89th FIDE Congress 2018 in Batumi
Systems of Pairings and Programs Commission

Agenda for the meetings

1. Endorsed programs overview

After the extension of the transition period was approved at last year's Congress, the Commission re-endorsed four "old" programs (SwissSys, Swiss Manager, Swiss Master and WinSwiss), and updated the list of the endorsed programs (which also includes Vega, already endorsed at Goynuk Congress).

The Commission will also report on the possible endorsement of a "new" program (Sevilla), whose deadline was extended indefinitely.

No new program endorsement request was presented for this year.

2. Draft of the (revised) FIDE Dubov System

According to the decisions taken at last year's Congress, in order for the FIDE Dubov System to comply with article C.04.2.A.4 (which basically says that when a FIDE-defined pairing system is used in a tournament, different arbiters or different endorsed software programs must be able to arrive at identical pairings), the Commission completely re-wrote the rules of the system.

The attached Annex-1 contains the draft of the (revised) FIDE Dubov System. The draft itself is accompanied by some comments that show the rationale of the choices made by the Commission.

The Commission could not reach a final decision on some of the articles. Such decision was therefore postponed until a full discussion can be held in Congress Meetings.

If the draft is approved, a decision regarding the status of the current endorsement of Vega for the Dubov System should be taken.

3. Endorsement of the Vega implementation of the Burstein System

Since Vega is the first Burstein System-ready program, according to the current rules (C.04.(Appendix)A.6), a subcommittee of four people (Mario Held, Roberto Ricca, Jose de Jesus Garcia Ruvalcaba and Gunther van der Bergh) was appointed by last year's Congress, to prepare a report on whether Vega is suitable for the endorsement.

The subcommittee will present its findings to the Congress.

4. Proposals for the amendment of current rules

No change to the Basic Rules (section C.04.1), General Handling Rules (C.04.2) or FIDE (Dutch) Rules (C.04.3) is in store until July 1st, 2021. However, according to rule C.04.(Appendix)A.8.5, the Commission shall define any amendment or major clarification of the aforementioned rules at latest at the 2019 Congress. The discussion will start at the upcoming Congress, be developed and expanded during next season, and the possible amendments will be defined -in substance, if not in wording- at next year's Congress.

The Commission will present some proposals based on both early experiences of the application of the rules (entered into force on July 1st, 2017) and its own findings, and gather any proposals presented, directly or by proxy, by interested entities.

5. Team pairings rules

The Commission will report on the status of the project, i.e. the definition of a Team Pairing System that integrates, without modifying, the Olympiad Team Pairing System, which is currently the only one defined in the FIDE handbook.

6. Miscellanies

Christian Krause
(Chairman)

C.04.4.1 Dubov System

Approved by the 1997 General Assembly.

Preface:

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

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

The approach is the attempt to equalise the average rating of the opponents (ARO, see A.6) of all players of a scoregroup. Therefore, the pairing of a round will now pair players who have a low ARO against opponents having high ratings.

In the current regulations, it is the other way around, i.e. a higher performance means more points. However, many people may have the same number of points at the end of the tournament, and it is practically impossible that all of them have the same performance. The opposite seems a goal more reachable.

A. Introductory Remarks and Definitions

A.1 Rating

Each player must have a rating. If a player does not have a rating, a provisional one must be assigned to the player by the arbiter.

Just to clarify that a rating is needed for all players.

A.2 Initial ranking list

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

Each time a player's rating is introduced or modified before the pairing of the fourth round, the arbiter must re-sort the initial ranking list according to the aforementioned section.

The initial ranking list (which is used many times in the rules as a tie-break for any equivalence) is clearly defined, and it is clearly stated that it must be rebuilt when there are rating variations.

A.3 Scoregroups and pairing brackets

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

A (pairing) bracket is a group of players to be paired. It is composed of players coming from the same scoregroup (called resident players) and (possibly) of players coming from lower scoregroups (called upfloaters).

Note: Unlike other systems, there are no downfloaters in the Dubov System.

It anticipates between the lines one of the proposed novelties: there will be no downfloaters, just upfloaters.

