

Differences between US Chess Swiss pairing rules and FIDE Dutch System Swiss pairing rules

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Disclaimer

This document is absolutely not intended to be a comprehensive description of the FIDE Dutch system of Swiss pairings. However, with the information in this document, the reader should be able to understand the difference between US Chess Swiss pairings and FIDE Dutch system Swiss pairings in almost all cases.

Assumptions

We assume the reader is comfortable with US Chess Swiss pairing rules. In particular, we assume the reader understands the following terms: *due color*, *color alternation*, *color equalization*, *transposition*, *interchange*.

We also assume the reader can comfortably read and understand the following paragraph as it applies to the US Chess Swiss pairing rules:

“Suppose we have an eight player Swiss. We toss for color, and the higher rated player is assigned white. Assume that all the higher rated players win their game. Then, for the second round, the natural pairings for the one point score group (ignoring color) are 1-3 and 2-4. Players 1 and 3 are both due black for equalization, while players 2 and 4 are due white for equalization. So, we transpose players 3 and 4 (provided the difference between the ratings of either players 3 and 4 or players 1 and 2 is no more than 200) and produce the pairings 4-1 and 2-3. Similarly, the second round pairings for the zero point score group are 5-8 and 7-6.”

If the preceding paragraph does not make sense to the reader, it is unlikely the rest of this document will.

FIDE Swiss pairing regulations

FIDE actually has several pairing systems that are categorized as “Swiss systems.” The FIDE handbook contains regulations for the Dutch system, the Lim system, the Dubov system, and the Burstein system. Of these, the most commonly used system by far is the Dutch system; most players will never encounter the other pairing systems in their entire chess career.

Section C.04.1 of the FIDE handbook contains basic rules for all Swiss systems. These rules are:

- a) The number of rounds to be played is declared beforehand.

- b) Two players shall not play each other more than once.
- c) Should the total number of players be (or become) odd, one player is unpaired. He receives a bye: no color and as many points as are awarded for a win, unless the regulations of the tournament state otherwise.
- d) A player who, for whatever reason, has received any number of points without playing, shall not receive a bye.
- e) In general, players are paired to others with the same score.
- f) For each player the difference of the number of black and the number of white games shall not be greater than 2 or less than -2. Each system may have exceptions to this rule in the last round of a tournament.
- g) No player will receive the same color three times in a row. Each system may have exceptions to this rule in the last round of a tournament.
- h) 1. In general, a player is given a color as many times as he is given the other color. 2. In general, a player is given the color other than that he was given the previous round.
- i) The pairing rules must be such transparent [sic] that the person who is in charge for the pairing can explain them.

Already, in these rules common to all FIDE-approved Swiss pairing systems, we can see two differences between US Chess rules and FIDE regulations. First, while it is highly unlikely to happen in practice, there is nothing in the US Chess Swiss pairing rules that forbids a player from having a color history of WWBWW. (FIDE regulation f forbids this.) Second, and more common in practice, US Chess rules allow a player to receive the same color in three consecutive rounds if the director would have to break up the score group to avoid doing so. Except in the last round of the tournament, the FIDE Dutch system pairing rules absolutely forbid this, and the arbiter must break up the score group if necessary to avoid doing so. (Historically, this was also true in the third edition of the US Chess *Official Rules of Chess*. In the fourth edition, the prohibition was relaxed slightly, and it took its current form (making keeping the score group intact a higher priority) in the fifth edition.)

(From this point forward, when this document refers to “FIDE pairing rules,” the reader should assume this means “FIDE Dutch system Swiss pairing regulations.”)

Before we look at other differences in the pairing rules, we must introduce terms that are specific to the FIDE rules. A *float* occurs when two players with different scores are paired. A *downfloat* means the player has been paired against an opponent with a lower score, while an *upfloat* means the player has been paired against an opponent with a higher score. (So, one player's downfloat is the other player's upfloat.) A player receiving a downfloat (upfloat) is called a *downfloater* (*upfloater*).

Basic rules of US Chess Swiss pairings (rule 27), in descending order of priority

1. Avoid players meeting twice
2. Equal scores (keep score groups intact)
3. Upper half vs. lower half
4. Equalizing colors
5. Alternating colors

Basic rules of FIDE Dutch system Swiss pairings (C.04.3.1.B), in descending order of priority

1. Two players shall not meet more than once. A player who has received a point or a half point without playing (whether a bye or a forfeit win due to opponent's absence) shall not receive a bye.
2. No player receives the same color in three consecutive rounds. No player's color imbalance may be greater than two.
3. The difference of the scores of two players paired should be as small as possible and ideally zero.
4. As many players as possible receive due color.
5. No player shall receive an identical float in two consecutive rounds.
6. No player shall have an identical float as two rounds before.

Just by examining these lists, we can see a few interesting differences.

1. As was pointed out earlier, the prohibition against a player having the same color in three consecutive rounds is absolute in FIDE rules but not in US Chess rules.
2. US Chess rules specify that score groups should be kept intact as much as possible but do not require that players dropped from a score group be paired against opponents as close as possible in score.
3. FIDE rules collapse color equalization and color alternation into one rule. (The 2017 proposed revision to the Dutch system rules separate equalization and alternation the way US Chess rules do.)
4. There is no explicit “top half vs. bottom half” rule in FIDE. This rule is implicit in the Dutch system rules, as all possible transpositions must be tried before any interchange may be considered.

5. The rules about floats can produce pairings that seem bizarre to someone expecting US Chess rules.

There are three major differences between US Chess Swiss pairing rules and FIDE Dutch system Swiss pairing regulations.

