pairing – it must be inherent right from the beginning! This is why, even before we start the pairing process, as a preliminary check, we must verify that the Requirement Zero be satisfied. If this check is unsuccessful, we are stuck with in a bad corner and must choose the lesser evil.

The first possible decision is that the tournament ends there and then, and players go home. It is understood that this certainly does not help us make new friends… on the other hand, the possible tricks to make the round pairable include giving a PAB to a participant that already had one (or had a forfeit win); or have two teams meet twice. (In individual tournament, we could also ignore some absolute colour preference, but we have no such preferences in team tournaments.) Of course, all these possibilities are prohibited by the rules – but we hardly have room for manoeuvre – either this, or everybody goes home!

(Please note that any alteration must be thoroughly explained and motivated in the pairing report, otherwise the tournament could not be rated, and the Chief Arbiter may incur serious sanctions.)

3.4 Pairing-Allocated-Bye Assignment

The pairing-allocated-bye is assigned to the team that:

3.4.1 leaves a legal pairing for all teams

3.4.2 has the lowest score

3.4.3 has played the highest number of matches

3.4.4 has the largest TPN

The choice of the PAB-assignee should single out that team whose absence alters the normal course of the tournament less than any other. Therefore, it focuses on the teams with the lowest possible score, in the idea that these are the ones least likely to aspire to top positions in the rankings.

In the same light we should interpret the choice of the highest TPN, because the higher is the TPN, the weaker the team should be (even if this is more of a hope than a of certainty).

However, we should consider that a team takes part in a tournament to play, not to watch everyone else playing. Therefore, if possible, we should avoid sitting a team that was already sit in an earlier round.

Of course, criterion C2 and the Requirement Zero (C3) hover above all this, ensuring that the choice of the PAB-assignee will not disrupt the tournament.

3.5 Selection of Upfloaters for the Top-Scoregroup

Now we must choose the floaters needed for the bracket pairing to be successful. Some rules-of-thumb can help us understand the rules, and they are simple, matter-of-fact rules. First – the fewer, the better! We do not want to have more upfloaters than necessary. Then, the basic rule of all Swiss systems is that paired participants should have the same score, or, at least, scores as similar as possible – we do not want to disrupt the natural order of pairing by putting together teams with scores more different than strictly required. This same principle holds for playing strength also – to enforce this requirement, we use TPNs. Last, but all-important, the choice must allow the completion of the pairing, both for the current bracket and for the complete round.

Let us now examine, one by one, the rules that put these principles into practice.

3.5.1 All teams with a lower score than the resident teams of the top-scoregroup are potential upfloaters.

This is almost obvious – we cannot limit our search field for upfloaters to the next scoregroup, or anything like that, because we don't know where we will be able to find the proper opponent for a "troublesome" participant. Therefore, we must search for it everywhere.

3.5.2 Consider all sets of potential upfloaters that comply with [C4] and [C5] (see Articles 2.3.1 and 2.3.2).

Note: This somehow determines the number of upfloaters in the set and their scores.

The guidelines for the choice prescribe, as mentioned, to have as few upfloaters as possible (C4), and that those upfloaters have scores as near as possible to that of the resident teams (C5).

We start with grouping the candidate upfloaters, chosen in such a way that they comply with the above requirements, in sets. Potentially, there can be so many such sets that making them all would be an arduous task – but, in fact, there is no point in *creating all of them right from the beginning – we just need to know how to proceed to the next set, either by picking it from the list or by building it when required.*

In the beginning, we form only those sets with the bare minimum number of floaters – i.e., if the bracket holds incompatible teams, we start with one upfloater per incompatible team, plus possibly one to make the bracket even as required. Since these sets can still be a lot, for now we focus on building only those sets holding the highest ranked candidate floaters. This number of sets may still be large, but it could be manageable – provided the tournament is not extremely large. New sets will be prepared as we proceed with pairing attempts, initially decreasing the upfloaters scores (gradually, and as little as possible) and then, if necessary, also increasing their number (again, gradually, and as little as possible).

In practice, we represent each set as a list of participants, each identified by means of its TPN, e.g., {7, 5, 13, 9, 2}.

Since the number of floaters is a high-priority criterion, if we find that there are legal pairings with a given number of them, every set with a higher number can be immediately discarded (e.g., if we find a legal pairing with just one upfloater, we can dismiss all the candidates with more than one floater at once). This greatly helps to limit the amount of work needed for the bracket.

