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Future Proof Games - A challenging new concept
Part one: Classical FPGs

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1 Introduction

Every problemist knows the term "helpmate of the future" (HOTF), introduced by Chris Feather. A HOTF in its basic form consists of a helpmate with four solutions forming two independent couples, the two solutions in each couple being thematically related. Roberto's nice idea was to adapt this concept to the proof game land. Future proof games (FPGs) were born! He gave a definition and some examples in the Retro Mailing List, October 2008, and thus encouraged especially the other two authors to compose a significant number of such proof games.

In this first part of the article, we present a complete definition of the "classical" case (relatively to a list of selected themes). Then, we propose an example of such a list, which we think is an appropriate framework, and thereafter we collect the best renditions between the resulting classical FPGs we could find in the literature. If we missed some of them, we ask the readers to inform us. Note that we only focus on orthodox proof games.

We also provide some originals (fulfilling not too complicated cases for opening the door to further deeper research), and some open and challenging problems. Their aims are to support the composers to come or to pursue challenges into this fascinating field, as they show great potential for producing a large number of high quality proof games. In case where a new classical FPG is constructed or an old one is improved, we would like the author(s) to send it to us, so that our collection can be easily updated. Obviously, various comments and critics are also welcome.

This first part of the article is organized as follows: the concept of classical FPG is presented in section 2, and our list of selected themes is provided in section 3. Then, we explain in section 4 how we ranked the various resulting classical FPGs to be able to construct our collection. Those best renditions, as well as various open problems, appear in section 5, the heart of part one. Sections A and B are appendixes respectively devoted to recall the definitions of the selected themes and to introduce prospective variations of the classical FPG concept (the subject of the second part of the article). Finally, section 6 provides a short conclusion.

We stopped our search to improve the collection in February 2011. The new records will appear in an update to come.

Our acknowledgments go to the various composers whose classical FPGs are collected here. It is clear that this text could not have been written without the great work of these colleagues. We also want to thank Hans Gruber, Volker Gülke, Stefan Höning and bernd ellinghoven for having kindly accepted to publish it in a special issue of Die Schwalbe. Furthermore, we thank Gregory Cartland-Glover for his help concerning English language.

2 Classical FPGs

The classical FPG concept follows the HOTF's one: strategical recurrence by pairs. Applied to proof games, the recurrent elements are the themes and the pieces' nature. Thus, structurally, a classical FPG is a proof game performing two themes X and Y (belonging to a previously defined list of selected themes), each of them being realized by a couple of pieces of same nature.

A given theme can sometimes apply to a single piece, e.g. Circuit, and sometimes to more than one piece, e.g. Cross capture. They are respectively called **one-man theme** and **multiple-men theme**. Classical FPGs only deal with one-man and **two-men themes**. The cases with multiple-men themes involving more than two pieces will be considered in the second part of the article.

2.1 Notation

Let us denote, as usual, black piece nature by a small letter and the white piece nature by a capital letter. Thus, for examples, **X(A)** means that the theme X is realized by a white piece of nature A, while:

- **X(A,a)** means that the theme X is one-man and twofold realized, by a white piece of nature A and by a black piece of same nature.
- **X(Aa)** means that the theme X is two-men and realized once, by a couple containing a white piece of nature A and a black piece of same nature.

For simplicity, we present our definitions in the one-man setting, but the two-men setting also works. Finally, we say that **X(A) & Y(B)** is performed when both X(A) and Y(B) are performed.

2.2 Definition of a classical FPG

Let LT be a list of themes. A proof game G is called a **classical FPG relative to LT**, if LT contains themes X and Y, and G performs (at least) one of the features represented by the following **basic symbolic notation**:

- **X(A,A) & Y(B,B)**: the themes X and Y are realized by a couple of pieces of nature A and B respectively, and of the same color. Obviously, X(a,a) & Y(b,b) works too.
- **X(A,A) & Y(b,b)**: the themes X and Y are realized by a couple of white pieces of nature A and by a couple of black pieces of nature b, respectively.
- **X(A,a) & Y(B,b)**: the themes X and Y are realized by a couple of pieces of same nature A and B respectively, but of opposite color.

These three families of basic symbolic notations are respectively called **monocolor**, **bicolor**, and **mixed-color**. This definition of a classical FPG is in fact almost the same as the original one by Roberto, which seems to us to be the right one, that faithfully mimics the HOTF case.

2.3 Remarks

- Classical FPGs are only defined within the framework of a particular list of selected themes. It is necessary as such a "universal" list does not exist. Of course, different lists generally lead to different sets of classical FPGs.
- The themes X and Y can be identical.
- The thematic pieces A, a, B and b must be different. In particular, a classical FPG always involves at least four of them.
- The four renditions of the themes (in the one-man setting) are performed two by each side or totally by one side. In particular, a proof game performing only X(A,A) & Y(B,b) is not a classical FPG.

Similarly to HOTF, more recurrences on the themes, the pieces, or the couples may exist inside a classical FPG. In particular, more than two themes or four thematic pieces are possible.

2.4 Further definitions

A classical FPG (relatively to LT) F is called an **extended FPG**, if it performs (at least) one of the following features (compare with the basic symbolic notation of G defined in 2.2):

- A piece already involved in G performs a new theme.
- A new piece performs a theme already involved in G.
- A new theme is performed by a new couple of pieces of same nature.

Otherwise, F is called a **basic FPG** (its thematic content is the least possible to be a classical FPG). Let us illustrate the above three possibilities when the basic symbolic notation of G is X(A,A) & Y(b,b):

- **X(A,A) & Y(b,Z(b))**
- **X(A,A) & Y(b,b,c) or Y(b,b,C)**
- **X(A,A) & Y(b,b) & Z(C,C) or Z(C,c) or Z(c,c)**

Those three families of **extended symbolic notations** are respectively called **two-themes-man**, **extra-man** and **extra-theme**.

The notation Y(Z(b)) means that b performs the theme Z while the result, Z(b), performs the theme Y. We also mark (Z & Y)(b) this feature. Note that, for both basic and extended FPGs, the number of letters A, B, C, ... (respectively 4, 5 and 6 in the above examples) is always equal to the number of different thematic pieces.

2.5 Picking a particular symbolic notation of a classical FPG

A given classical FPG would generally admit several symbolic notations, hence some conventions are needed to select the “best” one. For that, we have established the following rules:

- **The specific choice:** If a classical FPG performs a theme Y, which is a particular case of a theme Z, for example Y=Prentos (KP) and Z=Ceriani-Frolkin (CF), we choose Y (the most specific) as the best symbolic notation, provided that this choice satisfies the following “coupling rule”.
- **The coupling rule:** The themes are always marked in a way that allows maximum couplings. For example Switchback (SW) and Rundlauf (RU) are particular cases of Circuit (CI). A proof game performing SW(A) & RU(A) is marked CI(A,A), that is half a basic FPG. More generally, if Y is a particular case of Z, then Z(A) & Y(A) is marked Z(A,A), also half a basic FPG, although Z(A) & Y(A) could show more thematic content than Z(A,A).
- **The compacting procedure:** It applies when there are three themes belonging to the list, with the particularity that one of them results from the rendition of the other two. For example, the Anti-Pronkin AP(A) is the result of the Ceriani-Frolkin CF(A) and the Meta-sibling MS(A), hence CF(A) & MS(A) is marked AP(A), that is quarter a basic FPG. Of course, a classical FPG is “truly” extended when all their symbolic notations remain extended after having been compacted.
- **The prefix and suffix brackets:**
  The notation X(A,A) doesn’t indicate whether X is performed on same or different squares (except for a double Queen Pronkin PR(Q,Q) or PR(q,q)). When X is performed two times on the same square, this is in general a much stronger achievement than on different squares. We mark the prefix [1] (one square) to indicate the first case. For example, PR[1](R,R) means that the double white Rook Pronkin appears on the same square (a1 or h1). Obviously, this notation is extended, when necessary, to X[n](A,...,A), where n denotes the number of different thematic squares.
  Many themes (Circuit, Rundlauf, Switchback, Meta-Sibling, Sibling, Cross capture, Interchange and Lois) can be performed by original or by promoted pieces. To distinguish between those possibilities, we also mark into brackets, but now as a suffix, the number of involved promoted pieces. For example X(A,A,A)[2] means that two pieces are promoted and one is original. The default concerns original pieces, so no bracket means [0] (all the thematic pieces are original).

Those definitions of classical, basic and extended FPGs are relative to a given list of selected themes LT. In the next section, we present such a list that we built, doing our best to provide a rich framework, in order for the resulting classical FPGs to be as interesting as possible.

3 A list of twenty themes

Obviously, it is neither impossible to precisely define what a theme is, nor to pick up a definite list, as they belong to a very open field. Moreover, at least theoretically, each feature can be called a theme. Thus some choices are needed.

The selection we deal within our article, called the **TT list** (twenty themes list), is oriented to include the most usual or emblematic themes in the proof game world, leading, like in any other chess problems field, to paradox, mystery, and surprise for the solver. Of course, other composers (or even one of us!) might select other themes to build other lists than the TT one. They would provide different sets of classical FPGs, maybe as interesting as ours, or even more. Our choice of the TT list does not pretend to be a high quality guarantee for each related classical FPG, but a framework to inspire aesthetic and rich outputs.

Some themes have been added in the TT list even if no classical FPG example already exists, as Schnoebelen (SC). This is mainly to encourage further research. We also decided to add Phantom (PH) and thematic capture (TC). They are not exactly themes but enhancements of one of these.This is when the capture of the thematic piece occurs on an appealing square or is not asked by the theme. The main reason of this choice is that some very nice proof games already exist performing PH or TC, and we think that it will get more and more important in further developments.

For convenience and clarity, we have divided the TT into five families. An explanation of why some known themes are not in this list is also provided. The various definitions can be found in section A.

- **The Ceriani-Frolkin family**:
  The key to be discovered is the nature of the piece that was promoted and where it was captured.
  - **CF** = Ceriani-Frolkin
  - **KP** = Prentos
  - **SC** = Schnoebelen
- **The circuit family**:
  The key to be discovered is why a piece standing on its initial square (in general) has in fact moved during the proof game.
  - **CI** = Circuit
  - **DO** = Donati
  - **PC** = Pawn circuit
  - **RU** = Rundlauf
  - **SW** = Switchback
- **The imposter family**:
  The key to be discovered is why a piece pretending to be as it seems in the diagram position, is in fact not.
  - **AP** = Anti-Pronkin
  - **IP** = Imposter Pawn
  - **MP** = Meta-Pronkin
  - **MS** = Meta-Sibling
  - **PR** = Pronkin
  - **SI** = Sibling
- **The multiple-men family**:
  The members involve at least two pieces (exactly two in this first part of the article) to be realized.
  - **CC** = Cross capture
  - **IN** = Interchange
  - **LO** = Lois
  - **PI** = Pawn interchange
- **The enhancement family**:
  The members involve a particular type of capture.
  - **PH** = Phantom
  - **TC** = Thematic capture

Note that Anti-Pronkin might have been classified within the Ceriani-Frolkin family and that Interchange is stricly equivalent to Platzwechsel. Note also that Meta-Pronkin, Meta-Sibling and Phantom were introduced by Roberto and Andrey Frolkin in their article "There is no place like home", StrateGems, October 2007.

We hesitate about incorporating or not incorporating some well-known themes in the above TT list. We decided not to do so, mainly for the following reasons:

- **Phoenix:** This theme is more or less replaced, today, by the modern and specialized Pronkin. Moreover, we decided to not specify for an order between the helping piece and the thematic one, so the name Phoenix is no longer relevant adapted in our setting. Finally, twofold Phoenix of the same nature (as it would be needed to be half part of a basic FPG), is rarely the main aim of a proof game.

- **Tempo move:** This theme might be a nice one to be included in a list, but finding its right definition is not obvious (it does not seem to exist in the literature yet).
- **Repeated move:** It is also a theme that could deserve attention. But a lot of proof games contain "accidental" repeated moves. Taking all of them into account would produce heavy notations, badly concentrated on the main features.
- **Castling and en passant captures:** It is not even clear that they should be considered as themes (although they are, e.g., in Winchloé). Indeed one might simply consider them as particular moves. Moreover kingside white castling, denoted either as a one-man theme 0-0(W) or as a two-men theme 0-0(R,K), doesn't correctly fit our classical FPG notation.

3.1 Notation of a classical FPG

In order to simplify the reading, we identify a classical FPG with a symbolic notation of its thematic content, according to the previously defined rules.

3.1.1 Examples

- The basic FPG CF(B,B) & IN(rr) performs two Ceriani-Frolkin white Bishops and an Interchange of two black Rooks. Furthermore, if a black Ceriani-Frolkin Queen is also performed, and the thematic Rooks are finally captured, the resulting (extra-man and two-themes-men) extended FPG is marked CF(B,B,q) & (IN & TC)(rr).
- Suppose that the white side performs the Donati theme DO(A) (a promoted piece A leaves and returns to its promotion square). This Circuit might be a very rich one, for example a Rundlauf RU(A), but we cannot mark it (DO & RU)(A), as this notation would imply that A performed two Circuits. As DO is a particular case of CI[1] (see subsection 2.5), we can mark it RU(A)[1] but this is not completely specific, as the Rundlauf may not pass through the promotion square. In particular, it is not always possible to pick up a symbolic notation which encompasses the full thematic content of a given classical FPG.

3.1.2 Special kinds of notation

- Let X(A,A) & Y(B,B) be a basic symbolic notation. It may appear that, moreover, a two-men theme Z is performed by a couple (A,B) already involved in this notation. The resulting extended one is marked X(A,Z(A)) & Y(B,Z(B)).
- When a theme involves a Pawn which is promoted (PC, MP or PI), then the thematic piece is the promoted one.
- When a theme involves a capture by a Pawn, e.g. CC or IP, then the thematic piece is the captured one. For example, IP(s) means that the Imposter Pawn is of white color and has captured a black thematic Knight, while CC(ss) means that both black Knights are the thematic pieces of the Cross capture theme. In particular, both for CC and IP, the Pawns act only as "supporting" pieces.
- The IP theme can be one-man or two-men. As already mentioned (see subsection 2.1), the symbolic notation IP(A,A) is used when IP is one-man (twofold rendition of the theme), and IP(AA) is used when IP is two-men (one rendition of the theme).
- When a couple (A,A) performs the theme X and is then Cross captured, it involves two themes and two thematic pieces, and hence is denoted (X & CC)(A,A), as X is the first realized theme.
  When the Cross capture achieves simultaneously another theme X, e.g. X=CF, we consider that feature as involving a double theme (CC & X)(AA), despite the fact that the capture is a necessary condition for both themes. Note also that (CC & CF)(AA) can be marked CC(AA)[2], but we still consider that (A,A) performs two themes (the "2" intrinsically describes the CF theme).
  It may also appear that the Cross capture CC(AA) leads to a couple (p,p) of black Pawns, which at its turn is also Cross captured. This different feature, now involving four thematic pieces and the CC theme realized twice, is marked CC((AA),(pp)), to be consistent with the X(A,p) notation. This is obviously a full basic FPG.
  Another special case is found when a same couple of Pawns achieve several pairs of Cross captures. For two pairs, it also leads to four thematic pieces and to the CC theme realized twice. It is therefore marked CC((AA),(BB)), to also be consistent with the X(A,B) notation. This is obviously also a full basic FPG.

We don't want to collect each classical FPG (relatively to the above TT list), in particular because a given one can clearly be too near or better than another one. So we decided to operate a ranking between the existing classical FPGs, before establishing our collection. We apologize to the composers who will not find some of their FPGs here. Our "modus operandi" is explained in the following section.

4 Ranking classical FPGs

In this section we establish some economy criteria. Our intention is to provide to the reader only a collection of ranked FPGs, called the **record classical FPGs**, so that one can immediately see what are the conditions to go further into the field. We expect to stimulate and make easier new research this way (another one is our forthcoming selection of open problems). Although it is not easy, or even impossible, to define such criteria which will create a total consensus (as ranking is often a matter of individual taste), we think that our choice will find a good acceptance.

A basic symbolic notation, e.g. X(A,A) & Y(B,B), is from now on called a **case**. Our criteria permit to collect the record classical FPGs performing any such case.

We decided to emphasis FPGs with standard material (i.e. without visible promotion) and FPGs showing the largest thematic content, eventually paying the price of visible promotions. The first choice is to favor the "artistic" approach, while the second is to favor the "scientific" one. A classical FPG with standard material is marked SM, while a classical FPG with visible promotion(s) is marked NSM (non-standard material).

4.1 The record basic FPG illustrating a given case

At most one basic FPG performing a given case is collected. For F to be collected, it is necessary that no extension of F exists, or that each such extension is NSM while F is SM. If there are several basic FPGs fulfilling this condition, the collected one is picked according to the following descendant hierarchy:

1. Fewest number of visible promotions (on the diagram position).
2. Fewest number of captures.
3. Largest number of homebased pieces.
4. Fewest number of moves.

4.2 The collection of record extended FPGs illustrating a given case

Several extended FPGs performing a given case can be collected. For G to be collected, it is necessary that no further extension of G exists, or that each such extension is NSM while G is SM. If there are several extended FPGs fulfilling this condition, all of them are collected, except those with the same extended symbolic notation as another one, but "inferior", according to the above criteria.

In particular, a new classical FPG will enter the collection of records (it will obviously be regularly updated) if one of the following three possibilities is fulfilled:

- It provides a basic rendition of a previously unfilled case.
- It provides a new extended rendition of an already fulfilled case.
- It improves the best basic rendition or a record extended rendition of an already fulfilled case, according to the above criteria.

Of course, for the third possibility, the old FPG is deleted from the collection of records. It might also appear, in the second possibility, that some old extended FPG may have to be deleted: when it is a "skeleton" of the new one, except when this skeleton is SM while the new one is NSM (we say that F is a **skeleton** of G when G is an extension of F).

