The Number of Non-Competitive Matches in 2026 FIFA World Cup

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Keywords: prediction, data analysis, World Cup, soccer / football, non-competitive matches.

Abstract - FIFA World Cup is one of the most watched sporting event in the world. While currently 32 teams participate in this event, starting with 2026 the number of participants will increase to 48. As a result, FIFA proposed a major format change; the groups of 4 teams will be replaced by groups of 3 teams, with the first two teams to qualify to the second round. In this paper, we analyze the possibility of matches with limited importance (called non-competitive) for final group standing for both 4-team and 3-team groups and we introduce our definitions of collusion and dead rubber games. We recommend a variation of the proposed 3-group format in which the order of matches for each group is predetermined. Our analysis show that this variation has the potential of reducing significantly the number of non-competitive matches thus becoming an interesting option to be considered for adoption by FIFA. In conclusion, we recommend FIFA to implement a predefined order of group matches prior to the drawing. The seeded team should play the first match with the team that is second best (according to the drawing time FIFA rankings), as well as the second match from the group.

1. Introduction and motivation

The Fédération Internationale de Football Association (FIFA) is responsible for the organization of football's major international tournaments, notably the World Cup [3]. This event started in 1930, with its first edition hosted in Uruguay. Since then the World Cup had brought together the best national soccer teams every four years (except 1942 and 1946 due to World War II) [4]. In 2018, the 21 edition of the FIFA World Cup was hosted by Russia [7].

For the recent editions (1998 – 2018, and this format will likely be used in 2022), 32 qualified teams are divided in 8 groups of 4 teams. The first two from each group qualifies for the second knock-out round. In this second round, the remaining 16 teams will start with the round of sixteen, followed by 4 quarterfinals, two semifinals, the 3-place final, and the final. The total number of matches is 64 (48 in the first round and 16 in the second round) [15].

For 2026 edition, in addition to increasing the number of participants to 48, FIFA proposed a major format change; the groups of 4 teams will be replaced by groups of 3 teams. As a result there will be 16 groups in the first round with a total of 48 matches. The first two from each group will then play in the second round. The second round will be similar to the current format with the addition of the round of 32 matches. One major reason of changing the well-established format of this event was the constraint of not increasing the number of matches for individual teams. Indeed, the first 4 teams will play 7 matches in both formats, teams ranked 5 – 8 will play 5 matches, teams ranked 9 – 16 will play 4 matches, teams ranked 17 – 32 will play 3 matches in both formats. In addition, in the new format, teams ranked 33 to 48 will play 2 matches each and they will also be part of the World Cup event [1].

While it initially seems that there are only advantages in the new format, the groups of 3 teams have the potential of reducing the quality of some matches which are between teams of different levels [12]. Other issues have been reported, in particular the danger of increased number of collusion games [9].

In this paper we make the following contributions. First, we present our definitions of collusion and dead rubber games (we group both of them under the non-competitive game umbrella) and we describe scenarios in either 4-group or 3-group format that lead to such matches. Second, and our major contribution, based on the results of the last six World Cup editions (1998 to 2018), we compare the number of collusion and dead rubber matches from these editions and we predict the number of collusions and dead rubber games for the new format of the World Cup.

The main motivation before starting the data analysis for this paper was to analyze if the new format of the World Cup will significantly increase the number of non-competitive matches due to 3-team groups. At this point, it is not too late for FIFA to make changes to the format (such as considering the 4-teams groups in the first round) that will increase the attractiveness of the tournament.

2. Non-competitive matches scenarios and definitions

We assume that there are n teams in a group. The teams from this group are labeled T_i, where $i = 1 \ldots n$. We also assume that T_i is ranked higher in the FIFA Coca-Cola ranking then T_j for all $i \le j$. The FIFA Coca-Cola ranking is a ranking system for men's national soccer teams based on all FIFA recognized international matches [5]. We assume that the first k teams ($k < n$) qualify for the second round. We call such a group a (n, k)-group.

The ranking of teams is determined by the rules used currently in 2018 FIFA World Cup [6]: **(1)** Greatest number of points obtained in all group matches (3 points per win, 1 per draw, 0 per loss); **(2)** Goal difference in all group matches; **(3)** Greatest number of goals scored in all group matches; **(4)** If two or more teams are equal on the basis of Steps 1 – 3, their ranking will be determined by applying to the group matches between the equal teams the following rules: **(4.1)** Greatest number of points obtained in the group matches between the teams concerned; **(4.2)** Goal difference resulting from the group matches between the teams concerned; **(4.3)** Greater number of goals scored in all group matches between the teams concerned; **(4.4)** Greater number of points obtained in the fair play conduct of the teams based on yellow and red cards received in all group matches; **(4.5)** Drawing of lots by the FIFA.

2.1 Non Competitive Matches from 2018 World Cup

In each group, the most interesting matches is when each team will have an incentive to obtain a minimum result in order to qualify for the next round. We describe the scenarios before the last two matches in a (4, 2)-group when a team is already qualified or eliminated regardless of the last match score.