3.5.3 In each set, the potential upfloaters, identified by their TPN, are first sorted by descending score and then, when scores are equal, by ascending TPN.

In the previous step we prepared the upfloaters sets. Now, it is almost time to choose the set to be used in the pairing, and this choice requires that we have some device to put all the sets in some given order. This will be the point of the next step but requires, as a precondition, that we can compare two sets. To be able to do that, all the sets must be internally structured in a uniform way, and this is precisely what we do here – structure all sets in the same way, so that the ranking of teams belonging to the set decreases constantly as we move from the beginning to the end of the list.

3.5.4 These sets are then sorted among themselves by the lexicographic order of their TPNs.

Example: Let's assume that 2,6,8 have 3 points, and 1,3,5 have 2.5 points. [C4] determines that a set of three upfloaters is needed, and [C5] determines that two upfloaters must have 3 points and the other 2.5 points. The possible set of upfloaters are: {2,6,1} < {2,6,3} < {2,6,5} < {2,8,1} < {2,8,3} < {2,8,5} < {6,8,1} < {6,8,3} < {6,8,5}, already sorted in the proper order.

Now that all sets have been internally structured as illustrated in the previous rule, it is easy to compare them lexicographically. This means that, given two sets, we compare the first element of the first set with the first element of the second set. If they are different, the smallest value decides the set that precedes the other. If they are equal, we go ahead to compare the second homologous elements in the same way, then the third, and so on, until we find a difference (we are bound to find a difference at some point because, by construction, the sets are all different).

Using this comparison rule, we can sort all sets obtaining an ordered list of them. In this list, the "overall ranking" of upfloaters is gradually decreasing from first to last.

3.5.5 Choose the first set that, together with the top-scoregroup, produces a legal pairing that also complies with criteria [C6] and [C7] (see Articles 2.3.3 and 2.3.4) - besides [C4] and [C5] (see Articles 2.3.1 and 2.3.2), which it complies with by construction.

And now we reach the final stage of the candidate set construction. We are trying to pair the top-scoregroup (see [3.2]), which is the set of teams still to be paired that has the maximum score. To do this, we pick the first element from the list created in the previous step (let us remember that this element is a set of candidate upfloaters) and join it to the top-scoregroup, thus building the pairing bracket.

Now, we should check that the upfloaters set meets the required standards. First, the bracket obtained with this set must be completely pairable (C1 compliance). Then, the Rest must be pairable (C3). An upfloaters set that does not meet these criteria is immediately discarded. Then, C4 and C5 require that the number and score differences of upfloaters be at a minimum (which is attained by construction).

Besides that, the set of upfloaters must maximise the number of teams that can be paired in the next scoregroup (C6), of course leaving a Rest that allows the pairing to come to fruition. (We focus only on the next scoregroup because a more generalised optimisation, although nice, would be impractical – in fact, it would be a nightmare.)

Finally, except in the last two rounds, we must check that the teams that are going to be upfloaters did not float in the previous round too (C7).

However, C6 and C7 are not absolute criteria. If the set is not perfect, we look for a better one. However, we do not discard it at once because it might be the best we have – in fact, we store it as a possible choice, but we will discard it as soon as we find something better.

In time, we may come to exhaust the candidate upfloaters sets list. In this case, we accept the first upfloaters set that gives the best possible results. In fact, we need to extend the candidate sets list only when no element of it allows a pairing in compliance with all the relevant criteria (see Section [2]).

Of course, not all brackets require upfloaters – in many instances, we can pair the top-scoregroup in a straightforward way with no upfloaters at all (or with just one to make the bracket even), so that the choice is quite easy.

3.6 Pairing of a Bracket

We got here with a bracket that was made even and pairable by the preliminary processing made in the earlier steps (see [3.3.2]). Now we must pair it as best as we can. The first thing we need to do is to set up a rule to sort candidate pairings, so we can decide which one of two comes first. Then, we proceed to build the candidates and sort them according to this rule; and, finally, we explore them one by one, looking for the best pairing.

3.6.1 A pairing is a sequence of pairs that includes all teams in the bracket. For each pair, the team with the smaller TPN is the top member of the pair; the team with the larger TPN is the bottom member of the pair.

It is worth noting that ***this definition is based only on the team's TPN*** *– i.e., it does not consider whether each team in the bracket is a resident one rather than an upfloater. Basically, scores are ignored in the subsequent pairing process.*

3.6.2 A pairing is identified by the TPNs of the top members of each pair sorted in ascending order, followed by the TPNs of the bottom member of the corresponding pair.