4.3 Bonuses and maluses

We introduce here some quality criteria (as symbols) that are marked after each related record classical FPG. This is mainly to help the reader, who can immediately see how to proceed in a given case.

There are two kinds of proof games which are NSM. Those where the diagram position contains extra material (EM for now), and those showing visible promoted pieces, although “single box” (SB for now). Those “maluses” EM or SB indicate that criteria 1 above can be improved.

A “bonus” is when each move is thematic. A classical example is a homebased side, but it may also happen when the two sides collaborate to reach the theme. This is marked FT (fully thematic) after each related case. It indicates that criteria 2, 3 and 4 above are almost impossible to improve.

Some of the classical FPGs present non-thematic moves at the end (some French composers call that “chantilly”). It would be very unfair to just cut them and claim for an improvement. So, in such a case, we decided to present the truncated game (marked TG over the related diagram) and, obviously, to leave it to its author.

We are now ready to collect the record classical FPGs relative to the TT list. Most of them are computer tested (by Euclide and/or Natch), we mark them C+. When it is not the case, we definitely prefer to mark them C?, letting C- for cooked problems as, for example, in WinChloé.

5 Collection of the record classical FPGs

We have done our best to arrange the record classical FPGs in an appealing order. Each subsection ends with some comments and a list of open problems. They are not exhaustive as some missing entries are of little interest. On the contrary, what we think are the most challenging and interesting open problems are listed separately in the last subsection.

We decided to present the related diagrams and solutions after each subsection, so that the reader can easily focus on the cases of direct interest.

5.1 Organization

The largest numbers of entries appear with the themes CF, PR and SI, respectively. We also remarked that some very nice entries are concentrated around themes with supporting Pawns (IP or CC) or around the Belfort theme (involving IN & IN). We therefore decided to present our record collection in the following order:

- 5.2 Classical FPGs containing CF
- 5.2.1 CF & CF
- 5.2.2 CF & PR
- 5.2.3 CF & SI
- 5.2.4 CF & remaining theme
- 5.2.5 Specialized CF
- 5.3 Classical FPGs containing PR but not CF
- 5.3.1 PR & PR
- 5.3.2 PR & SI
- 5.3.3 PR & remaining theme
- 5.4 Classical FPGs containing SI but neither CF nor PR
- 5.4.1 SI & SI
- 5.4.2 SI & remaining theme
- 5.5 Classical FPGs containing neither CF nor PR nor SI
- 5.5.1 Supporting Pawns (IP or CC)
- 5.5.2 Belfort type (IN & IN)
- 5.5.3 Miscellaneous
- 5.6 Highly challenging open problems

For clarity and convenience for the reader, we decided that each entry in a section dealing with a theme X, really contains X in its chosen symbolic notation. Moreover, it may appear that a same entry is a record game for different cases (when this entry admits several different symbolic notations). We decided to provide a single classification number to such an entry (in the section that we consider to be its best place), but to also list it in another subsection, when it fulfills another record, related to this subsection.

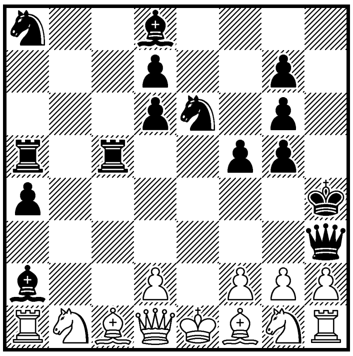
5.2 Classical FPGs containing CF

5.2.1 CF & CF

Monocolored CF & CF: The CF theme is probably the most emblematic and well-known in the proof game land. It is therefore not surprising that we begin our collection with the ten possible different cases performing four CF renditions by the same side. Every such case has been successfully fulfilled, except perhaps the four Rooks (entry 5), which is not fully tested.

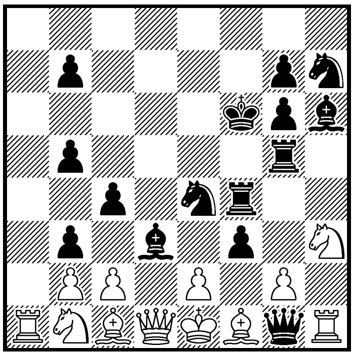
- CF(Q,Q) & (PC & CF)(Q,Q): **1** (C+, FT)
- CF(Q,Q) & CF(R,R): **2** (C+)
- CF(Q,Q) & CF(B,B): **3** (C+, FT)
- CF(q,q) & CF(s,s): **4** (C+, FT)
- CF(R,R) & CF(R,R): **5** (C?)
- CF(R,R) & CF(B,B): **6** (C+, FT)
- CF(R,R) & CF(S,S): **7** (C+, FT)
- CF(b,b) & CF(b,b,b): **8** (C+, EM)
- CF(b,b) & CF(b,b,Q): **8-a** (C+)
- CF(b,b) & CF(b,b,B): **8-b** (C?, EM)
- CF(B,B) & CF(S,S): **9** (C+, FT)
- (CC & CF) (ss) & (CC & CF) (ss): **10** (C+, FT)

1 **Nicolas Dupont**
Version Silvio Baier
The Problemist XI/2004



PG in 28.0 moves (12+15)

2 **Silvio Baier**
722 Uralski Problemist 2010



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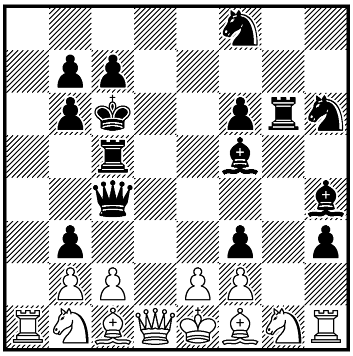
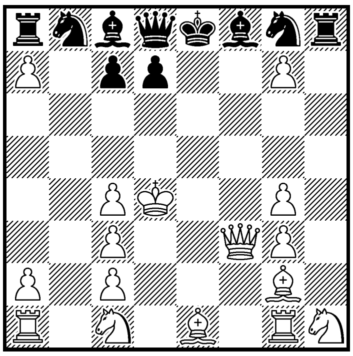
3 **Silvio Baier**
723 Uralski Problemist 2010



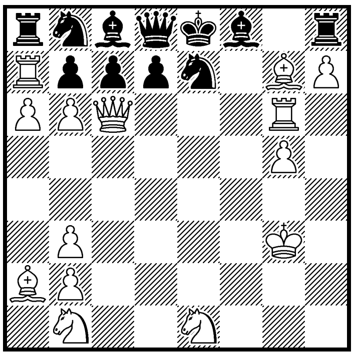
PG in 26.0 moves (12+15)

4 **Nicolas Dupont**
France Echecs X/2008
dedicated to Roberto Osorio's 55th birthday



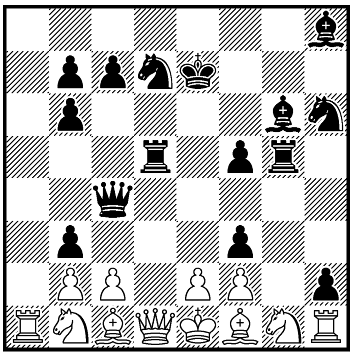
PG in 26.5 moves (16+10)

5 **Unto Heinonen**
3192v Suomen Tehtäväniekat IV/2008



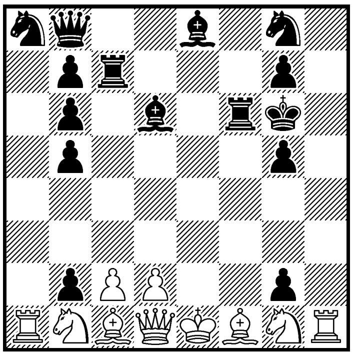
PG in 28.5 moves (14+11)

6 **Silvio Baier**
14767 Die Schwalbe II/2011



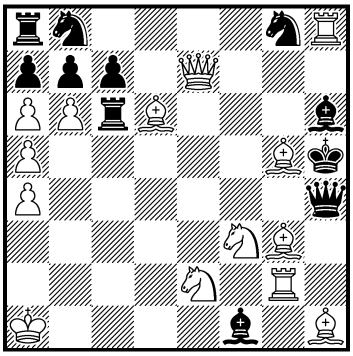
PG in 26.0 moves (12+15)

7 Nicolas Dupont
14701 Die Schwalbe
XII/2010



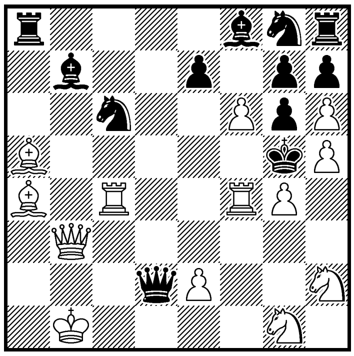
PG in 26.0 moves (10+15)

8 Unto Heinonen
R006 Probleemblad
VII/1997
1. Preis
dedicated to Olli Heimo



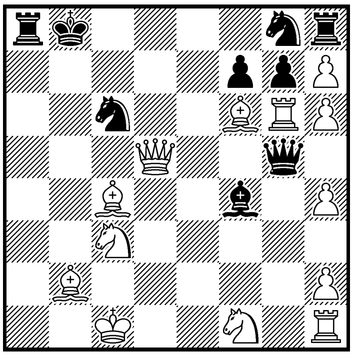
PG in 39.5 moves (14+11)

8-a [TG] Michel Caillaud
421 Europe Echecs VII/1983
1. Prize
dedicated to A. Hazebrouck



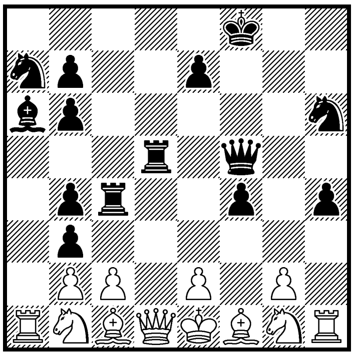
PG in 31.5 moves (13+12)

8-b Dmitrij Pronkin
Andrej Frolkin
Die Schwalbe VIII/1985



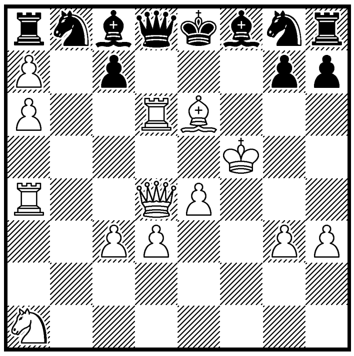
PG in 32.0 moves (13+9)

9 Silvio Baier
14834 Die Schwalbe
IV/2011



PG in 25.0 moves (12+14)

10 Nicolas Dupont
P0229 StrateGems
VII–IX/2008



PG in 24.5 moves (13+11)

1) Nicolas Dupont:

1.a4 Sf6 2.a5 Sd5 3.a6 Sb6 4.ab a5 5.c4 a4 6.c5 Ra5 7.c6 Sa6 8.b8Q Sa8 9.Qb4 Bb7 10.Qd6 cd 11.c7 Bd5 12.c8Q Ba2 13.Qcc2 S6c7 14.Qg6 hg 15.b4 Rhh5 16.b5 Rc5 17.b6 f5 18.b7 Kf7 19.b8Q Kf6 20.Qb2+ Kg5 21.Qf6+ ef 22.e4 Be7 23.e5 Qh8 24.e6 Ld8 25.e7 Qh3 26.e8Q Kh4 27.Qe3 Se6 28.Qg5+ fg

2) Silvio Baier:

1.f4 a5 2.f5 a4 3.f6 Ra5 4.fe f5 5.d4 Kf7 6.e8R f4 7.Re6 f3 8.Rg6 hg 9.d5 Rh4 10.d6 Rf4 11.h4 Be7 12.h5 Bg5 13.h6 Sf6 14.h7 Bh6 15.h8Q Sh7 16.Qg8+ Kf6 17.Qb3 ab 18.a4 Rg5 19.a5 c5 20.a6 c4 21.a7 Sa6 22.a8Q Sc5 23.Qa4 Qb6 24.Qc6 dc 25.Sh3 Bf5 26.d7 Bd3 27.d8R Se4 28.Rd5 Qg1 29.Rb5 cb

3) Silvio Baier:

1.h4 f5 2.h5 f4 3.h6 f3 4.hg h5 5.g4 h4 6.g5 Rh5 7.g6 Sh6 8.g8B Bg7 9.Bb3 Bf6 10.g7 h3 11.g8B Bh4 12.Bgc4 d5 13.d4 dc 14.d5 Kd7 15.d6 Kc6 16.d7 Qg8 17.d8Q cb 18.Q8d4 Qc4 19.Qb6+ ab 20.a4 Rc5 21.a5 Bf5 22.a6 Sd7 23.a7 Rg8 24.a8Q Rg6 25.Qh8 Sf8 26.Qf6+ ef

4) Nicolas Dupont:

1.h4 f5 2.h5 f4 3.h6 f3 4.hg h5 5.b4 h4 6.b5 h3 7.b6 h2 8.ba b5 9.Sh3 b4 10.Rg1 h1S 11.g4 Sg3 12.fg b3 13.Kf2 b2 14.Ke3 f2 15.Bg2 f1Q 16.Sc3 Qf5 17.Sf2 Qd3+ 18.ed b1S 19.Se2 Sc3 20.dc e5 21.Bd2 e4 22.Kd4 e3 23.Sc1 e2 24.Sh1 e1Q 25.Qf3 Qe6 26.Be1 Qc4+ 27.dc

5) Unto Heinonen:

1.a4 g5 2.a5 g4 3.Ra4 g3 4.Rg4 h5 5.d4 h4 6.Bh6 h3 7.Bg7 hg 8.h4 f5 9.h5 f4 10.h6 f3 11.h7 fe 12.f4 e5 13.Sf3 g1R 14.Rh6 g2 15.Kf2 e1R 16.Bc4 Re3 17.Ba2 Rb3 18.cb e4 19.Qc2 Rc1 20.Ra6 g1R 21.Rgg6 Rg5 22.fg e3+ 23.Kg3 e2 24.R:a7 e1R 25.a6 Re6 26.Se1 Rb6 27.Qc6 Rc5 28.dc Se7 29.cb

6) Silvio Baier:

1.h4 f5 2.h5 f4 3.h6 f3 4.hg h5 5.g4 h4 6.g5 Rh5 7.g6 Sh6 8.g8B Bg7 9.Bb3 Bh8 10.g7 h3 11.g8B h2 12.Bgc4 d5 13.d4 dc 14.d5 cb 15.d6 Rd5 16.a4 Bf5 17.a5 e6 18.a6 Qh4 19.d7+ Ke7 20.d8R Qc4 21.Rd6 Sd7 22.Rb6 ab 23.a7 Rg8 24.a8R Rg5 25.Rf8 Bg6 26.Rf5 ef

7) Nicolas Dupont:
1.f4 h5 2.f5 h4 3.f6 h3 4.fe hg 5.h4 Rh6 6.h5 Rf6 7.h6 a5 8.h7 a4 9.h8S a3 10.Sg6 ab 11.a4 fg 12.a5 Kf7 13.e8R g5 14.Re6 Kg6 15.Rc6 dc 16.a6 Bd7 17.a7 Sa6 18.e4 Rc8 19.a8S Bd6 20.Sb6 cb 21.e5 Sc7 22.e6 Sa8 23.e7 Rc7 24.e8R Qb8 25.Re5 Be8 26.Rb5 cb

8) Unto Heinonen:
1.a4 h5 2.a5 h4 3.a6 h3 4.Ra5 hg 5.h4 Rh6 6.h5 Rc6 7.h6 g5 8.h7 g4 9.Rg5 f5 10.h8B f4 11.Be5 f3 12.Rh8 fe 13.f4 g3 14.Sf3 g1B 15.Bg2 Bb6 16.Bh1 g2 17.f5 g1B 18.f6 Bgc5 19.d4 d5 20.dc Bh3 21.cb Bf1 22.Rg2 Kf7 23.Bg3 Kg6 24.f7 Bh6 25.f8B e5 26.Bfd6 Qh4 27.Bg5 e4 28.Kd2 e1B+ 29.Kc1 Ba5 30.Sc3 e3 31.Kb1 e2 32.Ka1 e1B 33.Qe2 d4 34.Qe7 d3 35.Se2 Beb4 36.c3 d2 37.cb d1B 38.ba Ba4 39.b3 Kh5 40.ba

8-a) Michel Caillaud:
1.h4 c5 2.h5 c4 3.Rh4 c3 4.Rc4 b5 5.g4 b4 6.Bg2 b3 7.Bc6 ba 8.b4 a5 9.b5 a4 10.b6 a3 11.Ba4 Sc6 12.b7 d5 13.b8Q d4 14.Qd6 d3 15.Qg6 dc 16.d3 fg 17.Bd2 c1B 18.Qb3 c2 19.Ba5 Bh6 20.Sd2 c1B 21.Sf1 Bcg5 22.f4 Kf7 23.0-0-0 a1B 24.fg a2 25.gh Kf6 26.Sh2 Kg5 27.Rf1 Bf6 28.Rff4 a1B 29.Kb1 Bae5 30.d4 Bb7 31.de Qd2 32.ef (Te8 33.f7 Sf6 34.Dd3 Sd7 35.Ld1 Sdb8 36.Sgf3+)

8-b) Dmitrij Pronkin, Andrej Frolkin:
1.a4 d5 2.a5 d4 3.a6 d3 4.ab dc 5.d4 a5 6.d5 a4 7.d6 a3 8.Qd5 ab 9.Sd2 b1B 10.Bb2 c1B 11.Ra6 Bg6 12.e4 Bcf5 13.ef c5 14.fg c4 15.gh c3 16.Bc4 c2 17.Sf1 Bh6 18.Se2 c1B 19.Sc3 Bcg5 20.f4 e5 21.fg e4 22.gh Qg5 23.d7+ Kd8 24.Rg6 Sc6 25.b8B e3 26.Bf4 e2 27.Kd2 e1B+ 28.Kc1 Bh4 29.g3 Bd6 30.gh Kc7 31.d8B+ Kb8 32.Bf6 B:f4+

9) Silvio Baier:
1.h4 a5 2.h5 Ra6 3.h6 Rc6 4.hg h5 5.f4 h4 6.f5 Rh5 7.f6 Sh6 8.g8B Bg7 9.fg f5 10.Bb3 f4 11.g8B Kf8 12.Bgc4 d5 13.d4 dc 14.d5 Qd7 15.d6 Rd5 16.a4 Qf5 17.d7 cb 18.d8S Rc4 19.Sc6 Bd7 20.Sb4 ab 21.a5 Bb5 22.a6 Sc6 23.a7 Ba6 24.a8S Sa7 25.Sb6 cb

10) Nicolas Dupont:
1.b4 e5 2.b5 e4 3.b6 e3 4.ba b5 5.a4 b4 6.a5 b3 7.Ra4 b2 8.Sa3 b1S 9.a6 Sc3 10.dc ef+ 11.Kd2 f5 12.e4 f4 13.Bc4 f3 14.Ke3 f1S+ 15.Kf4 Sg3 16.hg d5 17.Rh6 d4 18.Rd6 d3 19.Be6 d2 20.Kf5 dcS 21.Qd4 Sd3 22.cd f2 23.Sc2 fgS 24.Sa1 Sh3 25.gh

Comments and open problems: Each of the ten different cases is fulfilled, although some of them are not C+ for now. The SM four Rooks case has been constructed only very recently. The four Bishops is alone in admitting an extra-man extension. As is the four Knights, which alone admits a two-theme-men extension. It probably implies that, at least in the monocolored case, the various difficulties, from the most to the least, can be ranked as “Rook-Queen-Knight-Bishop”.