(A) A team, T_i, is already qualified before the last match. This team may not use its best line-up for that match and the match will be of reduced interest to viewers. That being said, the final ranking in a group is also important since the team ranked higher plays with a team ranked lower in the different group. So the team may still have a limited incentive. The second team from the match, T_j, may be in the following scenarios (there is no order relation between i and j, in other words T_i may be ranked either lower or higher in the FIFA Coca Cola rankings):

(A.1) The second team in this match may already qualified too. In that case there is only a limited incentive (the ranking order). This scenario represents a ***dead rubber*** game. For the 2018 World Cup we had the following games in this category: *Russia vs Uruguay (0 – 3)* and *England vs Belgium (0 – 1)*. For the first match, Russia performed poorly since they were already content with their qualified status. For the second match both teams played mostly with reserves [10] and some news articles even hinted that England wanted to lose this game in order to avoid being in the same quarter with Brazil [11].

(A.2) The second team in this match will need a minimum result to qualify. This scenario represents a ***collusion*** game. For the 2018 World Cup, *France vs Denmark (0 – 0)* is in this category. In this game, France was already qualified and Denmark needed a draw to qualify regardless of the result of the other match (*Peru vs Australia*). Although Denmark had a small incentive of wining the group, they were happy with a draw result and this match was one of the least interesting matches of the entire World Cup [2]. A second match (*Croatia vs Iceland (2 – 1)*) almost fits this category. In this match, Croatia was already qualified and Iceland could qualify with win depending of the results from the second match (Argentina vs Nigeria). Croatia still had the incentive to draw in order to secure the first place in the ranking. This game also represents a ***collusion*** game; however the collusion did not happen.

(A.3) The second team in this match may be already eliminated. In that case, there is only a limited incentive (the ranking order) for the qualified team and the desire to perform well in their last match for the team already eliminated. This scenario is impossible in both (4, 2) and (3, 2)-groups. That being said, there are situations that fit this scenario unless a very strange result will happen. Assume a (3, 2) group with the following 2 results: T_1 vs T_2 (4 – 0), T_2 vs T_3 (5 – 0). In this case, T_2 is already qualified and T_1 will lose the qualification only if will lose by 5 goals of more in the match against T_3. Since this is very unlikely (T_1 is considered the best team in the group), we call this situation a ***weak dead rubber***. Assume now that the first two results in the group were: T_1 vs T_2 (4 – 0), T_2 vs T_3 (4 – 0). In this case the T_1 and T_2 are almost qualified, however the result T_1 vs T_3 (1 – 5), will eliminate T_2 and qualify T_1 and T_3. In this case, the match becomes a ***collusion***, although could also be considered as a weak dead rubber.

(B) A team, T_i, is already eliminated before the last match. The second team from the match, T_j, may be in the following scenarios:

(B.1) The second team in this match may be qualified. This is similar to A.3 case.

(B.2) The second team in match will need a minimum result to qualify. This scenario represents a ***collusion*** game. For the 2018 World Cup we had the following matches in this category: *Spain vs Morocco (2 – 2)*, *Germany vs Korea (0 – 2)*, *Switzerland – Costa Rica (2 – 2)*, and *Poland vs Japan (1 – 0)*. Only the first and the third match ended in the collusion results, and both matches were interesting to watch. The other two matches did not have collusion results. It is worth noting that in Poland vs Japan due to the result of the simultaneous match (Senegal vs. Columbia) the final result was still a collusion result and the last 10 minutes of the game showed that none of the teams wanted to do anything. Also, Germany vs Korea was one of the most interesting matches from the World Cup since it lead to the elimination of the 2014 World Cup winners, Germany.

(B.3) The second team in this match may be already eliminated. This scenario represents a ***dead rubber*** game. For the 2018 World Cup we had two matches in this category: *Egypt vs Saudi Arabia (1 – 2)* and *Tunisia vs Panama (1 – 0)*. In addition, *Peru vs Australia (2 – 0)* game was a likely dead rubber game since a draw in the other match would eliminate both teams. We call this match a ***weak dead rubber*** since a likely result from the other group match that starts at the same time will seal the fate for both teams.

Overall, in 2018 FIFA World Cup, four matches were dead rubbers, one was weak dead rubber, and six collusions out of which three results were collusion results.

2.2 Definitions

Based on the previous analysis, we define the following categories of non-competitive matches during a group stage at a FIFA World Cup event.

***Collusion (C)* -** There is at least one result between T_a and T_b that maximizes T_a chances to qualify in the next round to the detriment to one other team (T_c). The result qualifies team T_b as well, or the status of team T_b is already known before this game (T_b is either qualified or eliminated prior to this match).

This definition includes all six collusions matches presented above.

***Met Collusion (MC)* –** A collusion match became a met collusion if the final result satisfy the collusion requirement.