A.4 Byes

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

A.5 Colour differences and colour preferences

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

The colour preference *(also called:* ***due colour****)* is the colour that a player should ideally receive for the next game.

The wording is taken from the FIDE (Dutch) System. Mild and strong colour preferences are differentiated, mainly to improve the clarity, but it also opens the possibility to deal with them in a different way.

a. An absolute colour preference occurs when a player's colour difference is greater than +1 or less than -1, or when a player had the same colour in the two latest rounds he played. The preference is white when the colour difference is less than -1 or when the last two games were played with black. The preference is black when the colour difference is greater than +1, or when the last two games were played with white.

b. A strong colour preference occurs when a player's colour difference is +1 (preference for black) or -1 (preference for white).

c. A mild colour preference occurs when a player's colour difference is zero, the preference being to alternate the colour with respect to the previous game he played.

d. Players who did not play any games are considered to have a mild colour preference for black.

A novelty, backed up by the rationale that it's the ARO of the player(s) expecting White (White seeker(s), WS(s) for short) to be equalized, and a player with zero games has nothing to equalize. Note: BS is short for Black seeker.

A.6 Average Rating of Opponents (ARO)

ARO is defined for each player who has played at least one game. It is given by the sum of the ratings of the opponents the player met over-the-board *(i.e. only played games are used to compute ARO)*, divided by the number of such opponents, and rounded to the nearest integer number (the higher, if the division ends for 0.5).

ARO is computed for each player after each round as a basis for the pairings of the next round.

If a player has yet to play a game, his ARO is zero.

The last sentence (If a player has yet to play a game, his ARO is zero) is a minor novelty, that has a meaning only if such player (which is a BS - see A.5.d) is paired with the rules used for the WS(s) (which is possible).

A.7 Maximum upfloater

A player is said to be a maximum upfloater when he has already been upfloated a maximum number of times (MaxT).

MaxT is a parameter whose value depends on the number of rounds in the tournament (Rnds), and is computed with the following formula:

$$\mathbf{MaxT = 2 + [Rnds/5]}$$

where [Rnds/5] means Rnds divided by 5 and rounded downwards.

This is simply an extension of the current wording, which allows a maximum of three floats for tournament with nine rounds or less, and four for longer tournaments.
It didn't seem right to have the same rules applied to tournaments that may have 10, 15 o 20 rounds.

A.8 Round-Pairing Outlook

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

The pairing process starts with the assignment of the pairing-allocated-bye *(see B.0)* and continues with the pairing of all the scoregroups *(see B.1)*, in descending order of score, until the round-pairing is complete.

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

The last sentence ("If it is impossible...") is a formal novelty, that states the obvious. Of course, if no pairing is possible, an arbiter must make a decision on what to do.

Section B describes the pairing procedures.

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

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

B. Pairing Procedures

Pairing-Allocated-Bye assignment

B.0 The pairing-allocated-bye is assigned to the player who:

a. has neither received a pairing-allocated-bye, nor scored a (forfeit) win in the previous rounds (see C.2)

Just for clarity - the compliance with B.0.b (C.4) includes also this criterion.

b. allows a complete pairing of all the remaining players (see C.4)

A novelty, but an obvious one (see C.4)

c. has the lowest score

d. has played the highest number of games

A novelty introduced to protect people who have already played less games than others from missing further games.

e. occupies the lowest position in the initial ranking list (see A.2)

Novelty. The current rules are unnecessarily pedantic. The PAB goes to the lowest rated player but, if there are several players with the same lowest rating and they are expecting different colours, it is chosen the player coming from the dominating colour, and then the one with the higher ARO (i.e. random).
On top of that, 'dominating' is an unclear concept: is it related to the scoregroup or to the tournament?
In the end, it seems better to cut the cord early.

Pairing Process for a bracket

B.1 Determine the minimum number of upfloaters needed to obtain a legal pairing of all the (remaining) resident players of the scoregroup.

Note: A pairing is legal when the criteria C.1, C.3 and C.4 are complied with.