Our first open problem is to add an extra-Bishop in other combinations:

- CF(U,U) & CF(B,B,B) where U $\neq$ B.

We denote it with white thematic pieces but, of course, the same challenge remains available for black. It will always be the case for each open problem.

It is perhaps also possible to add an extra-Knight:

- CF(U,U) & CF(S,S,S).

Two-themes-men extensions with CC is a real bonus as it makes the captures “invisible”. Our next open problems list is therefore:

- CF (U,U) & (CC & CF) (VV) where (U,V) $\neq$ (S,S).

Obviously, two CCs would be even stronger. The last possibility we have in mind, unexploited for the moment, is when Pawns promote via switchbacks of original pieces from the other side. The Knights are clearly the best candidates, leading to the following extra-theme extension open problems:

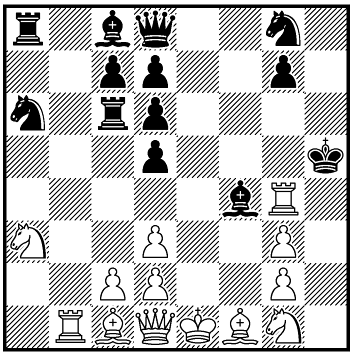
- CF(U,U) & CF(V,V) & SW(s,s).

Obviously, four SWs would be even stronger, but we doubt that this is possible.

Bicolored CF & CF: Generally speaking, a bicolored or mixed-colored case is a little bit easier to handle than the corresponding monocolored one. It it therefore not surprising that, again, all possibilities have been fulfilled, each with standard material this time.

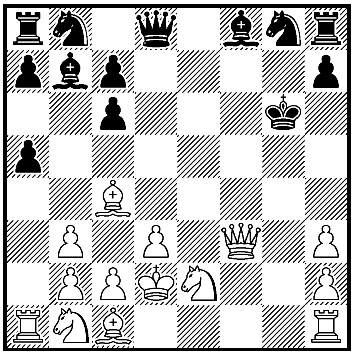
- CF(Q,Q,Q) & CF(PC(q),q): **11** (C+)
- CF(q,q) & CF(R,R): **12** (C+)
- CF(q,q) & CF(B,B): **13** (C+)
- CF(Q,Q) & CF(s,s): **14** (C+)
- CF(R,R) & CF(r,r): **15** (C+)
- CF(r,r) & CF(B,B): **16** (C+)
- CF(R,R) & CF(s,s): **17** (C+)
- CF(B,B) & CF(b,b,b): **18** (C+)
- CF(B,B) & CF(s,s): **19** (C+)
- CF(S,S) & CF(s,s) & SW(S,S) & SW(s,s): **20** (C+)

11 **Unto Heinonen**
7644v Die Schwalbe II/1992
4. Preis
dedicated to Andrej Frolkin



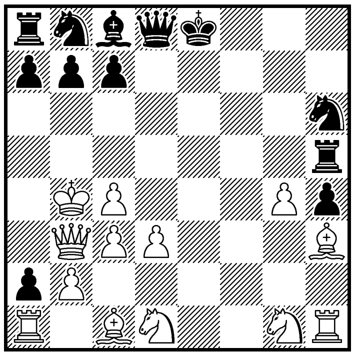
PG in 26.5 moves (13+13)

12 **Silvio Baier**
Original



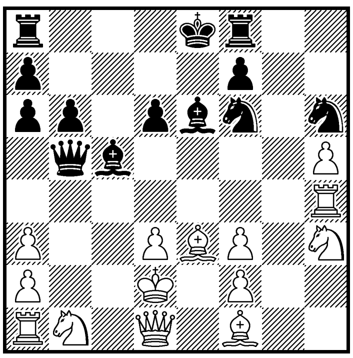
PG in 20.5 moves (14+13)

13 **Silvio Baier**
R382 Probleemblad X–XII/2010



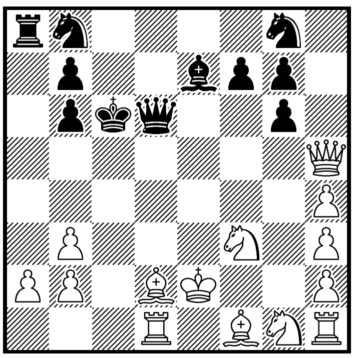
PG in 23.5 moves (13+12)

14 **Silvio Baier**
R170 Problem Paradise I–III/2011



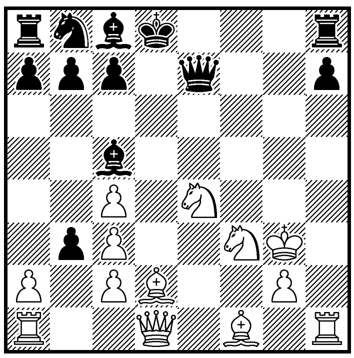
PG in 24.0 moves (14+13)

15 **[TG] Dmitrij Pronkin**
5763v Die Schwalbe II/1987
1. Preis



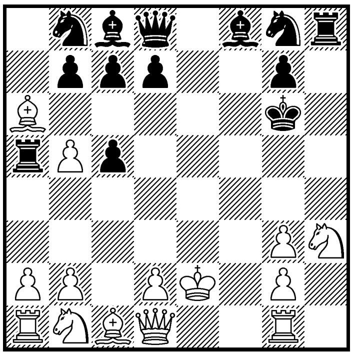
PG in 23.5 moves (14+11)

16 **Silvio Baier**
R381 Probleemblad X–XII/2010



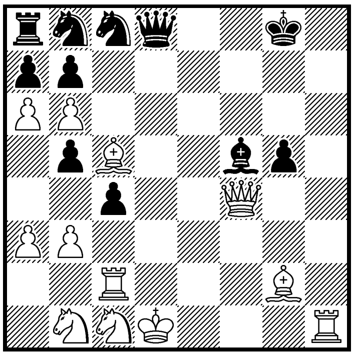
PG in 20.5 moves (13+12)

17 **Silvio Baier**
R169 Problem Paradise
I–III/2011



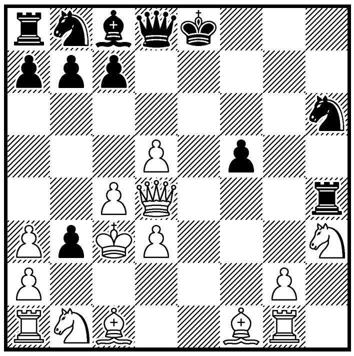
PG in 20.5 moves (14+13)

18 [TG] Dmitrij Pronkin
503v Europe Echecs
IV/1989
5. Preis



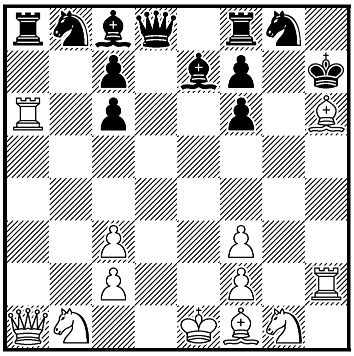
PG in 31.0 moves (12+11)

19 **Silvio Baier**
R375 Probleemblad
VII–IX/2010



PG in 21.5 moves (14+12)

20 **Michel Caillaud**
Messigny 2010
1.-2. Prize



PG in 21.5 moves (12+12)

11) Unto Heinonen:
1.a4 h5 2.a5 Rh6 3.a6 Rc6 4.ab a5 5.f4 Sa6 6.b8Q a4 7.Qb4 a3 8.Qd6 a2 9.Sa3 ed 10.Rb1 a1Q 11.b4 Qc3 12.b5 Qg3 13.hg Be7 14.Rh4 Bg5 15.Rg4 h4 16.b6 h3 17.b7 h2 18.b8Q h1Q 19.Qb3 Qh7 20.Qe6+ fe 21.f5 Kf7 22.f6 Kg6 23.f7 Kh5 24.f8Q Qd3 25.Qf3 Bf4 26.Qd5+ ed 27.ed

12) Silvio Baier:
1.f4 g5 2.f5 g4 3.f6 g3 4.fe f5 5.e4 Kf7 6.e8R f4 7.Re6 f3 8.Rc6 dc 9.Bc4+ Kg6 10.d3 f2+ 11.Kd2 f1Q 12.e5 Qf5 13.Qf3 Qh3 14.gh g2 15.Se2 g1Q 16.e6 Qb6 17.e7 Qb3 18.e8R b6 19.Re5 Bb7 20.Ra5 ba 21.ab

13) Silvio Baier:
1.h4 e5 2.h5 e4 3.h6 e3 4.hg h5 5.f4 h4 6.f5 Rh5 7.f6 Sh6 8.g8B Bg7 9.fg f5 10.Bb3 f4 11.g8B f3 12.Bgc4 d5 13.g4 dc 14.Bh3 cb 15.c4 ba 16.Qb3 f2+ 17.Kd1 f1Q+ 18.Kc2 Qf5+ 19.Kc3 Qfd3+ 20.ed e2 21.Kb4 e1Q 22.Sc3 Qe5 23.Sd1 Qc3+ 24.dc

14) Silvio Baier:
1.g4 e5 2.g5 e4 3.g6 e3 4.gh g5 5.h4 g4 6.h5 g3 7.Rh4 g2 8.Sh3 g1S 9.d3 Sf3+ 10.ef e2 11.Be3 Sh6 12.Kd2 e1S 13.c4 Sc2 14.c5 Sa3 15.c6 Bc5 16.ba Rf8 17.h8Q d6 18.Qb2 Le6 19.Qb6 cb 20.c7 Sd7 21.c8Q Sf6 22.Qc6+ Qd7 23.Qa4 Qb5 24.Qa6 ba

15) Dmitrij Pronkin:
1.d4 c5 2.d5 c4 3.d6 c3 4.de d5 5.e4 Kd7 6.e8R d4 7.Re6 d3 8.Rb6 ab 9.e5 Kc6 10.e6 Qd6 11.e7 Be6 12.e8R Bb3 13.Re6 Be7 14.Rg6 hg 15.cb Rh3 16.Qh5 d2+ 17.Ke2 d1R 18.gh Rd3 19.Sd2 Rg3 20.Sdf3 c2 21.Bd2 c1R 22.fg Rc4 23.Rd1 Rh4 24.gh (Sf6)

16) Silvio Baier:
1.h4 f5 2.h5 f4 3.h6 f3 4.hg fe 5.f4 e5 6.Kf2 e1R 7.f5 Re3 8.f6 Rc3 9.dc Bc5+ 10.Kg3 Qe7 11.f7+ Kd8 12.fgB e4 13.Bb3 e3 14.g8B e2 15.Bgc4 d5 16.Bd2 dc 17.Sf3 cb 18.c4 e1R 19.Sc3 Re3 20.Se4 Rc3 20.bc

17) Silvio Baier:
1.f4 h5 2.f5 h4 3.f6 h3 4.fe f5 5.e4 Kf7 6.e8R f4 7.Re6 f3 8.Rb6 ab 9.e5 Ra5 10.Ba6 f2+ 11.Ke2 f1S 12.c4 Sg3+ 13.hg h2 14.Sh3 Kg6 15.Rg1 h1S 16.e6 Sf2 17.e7 Se4 18.e8R Sd6 19.Re5 Sb5 20.Rc5 bc 21.cb

18) Dmitrij Pronkin:
1.b3 h5 2.Ba3 h4 3.Qc1 h3 4.Kd1 hg 5.h4 e5 6.h5 e4 7.h6 e3 8.h7 ef 9.e4 f5 10.Se2 g1B 11.Bg2 f1B 12.e5 Bb6 13.d4 Bfc5 14.dc f4 15.cb f3 16.Qf4 f2 17.Sc1 Ba6 18.Bc5 f1B 19.a3 Bfb5 20.c4 Se7 21.cb Rg8 22.hgB g5 23.Bc4 d5 24.ba Bf5 25.e6 Sc8 26.e7 Kf7 27.e8B+ Kg8 28.Beb5 c6 29.Ra2 cb 30.Rc2 dc+

19) Silvio Baier:
1.h4 e5 2.h5 e4 3.h6 e3 4.hg h5 5.f4 h4 6.f5 h3 7.f6 h2 8.Sh3 Rh4 9.Rg1 Sh6 10.g8B f5 11.Bb3 h1S 12.g8B Sf2 13.Bgc4 d5 14.d4 dc 15.d5 cb 16.Qd4 Sd3+ 17.ed e2 18.Kd2 e1S 19.c4 Sc2 20.Kc3 Sa3 21.ba

20) Michel Caillaud:
1.h4 a5 2.h5 a4 3.h6 a3 4.hg ab 5.a4 h5 6.a5 Sh6 7.g8S h4 8.Sf6+ ef 9.a6 Be7 10.ab Sa6 11.b8S 0-0 12.Sc6 Sb8 13.Ra6 Kh7 14.Sa3 b1S 15.Rh2 Sc3 16.dc Sg8 17.Bh6 h3 18.Qa1 hg 19.Sh3 g1S 20.Sb1 Sf3+ 21.ef dc 22.Sg1

Comments and open problems: We will follow the same plan as in the monocolored case. There is no NSM case to improve, hence the first possibility is to add an extra-Bishop in other combinations:

- CF(U,U) & CF(b,b,b) where U $\neq$ B.

Six Ceriani-Frolkin Bishops by the same side is probably impossible, but perhaps not if divided into both sides. Indeed, we already mentioned that larger thematic contents might be reached in the bicolored case and, moreover, a classical FPG with three Ceriani-Frolkin by each side already exist (see entry 21). We therefore mention the following two great challenges:

- CF(B,B,B) & CF(b,b,b).
- CF(B,B) & CF(b,b) & CF(b,b).

Strangely enough, entry 11 shows an extra-Queen extension while such an extension doesn't exist for Knights. It means that, in fact, the common idea that Ceriani-Frolkin Knight is the easiest case to perform is certainly wrong, although only one move is needed and no matter the position of the opposite King. The reason is probably the restricted length of Knight moves. Anyway, adding it as an extra-man, as well as other extra-Queen extensions, is probably possible, leading to the following open problems:

- CF(U,U) & CF(s,s,s).
- CF(U,U) & CF(q,q,q) where U $\neq$ Q.

The Rook case is still the most complicated one, and we doubt that it is possible to reach an extension containing CF(R,R,R).

Constructing two-themes-men extensions with CC would also be a real bonus in this bicolored framework. Our next open problems list is therefore:

- CF (U,U) & (CC & CF) (vv).

Obviously, two CCs would be even more difficult, in fact a very interesting challenge, as a complete invisibility of two Ceriani-Frolkin from both sides would be really impressive, certainly more complicated to construct than entry 10.

The last possibility we have in mind is that promoting pawns lead to switchbacks of the original pieces from the other side This has been recently exploited in entry 20. The Knights are clearly the best candidates, leading to the following extra-theme extension open problems list:

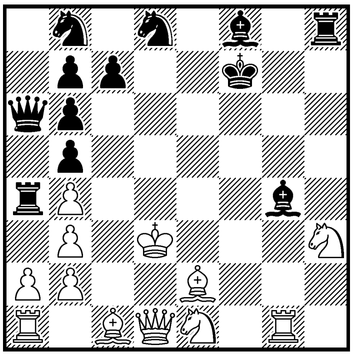
- CF(U,U) & CF(v,v) & SW(s,s) where (U,v) $\neq$ (S,s).

Obviously, four SWs would be even more demanding, and probably also possible in other cases than entry 20.

Mixed-colored CF & CF: We have here a great extra-theme FPG that fulfills half of the cases!