1. FIDE rules restrict floats. US Chess rules are not concerned at all with floats.
2. FIDE rules specify the exact order in which transpositions and interchanges are attempted, whether to improve color allocation or to avoid players being paired a second time.
3. FIDE ignores rating differences when considering transpositions and interchanges to improve color allocation.

Difference: FIDE considers floats

Example: Suppose we have an 18 player tournament. Let's assume player 1 receives white in the first round, and let's assume that all higher rated players win their game. Then, in the second round, the one point score group consists of players 1 through 9. Players 1, 3, 5, 7, and 9 are due black (for equalization), while players 2, 4, 6, and 8 are due white (also for equalization). Assuming appropriate rating differences (the 200 point rule for equalization in US Chess rules), both FIDE and US Chess rules would produce the pairings 6-1, 2-5, 8-3, 4-7, and player 9 is the odd man (US Chess)/downfloater (FIDE), and is paired against player 10 (10-9). (We're ignoring the lower score groups for this example.)

Again, let's assume that the higher rated player wins in each game. Then, going into the third round, the two point score group consists of players 1, 2, 3, 4, and 9. Players 1, 3, and 9 are due white for alternation, while players 2 and 4 are due black for alternation. Again, assuming the players' ratings are close enough (the 80 point rule for color alternation), US Chess rules would produce the pairings 1-4, 3-2, and 9 is the odd player dropped to the one point score group (and paired against player 6 (not 5, as 5 and 9 are both due white)). However, FIDE rules prevent giving player 9 another downfloat, and FIDE rules require us to make pairings that are as optimal as possible with respect to color allocation. So, player 3 will receive a downfloat, and the FIDE pairings will be 1-4, 9-2, and 3-6.

Now, let's assume that players 1, 3, and 9 win their third round games, and let's pair the top score group for the fourth round. All three players have color history WBW, so all are due black for equalization. US Chess rules would pair 3-1 and treat 9 as the odd player again (the third time 9 is the odd player in the score group). However, under FIDE rules, player 9 already received a downfloat in round 2 and may not receive a downfloat in round 4. Player 3 received a downfloat in round 3 and may also not receive a downfloat in round 4. So, the FIDE pairings would be 9-3 and player 1 is the downfloater.

Difference: Order of transpositions and interchanges

FIDE defines a very specific order in which transpositions and then interchanges are tried, and neither transpositions nor interchanges take ratings into account.

The US Chess rules can be paraphrased as “make the natural pairings, then make transpositions and interchanges to improve color allocation.” The US Chess rules do not tell the director in what order to try making transpositions or interchanges. The guiding principle is to keep the differences in ratings as small as possible. By comparison, FIDE rules ignore rating differences entirely and instruct the arbiter to make transpositions on the lowest boards possible, leaving as many of the higher boards unaltered as possible.

Example: Suppose we have the following score group to pair in the third round of a tournament. Assume none of the players in the score group have met in an earlier round.

1 1850 WB
2 1849 BW
3 1840 WB
4 1839 WB
5 1838 BW
6 1810 WB

We note that four players are due white for alternation while two are due black for alternation. Thus, one player will not receive due color. Under US Chess rules, the director would choose to transpose players 4 and 5 (a one point rating difference) instead of transposing players 5 and 6 (a nine point difference, which is the smaller of 1849-1840 and 1838-1810). However, under FIDE rules, the arbiter must transpose players 5 and 6, which are the lowest boards where transposition will yield optimal color allocation.

The same principle applies to transpositions made to avoid players meeting twice. For instance, in the above example, suppose players 2 and 5 had already been paired in a previous round. Under US Chess rules, the director would most likely transpose players 4 and 5, again minimizing rating differences. Under FIDE rules, the arbiter must transpose players 5 and 6.

Example: Suppose we must pair the following four players, none of whom have yet been paired against each other:

1 1800 WB
2 1700 BW
3 1699 WB
4 1500 BW

Under US Chess rules, the transposition of players 3 and 4 involves a 100 point rating difference (the difference between players 1 and 2). The interchange of players 2 and 3 involves a rating difference of one point. The director would therefore pair 1-2 and 3-4. Under FIDE rules, all transpositions must be tried before any interchange, so the correct FIDE pairings are 1-4 and 3-2. (This is an interesting example with respect to US Chess rules. Even though “top half vs. bottom half” has priority over color alternation, the interchange of players 2 and 3 is correct.)

Again, note there is no equivalent of the US Chess 80 rating point difference limit for transpositions or

interchanges to improve color alternation and 200 rating point difference limit for transpositions or interchanges to improve color equalization. FIDE rules do not consider ratings at all when applying transpositions or interchanges.

Difference: FIDE pairings are deterministic

FIDE pairings are (in theory) deterministic. Because the exact order of transpositions and interchanges is spelled out in the FIDE rules, any arbiter or any software program making pairings should come up with exactly the same pairings. The FIDE pairing rules are a bit challenging to read because they are essentially the specification of a pairing algorithm.

The FIDE System of Pairings and Programs Commission maintains a certification procedure for pairing programs to verify the pairings produced agree completely with a reference implementation. (Interestingly, there are pairing programs that simply use the code for the reference implementation to make pairings.) There have been instances where the output of pairing programs submitted for validation have disagreed with that of the reference implementation. Occasionally, those differences have demonstrated actual ambiguities in the FIDE pairing regulations. When this happens, the commission proposes changes to the rules to eliminate the ambiguity.

On the other hand, US Chess pairing rules are non-deterministic. In many simple situations, two directors or two pairing programs would come up with the same pairings. However, in more complex situations, there are several pairings that are equally valid and acceptable under US Chess rules.