Example: *If 11-24 16-6 10-9 8-4 is a pairing, its identifier is 4 6 9 11 8 16 10 24.*

In this step we create a "key identifier" for the candidate. These identifiers will be used in the next step to sort candidates in the prescribed order.

3.6.3 Pairings are sorted by the lexicographic order of their identifiers.

For example, let us consider a bracket {1, 2, 3, 4, 5, 6}. Its possible pairings, omitting for simplicity all those with less than three pairs, are the following. Please note that the pairs are all given in the form "top-bottom" as prescribed by [3.3.1], and that the candidates have been generated in a "random" sequence, so that the list is not in the proper order.

Candidate pairing	*Identifier*	*Candidate pairing*	*Identifier*
(1-2, 3-4, 5-6)	*1 3 5 2 4 6*	*(1-4, 2-5, 3-6)*	*1 2 3 4 5 6*
(1-2, 3-5, 4-6)	*1 3 4 2 5 6*	*(1-5, 2-3, 4-6)*	*1 2 4 5 3 6*
(1-2, 3-6, 4-5)	*1 3 4 2 6 5*	*(1-5, 2-4, 3-6)*	*1 2 3 5 4 6*
(1-3, 2-4, 5-6)	*1 2 5 3 4 6*	*(1-5, 2-6, 3-4)*	*1 2 3 5 6 4*
(1-3, 2-5, 4-6)	*1 2 4 3 5 6*	*(1-6, 2-3, 4-5)*	*1 2 4 6 3 5*
(1-3, 2-6, 4-5)	*1 2 4 3 6 5*	*(1-6, 2-4, 3-5)*	*1 2 3 6 4 5*
(1-4, 2-6, 3-5)	*1 2 3 4 6 5*	*(1-6, 2-5, 3-4)*	*1 2 3 6 5 4*
(1-4, 2-3, 5-6)	*1 2 5 4 3 6*		

Now we can sort the list lexicographically:

Identifier	*Candidate pairing*
1 2 3 4 5 6	*(1-4, 2-5, 3-6)*
1 2 3 4 6 5	*(1-4, 2-6, 3-5)*
1 2 3 5 4 6	*(1-5, 2-4, 3-6)*
1 2 3 5 6 4	*(1-5, 2-6, 3-4)*
1 2 3 6 4 5	*(1-6, 2-4, 3-5)*
1 2 3 6 5 4	*(1-6, 2-5, 3-4)*
1 2 4 3 5 6	*(1-3, 2-5, 4-6)*
1 2 4 3 6 5	*(1-3, 2-6, 4-5)*
1 2 4 5 3 6	*(1-5, 2-3, 4-6)*
1 2 4 6 3 5	*(1-6, 2-3, 4-5)*
1 2 5 3 4 6	*(1-3, 2-4, 5-6)*
1 2 5 4 3 6	*(1-4, 2-3, 5-6)*
1 3 4 2 5 6	*(1-2, 3-5, 4-6)*
1 3 4 2 6 5	*(1-2, 3-6, 4-5)*
1 3 5 2 4 6	*(1-2, 3-4, 5-6)*

We should mention that this sorted list of candidates is similar to that that results from the Rules for the sequential generation of the pairings (Section 4) of the FIDE (Dutch) System (FIDE Handbook, C.04.3).

3.6.4 Choose the first pairing that also complies with criteria [C1], [C8], [C9] and [C10] (see Articles 2.1.1 and 2.3.5 to 2.3.7 – besides the other criteria, which it complies with by construction).

Last act – the list of candidates is ready and sorted, we must choose the first perfect one or, if there is no perfect candidate, what best legal candidate is available. In [3.5] we chose the upfloaters set that best complies with criteria C1—C7, so we know that at least one legal candidate must exist. Now, we want to select the first (legal) candidate that best complies with colour matching (C8, and possibly C9) while minimising consecutive floats (C10) (this last constraint is abolished in the last two rounds, when we want to focus on the best possible composition of the final standings).

We explore the candidates one by one, in the order of the list, determining their compliance with the pairing quality criteria. As soon as we find a perfect pairing, i.e., one that complies with all relevant criteria, we accept it and proceed to the next bracket. If, on the contrary, our candidate is not perfect, we compare it with what best we found up to that moment. If the current candidate is better than that, we store it as "temporary-best," else we discard it. Then, we continue our "quest for perfection" until either we find a perfect one, or the candidates list is exhausted. In the end, we accept what best we got (there is nothing better!) and proceed to the next bracket.