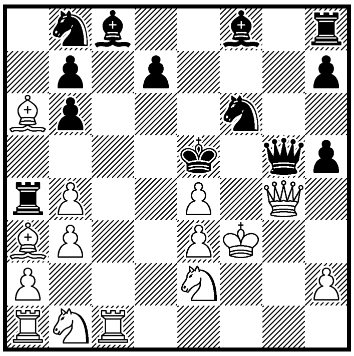
- CF(Q,q) & CF(R,r) & CF(S,s): **21** (C+)
- CF(Q,q) & CF(B,b): **22** (C+)
- CF(R,r) & CF(B,b): **23** (C+)
- CF(B,b) & CF(S,s): **24** (C+)

21 [TG] Michel Caillaud
593 Europe Echecs X/1994
dedicated to Andrej Frolkin and Gerd Wilts



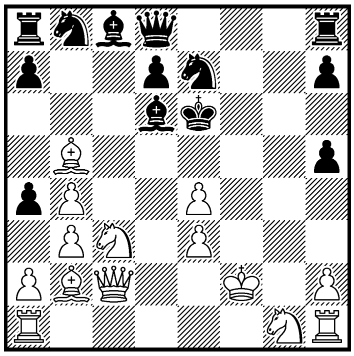
PG in 32.0 moves (12+12)

22 Silvio Baier
P0294 StrateGems
I–III/2011



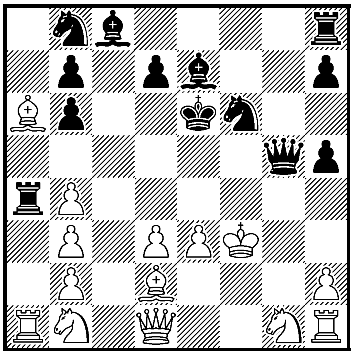
PG in 23.5 moves (14+13)

23 Silvio Baier
P0292 StrateGems
I–III/2011



PG in 22.5 moves (14+13)

24 Silvio Baier
P0293 StrateGems
I–III/2011



PG in 22.5 moves (14+13)

21) Michel Caillaud:
1.h4 e5 2.h5 e4 3.h6 e3 4.hg h5 5.g4 h4 6.g5 h3 7.g6 h2 8.Sh3 Sh6 9.Rg1 h1Q 10.g8S Qc6 11.Se7 Qc3 12.Sc6 dc 13.g7 Bg4 14.g8Q f5 15.Qb3 Q8d3 16.Qb6 ab 17.dc Ra4 18.Sd2 Qa6 19.Sf3 ef+ 20.Kd2 Sf7 21.e4 Sd8 22.Be2 f1R 23.Se1 Rf4 24.e5 Rfb4 25.e6 f4 26.e7 Kf7 27.e8R f3 28.Re5 f2 29.Rb5 f1S+ 30.Kd3 Sd2 31.cb Sb3 32.cb cb (33.ba)

22) Silvio Baier:
1.f4 c5 2.f5 c4 3.f6 c3 4.fe f5 5.g4 Kf7 6.e8B+ Ke6 7.Bh5 g6 8.g5 gh 9.g6 Qg5 10.g7 Sf6 11.g8Q+ Ke5 12.Qb3 f4 13.Qb6 ab 14.e3 Ra4 15.Qg4 f3 16.Ba6 f2+ 17.Ke2 f1B+ 18.Kf3 Bc4 19.b4 Bb3 20.cb c2 21.Ba3 c1Q 22.Se2 Qc5 23.Rc1 Qe3+ 24.de

23) Silvio Baier:
1.f4 c5 2.f5 c4 3.f6 c3 4.fe f5 5.g4 Kf7 6.e8B+ Ke6 7.Bh5 g6 8.g5 gh 9.g6 Bd6 10.g7 Se7 11.g8R f4 12.Rg4 f3 13.Ra4 b5 14.e4 ba 15.Bb5 f2+ 16.Ke2 f1B+ 17.Kf2 Bc4 18.b4 Bb3 19.cb c2 20.Bb2 c1R 21.Qc2 Re1 22.Sc3 Re3 23.de

24) Silvio Baier:
1.f4 c5 2.f5 c4 3.f6 c3 4.fe f5 5.g4 Kf7 6.e8B+ Ke6 7.Bh5 g6 8.g5 gh 9.g6 Qg5 10.g7 Sf6 11.g8S f4 12.Se7 f3 13.Sd5 Be7 14.Sb6 ab 15.e3 Ra4 16.Ba6 f2+ 17.Ke2 f1B+ 18.Kf3 Bc4 19.d3 Bb3 20.cb c2 21.Bd2 c1S 22.b4 Sb3 23.ab

Comments and open problems: Obviously, the first open problems list asks to reach the three other remaining cases beyond Michel's one:

- CF(U,u) & CF(V,v) & CF(W,w) where (U,V,W) $\neq$ (Q,R,S).

As in the monocolored and bicolored cases, adding CC or SW as extra-themes seems to us the best way to improve entries 22, 23 and 24 (we think that entry 21 is near to the frontier of what can be achieved in the proof game land, hence we don't propose any additional content).

- CF(CC(U),u) & CF(CC(V),v).
- CF(U,u) & CF(V,v) & SW(S,S).

Of course, two CCs or four SWs (or even CC & SW) would be more challenging.

	Q			R			B			S		
	mo	bi	mi	mo	bi	mi	mo	bi	mi	mo	bi	mi
Q	1	11	-	-	-	-	-	-	-	-	-	-
R	2	12	21	5	15	-	-	-	-	-	-	-
B	3	13	22	6	16	23	8	18	-	-	-	-
S	4	14	21	7	17	21	9	19	24	10	20	-

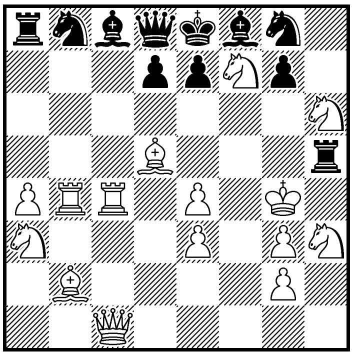
Table 1: CF & CF summary

5.2.2 CF & PR

Monocolored CF & PR: Generally speaking, a Pronkin is more difficult to construct than the corresponding Ceriani-Frolkin. Nevertheless, a substantial amount of results have been already obtained (exactly half of the possibilities, indeed), although without strong extra features and regularly with extra material:

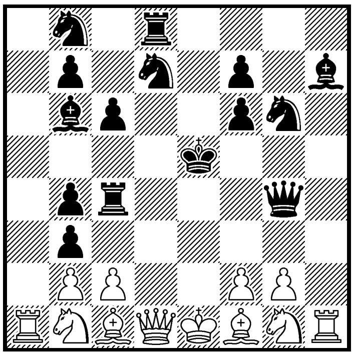
- CF(q,q) & PR(PH(q),q): **25** (C+, EM)
- CF(PC(Q),Q) & PR(R,R): **26** (C+, FT, EM)
- CF(R,R) & PR(R,R): **27** (C+, FT)
- CF(B,B) & PR(R,R): **28** (C+, FT, EM)
- CF(B,B,s) & PR(B,B): **29** (C+)
- CF(s,s) & PR(PH(q),q): **30** (C+, EM)
- CF(S,S) & PR(R,R): **31** (C+, FT)
- CF(S,S) & PR(S,S): **32** (C+, FT, EM)

25 **Nicolas Dupont**
R376 Probleemblad
VII–IX/2010
dedicated to Silvio Baier



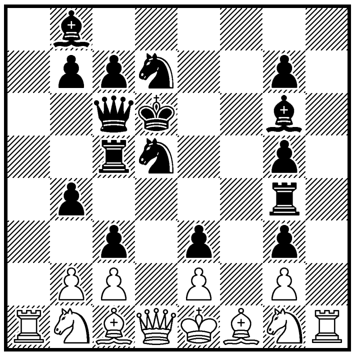
PG in 30.0 moves (15+11)

26 **Silvio Baier**
3570 Suomen Tehtäväniekat
XII/2010



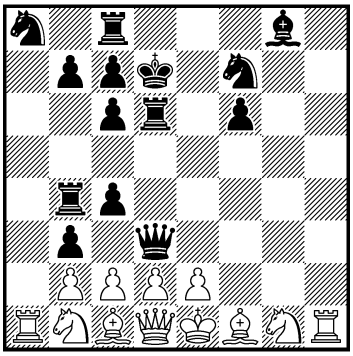
PG in 30.5 moves (12+15)

27 **Silvio Baier**
14511 Die Schwalbe
VI/2010
dedicated to Nicolas Dupont



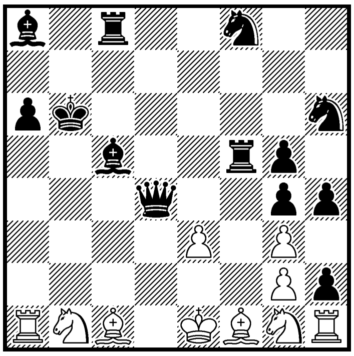
PG in 29.5 moves (12+16)

28 **Silvio Baier**
3572 Suomen Tehtäväniekat XII/2010



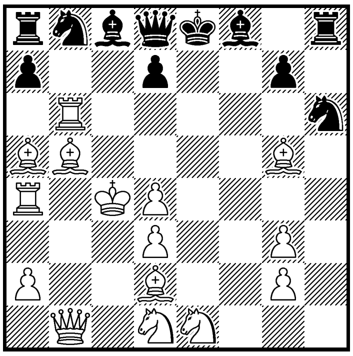
PG in 28.5 moves (12+14)

29 **Silvio Baier**
14576v Die Schwalbe VIII/2010
dedicated to Nicolas Dupont



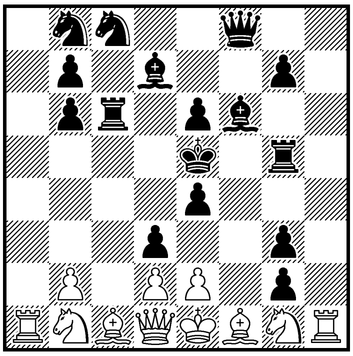
PG in 29.5 moves (10+13)

30 **Silvio Baier**
after Michel Caillaud
P0279 StrateGems VII–IX/2010



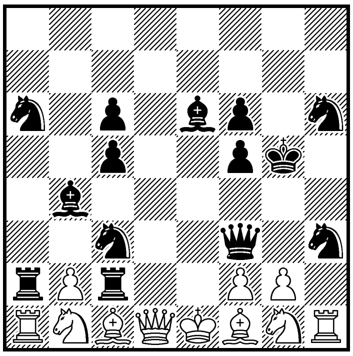
PG in 28.5 moves (15+11)

31 **Nicolas Dupont**
R402c The Problemist IX/2008
dedicated to Andrej Frolkin & Dmitrij Pronkin



PG in 27.5 moves (11+16)

32 **Silvio Baier**
Roberto-Osorio-55-JT 2011
Special Honorable Mention



PG in 29.5 moves (11+14)

25) Nicolas Dupont:

1.d4 a5 2.d5 a4 3.d6 a3 4.dc ab 5.a4 f5 6.Sa3 b1Q 7.cdS Qb6 8.Sf7 Qd8 9.c4 b5 10.c5 b4 11.c6 b3 12.c7 b2 13.cdS b1Q 14.Bb2 Qd3 15.Rc1 Qg3 16.hg f4 17.Rh4 f3 18.Rb4 h5 19.e4 h4 20.Bc4 h3 21.Bd5 h2 22.Rcc4 h1Q 23.Qc1 Qh6 24.Sh3 Qe3+ 25.fe f2 26.Ke2 Rh5 27.Kf3 f1Q+ 28.Kg4 Qf6 29.Sh6 Qb6 30.Sdf7 Qd8

26) Silvio Baier:

1.h4 a5 2.Rh3 a4 3.Rb3 ab 4.h5 Ra4 5.h6 Rc4 6.hg h5 7.a4 h4 8.a5 h3 9.a6 h2 10.a7 h1S 11.Ra6 Sg3 12.Rf6 ef 13.e4 Bc5 14.e5 Ke7 15.e6 Kd6 16.e7 Bb6 17.e8Q c5 18.Qe4 Se7 19.Qc6+ dc 20.d4 Qd7 21.d5 Ke5 22.d6 Qg4 23.d7 Se4 24.d8Q Bf5 25.Q8d2 Rd8 26.Qb4 cb 27.g8R Sc5 28.Rh8 Scd7 29.Rh1 Bh7 30.a8R Sg6 31.Ra1

27) Silvio Baier:

1.a4 d5 2.Ra3 d4 3.Rc3 dc 4.d4 e5 5.d5 Bc5 6.d6 Qf6 7.d7+ Ke7 8.d8R h5 9.Rd3 h4 10.Rg3 hg 11.f4 Rh4 12.f5 Rg4 13.h4 Qc6 14.h5 Sf6 15.h6 Sd5 16.Rh5 f6 17.Rg5 fg 18.f6+ Kd6 19.f7 Bf5 20.f8R Bg6 21.Rf4 a5 22.Rb4 ab 23.h7 Ra5 24.h8R Ba7 25.Rh1 Rc5 26.a5 Sd7 27.a6 Bb8 28.a7 e4 29.a8R e3 30.Ra1

28) Silvio Baier:

1.h4 a5 2.Rh3 a4 3.Rb3 ab 4.h5 Ra4 5.h6 Rb4 6.hg h5 7.a4 h4 8.a5 h3 9.a6 h2 10.a7 h1R 11.Ra6 R1h6 12.Rc6 dc 13.f4 Qd3 14.f5 Rd6 15.f6 Sh6 16.g8B Bg7 17.fg f6 18.Bc4 Sd7 19.g8B Sb6 20.Bgd5 e6 21.g4 ed 22.g5 Be6 23.g6 Kd7 24.g7 Rc8 25.g8R dc 26.Rh8 Bg8 27.a8R Sf7 28.Ra1 Sa8 29.Rh1

29) Silvio Baier:

1.d4 h5 2.d5 h4 3.d6 Rh5 4.dc d5 5.a4 d4 6.a5 d3 7.a6 Qd4 8.ab Sd7 9.b8B Bb7 10.c8B Sh6 11.Bg3 e5 12.Bcf4 ef 13.c4 fg 14.c5 gh 15.c6 Bc5 16.b4 Sf8 17.Bg4 f5 18.b5 0-0-0 19.b6 Ba8 20.b7+ Kc7 21.b8B+ Kb6 22.Bf4 fg 23.Bc1 Rf5 24.e3 g5 25.Qe2 de 26.c7 efS 27.c8B Sg3 28.Ba6 Rc8 29.Bf1 a6 30.fg

30) Silvio Baier:
1.f4 c5 2.f5 c4 3.f6 c3 4.fe cb 5.Sc3 b1Q 6.edB Qb6 7.Bg5 Qd8 8.e4 b5 9.e5 b4 10.e6 b3 11.e7 b2 12.edB b1Q 13.Ba5 Qb6 14.Rb1 Qd8 15.Rb6 f5 16.Bb5 f4 17.Ke2 f3+ 18.Kd3 f2 19.Sf3 f1S 20.Se1 Sg3 21.hg h5 22.Rh4 Sh6 23.Ra4 h4 24.Kc4 h3 25.d4 h2 26.Bcd2 h1S 27.Qb1 Sf2 28.Sd1 Sd3 29.cd

31) Nicolas Dupont:
1.a4 c5 2.Ra3 c4 3.Rd3 cd 4.c4 h5 5.c5 h4 6.c6 h3 7.c7 hg 8.h4 f5 9.Rh3 f4 10.Rg3 fg 11.f4 Rh6 12.f5 Rc6 13.f6 e5 14.f7+ Ke7 15.h5 Kf6 16.h6 Be7 17.f8S e4 18.Se6 de 19.h7 Bd7 20.c8S Qf8 21.Sb6 ab 22.h8R Ra5 23.Rh1 Rg5 24.a5 Ke5 25.a6 Bf6 26.a7 Se7 27.a8R Sc8 28.Ra1

32) Silvio Baier:
1.h4 f5 2.h5 Kf7 3.h6 Kg6 4.hg h5 5.a4 Sh6 6.g8S h4 7.Sf6 ef 8.a5 Bb4 9.a6 c5 10.ab a5 11.e4 a4 12.e5 a3 13.e6 a2 14.e7 abS 15.e8S Ra2 16.Sd6 Sa6 17.b8S Sc3 18.Sc6 dc 19.Sc4 Qd5 20.d4 Qf3 21.d5 h3 22.d6 h2 23.d7 hgS 24.d8S Sh3 25.Se6 Rd8 26.Sd4 Be6 27.Se2 Rd2 28.Sg1 R:c2 29.Sd2 Kg5 30.Sb1+

Comments and open problems: Among the eight fulfilled cases, entry 27 shows that the Rook is the easiest piece to manage with Pronkin. It is followed by the Queen, the Bishop, and finally the clearly most complicated Knight case, as it needs four moves to go back home. The various difficulties, from the most to the least, can then be ranked as “Knight-Bishop-Queen-Rook”.

Among the renditions presenting extra material, we doubt that entries 25 and 32 can be improved. Our first open problems list is therefore the following:

- CF(Q,Q) & PR(R,R) with standard material.
- CF(B,B) & PR(R,R) with standard material.
- CF(S,S) & PR(Q,Q) with standard material.

Concerning the missing cases, we can examine if the most complicated one has a real chance to be realized. Our rankings show that it is probably CF(R,R) & PR(S,S). Entries 27 and 32 are not very far from it, hence we think that each missing case could be performed, leading to the following list of open problems:

- CF(Q,Q) & PR(U,U) for U = B or S.
- CF(R,R) & PR(V,V) for V = Q, B or S.
- CF(B,B) & PR(W,W) for W = Q or S.
- CF(S,S) & PR(B,B).