Three of the six collusion matches from 2018 World Cup were met collusions.

Aggravated Collusion (AC) - A collusion between T_a and T_b where one team may lose its last match by any score and it still finishes first in the group.

None of the above six collusions fits this criteria, so at least the final ranking was still in play for all of the collusion matches. However, for a (4, 2) – group, there is a case when aggravated collusion could happen. Assume T_a wins against T_b and T_c and T_d draws with T_b and T_c. The final match between T_a and T_d is an aggravated collusion since T_a has already 6 points and cannot lose first place, and T_d will qualify with a win. Such a scenario does not happen often, the most recent ones were in 1998 FIFA World Cup (2 such aggravated collusions): Brazil vs Norway (1 – 2) and Paraguay – Nigeria (3 – 1). Brazil had six points, Norway had two points before the final match. The final result met the aggravated collusion and as a result Morocco was eliminated. While there were no suspicions of match fixing, still the results show that since Brazil did not have any incentive to win they had a poor match. Similarly, the second result was a met aggravated collusion with Nigeria being in the same situation as Brazil and Paraguay in the same situation as Norway.

Please note that we use a modified definition for *AC* compared to [8] since a team may try to win by multiple goals to improve its ranking.

***Weak Collusion (WC)* –** There is at least one result between T_a and T_b that allows T_a to qualify in the next round to the detriment to one other team (T_c), unless T_c scores at least g goals in its last match. We use in this paper g equal to 3. The result qualifies team T_b as well, or the status of team T_b is already known before this game (T_b is either qualified or eliminated prior to this match).

Note that a weak collusion is not a collusion game. There were no weak collusions in the 2018 World Cup. We illustrate a weak collusion later in this section when we discuss the scenarios for a (3, 2)-group.

For both aggravated and weak collusions, we also have the corresponding ***met aggravated collusion (MAC)*** and ***met weak collusion (MWC)*** matches. Note that the above mentioned Brazil vs Norway and Paraguay vs Nigeria matches were *MAC* matches.

***Dead Rubber (D)* -** A match where regardless of the score both teams are either qualified or eliminated.

This definition includes all four dead rubber matches presented in the beginning of this section.

***Weak Dead Rubber (WD)* -** A match where regardless of the score may matter only if in a different match the score is not a collusion score or if a team needs to win by g or more goals. We use again g equal to 3.

This definition includes Peru vs Australia match from 2018 World cup edition discussed in this section. As in the case of collusions, a weak dead rubber is not a dead rubber game.

There is no equivalent of met collusion for dead rubber games. However, we could define ***Aggravated Dead Rubber (AD)*** and ***Aggravated Weak Dead Rubber (AWD)*** matches when the ranking order between the two team does not change regardless of the score. None of those two types of matches are possible for either (4, 2) and (3, 2)-groups.

2.3 Non-competitive matches in a (3, 2)-group

We assume that T_a, T_b, T_c are playing the matches in the following order: T_a vs T_b, T_a vs T_c, and T_b vs T_c. In this analysis we do not use the ranking of teams (i. e. we do not know which team is ranked higher before the tournament). Note that the team that plays two matches will qualify regardless of the last match result (between the other two teams) if it has at least three points and a positive goal difference. Also, a team is eliminated if it has zero points after two matches. See [8] for a complete discussion.

(A) T_a wins by 3 goals or more in the first match. In this case. The second match is a *WC* match, since a T_b win by a smaller margin (2 goals or even 1 in most cases) will lead to the requirement that T_c needs a win by at least 3 goals in the last match to qualify. This is the only scenario when the second match fits into a non-competitive category. If this *WC* game became a *MWC* (the result has been met), then the third match became a *WD* match.

(B) T_a gets at least 4 points in the first two matches. Then no collusion or dead rubber matches can happen.

(C) T_a gets 3 points in the first two matches and has a positive goal difference. The last match is likely a competitive match unless the team that has 0 points needs a win by 3 goals or more. In that case the last match can be a *WD* match.

(D) T_a gets 3 points in the first two matches and has a negative or zero goal difference. The last match became a *C* match since there is a result that will qualify both T_b and T_c, and eliminate T_a. Note that such a result is usually not very likely.

(E) T_a gets 2 points in the first two matches. The last match became a *C* match since there is a result (high scoring draw) that will qualify both T_b and T_c, and eliminate T_a. Note that such a result is not very likely.

(F) T_a gets 1 points in the first two matches. The last match became a *C* match since there are many results that will qualify both T_b and T_c, and eliminate T_a. Converting this *C* match into a *MC* match is very likely (any draw met the collusion results).

(G) T_a gets 0 points in the first two matches. The last match became a *D* match both T_b and T_c, are already qualified.