4. COLOUR ALLOCATION RULES

Even when colours are not a cause of rejection for a given candidate, we must nevertheless try to optimise their assignment. On the other hand, the rudimentary nature of our colour matching strategy allows frequent clashes on expected colour between the paired teams. Therefore, this section offers an articulate set of rules to decide which team should have White rather than Black.

4.1 The initial-colour is the colour determined by drawing of lots before the pairing of the first round.

The drawing of lots will usually take place during the "Captains Meeting" before the start of the tournament unless the tournament rules stipulate differently. (Although colour is not all-important in team tournaments, this should nevertheless be a true drawing of lots, and not a free decision made by the Chief Arbiter.)

4.2 The first-team is the team (first that applies):

4.2.1 with the higher primary score; or

4.2.2 with the higher secondary score *(unless the rules of the competition state not to use it)*; or

4.2.3 with the smaller TPN.

This definition selects the team of the pair that is "presumably stronger" at the time of pairing. Some of the next rules use the first-team data to decide which team should be given White or Black.

The secondary score (e.g., game points, when match points are used as the primary score for the pairing, see [1.2]) are normally used to refine the order created by the primary score, but the rules of the tournament can stipulate that it is not used at all.

The last sorting criterion is the TPN, which represents the "theoretical playing strength" of the team as we know it before the start of the tournament. This is a definitive criterion that allows no ties.

4.3 For each pair apply (with descending priority):

4.3.1 When both teams have yet to play a game, if the first-team has an odd TPN, give it the initial-colour; otherwise give it the opposite colour.

This rule is used primarily in the first round. Also, it is used, when two late entrants meet in a subsequent round – which does not happen often.

4.3.2 If only one team has a colour preference, grant it.

A team that had Black in the previous round may not have a colour preference, but still probably expects to receive White now – so, it is not unlikely that some Captain will ask for explanations. We will have to point out that the opponent team had a

> *"stronger right" to receive the expected colour, based on wider colour difference, unbalanced colour history, and so forth.*

4.3.3 If the two teams have opposite colour preferences, grant them.

4.3.4 (Type B only) If only one team has a strong colour preference, grant it.

4.3.5 Give White to the team with the lower colour difference.

Note: -2 is lower than -1; +1 is lower than +2.

> *We land here when two teams have identical colour preference or no preference at all. If the teams had the same number of matches, this rule is equivalent to give White to the team that had it fewer times. However, this is not true when the paired teams have a different number of played rounds, because we base our decision on the colour difference (see [1.6]) and not on the raw number of White or Black colours.*
>
> *For example, consider a team A that had Black four times and White three times (alternating colours), paired to a team B that alternated Black and White twice. In a tournament that uses Type A colour preferences, neither team has a colour preference. Now, team B had fewer Whites than team A – still, White goes to A.*

4.3.6 Alternate the colours to the most recent time in which one team had White and the other Black.

Note: Always consider Article 3.4 of the General Handling Rules for Swiss Tournaments.

> *We get here if the teams have identical colour preferences (or no preference at all) and the colour difference is also equal, so we resort to comparing "colour histories," i.e., the list of colours the teams had in all earlier rounds.*
>
> *To correctly manage colour assignments when one or both teams have missed one or more encounters, we need to compare colour histories using Article 3.4 of the General Handling Rules for Swiss Tournaments. We compare colours one by one, starting from the most recent and gradually going towards the oldest. Please note that histories of different length can be compared only until the end of the shorter one. For example, in the comparison between the colour histories of two participants, the sequence uuWB is equivalent to both BWWB and WBWB – but the latter two are not equivalent to each other!*

4.3.7 Grant the colour preference of the first-team.

4.3.8 Alternate the colour of the first-team from its last played round.

> *Now, the two paired teams have not only identical preferences (or, possibly, no preference at all) but even equivalent histories – so, for want of a better choice, we simply make the first-team happy.*

4.3.8 Alternate the colour of the other team from its last played round.

> *This is the very last option – the first-team did not play any game yet, so there is no previous colour to alternate. In this case, we alternate the previous colour of the opponent (which must have played at least one match, lest we would have been using Article [4.3.1]).*