Note that some cases within this list are certainly easier to reach than some which are already fulfilled. The next possibility should be to add an extra-man to an already existing combination. We are not sure that it is possible, hence we first present what is probably the “easiest” CF case combined with the “easiest” PR case, relative to our rankings. It should be noted that, even if PR(R,R) is simpler to reach than PR(Q,Q), the three-men case PR(R,R,R) is more complicated to perform than PR(Q,Q,Q). Hence we choose this latter as the “easiest” PR case.

- CF(B,B,B) & PR(R,R).
- CF(B,B) & PR(Q,Q,Q).

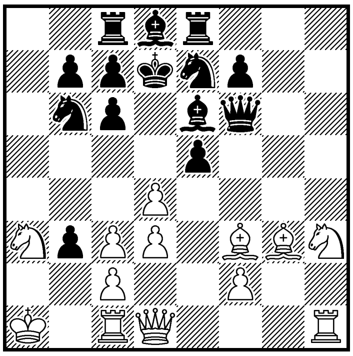
Concerning extra-theme extension with CC or SW, we also doubt that it is possible. We then present only what are probably the “easiest” cases respectively:

- (CC & CF) (UU) & PR(R,R) where U = B or S.
- CF(V,V) & PR(R,R) & SW(s,s) where V = B or S.

Bicolored CF & PR: Although this category seems a little bit easier to handle than the monocolored one, less cases have been fulfilled. This is probably because the final diagrams are less appealing than the corresponding monocolored ones. Indeed, they must be very intricate as each side performs half of the thematic content.

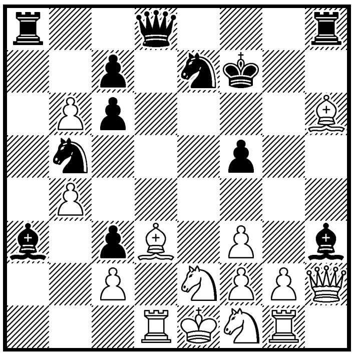
- CF(q,q) & PR(R,R): **33** (C+)
- CF(R,R) & PR(r,r): **34** (C+)
- CF(b,b) & PR(PH(Q),Q): **35** (C+)
- CF(B,B) & PR(r,r): **36** (C+)
- CF(S,S) & PR(r,r): **37** (C+)
- CF(s,s) & (MP & PR)(BB): **38** (C+)

33 **Nicolas Dupont**
3183 Orbit V/2011



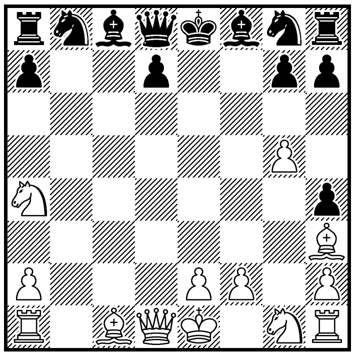
PG in 29.5 moves (13+14)

34 **Nicolas Dupont**
5899 phénix IV/2009



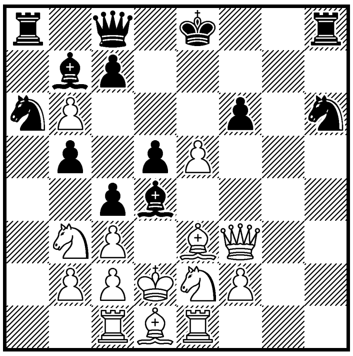
PG in 28.0 moves (14+12)

35 **Michel Caillaud**
R3 Problemesis IV/1999
1. Prize



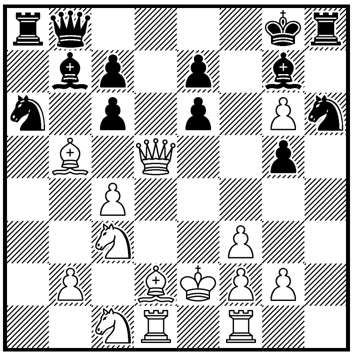
PG in 17.0 moves (13+13)

36 **Nicolas Dupont**
Original



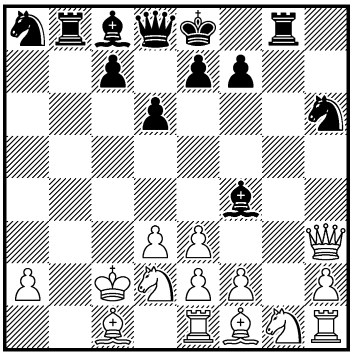
PG in 28.0 moves (14+13)

37 **Nicolas Dupont**
Original



PG in 26.0 moves (14+13)

38 **Silvio Baier**
Av Schach II/2011



PG in 21.5 moves (14+12)

33) Nicolas Dupont:
1.d4 h5 2.Bf4 h4 3.Kd2 h3 4.Kc1 hg 5.h4 a5 6.Rh3 a4 7.Rb3 ab 8.a4 e5 9.a5 Qf6 10.a6 Be7 11.a7 Bd8 12.Ra6 Se7 13.Rc6 dc 14.h5 Be6 15.h6 Sd7 16.h7 Rc8 17.a8R Sb6 18.Ra1 Kd7 19.Sa3 Re8 20.h8R g5 21.Rh1 g4 22.Sh3 g1Q 23.Bg2 Qe1 24.Bf3 Qc3 25.bc g3 26.Kb2 g2 27.Rc1 g1Q 28.Ka1 Qgg6 29.Bg3 Qd3 30.ed

34) Nicolas Dupont:
1.h4 Sc6 2.h5 Sd4 3.h6 Sb5 4.hg h5 5.a4 Rh6 6.a5 Rb6 7.ab a5 8.d4 a4 9.d5 a3 10.d6 a2 11.de Ra3 12.Qd6 Rf3 13.ef h4 14.Bd3 h3 15.Se2 h2 16.Rg1 h1R 17.Sd2 Rh8 18.Qh2 d5 19.Sf1 Bh3 20.Bh6 f5 21.Rd1 Kf7 22.e8R a1R 23.Re4 Ra8 24.Rc4 Ba3 25.b4 Se7 26.g8R dc 27.Rg6 c3 28.Rc6 bc

35) Michel Caillaud:
1.d4 c5 2.d5 c4 3.d6 c3 4.de cb 5.Sc3 b1Q 6.edB Qb6 7.Bh4 Qd8 8.Sa4 b5 9.c4 b4 10.c5 b3 11.c6 b2 12.c7 b1Q 13.cdB Qb6 14.Bdg5 f6 15.g4 fg 16.Bh3 gh 17.g5 Qd8

36) Nicolas Dupont:
1.h4 b5 2.h5 Bb7 3.h6 Qc8 4.hg h5 5.a4 Rh6 6.a5 Rb6 7.ab a5 8.e4 a4 9.Qf3 a3 10.Be2 a2 11.Bd1 Ra3 12.Se2 Rc3 13.dc h4 14.Be3 h3 15.Sd2 h2 16.Rc1 a1R 17.Sb3 Ra8 18.Kd2 Sa6 19.Re1 h1R 20.g4 Rh8 21.g5 Sh6 22.g8B Bg7 23.g6 Bd4 24.g7 f6 25.Bc4 d5 26.g8B dc 27.Bd5 e6 28.e5 ed

37) Nicolas Dupont:
1.a4 g5 2.a5 Bg7 3.a6 Kf8 4.ab a5 5.h4 Ra6 6.h5 Rg6 7.hg h5 8.d4 h4 9.d5 h3 10.d6 h2 11.Qd5 Rh3 12.Bd2 Rf3 13.ef a4 14.Bb5 a3 15.Se2 a2 16.Rf1 h1R 17.c4 Rh8 18.Sbc3 Sh6 19.Rad1 a1R 20.Sc1 Ra8 21.Ke2 Sa6 22.b8S Bb7 23.Sc6 dc 24.d7 Qb8 25.d8S Kg8 26.Se6 fe

38) Silvio Baier:
1.g4 d6 2.g5 Sd7 3.g6 Rb8 4.gh g5 5.b4 g4 6.b5 g3 7.b6 g2 8.ba gfS 9.a8B Se3 10.de b5 11.Kd2 b4 12.Qf1 b3 13.Qh3 b2 14.Bg2 bcS 15.Bf1 Sd3 16.cd Lh6 17.Kc2 Lf4 18.Sd2 Sh6 19.Re1 Rg8 20.h8B Sb6 21.Bb2 Sa8 22.Bc1

Comments and open problems: As each entry is with standard material, we begin our open problems list with the unsolved cases (each of them seems reachable), with a focus on the most homogeneous ones:

- CF(Q,Q) & PR(u,u) for u $\neq$ r, especially the homogeneous CF(Q,Q) & PR(q,q).
- CF(R,R) & PR(v,v) for v $\neq$ r.
- CF(B,B) & PR(w,w) for w = b or s, especially the homogeneous CF(B,B) & PR(b,b).
- CF(S,S) & PR(x,x) for x = q or s, especially the homogeneous CF(S,S) & PR(s,s).

The next possibility should be to add an extra-man to some combination. As in the monocolored case, we are not sure that it is possible, hence we only present what are probably the "easiest" cases, relative to our rankings:

- CF(B,B,B) & PR(r,r).
- CF(B,B) & PR(q,q,q).

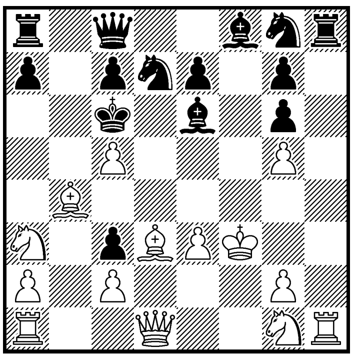
Concerning extra-theme extension with CC or SW, we also are not sure that it is possible. We then present only what are probably the "easiest" cases respectively:

- (CC & CF) (UU) & PR(r,r) where U = B or S.
- CF(V,V) & PR(r,r) & SW(s,s) where V = B or S.

Mixed-colored CF & PR: Only very few combinations have been fulfilled, probably for the same reason as in the bicolored case. Here are the only three known examples:

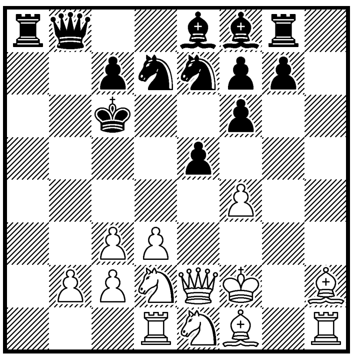
- CF(Q,q) & PR(R,r): **39** (C+)
- CF(R,r) & PR(R,r): **40** (C+)
- CF(S,s) & PR(R,r): **41** (C+)

39 **Silvio Baier**
3121 Orbit II/2011



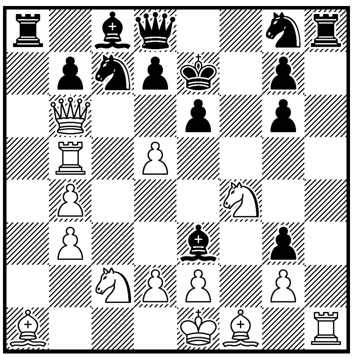
PG in 26.0 moves (14+14)

40 **Nicolas Dupont**
3184 Orbit V/2011



PG in 26.0 moves (13+13)

41 **Silvio Baier**
Original



PG in 28.0 moves (14+14)

39) Silvio Baier:
1.h4 d5 2.Rh3 d4 3.Rc3 dc 4.d4 Be6 5.d5 Kd7 6.d6 Kc6 7.d7 Qc8 8.d8Q b5 9.Q8d3 Sd7 10.Qg6 hg 11.b4 Rh5 12.Ba3 Rc5 13.bc b4 14.h5 b3 15.Bb4 b2 16.Sa3 b1Q 17.h6 Qc1 18.h7 Qg5 19.f4 f5 20.fg f4 21.e3 f3 22.Bd3 f2+ 23.Ke2 f1R 24.h8R Rf4 25.Rh1 Rh4 26.Kf4 Rh8

40) Nicolas Dupont:
1.a4 h5 2.a5 h4 3.a6 h3 4.ab hg 5.h4 a5 6.h5 a4 7.h6 a3 8.h7 a2 9.Rh6 Ra3 10.Rf6 Rc3 11.dc ef 12.Bf4 Se7 13.Sd2 Rg8 14.h8R d6 15.Rh1 Kd7 16.Bh2 Kc6 17.f4 Bd7 18.Sf3 g1R 19.Kf2 Rg3 20.Se1 Rd3 21.ed Be8 22.Qe2 Sd7 23.Rd1 a1R 24.b8R Ra8 25.Rb5 Qb8 26.Re5 de

41) Silvio Baier:
1.h4 f5 2.Rh3 f4 3.Rg3 fg 4.f4 e6 5.f5 Bc5 6.f6 Be3 7.f7+ Ke7 8.f8S c5 9.Sg6 hg 10.c4 Rh5 11.Qb3 Rd5 12.cd c4 13.Qb6 c3 14.b4 c2 15.Bb2 c1S 16.h5 Sb3 17.ab Sa6 18.Ra5 Sc7 19.Rb5 a5 20.h6 a4 21.h7 a3 22.h8R a2 23.Rh1 a1R 24.Sh3 Ra2 25.Ba1 Rc2 26.Sa3 Rc4 27.Sc2 Rh4 28.Sf4 Rh8

Comments and open problems: We don't list each of the unsolved combinations (as some of them are only of little interest), but only the most homogeneous ones:

- CF(Q,q) & PR(Q,q).
- CF(S,s) & PR(S,s).
- CF(B,b) & PR(B,b).

Adding an extra-man to some combination would break the harmony, but a great challenge would be to realize entry 21 with a Pronkin part! The "best" candidate seems to be:

- CF(Q,q) & PR(R,r) & CF(S,s).

The extra-theme extension with CC is not possible in that setting and the "easiest" SW case might be the following:

- CF(B,b) & PR(Q,q) & SW(S,S).

CF	Q			R			B			S		
PR	mo	bi	mi	mo	bi	mi	mo	bi	mi	mo	bi	mi
Q	25							35		30		
R	26	33	39	27	34	40	28	36		31	37	41
B							29				38	
S										32		

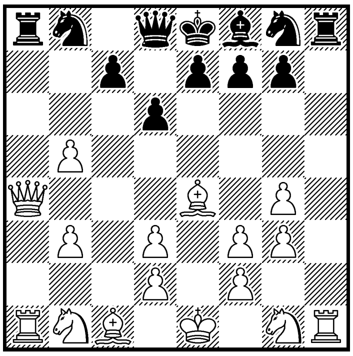
Table 2: CF & PR summary

5.2.3 CF & SI

The Interchange theme is very popular, in particular when it applies to a couple of original Rooks or Knights. We use the more specific theme SI to describe this situation (remember that SI(A,A) means SI(A,A)[0] by default, in particular A=R or S). Those A are very surprising and enjoyable couples of imposters, difficult to construct, hence it exists only a few fulfilled cases:

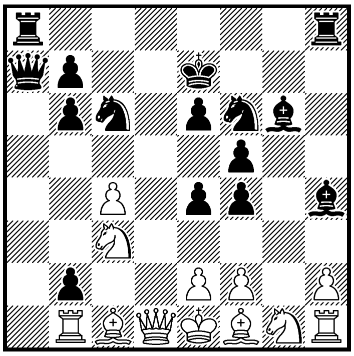
- CF(Q,Q) & SI(r,r): **42** (C+)
- CF(R,R,Q) & SI(r,r): **43** (C+)
- CF(B,B,Q) & SI(r,r): **44** (C+, FT)
- CF(B,B,S) & SI(r,r): **44-a** (C+, FT)
- CF(S,S) & SI(r,r): **45** (C+)
- CF(S,S) & SI(s,s): **46** (C+)

42 **Jorge Lois**
Roberto Osorio
10028 feenschach
IV–VI/2010



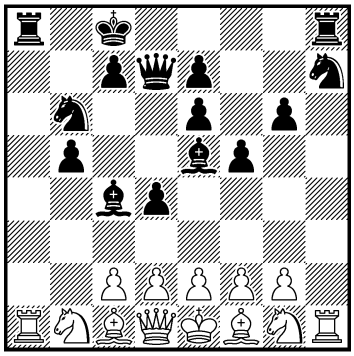
PG in 17.5 moves (16+12)

43 **Silvio Baier**
6217 phénix XII/2010



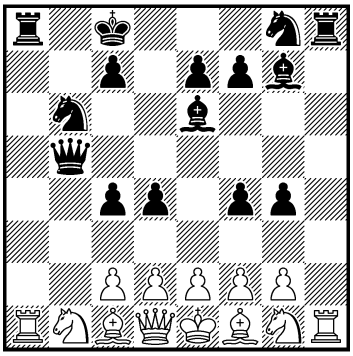
PG in 24.0 moves (12+15)

44 **Silvio Baier**
14701 Die Schwalbe
XII/2010



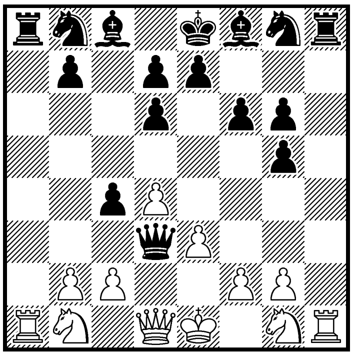
PG in 21.0 moves (13+15)

44-a **Silvio Baier**
14700a Die Schwalbe
VI/2011



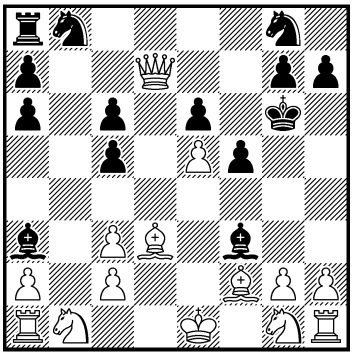
PG in 21.0 moves (13+15)