Based on the above analysis, the desired outcome for a group with respect to maintain all matches competitive is that the team that plays first will qualify after the first two matches without winning with a large goal difference in the first match. The probability that this will happen in a group increases when T_a is the higher ranked team prior to the start of the tournament, T_b is the second ranked team in the group (this will limit the high difference scores in the first round), and T_c is the weaker team. In Section 3, we analyze based on real results the impact that such scheduling will have in limiting the non-competitive matches. Also, note that aggravated collusion (as well as aggravated (weak) dead rubbers) are not possible in a (3, 2)-group format.

3. Non-competitive matches prediction for 2026 FIFA World Cup

To predict how many matches will be non-competitive in the 2026 FIFA World Cup, we analyze the results from the group round for the past six World Cup editions (1998 to 2018). The reason of choosing the last six editions is that they all use the same format of qualification thus the analysis between all the editions is comparable. We will compute the number of *C*, *WC*, *D*, and *WD* in each World Cup, we will also use these results to simulate all possible (3, 2)-groups. In each (3, 2) – group we use the results in order of which they were played as well as in the order discussed in Section 2 (best team per FIFA Coca-Cola Ranking plays the first two matches, and the first match is against the second best team).

3.1 2018 FIFA World Cup Analysis

We present the 2018 FIFA World Cup analysis in greater detail below. All the results presented below are used from the official 2018 FIFA World Cup site [4]. We consider Group A for a more detailed discussion.

In Fig.1, we show the standing before the last two matches in the group. Since the last two matches were played at the same time, the collusions / dead rubbers must be determined at this moment. The columns have the following meaning: **Pos** – position in the group, **Team** – the name of the team as the team 3 letter code [14], **Pld** – number of matches played by the Team, **W** – number of matches won, **D** – number of matches that are draw, **L** – number of matches that are lost, **GF** – goals for this team (number of goals scored by Team), **GA** – goals against (number of goals received by the team), **GD** – goal differential, and **Pts** – number of points. All these columns are standard columns in a soccer classification. The last columns, **Rank**, has the following meaning – the first number represents the rank between the teams in the group at the drawing time based on FIFA Coca-Cola ranking [5], the second number represents the actual ranking in the FIFA Coca-Cola ranking. Please note that the host nation (Russia) will automatically receive the order 1 regardless of the actual FIFA ranking. Note that FIFA Coca-Cola Ranking History is fully available at [5]. In Fig. 2, we show the game results. The last two matches (in red) were played at the same time after the standings are as shown in Fig. 1.

Figure 1. 2018 FIFA World Cup – Group A Standings.

Pos	Team	Pld	W	D	L	GF	GA	GD	Pts	Rank
1	RUS (H)	2	2	0	0	8	1	+7	6	1 - 65
2	URU	2	2	0	0	2	0	+2	6	2 - 21
3	EGY	2	0	0	2	1	4	−3	0	3 - 31
4	KSA	2	0	0	2	0	6	−6	0	4 - 63

Figure 2. 2018 FIFA World Cup – Group A Results.

RUS	5 - 0	KSA
URU	1 - 0	EGY
RUS	3 - 1	EGY
URU	1 - 0	KSA
RUS	0 - 3	URU
EGY	1 - 2	KSA

As discussed in Section 2, we can easily determine that Russia vs Uruguay (both already qualified) and Egypt vs Saudi Arabia (both eliminated) are *D* matches.

For each group there are 4 possible combinations of 3 teams that may represent a possible group starting with 2026 FIFA World Cup. We label these groups derived from Group A with A1, A2, A3, and A4. In group A1 we have the teams ranked 1, 2, and 3 at the draw (in this case Russia, Uruguay, Egypt); in group A2, teams ranked 1, 2, and 4; in group A3, teams ranked 1, 3, and 4, and in group A4, teams ranked 2, 3, and 4. For each group we consider the following two order of games. First, the order is the same as the actual order. We call this order Real Order. These groups will be finally labelled as A1a, A2a, A3a, and A4a. Second, the order is of games is as follows, team ranked 1 plays first with team ranked 2. Second match is between team ranked 1 and team ranked 3, and finally the teams 2 and 3 will play the last match. We call this order 1-2-3. These groups will be finally labelled as A1b, A2b, A3b, and A4b. For each of those 8 possible groups via direct observation we determine any collusion or dead rubber matches.

In Fig 3, we summarize all the non-competitive matches for the original (4, 2)-group A, as well as all 8 combinations of possible (3, 2)-group. The meaning of the color red is that such a group is more likely to exist in 2026 tournament based on FIFA Coca-Cola ranking at drawing time of participating teams. We consider a group to be a red group

if one of the team is ranked 1-15 or host country (in this case Russia), and the other 2 teams are ranked 16 or more. For a collusion match, ***no*** means that the collusion result did not happen, while ***yes*** means that the match was a met collusion. We use the color blue to show the (4, 2)-group.

Figure 3. 2018 FIFA World Cup - Group A Analysis.