This is a big formal novelty, although the pairs that will be produced are not too much different from the current ones.
In most situations, zero or one upfloaters are needed, and everything works just as with the current rules.
*For incompatible players, the behaviour is similar to the current one (players are upfloated to play with them, even though they are not *specifically* upfloated for them, as in the current rules).*
In all situations where downfloaters are needed today (the maximum number of pairs could not be provided), pairs of upfloaters will be provided - which is even better, because, in the worst case scenario, they will be paired with the same players as in the current rules, but a better pairing may be in store (more upfloaters offer more possibilities to equalize AROs).

B.2 Choose the first set of upfloaters (first in the order given by rule D.1) that, together with the (remaining) resident players of this scoregroup, produces a pairing that complies at best with all the pairing criteria (C.1 to C.12).

Note: In order to choose the best set of upfloaters, consider that the ensuing bracket (residents + upfloaters) is paired better than another one if it better satisfies a quality criterion (C.5-C.12) of higher priority.

*The rules do not say *how* to choose this set of upfloaters, but simply that one must be chosen.*
Here is where a departing from the current behaviour may be possible. For instance, with 3 WSs and 2 BSs, the current rules would look for a BS. But, if two WSs were forced to meet, the final pairing would contain two wrong colours.
The rules of this draft ask to comply at best with all criteria (shown in section C), including the best possible colour balance. Therefore, in a situation like the one depicted above, the upfloater will be a WS.

B.3 The players of the bracket are divided in two subgroups:

G1 This subgroup initially contains the players who have a colour preference for White, unless all the players in the bracket have yet to play a game *(like, for instance, in the first round)*. In the latter case, this subgroup contains the first half of the players of the bracket (according to the initial ranking list).

G2 This subgroup initially contains the remaining players of the bracket.

The last part of the G1 definition is basically the rule on how to pair the first round. There is no change in behaviour, although the rules proposed by this draft cover also situations related to forbidden pairs, late entries or acceleration methods.

In normal situations, G1 is initially filled with the WSs of the bracket, and G2 with the BSs.

B.4 If players from the smaller subgroup (or from G1, if their sizes are equal) must unavoidably be paired together, a number of players equal to the number of such pairs must be shifted from that subgroup into the other one. Find the *best* set of such players and proceed with the shift.

Now, if the number of players in (the possibly new) G1 is different from the number of players in (the possibly new) G2, in order to equalize the size of the two subgroups, extract the *best* set of players from the larger subgroup, and shift those players into the smaller subgroup.

*Note: *Best*, in both instances, means the first set of players (first in the order given by rule D.2) that can yield a legal pairing that complies at best with C.8 and C.9.*

This is the most meaningful variation from the current behaviour.
When there are players to be moved from their natural subgroup to the other (G1 usually contains WSs and G2 usually contains BSs), or when some players with the same due colour are forced to meet, the current rules are not very reliable, because some of them are unclear, and others are inconsistent with the goal of the system itself or with the Basic Principles, particularly the ones related to colour balancing.
*The new rules are at least complete and deterministic, although, as usual, they don't mention *how* to actually find the "best" sets.*
Note: C.9 is shaded (same in B.6), because it is unclear whether this criterion exists.

B.5 Sort the players in (the possibly new) G1 in order of ascending ARO or, when AROs are equal, according to the initial ranking list - highest initial ranking first and so on.

S1 is the subgroup resulting from such sorting.

Note: The sorting of G2 players is described in D.3.

This is the basic rule of the Dubov System (see also D.3), with some simplifications useful to manage equal AROs or equal ratings, i.e. in situations where the current rules are unnecessarily pedantic.
In any case, there is a clear change: the secondary sorting of WSs is currently 'increasing rating' while the proposed one for G1 is 'decreasing rating'.
Both choices are basically random. The proposed one is just aligned to an unmentioned principle (i.e. break any sorting tie with the initial ranking list).

B.6 Choose T2, which is the first such transposition of G2 players (transpositions are sorted by rule D.3) that can yield a legal pairing that complies at best with C.9, according to the following generation rule: the first player of S1 is paired with the first player of T2, the second player of S1 with the second player of T2, and so on.