45 **Roberto Osorio**
Jorge Lois
10029 feenschach
IV–VI/2010



PG in 18.0 moves (12+16)

46 **Roberto Osorio**
Jorge Lois
13942 Die Schwalbe
XII/2008



PG in 20.0 moves (14+14)

42) Jorge Lois, Roberto Osorio:

1.a4 b5 2.ab h5 3.Ra6 h4 4.Rh6 d6 5.h3 Bg4 6.hg a5 7.Rh3 a4 8.Rc3 h3 9.g3 h2 10.Bg2 h1Q 11.Be4 Qf3 12.Rh1 Qd3 13.cd a3 14.Qa4 a2 15.Ra3 a1Q 16.b3 Qf6 17.Ra1 Qf3 18.ef

43) Silvio Baier:

1.g4 a5 2.g5 a4 3.g6 a3 4.gh ab 5.a4 Ra6 6.a5 Rh6 7.a6 d5 8.a7 Bf5 9.a8R e6 10.Ra4 Be7 11.Re4 de 12.c4 Qd4 13.Sc3 Qa7 14.d4 Bh4 15.d5 g5 16.d6 Bg6 17.d7+ Ke7 18.d8R f5 19.Rd6 Sf6 20.Rb6 Sc6 21.Rb1 Ra8 22.h8Q cb 23.Qb8 Rh8 24.Qf4 gf

44) Silvio Baier:

1.b4 d5 2.b5 Be6 3.b6 Sd7 4.ba b5 5.a4 Sb6 6.a5 Qd7 7.a6 0-0-0 8.a8B d4 9.Be4 Bc4 10.Bg6 hg 11.a7 Rh3 12.a8B Ra3 13.Be4 Ra8 14.Bf5 gf 15.h4 g6 16.h5 Bg7 17.h6 Be5 18.h7 Sf6 19.h8Q Sh7 20.Qf6 Rh8 21.Qe6 fe

44-a) Silvio Baier:

1.b4 d5 2.b5 Be6 3.b6 Sd7 4.ba b5 5.a4 Sb6 6.a5 Qd7 7.a6 0-0-0 8.a8B d4 9.Bf3 h5 10.Bg4 hg 11.a7 Rh3 12.a8B Ra3 13.Bd5 Ra8 14.Bc4 bc 15.h4 Qb5 16.h5 Rd5 17.h6 Rh5 18.h7 g5 19.h8S Bg7 20.Sg6 Rh8 21.Sf4 gf

45) Roberto Osorio, Jorge Lois:

1.d4 h6 2.Bg5 hg 3.a4 Rh3 4.a5 Ra3 5.e3 a6 6.Bb5 ab 7.h4 Ra6 8.h5 Rg6 9.h6 f6 10.h7 Rh6 11.h8S g6 12.Sf7 Rh8 13.Sd6+ cd 14.a6 Qc7 15.a7 Qc4 16.a8S Qd3 17.Sb6 Ra8 18.Sc4 bc

46) Roberto Osorio, Jorge Lois:

1.f4 e6 2.f5 Ba3 3.f6 Qe7 4.fe f5 5.b4 Kf7 6.e8S c5 7.Sc7 Sf6 8.Sa6 ba 9.b5 Bb7 10.b6 Bf3 11.b7 Sc6 12.b8S Se7 13.Sc6 Rb8 14.e4 Rb3 15.e5 Rc3 16.dc dc 17.Be3 Sd7 18.Bf2 Sb8 19.Qd7 Kg6 20.Bd3 Sg8

Comments and open problems: It is extremely difficult to reach a combination with SI(A,A) and another theme by the same side (the only known example is in the one-couple setting). Hence the list of open problems only deals with the missing cases involving CF and the Interchange of the couple of Knights by the other side.

- CF(U,U) & SI(s,s) where U $\neq S$.

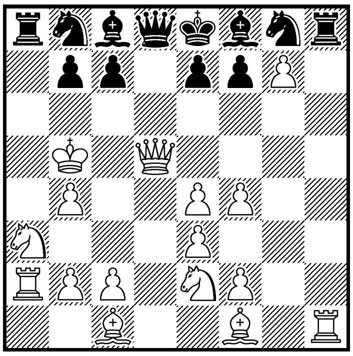
A completely unexplored field is the mixed-colored case. Many beautiful achievements are certainly possible, but we can remark that the homogeneous CF(U,u) & IN(Uu) is sometimes only AP(U,u), thus not a classical FPG!

5.2.4 CF & remaining theme

We present in this subsection the remaining classical FPGs we could find in the literature, involving CF. The additional features are mainly switchbacks and cross captures, as in some already listed open problems, but with only one couple of CFs.

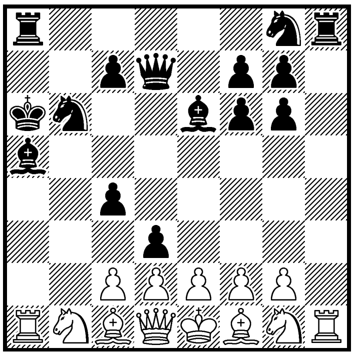
- CF(q,q,q) & SW(R,R): **47** (C+, FT)
- CF(B,B,Q) & SW(r,r,s): **48** (C+, FT)
- CF(B,B,S) & SW(r,r): **49** (C+, FT)
- CF(b,b) & SW(B,B,K): **50** (C+)
- CF(s,s,s) & SW(R,R): **51** (C+)
- CF(S,S) & IP(b,b): **52** (C+, FT)
- CF(S,S) & IP(p,p): **53** (C+, FT)
- (CC & CF)(QQ) & CC(PP): **54** (C+, FT)
- (CC & CF)(qq) & CC(PP): **55** (C+, FT)
- (IP & CF)(b,b) & IP(r,r): **56** (C+)

47 **Silvio Baier**
B Schach II/2011



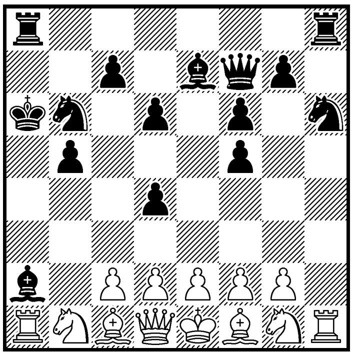
PG in 22.5 moves (16+12)

48 **Silvio Baier**
14700b Die Schwalbe VI/2011



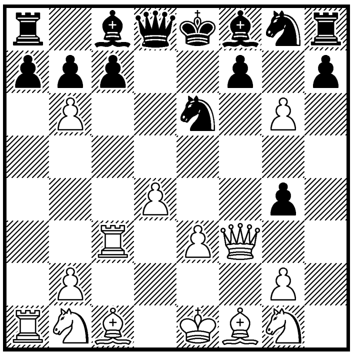
PG in 21.0 moves (13+15)

49 **Silvio Baier**
Original



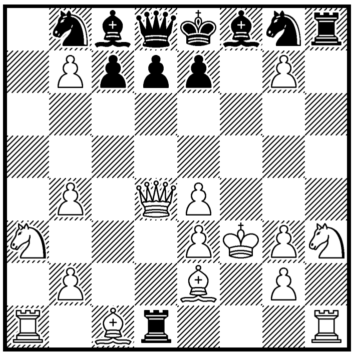
PG in 21.0 moves (13+15)

50 **Michel Caillaud**
StrateGems 2002
3rd Quick Composing Tourney, Good Companion Prize



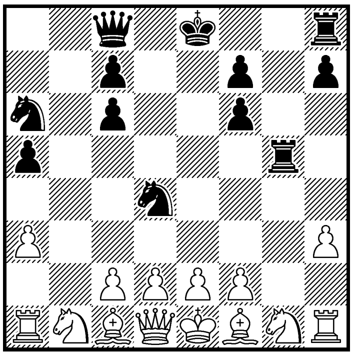
PG in 17.5 moves (14+14)

51 **Silvio Baier**
B Schach XII/2010



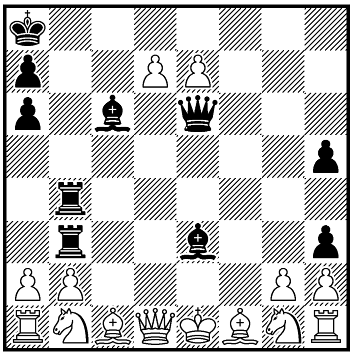
PG in 22.5 moves (16+11)

52 **Roberto Osorio**
Original



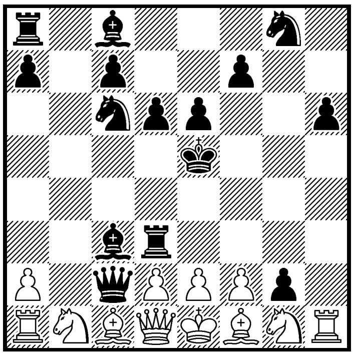
PG in 13.5 moves (14+12)

53 **Roberto Osorio**
3123 Orbit II/2011



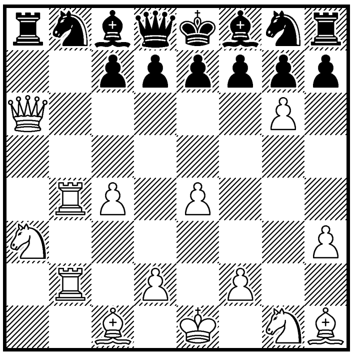
PG in 19.5 moves (14+10)

54 **Silvio Baier**
Original



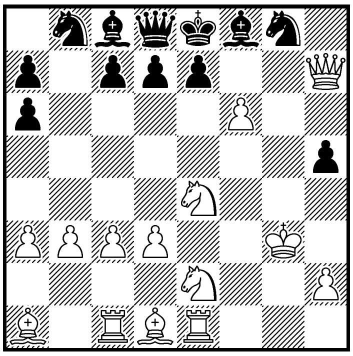
PG in 17.0 moves (12+15)

55 **Nicolas Dupont**
Original



PG in 14.5 moves (14+14)

56 **Roberto Osorio**
Original



PG in 23.0 moves (14+12)

47) Silvio Baier:
1.h4 a5 2.h5 a4 3.h6 a3 4.hg h5 5.e4 h4 6.Qh5 h3 7.Se2 h2 8.Rg1 h1Q 9.g3 Qf3 10.Rh1 Qb3 11.ab a2 12.Sa3 d5 13.Rb1 a1Q 14.b4 Qa2 15.Ra1 Qb3 16.Ra2 Qe3 17.de d4 18.Kd2 d3 19.Kc3 d2 20.Kc4 d1Q 21.Kb5 Q1d6 22.Qd5 Qf4 23.gf

48) Silvio Baier:
1.b4 d5 2.b5 Be6 3.b6 Sd7 4.ba b5 5.h4 Sb6 6.h5 Qd7 7.h6 0-0-0 8.a8B d4 9.Be4 Sf6 10.Bg6 hg 11.h7 Rg8 12.h8Q d3 13.Qh4 Rh8 14.a4 Sg8 15.Qf6 ef 16.a5 Bb4 17.a6 Ba5 18.a7 Kb7 19.a8B+ Ka6 20.Bd5 Ra8 21.Bc4 bc

49) Silvio Baier:
1.b4 d5 2.b5 Be6 3.b6 Sd7 4.ba b5 5.h4 Sb6 6.h5 Qd7 7.h6 0-0-0 8.a8B d4 9.Be4 f6 10.Bg6 hg 11.h7 Sh6 12.a4 Rg8 13.h8S Ba2 14.Sf7 Rh8 15.Sd6+ ed 16.a5 Qf7 17.a6 Be7 18.a7 Kb7 19.a8B+ Ka6 20.Be4 Ra8 21.Bf5 gf

50) Michel Caillaud:
1.h4 d5 2.Rh3 d4 3.Rc3 d3 4.a4 dc 5.d4 g5 6.Qd3 g4 7.Bh6 c1B 8.Qf3 Bg5 9.hg e5 10.g6 e4 11.Bc1 e3 12.Kd1 ef 13.e3 Sd7 14.Ba6 f1B 15.Ke1 Bb5 16.ab Sc5 17.b6 Se6 18.Bf1

51) Silvio Baier:
1.h4 f5 2.h5 f4 3.h6 f3 4.hg h5 5.a4 h4 6.a5 h3 7.a6 h2 8.ab a5 9.Sh3 a4 10.Rg1 h1S 11.e4 Sg3 12.fg f2+ 13.Ke2 a3 14.Kf3 a2 15.Be2 f1S 16.Rh1 Se3 17.de Ra3 18.Qd4 Rd3 19.Sa3 Rd1 20.Rb1 a1S 21.c3 Sc2 22.Ra1 Sb4 23.cb

52) Roberto Osorio:
1.a4 Sh6 2.a5 Sf5 3.a6 Sd4 4.ab a5 5.h4 Ra6 6.h5 Rg6 7.h6 Sa6 8.b8S Rg5 9.Sc6 dc 10.hg Bh3 11.g8S Dc8 12.Sf6+ ef 13.gh Ba3 14.ba

53) Roberto Osorio:
1.d4 h5 2.d5 h4 3.d6 h3 4.dc Rh4 5.cbS Qb6 6.Sa6 ba 7.e4 Bb7 8.e5 0-0-0 9.e6 Kb8 10.ef Ka8 11.fgS Rb8 12.Sh6 gh 13.c4 h5 14.c5 Bh6 15.c6 Be3 16.cd Qe6 17.f4 Bc6 18.f5 Rb3 19.f6 Rhb4 20.fe

54) Silvio Baier:
1.c4 h5 2.c5 h4 3.c6 h3 4.cb Sc6 5.b8D hg 6.Qb3 Rh3 7.Qe6 de 8.b4 Qd3 9.b5 Qc2 10.b6 Rd3 11.h4 Kd7 12.h5 Kd6 13.h6 gh 14.b7 Bg7 15.b8Q Bc3 16.Qb4+ Ke5 17.Qd6+ ed

55) Nicolas Dupont:
1.h4 b5 2.h5 b4 3.Rh4 b3 4.Rb4 a5 5.e4 a4 6.Qe2 a3 7.Qa6 ab 8.Sa3 b1Q 9.c4 Qd3 10.Rb1 Qh3 11.gh ba 12.Bg2 a1Q 13.Bh1 Qf6 14.R1b2 Qg6 15.hg

56) Roberto Osorio:
1.a4 Sc6 2.a5 Rb8 3.a6 ba 4.Sc3 Rb3 5.cb h5 6.Qd2 Rh6 7.Qh7 Rd6 8.Se4 Rd3 9.ed f5 10.Be2 f4 11.Bd1 f3 12.Se2 fg 13.f4 g1B 14.f5 Bc5 15.f5 Ba3 16.ba g5 17.Bb2 g4 18.Rc1 g3 19.Ba1 g2 20.Kf2 g1B+ 21.Kg3 Bd4 22.Re1 Bc3 23.dc Sb8

Comments and open problems: What can be the further researches concerning CF and another theme? There are for sure plenty of them. We focus here on themes that didn't appear from now. Indeed, CF is a rather simple theme, hence it might be a good idea to try to couple it with a more complicated one. The first list of open problems propose to couple CF with one of its specialized themes, Anti-Pronkin, Prentos or Schnoebelen.

- CF(U,U) & AP(V,V) or CF(U,U) & AP(v,v).
- CF(U,U) & KP(V,V) or CF(U,U) & KP(v,v).
- CF(U,U) & SC(V,V) or CF(U,U) & SC(v,v).

Another interesting open problem would be to couple CF with a more difficult Circuit than SW, for example a Rundlauf:

- CF(U,U) & RU(V,V) or CF(U,U) & RU(v,v).

The last possibility we have in mind is to couple CF with IP rather than CC. It leads to the following problems list:

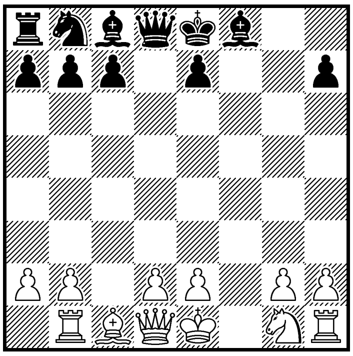
- (IP & CF)(U,U) & (IP & CF) (V,V) or (IP & CF)(U,U) & (IP & CF) (v,v).

5.2.5 Specialized CF

We open this subsection to list the entries involving AP, KP or SC, which are specialized CFs. This is mainly for further research, as we don't know of any classical FPG involving AP or SC. Concerning KP, we have the very nice entry 67. It admits another symbolic notation, namely (DO & PH)(S,S) & SW(s,s). As it is again the record for this case, we will also find it in the Miscellaneous subsection. Finally, Silvio constructed a set of classical FPGs coupling KP with SW with most of them "at home".