Group	C	WC	D	WD
A			RUS – URU EGY – KSA	
A1a			RUS – URU	
A2a			RUS – URU	
A3a		RUS – EGY (0-1), *no*		
A4a				
A1b	URU – EGY (0-2), *no*			
A2b				URU – KSA, KSA 4+ win
A3b				
A4b				

Using the above-specified approach, we are able to perform the same analysis for all remaining 7 groups of the World Cup. Since all the results are available [4], the final analysis for each group is in Appendix A (available at https://www.nku.edu/~trutat1/papers/FIFA.pdf).

The summary of the non-competitive matches for all 8 groups as well as for their corresponding (3, 2)-groups is shown in Fig. 4. The last four columns have the following meaning: *TC* – total collusions (*C* + *WC*); *TD* – total dead rubbers (*D* + *WD*); *TC+TD* – total collusions and dead rubbers (non-competitive matches); and *MTC* – met total collusions. Since the number of matches for (3, 2)-groups is higher than for a real tournament (where the number of matches is 48), we weight all the numbers to a total of 48 matches. This new summary which allow an easier comparisons between (4, 2)- groups and (3, 2)-groups is presented in Fig. 5.

Figure 4. 2018 FIFA World Cup - Non-competitive matches.

2018 World Cup	Total Matches	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	48	6	0	4	1	6	5	11	3
(3, 2) – groups; real order	96	6	1	10	0	7	10	17	2
(3, 2) – groups; 1-2-3 order	96	9	0	1	1	9	2	11	2
(3, 2) – groups; real order; red groups	51	5	1	4	0	6	4	10	2
(3, 2) – groups; 1-2-3 order; red groups	51	7	0	0	1	7	1	8	2

Figure 5. 2018 FIFA World Cup - Non-competitive matches summary weighted to 48 matches (2026 FIFA World Cup).

2018 World Cup	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	6	0	4	1	6	5	11	3
(3, 2) – groups; real order	3	0.5	5	0	3.5	5	8.5	1
(3, 2) – groups; 1-2-3 order	4.5	0	0.5	0.5	4.5	1	5.5	1
(3, 2) – groups; real order; red groups	4.71	0.94	3.76	0.00	5.65	3.76	9.41	1.88
(3, 2) – groups; 1-2-3 order; red groups	6.59	0.00	0.00	0.94	6.59	0.94	7.53	1.88

3.2 Previous Five Editions Analysis

We performed the same analysis for the previous five editions of the FIFA World Cup. We include in this subsection only non-competitive non-weighted matches' summaries (Fig. 6-10. Per group analysis as well as both summaries (non-weighted and weighted) are presented in Appendices B (2014 World Cup), C (2010 World Cup), D (2006 World Cup), E (2002 World Cup), and E (1998 World Cup) (https://www.nku.edu/~trutat1/papers/FIFA.pdf). All the results are available in the FIFA World Cup Archive [7] and, therefore, they are not included in this paper.

Figure 6. 2014 FIFA World Cup - Non-competitive matches.

2014 World Cup	Total Matches	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	48	4	0	3	1	4	4	8	1
(3, 2) – groups; real order	96	13	0	5	1	13	6	19	6
(3, 2) – groups; 1-2-3 order	96	6	0	2	1	6	3	9	0
(3, 2) – groups; real order; red groups	39	6	0	2	0	6	2	8	2
(3, 2) – groups; 1-2-3 order; red groups	39	2	0	0	1	2	1	3	0

Figure 7. 2010 FIFA World Cup - Non-competitive matches.

2010 World Cup	Total Matches	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	48	2	0	1	2	2	3	5	1
(3, 2) – groups; real order	96	15	0	4	1	15	5	20	7
(3, 2) – groups; 1-2-3 order	96	9	0	2	1	9	3	12	3
(3, 2) – groups; real order; red groups	51	8	0	2	1	8	3	11	4
(3, 2) – groups; 1-2-3 order; red groups	51	5	0	1	1	5	2	7	2

Figure 8. 2006 FIFA World Cup - Non-competitive matches.

2006 World Cup	Total Matches	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	48	6	0	4	3	6	7	13	3
(3, 2) – groups; real order	96	10	1	8	0	11	8	19	5
(3, 2) – groups; 1-2-3 order	96	6	0	4	0	6	4	10	2
(3, 2) – groups; real order; red groups	51	4	1	2	0	5	2	7	2
(3, 2) – groups; 1-2-3 order; red groups	51	2	0	0	0	2	0	2	1

Figure 9. 2002 FIFA World Cup - Non-competitive matches.

2002 World Cup	Total Matches	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	48	4	0	0	2	4	2	6	1
(3, 2) – groups; real order	96	10	1	5	1	11	6	17	4
(3, 2) – groups; 1-2-3 order	96	6	1	1	1	7	2	9	4
(3, 2) – groups; real order; red groups	60	6	1	3	1	7	4	11	2
(3, 2) – groups; 1-2-3 order; red groups	60	3	1	1	1	4	2	6	2

Figure 10. 1998 FIFA World Cup - Non-competitive matches.