C. Pairing Criteria

Absolute Criteria

No pairing shall violate the following absolute criteria:

C.1 see C.04.1.b *(Two players shall not play against each other more than once)*

C.2 see C.04.1.d *(A player who has already received a pairing-allocated bye, or has already scored a (forfeit) win due to an opponent not appearing in time, shall not receive the pairing-allocated bye).*

C.3 two players with the same absolute colour preference *(see A.5.a)* shall not meet *(see C.04.1.f and C.04.1.g).*

Completion Criterion

C.4 choose the set of upfloaters in order to complete the round-pairing.

A novelty (also called Requirement Zero), but an obvious one: one cannot leave the pairing of a bracket without being absolutely sure that there exists a legal pairing for the rest of the players.

Quality Criteria

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

C.5 minimize the number of upfloaters.

Not a novelty per se, rather a child of a novelty. All the (remaining) players in a scoregroup must be paired (no downfloaters are allowed), so a minimum number of players from lower scoregroups is "up-floated" into the bracket to be paired.

C.6 maximize the score of the upfloaters, i.e. maximize the highest score among the upfloaters (and then the second highest, and so on).

minimize the score differences in the pairs involving upfloaters, i.e. maximize the lowest score among the upfloaters (and then the second lowest, and so on).

Two alternative wordings that are currently under discussion.
Basically, there is a choice to be made between {2, 1} and {1½, 1½} (which one is better, as a set of upfloaters?)

C.7 choose the set of upfloaters in order to maximize the number of remaining players that can be paired in the following scoregroup *(just in the following scoregroup).*

This criterion is under discussion. It is not part of the current rules (although Vega seems to implement it), and its effectiveness is unclear.

C.8 minimize the number of players who do not get their colour preference.

C.9 minimize the number of players who do not get their strong colour preference.

Another criterion under discussion - like C.7, it is not part of the current rules, and its effectiveness is unclear.

C.10 unless it is the last round, minimize the number of players who upfloated in the previous round.

This is the first of the so-called "upfloating-protection" criteria (C.10-C.11-C.12). It is a novelty under discussion that such criteria are placed after the "colour-balancing" criteria, because, in the current rules, upfloating protection criteria are even absolute criteria. However, the proposed rules seem more consistent with the Basic Rules of the Swiss Systems (see C.04.1), where upfloating criteria are not even mentioned.

C.11 unless it is the last round, minimize the number of maximum upfloaters (see A.7).

It is under discussion if this criterion (and the following one) has to follow the previous criterion. Basically, it means deciding whether being upfloated twice in back-to-back rounds later in the tournament is worse than to be upfloated for the third or more time.

C.12 unless it is the last round, minimize the number of times a maximum upfloater is upfloated.

This is a new criterion, that just takes into consideration the number of times that a player has to upfloat after he became a maximum upfloater.

D. Sorting criteria

D.0 Generalities

In the articles of this section, the schema below is followed:

a. A pool of P players is selected.

b. *Each player in the pool is assigned a sequence number (from #1 to #P) according to a primary sorting criterion.*

c. *In order to select a set of K such players, the sets will usually be sorted depending on the sequence numbers of their members, put in lexicographic order (exception is D.1.b). For instance, with K=2, the set {#1,#2} will precede {#1,#3}, the set {#1,#P} will precede {#2,#3}, and so on.*

Note. The term initial ranking *always refers to the definition in section C.04.2.B, stating that the highest ranked player is first and the lowest ranked player is last.*

D.1 Sorting the upfloaters

The matter of using only upfloaters has been already discussed in B.2.
Here, the rules tell how to sort the sets of upfloaters.

All those players that have a lower score than the resident players of the scoregroup to be paired, are possible upfloaters and constitute the selected pool (see D.0.a).

a. Main criterion

Each possible upfloater receives a sequence number, according to their score and, when scores are equal, to their initial ranking.

b. Sets of upfloaters

Because a set of upfloaters may be formed of players with different scores, all the possible sets are subdivided in containers. Sets belong to the same container if their players have the same scores.

Example: *Let's assume that #1,#2,#3 have 3 points, #4 and #5 have 2.5 points, and #6 has 1.5 point, and a set of two upfloaters is needed. Then {#1,#2} {#1,#3} {#2,#3} are part of the same container; {#1,#4} {#1,#5} {#2,#4} {#2,#5} {#3,#4} {#3,#5} are part of another container; {#1,#6} {#2,#6} {#3,#6} are part of a third container; {#4,#5} are part of a fourth container; {#4,#6} {#5,#6} are part of a fifth (and last) container.*

The containers are sorted along the lines described by criterion C.6.