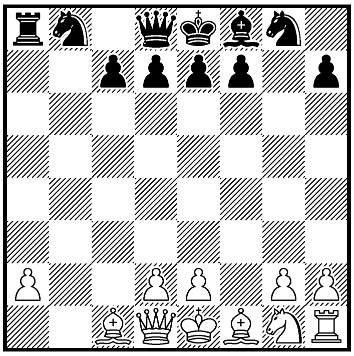
- KP(Q,q) & SW(K,k): **57** (C+)
- KP(Q,q) & SW(Q,q): **58** (C+, FT)
- KP(Q,q) & SW(R,r): **59** (C+, FT)
- KP(R,r) & SW(K,k): **60** (C+, FT)
- KP(B,b) & SW(K,k): **61** (C+, FT)
- KP(B,b) & SW(R,r): **62** (C+, FT)
- KP(S,s) & SW(K,k): **63** (C+, FT)
- KP(S,s) & SW(D,d): **64** (C+, FT)
- KP(S,s) & SW(R,r): **65** (C+, FT)
- KP(S,s) & SW(L,l): **66** (C+, FT)
- (SW & KP)(S,S) & SW(s,s): **67** (C+, FT)

57 **Silvio Baier**
Original



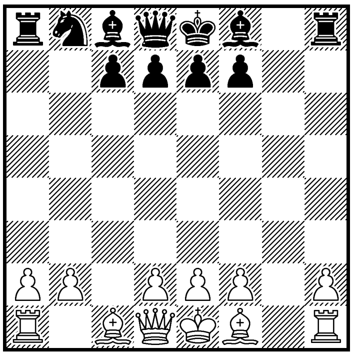
PG in 9.5 moves (12+11)

58 **Silvio Baier**
Original



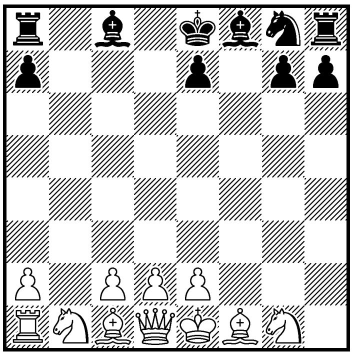
PG in 9.5 moves (11+11)

59 **Silvio Baier**
Original



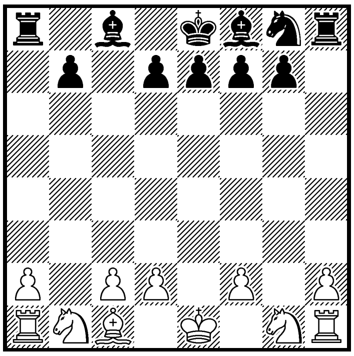
PG in 9.5 moves (12+11)

60 **Silvio Baier**
Original



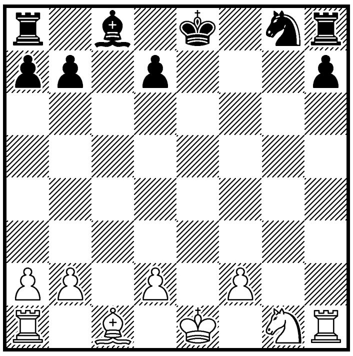
PG in 9.5 moves (11+10)

61 **Silvio Baier**
Original



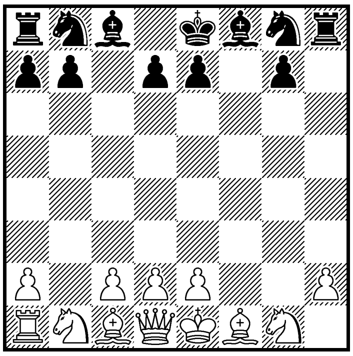
PG in 9.0 moves (11+11)

62 **Silvio Baier**
Original



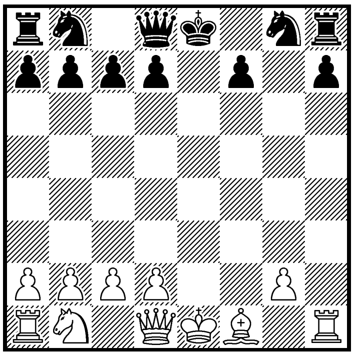
PG in 11.0 moves (9+9)

63 **Silvio Baier**
Original



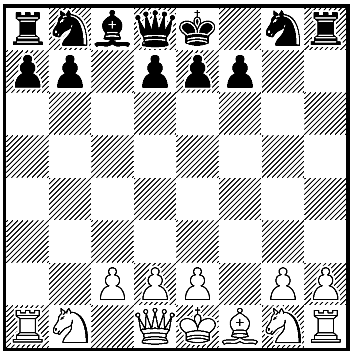
PG in 8.0 moves (12+12)

64 **Silvio Baier**
Original



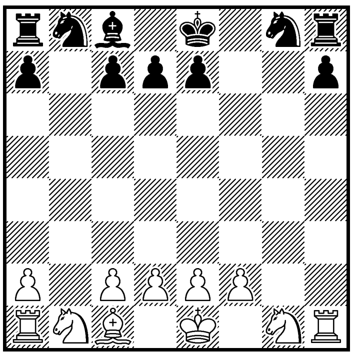
PG in 9.5 moves (11+12)

65 **Silvio Baier**
Original



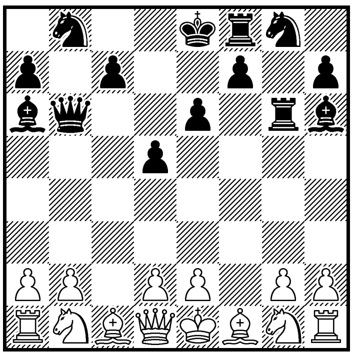
PG in 8.0 moves (12+12)

66 **Silvio Baier**
Original



PG in 10.0 moves (11+11)

67 **Satoshi Hashimoto**
feenschach I–V/2000
1. Prize



PG in 14.0 moves (14+14)

57) Silvio Baier:
1.f4 d5 2.f5 d4 3.f6 d3 4.fg dc 5.ghQ cbQ 6.Q:g8 Qf5 7.Q:f7+ K:f7 8.Rb1 Q:f1+ 9.K:f1 Ke8 10.Ke1

58) Silvio Baier:
1.f4 a5 2.f5 a4 3.f6 a3 4.fg ab 5.ghQ baQ 6.Qb2 Q:b1 7.Q:b7 Q:c2 8.Q:c8 Q:c8 9.Q:c2 Qd8 10.Qd1

59) Silvio Baier:
1.g4 b5 2.g5 b4 3.g6 b3 4.gh bc 5.hgQ cbQ 6.Q:g7 Qg6 7.Qd4 Q:d1 8.Q:a7 R:a7 9.R:g1 Ra8 10.Rh1

60) Silvio Baier:
1.b4 f5 2.b5 f4 3.b6 f3 4.bc fg 5.cbT ghT 6.T:b7 T:h2 7.T:d7 T:f2 8.T:d8+ K:d8 9.K:f2 Ke8 10.Ke1

61) Silvio Baier:
1.b4 h5 2.b5 h4 3.b6 h3 4.ba hg 5.abB gfB 6.B:c7 B:e2 7.B:d8 B:d1 8.K:d1 K:d8 9.Ke1 Ke8

62) Silvio Baier:
1.h4 f5 2.h5 f4 3.h6 f3 4.hg fg 5.gfB gfB 6.B:e7 B:e2 7.B:d8 B:d1 8.B:c7 B:c2 9.B:b8 B:b1 10.R:b1 R:b8 11.Ra1 Ra8

63) Silvio Baier:
1.b4 h5 2.b5 h4 3.b6 h3 4.bc hg 5.cdS ghS 6.S:f7 S:f2 7.K:f2 K:f7 8.Ke1 Ke8

64) Silvio Baier:
1.f4 g5 2.f5 g4 3.f6 g3 4.fe gh 5.efS hgS 6.Sg6 S:e2 7.S:e7 S:c1 8.S:c8 Q:c8 9.Q:c1 Qd8 10.Qd1

65) Silvio Baier:
1.f4 c5 2.f5 c4 3.f6 c3 4.fg cb 5.gfS bcS 6.S:h7 S:a2 7.R:a2 R:h7 8.Ra1 Rh8

66) Silvio Baier:
1.h4 f5 2.h5 f4 3.h6 f3 4.hg fg 5.gfS gfS 6.Se6 Se3 7.S:d8 S:d1 8.S:b7 S:b2 9.B:b2 B:b7 10.Bc1 Bc8

67) Satoshi Hashimoto:
1.c4 d5 2.c5 Qd6 3.c6 Sd7 4.cb Qb6 5.b8S Ba6 6.Sc6 Rd8 7.Sb8 S:b8 8.f4 Rd6 9.f5 Rg6 10.f6 e6 11.fg Sf6 12.g8S Bh6 13.Se7 Rf8 14.Sg8 S:g8

Comments and open problems: We already mentioned that (CC & CF) & (CC & CF) is very difficult and interesting, as the captures are “invisible”. The same thing holds for two KPs, but we are not sure that it is possible to reach. Hence we present only the “easiest” cases as open problems:

- KP(U,U) & KP(v,v) where (U,v) = (B,b), (B,s) or (S,s).

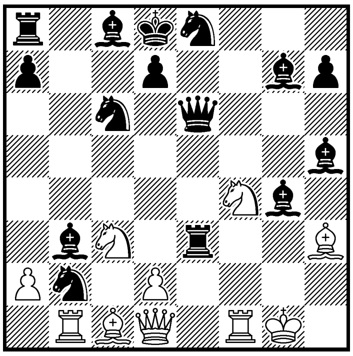
5.3 Classical FPGs containing PR but not CF

5.3.1 PR & PR

There exists very few (seven indeed) proof games showing four Pronkin promotions, and four of them are classical FPGs:

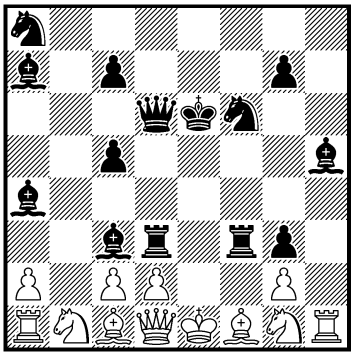
- (PH & PR)(Q,Q) & PR(PH(Q),Q): **68** (C+, EM)
- (PH & PR)(Q) & PR(Q) & PR(R,R): **69** (C+, EM)
- PR(r,r) & PR(b,b): **70** (C?, EM)
- PR(Q,q) & PR(R,r): **71** (C?)

68 **Nicolas Dupont**
14835 Die Schwalbe
IV/2011
dedicated to Thomas Brand



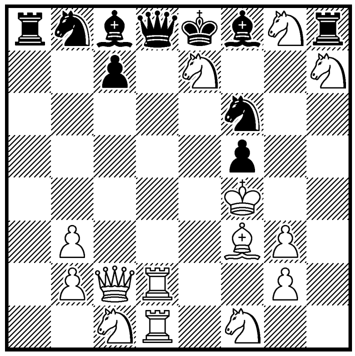
PG in 33.5 moves (10+15)

69 **Nicolas Dupont**
R433 The Problemist
III/2011



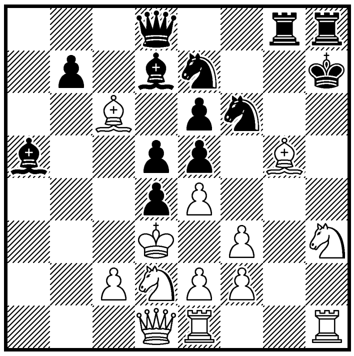
PG in 32.5 moves (12+14)

70 **Nicolas Dupont**
Roberto-Osorio-55-JT 2011
Special Honorable Mention



PG in 32.0 moves (14+10)

71 **Nicolas Dupont**
P0297c StrateGems
I–III/2011



PG in 30.0 moves (13+13)

68) Nicolas Dupont:
1.h4 b5 2.h5 b4 3.h6 b3 4.hg bc 5.b4 f5 6.b5 f4 7.b6 f3 8.b7 fe 9.f4 c5 10.f5 Qb6 11.f6 Kd8 12.f7 Sf6 13.g8Q edS 14.Qg4 Sb2 15.Qd1 e5 16.g4 e4 17.g5 e3 18.g6 e2 19.g7 edB 20.g8Q Bh5 21.Qg4 Bg7 22.Qd1 cdB 23.Bh3 Bdg4 24.Se2 Re8 25.0-0 Re3 26.f8Q+ Se8 27.Qf3 Qe6 28.Sf4 Sc6 29.b8Q c4 30.Qb3 c3 31.Qd1 c2 32.Sc3 cdB 33.Rb1 Bb3 34.Qd1

69) Nicolas Dupont:
1.e4 h5 2.Qg4 hg 3.b4 Rh3 4.b5 Rd3 5.b6 g3 6.ba b5 7.h4 b4 8.h5 b3 9.h6 b2 10.h7 baB 11.Rh6 Bc3 12.Rc6 dc 13.e5 Sd7 14.e6 Sb6 15.ef+ Kd7 16.h8R e5 17.Rh1 Bc5 18.f8Q e4 19.Qf3 e3 20.Qd1 e2 21.f4 edB 22.f5 Bh5 23.f6 Ke6 24.f7 Qd6 25.f8Q Bd7 26.Qf3 Rf8 27.Qd1 Rff3 28.a8R Sf6 29.Rb8 Sa8 30.Sa3 Ba7 31.Rb1 c5 32.Ra1 Ba4 33.Sb1

70) Nicolas Dupont:
1.h4 e5 2.h5 e4 3.h6 e3 4.hg h5 5.a4 h4 6.a5 h3 7.a6 h2 8.ab Rh3 9.bcS Rg3 10.fg ed+ 11.Kf2 a5 12.e4 a4 13.e5 a3 14.e6 a2 15.e7 Ra3 16.efS Rb3 17.cb d5 18.Qc2 d1B 19.Se7 Bg4 20.Be2 d4 21.Bf3 d3 22.Se2 d3 23.Rd1 dcB 24.Sd2 h1R 25.Sf1 Rh8 26.Sh7 Bh6 27.Rd2 Bc8 28.Rad1 f5 29.Sc1 Sf6 30.g8S Bf8 31.Ke3 a1R 32.Kf4 Ra8

71) Nicolas Dupont:
1.h4 e5 2.h5 Qg5 3.h6 Qe3 4.de a5 5.Qd4 a4 6.Kd2 a3 7.Kd3 ab 8.a4 Bb4 9.a5 Se7 10.a6 0-0 11.hg c5 12.Rh6 cd 13.Re6 fe 14.a7 Rf3 15.gf h5 16.Bh3 h4 17.Bf5 h3 18.Be4 h2 19.Bc6 h1R 20.e4 Rh8 21.Sh3 Kh7 22.g8R d5 23.Rg1 Sd7 24.Bg5 Sf6 25.Sd2 Bd7 26.Rae1 Rag8 27.a8Q b1Q 28.Qa1 Ba5 29.Rh1 Qb6 30.Qd1 Qd8

Comments and open problems: Reaching other achievements is a tough challenge, especially in the bicolored or mixed-colored cases. It seems impossible to add an extra man or an extra theme to a basic PR & PR, hence our list of open problems only propose to fulfill some remaining cases:

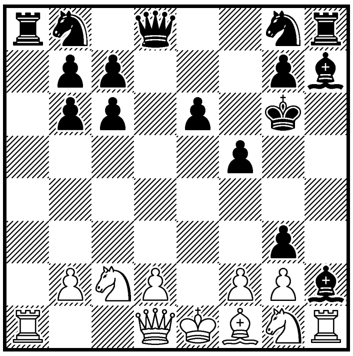
- PR(Q,Q) & PR(B,B).
- PR(Q,Q) & PR(r,r).
- PR(Q,Q) & PR(b,b).
- PR(R,R) & PR(r,r).
- PR(R,R) & PR(b,b).
- PR(Q,q) & PR(B,b).
- PR(R,r) & PR(B,b).

5.3.2 PR & SI

This case is obviously even more difficult to handle than CF & SI. Nevertheless, three cases have been successfully fulfilled:

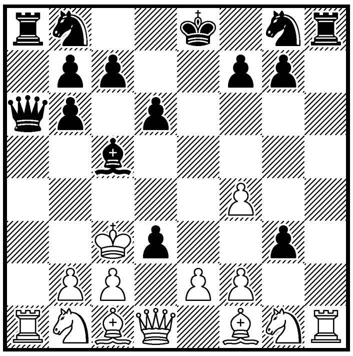
- PR(Q,Q) & SI(r,r): **72** (C+)
- PR(R,R) & SI(r,r): **73** (C+)
- PR(B,B) & SI(r,r): **74** (C?)

72 **Jorge Lois**
Roberto Osorio
P0248 StrateGems
IV–VI/2009
1. Prize



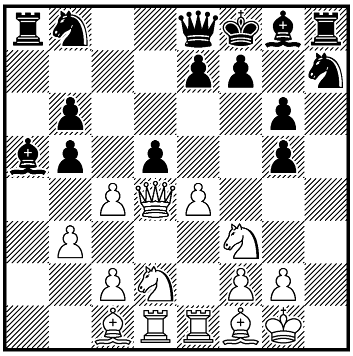
PG in 23.0 moves (11+16)

73 **Michel Caillaud**
631 Europe Echecs I/1997
dedicated to Thierry Le Gleuher



PG in 21.0 moves (13+15)

74 **Jorge Lois**
Roberto Osorio
13285 Die Schwalbe II/2007
2. Prize



PG in 26.5 moves (14+15)

72) Jorge Lois, Roberto Osorio:
1.e4 h5 2.Qg4 hg 3.c4 Rh3 4.c5 Rc3 5.c6 dc 6.h4 Bf5 7.h5 e6 8.h6 Bd6 9.h7 Bh2 10.h8Q g3 11.Qh5 R:c1+ 12.Qd1 Rc4 13.Qb3 B:e4 14.Qb6 ab 15.a4 Ra5 16.Sa3 Rh5 17.a5 Rh8 18.a6 Bh7 19.a7 f5 20.a8Q Kf7 21.Qa4 Kg6 22.Qd1 Ra4 23.Sc2 Ra8

73) Michel Caillaud:
1.a4 h5 2.Ra3 h4 3.Rg3 hg 4.d3 Rh4 5.Kd2 Rb4 6.h4 e5 7.h5 Qh4 8.h6 Qc4 9.h7 e4 10.Rh6 ed 11.Rb6 ab 12.h8R Ra5 13.Rh1 Rh5 14.a5 Bc5 15.a6 d6 16.a7 Bg4 17.a8R Bf3 18.Ra1 Ra4 19.gf Ra8 20.f4 Qa6 21.Kc3 Rh8

74) Jorge Lois, Roberto Osorio:
1.e4 a6 2.Bb5 ab 3.h4 Ra3 4.h5 Rh3 5.a4 c5 6.a5 c4 7.a6 c3 8.dc h6 9.Bg5 hg 10.h7 Rh6 11.a8B Ra6 12.h6 b6 13.Bd5 Ra8 14.Bc4 d5 15.h7 Bf5 16.h8B Bh7 17.Sf3 g6 18.0-0 Bg7 19.Re1 Kf8 20.Bf1 Qe8 21.c4 Bc3 22.b3 Ba5 23.Bb2 Sf6 24.Qd4 Bg8 25.Sd2 Rh8 26.Rad1 Sh7 27.Bc1

Comments and open problems: Of course, our first open problem asks to fulfill the remaining case:

- PR(S,S) & SI(r,r).