1998 World Cup	Total Matches	C	WC	D	WD	TC	TD	TC+TD	MTC
(4, 2) - groups	48	4	1	3	4	5	7	12	4
(3, 2) – groups; real order	96	13	0	5	0	13	5	18	6
(3, 2) – groups; 1-2-3 order	96	4	2	4	0	6	4	10	2
(3, 2) – groups; real order; red groups	39	3	0	1	0	3	1	4	1
(3, 2) – groups; 1-2-3 order; red groups	39	0	2	0	1	2	1	3	1

3.3 Results

In Figs. 11 – 15, we compare the number of non-competitive matches between the analyzed World Cup editions. The five bars for each World Cup represent (from left to right), the number of matches in that category from the (4, 2)-groups (the actual groups of the World Cups), the

number of matches form (3, 2)-groups when the order of play is the original order, the number of matches from (3, 2)-groups when the order of play is 1-2-3, the number of matches form (3, 2)-groups when the order of play is the original order and the group is a more realistic group (red color; exactly one team ranked in the first 16 teams), and the number of matches from (3, 2)-groups when the order of play is 1-2-3 and the group is a more realistic group. The *avg* represents the average between all editions and it represents our predicted values for 2026 World Cup.

Fig. 11 show that the total number of non-competitive matches will likely decrease in the (3, 2)-format. The decrease is small if the order of play is random, however the 1-2-3 order of play makes a significant improvement reducing by almost half the number of non-competitive matches.

Fig. 12 show that the number of collusion matches will have a slight increase for a random order, however it will decrease for a 1-2-3 order. We do not distinguish between regular collusion and weak collusion, however the number of weak collusions is significantly lower.

Fig. 13 show the major improvement, the number of dead matches will significantly decrease for all (3, 2)-group scenarios. Still the biggest decrease is for 1-2-3 order for the realistic group scenarios. We do not distinguish between regular dead rubbers and weak dead rubbers, however the number of weak dead rubbers is significantly lower.

Figs. 14 and 15 show the met collusions results. It is interesting to see that the percentage of met collusion is higher for (4, 2)-groups and this is because when the teams know that a collusion score is possible they do not have a significant incentive to achieve a different result. Still even in this case the percentage is below 50% and this leads to the conclusion that such matches are still of interest.

To make a prediction/guess of the number of noncompetitive matches we average the results obtained for (3, 2)-groups scenarios (all groups and red groups) for the real order of games and we round them to the nearest integer. We will get the following likely values:

- Total Collusions = 6
- Total Dead Rubbers = 3
- Total Non-Competitive Matches = 9
- Total Met Collusion = 3 (the average is 2 however due to attractiveness of collusion score, we increase this value by 1).

Using a similar approach we also predict the number of non-competitive matches for 1-2-3 order. We will get the following likely values:

- Total Collusions = 3
- Total Dead Rubbers = 1
- Total Non-Competitive Matches = 4
- Total Met Collusion = 1

Overall, the proposed format will be similar to the current format in terms of non-competitive matches, there will be more collusion matches than dead rubber matches. While this can be seen as a problem, from the game appeal to spectators this is still an improvement since the dead rubber matches have the lowest TV audience ratings from comparable matches. For instance England vs Belgium and Uruguay vs Russia (both dead rubber matches) had the lowest TV ratings in US between all final group matches broadcasted by FOX. Also Panama vs Tunisia and Saudi Arabia vs Egypt (also dead rubber matches) had the lowest TV ratings in US between all final group matches broadcasted by Fox Sports 1. In general, collusion matches had higher TV ratings, although their ratings also suffers compared to competitive matches [14].

A significant improvement is when 1-2-3 order is used, and in this case the number of non-competitive matches is significantly reduced. Having an average of 4-5 more competitive matches (with two fewer dead rubbers) will increase the attractiveness of the group stage significantly and ***we strongly recommend FIFA to implement this relatively minor change in the scheduling format***.

4 Discussion and Conclusions

The current FIFA World Cup format is highly successful. However, there are matches that are of reduced interest due to the previous results. We classified these matches in collusion and dead rubber matches. We provided an extensive analysis of when such matches take place and we looked at previous six World Cup editions in order to predict how many such matches will likely happen in the new FIFA World Cup format that will be used starting with 2026 edition.

Figure 11. Non-competitive matches (TC+TD) comparison.