The sets belonging to each container are sorted according to the lexicographic order of the sequence numbers they are formed of.

D.2 Sorting the shifters

This is another big variation from the current rules.
The current rules sort WSs by ascending AROs and, when needed, descending ratings (and other unnecessary stuff).
The BSs are sorted by descending AROs and, when needed, ascending ratings (and other stuff).
Then they move to the other set the top players of the lists sorted as above.
It's undoubtedly a rule, but it has no background, because the simple question "Why?" cannot be answered.
The new rules (sort WSs and BSs in the same way as it is done for the pairings -see B.5 and D.3- and then pick from the middle the players to be moved) have a rationale (reported in D.2), and therefore look preferable (although a bit more complicate).

Another novelty: players with an absolute preference are not prevented from being shifted to the other set of seekers.
The current rule (that prohibits such a shift) doesn't make sense. Although G1 and G2 initially contain WS(s) and BS(s) respectively, being in G1 or in G2 (after shifting operations) doesn't mean anything, as the colour is assigned following the Colour Allocation Rules.

Any player in the bracket having a colour preference for White (Black) is a possible White (resp. Black) shifter. The need for shifters arises when, in order to make or complete a pairing, some players seeking a colour are shifted to the subgroup of players initially seeking the other colour.

The possible White (resp. Black) shifters constitute the selected pool (see D.0.a).

a. White seekers are sorted in order of ascending ARO or, when AROs are equal, highest initial ranking.

   Black seekers are sorted according to their initial ranking.

b. With such sorted list, assign the sequence numbers, starting with the player in the (remaining) middle of the list or, when two players are in the (remaining) middle, to the one with a higher position in the list.

   Example: *if the sorted list contains seven players (in order: A, B, C, D, E, F, G), #1 goes to D (middle of the seven players), #2 to C (higher between C and E, both in the middle of the remaining six players), #3 to E (middle of the remaining five players), #4 to B, #5 to F, #6 to A, #7 to G.*

Rationale: Since the system tries to equalize the ARO of the White seekers (while the Black seekers are "tools" for reaching this goal), it is statistically better to shift White seekers with AROs in the middle *(their ARO is probably already equalized)*, and Black seekers with ratings in the middle *(because ARO equalization is usually performed better by Black seekers with extreme ratings).*

D.3 Sorting G2 players (transpositions)

The players involved are the ones that end up in the G2 subgroup after the maneuvers described in article B.4.

Such players constitute the selected pool (see D.0.a).

a. The players in the G2 pool are assigned sequence numbers according to their initial ranking.

The sorted sets of G2 players are also called Transpositions.

Note: *If, for instance, players A, B, C (listed according to the initial ranking) are in G2, the different Transpositions are {A, B, C} {A, C, B} {B, A, C} {B, C, A} {C, A, B} and {C, B, A}, in that exact order.*

E. Colour Allocation rules

Wording similar to the one of the Dutch Rules, but not equal. There are no topscorers in the Dubov System and no null preferences to deal with (each player always has a colour preference)

Initial-colour

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

For each pair apply (with descending priority):

E.0 When both players have yet to play a game, if the higher ranked player *(the player who has more points or, when points are equal, a higher position in the initial ranking list)* has an odd pairing number, give him the initial-colour; otherwise give him the opposite colour.

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

E.1 Grant both colour preferences.

E.2 Grant the stronger colour preference.

It seems a clearer wording than the current one (equalise the numbers of black and white games played before).

E.3 Taking into account C.04.2.D.5, alternate the colours to the most recent time in which one player had white and the other black.

E.4 Grant the colour preference of the higher ranked player *(see E.0)*.

Novelty. The current rules give White to the player with the higher ARO and, when AROs are equal, to the player with the lower rating.
As there is no technical reason to make a similar choice (in other words: it is equivalent to a random choice), it seems better to solve this "tie" in the same way as other pairing systems do.