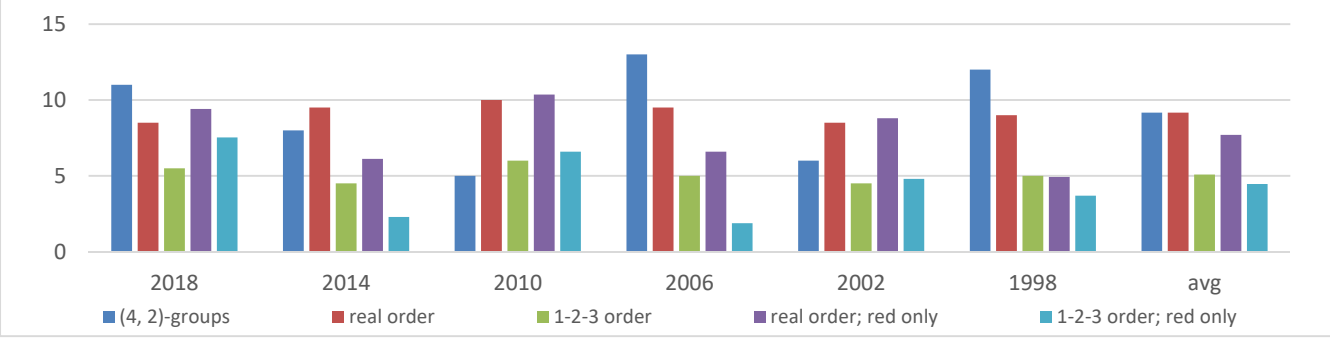


Figure 12. Collusion matches (TC) comparison.

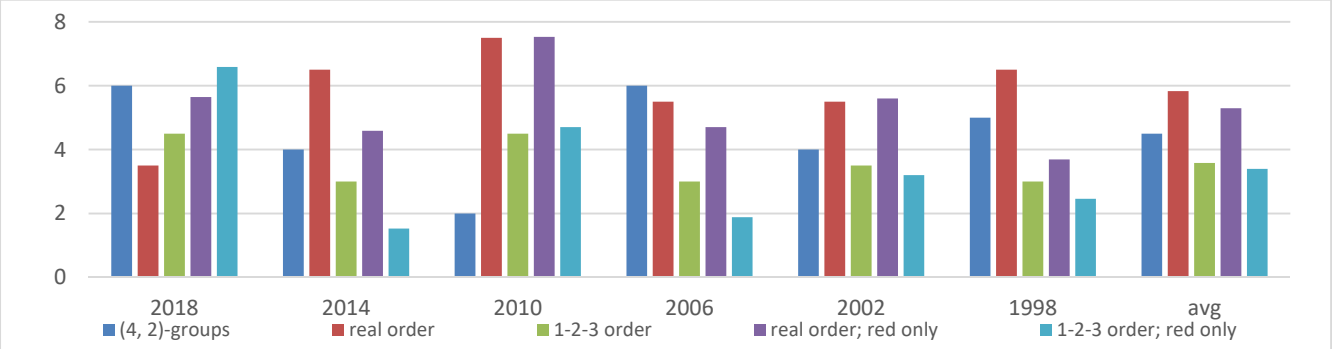


Figure 13. Dead Rubber matches (TD) comparison.

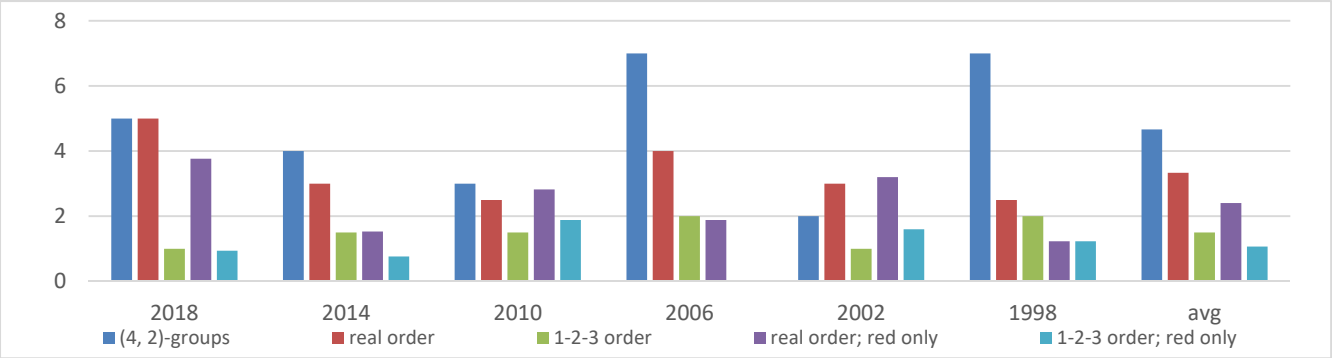


Figure 14. Met collusion matches (MTC) comparison.

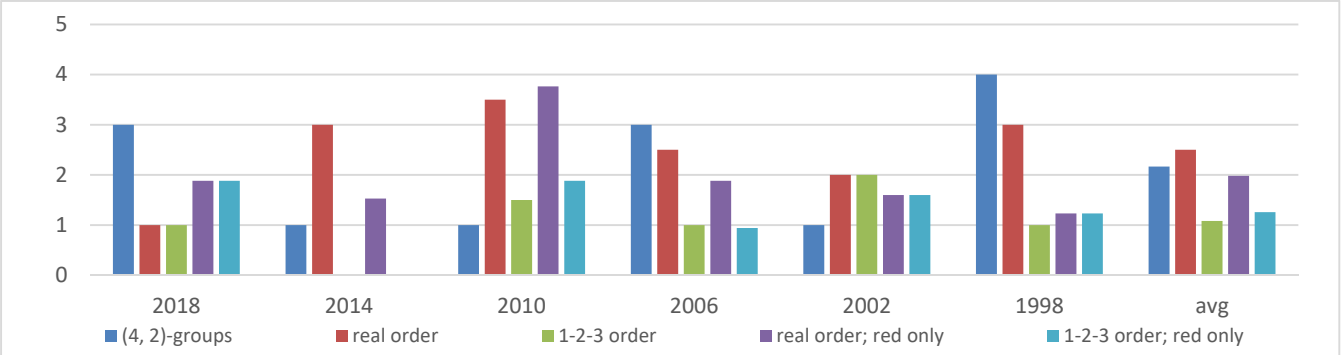
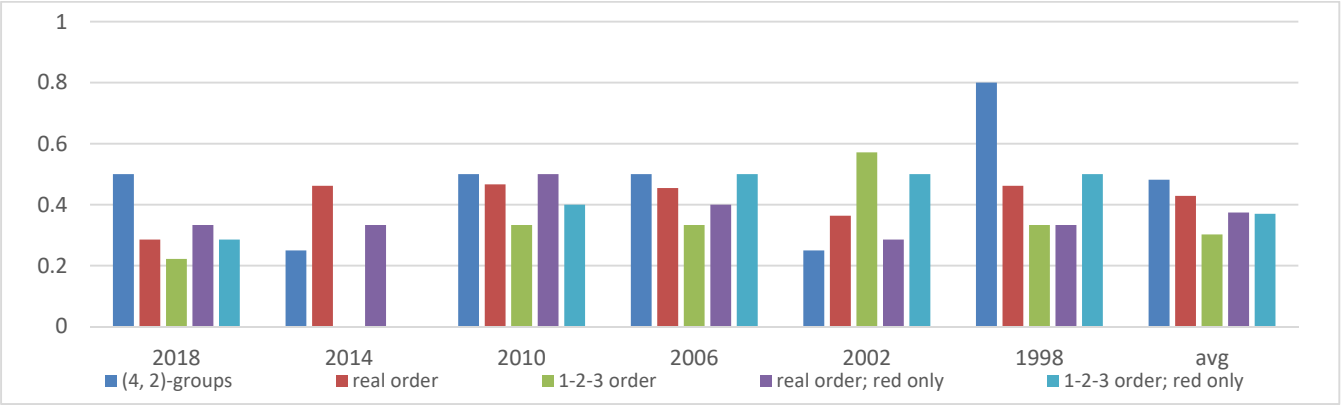


Figure 15. The percentage of met collusion matches (MTC/TC) from total collusion matches.



Based on our analysis we claim that the new format will likely have the same number of non-competitive matches, however a slight improvement of game scheduling in the group stage will reduce this number by roughly half and therefore will increase the attractiveness of such matches.

We strongly recommend FIFA to implement a predefined order of group matches. The seeded team should play the first match with the team that is second best (according to the drawing time FIFA Coca-Cola rankings), as well as the second match from the group.

The recommendation that 3-groups format with predefined game scheduling is better than 3-groups format with random scheduling is also present in [8]. However, their recommendation is based on reducing the number of collusions only where their definition of collusion is more restrictive then in this paper (suspicion of collusion occurs when a result between two teams lets both of them advance at the expense of a third team [8]).

Having this predefined order may seem that will disadvantage the seeded team since if the seeded team do not perform well there is a possibility of collusion between the second and third best teams in the group (this issue was also discussed in [8]). However, this will happen less frequently than will random order of game scheduling. More importantly the seeded team will have more rest days between their last group match and the Round of 32, and this is an important advantage. Any seeded team will aim and hope to qualify directly bay having at least 3 points and a positive goal difference, thus the additional rest days seems to be more important for such a team.

From the second best team point of view, they will start with their most difficult match. They have the rest days between group matches and this may give them and advantage versus the third ranked team. They will know exactly what result they need with that team in order to qualify. Thus, such order is a favorable order for a second best team as well.

Surprisingly the third best team may not be disadvantaged either. If the seeded team wins the first match, they will aim to obtain a better result than the second team and this means that a draw will suffice in the last match. The main disadvantage is that they will start the competition with rest days, however they will be in the best position to know what results they need in order to maximize their qualification chances.

Last but not least, starting the World Cup with better teams will increase the attractiveness of the first matches and will make people that are casual viewers to follow the World Cup from the beginning. What would you prefer, to see England versus Belgium as the first group match when they both need a good result, or as last group match when both are qualified?

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