It is far from clear that such a problem admits a solution, as PR(S,S) is much more complicated to achieve than the remaining PR combinations. But what about SI(s,s) which is also harder to reach than SI (r,r)? If a solution exists, this is with the "simplest" PR, namely PR(R,R), which is our last open problem in this subsection:

- PR(R,R) & SI(s,s).

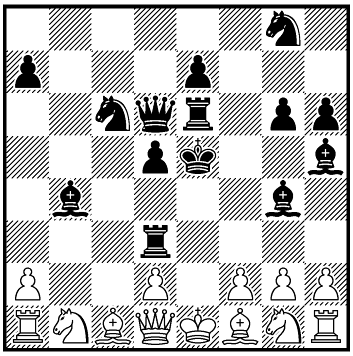
5.3.3 PR & remaining theme

There are only three entries showing this feature:

- PR(PH(Q),Q) & CC(QQ)[1]: **75** (C+, FT, EM)
- PR(r,r) & CC(rr): **76** (C+)

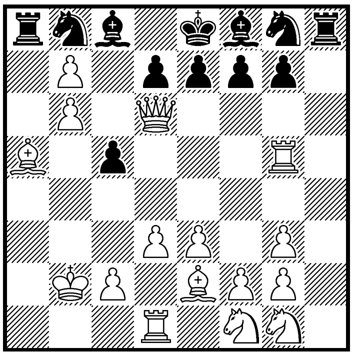
- PR(R,R) & SW(r,r): **77** (C+)

75 **Silvio Baier**
Original



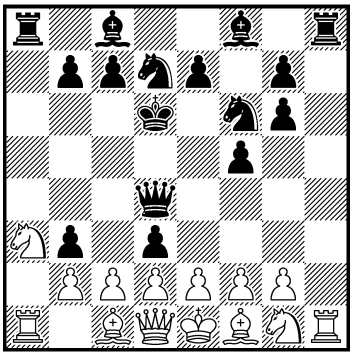
PG in 23.5 moves (13+14)

76 **Nicolas Dupont**
Original



PG in 20.0 moves (16+12)

77 **Silvio Baier**
A Schach XII/2010



PG in 17.0 moves (14+16)

75) Silvio Baier:
1.c4 d5 2.Qc2 Qd6 3.Qg6 hg 4.c5 Rh3 5.c6 Rd3 6.cb c5 7.e4 Sc6 8.b8Q c4 9.Qb6 c3 10.Qe3 c2 11.Qh6 gh 12.e5 Bg7 13.e6 Bc3 14.ef+ Kd7 15.f8Q Ke6 16.Qf3 Ke5 17.Qd1 cdB 18.b4 Bh5 19.b5 Bcg4 20.b6 Rf8 21.b7 Rf6 22.b8Q Re6 23.Qb3 Bb4 24.Qd1

76) Nicolas Dupont:
1.a4 c5 2.a5 Qc7 3.a6 Qg3 4.ab a5 5.hg a4 6.Rh5 a3 7.Rg5 h5 8.b4 Rh6 9.b5 Re6 10.b6 Re3 11.de a2 12.Qd6 Ra3 13.Sd2 Rd3 14.ed h4 15.Be2 h3 16.Sf1 h2 17.Bd2 h1R 18.0-0-0 a1R+ 19.Kb2 Ra8 20.Ba5 Rh8

77) Silvio Baier:
1.h4 a5 2.Rh3 a4 3.Rb3 ab 4.a4 d5 5.a5 d4 6.a6 d3 7.a7 Qd4 8.Ra6 Kd7 9.Rg6 hg 10.h5 Kd6 11.h6 Sd7 12.h7 Rb8 13.a8R f5 14.Ra1 Sgf6 15.Sa3 Rg8 16.h8R Ra8 17.Rh1 Rh8

Comments and open problems: The further researches concerning PR and another theme should be the same as for CF, but with greatest difficulty. Indeed, trying to couple PR with another difficult theme, as AP, KP or SC seems almost impossible. The remaining possibility is to couple PR with a Circuit, as in the related CF case.

- PR(U,U) & CI(V,V) or PR(U,U) & CI(v,v) where U $\neq$ R or CI(V) $\neq$ SW(r).

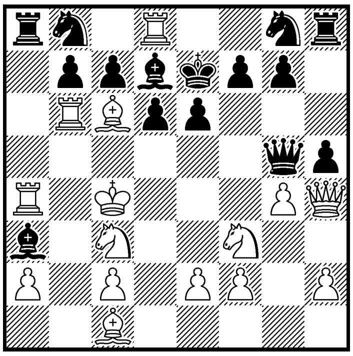
5.4 Classical FPGs containing SI, but neither CF nor PR

5.4.1 SI & SI

There are only two entries showing this feature. Note that (SI & RU)(R,R) (already solved), and (SI & RU)(S,S) (still unknown), are also very famous problems, but they belong to the category of one-couple FPGs.

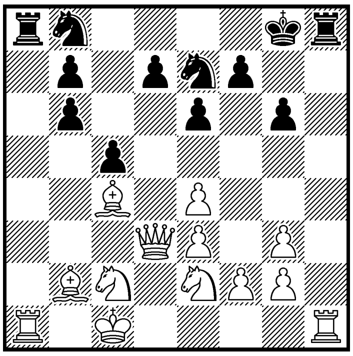
- SI(r,r) & SI(s,s): **78** (C+, EM)
- SI(R,R) & SI(r,r): **79** (C+)

78 **Michel Caillaud**
R136 Probleemblad
V–VI/2001



PG in 21.0 moves (15+15)

79 **Unto Heinonen**
Springaren 1996
2. Prize



PG in 18.5 moves (13+12)

78) Michel Caillaud:
1.b4 Sf6 2.b5 Se4 3.b6 Sxd2 4.bxa7 Sb3 5.Qd4 h5 6.Qh4 Rh6 7.g4 Ra6 8.Bg2 e6 9.Bc6 Ba3 10.Sf3 Sc5 11.Kd2 Qg5+ 12.Kc3 Ke7 13.Rd1 d6 14.Rd4 Sbd7 15.Ra4 Sf6 16.Kc4 Bd7 17.Sc3 Rh8 18.a8R Sg8 19.Rd8 Ra8 20.Rb1 Sa6 21.Rb6 Sb8

79) Unto Heinonen:
1.b4 c5 2.b5 Qc7 3.b6 Qg3 4.hg h6 5.R:h6 ab 6.Rc6 R:a2 7.Sa3 R:c2 8.Bb2 Rc4 9.Sc2 Rch4 10.e4 g6 11.Bc4 Bh6 12.Se2 Be3 13.de e6 14.Qd3 Se7 15.0-0-0 0-0 16.R:c8 Sbc6 17.Ra8 Rh8 18.Ra1 Ra8 19.Rh1 Sb8

Comments and open problems: There are mainly two of them, the second one being a very deep well-known conjecture:

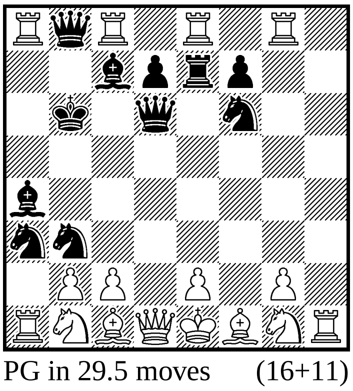
- SI(R,R) & SI(s,s).
- SI(S,S) & SI(s,s).

5.4.2 SI & remaining theme

There are four new entries with this feature. Note that the first one is also a non-classical FPG, with the symbolic notation IN(RRRRRR)[4]. Also note that the last one can also be denoted IN(BB)[1] & IN(bb)[1], but doesn't belong to the Belfort type IN & IN.

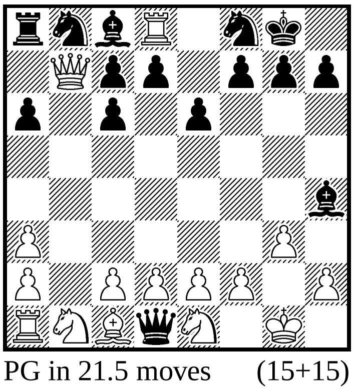
- SI(R,R)[1] & MS(R,R)[1] & MS(R,R)[2]: **80** (C?, FT, EM)
- SI(R,r) & SW(B,b) & SW(S,s): **81** (C+)
- SI(R,r,s) & CI(K,k,b): **82** (C?)
- SI(B,b)[2] & MS(B,b): **83** (C?, EM)

80 **Göran Wicklund**
R259 Probleemblad
IX–X/2004
5. Prize



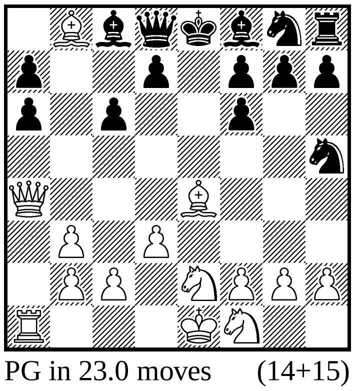
PG in 29.5 moves (16+11)

81 **Roberto Osorio**
Jorge Lois
Oscar Cuasnicú
R230 Probleemblad II/2004
3. Commendation



PG in 21.5 moves (15+15)

82 **Satoshi Hashimoto**
R048 Probleemblad III/1999
3. Prize

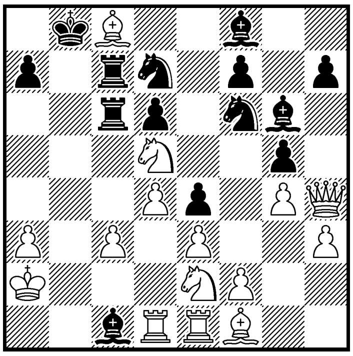


PG in 23.0 moves (14+15)

80) Göran Wicklund:
1.h4 Sc6 2.h5 Sd4 3.h6 Sb5 4.hg h5 5.Rh3 h4 6.Rg3 h3 7.a4 h2 8.a5 h1Q 9.a6 Qh2 10.ab a5 11.baR Lb7 12.Ra4 Bc6 13.Rh4 a4 14.d4 a3 15.d5 a2 16.d6 a1S 17.dc Sb3 18.Ra1 Sa3 19.c8R Ba4 20.Ra8 Qb8 21.f4 Kd8 22.f5 Kc7 23.f6 Kb6 24.fe Sf6 25.e8R Bd6 26.Rc8 Re8 27.g8R Re7 28.Rge8 Bc7 29.Rgg8 Qd6 30.Rh1

81) Roberto Osorio, Jorge Lois, Oscar Cuasnicú:
1.g3 Sa6 2.Bg2 Rb8 3.Bc6 bc 4.Sf3 Rb3 5.0-0 Ra3 6.ba e6 7.Bb2 Be7 8.Bd4 Bh4 9.Sc3 Qg5 10.Rb1 Se7 11.Rb8 0-0 12.Qb1 Bb7 13.Re8 Sg6 14.Re7 Ra8 15.Re8+ Sf8 16.Rd8 Bc8 17.Qb7 Qb5 18.Ra1 Qb1+ 19.Se1 Qd1 20.Sb1 Sb8 21.Bb2 a6 22.Bc1

83 **Unto Heinonen**
R234 The Problemist I/1995



PG in 24.0 moves (15+14)

82) Satoshi Hashimoto:
1.e4 Sf6 2.Qf3 Sh5 3.Qf6 ef 4.e5 Bd6 5.e6 0-0 6.e7 Sc6 7.e8Q Rb8 8.Qe4 Re8 9.Bd3 Re5 10.Se2 Rb5 11.0-0 Rb3 12.ab Kf8 13.Ra6 ba 14.Qa4 Rb5 15.Be4 Re5 16.d3 Re8 17.Bf4 Ke7 18.Sd2 Rh8 19.Ra1 Ke8 20.Kf1 Bf8 21.Ke1 Se7 22.Sf1 c6 23.Bb8 Sg8

83) Unto Heinonen:
1.b4 e5 2.b5 Qh4 3.b6 Sf6 4.bc b5 5.Sc3 b4 6.Sd5 b3 7.c3 b2 8.Qa4 bcB 9.Q:h4 e4 10.d4 Bh6 11.e3 g5 12.0-0-0 Ba3+ 13.Kb1 Bc1 14.a3 d6 15.Ka2 Bf5 16.c8B Bg6 17.Bh3 Sbd7 18.g4 0-0-0 19.Ba6+ Kb8 20.Se2 Rc8 21.Rhe1 Rc6 22.Bf1 Rhc8 23.h3 R8c7 24.Bc8 Bf8

Comments and open problems: The theme SI is very difficult and interesting, but we have no particular open problem in mind. We leave this open to the reader to find some, as nice possibilities certainly exist.

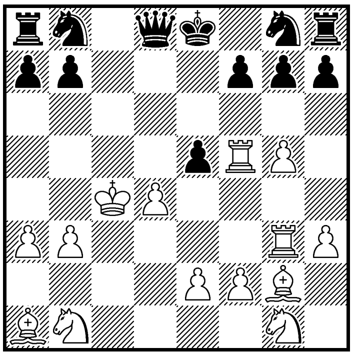
5.5 Classical FPGs containing neither CF nor PR nor SI

Each classical FPG containing CF, PR or SI is now listed (except, of course, if we missed some of them). We focus in this subsection with the remaining themes. The first subsection deals with the themes IP or CC. Remember that the notation IP(A,a) implies that IP is one-man.

5.5.1 Supporting Pawns (IP or CC)

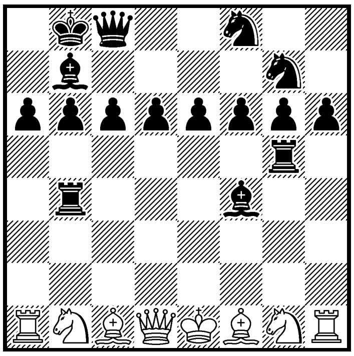
- CC(bb)[1] & CC(bb)[1]: **84** (C+)
- CC(PP) & CC(PP) & CC(PP) & CC(PP): **85** (C?)
- CC((qs),(rr),(PP)): **86** (C+)
- CC((ss),(pp)): **87** (C+)
- IP(B,B,Q,R) & IP(P,P,P): **88** (C+)
- IP(Q,q) & IP(R,r) & IP(B,b) & IP(B,b): **89** (C?)

84 **Nicolas Dupont**
Original



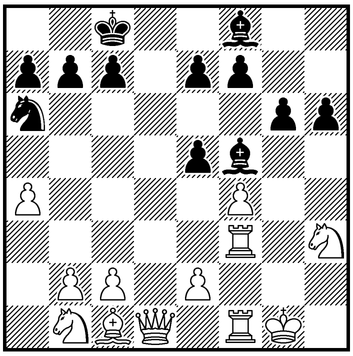
PG in 15.5 moves (14+12)

85 **Unto Heinonen**
Version
Springaren 1995



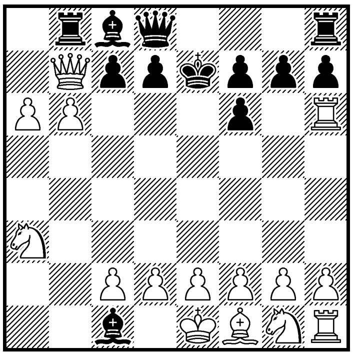
PG in 24.0 moves (8+16)

86 **Unto Heinonen**
R158 Probleemblad I/2002
2. Honorable Mention



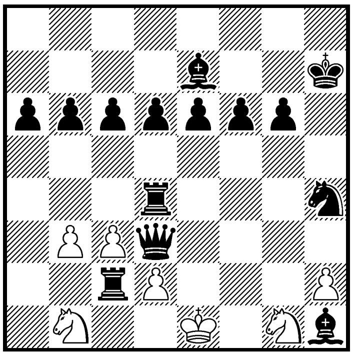
PG in 14.0 moves (12+12)

87 **Roberto Osorio**
Original



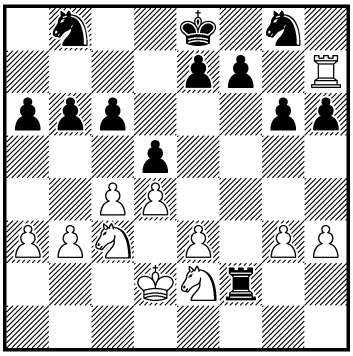
PG in 12.5 moves (15+12)

88 **Kostas Prentos**
8619 feenschach III/2002



PG in 20.0 moves (7+14)

89 **Kostas Prentos**
R0097 StrateGems
IV–VI/2002
2. Honorable Mention



PG in 17.0 moves (11+12)

84) Nicolas Dupont:
1.h4 d5 2.Rh3 d4 3.Rg3 Bh3 4.gh d3 5.Bg2 dc 6.d4 cdB 7.Kd2 Bb3 8.ab c5 9.Ra5 c4 10.Rf5 c3+ 11.Kd3 e5 12.Kc4 Ba3 13.ba c2 14.Bb2 c1B 15.Ba1 Bg5 16.hg

85) Unto Heinonen:
1.b4 Sh6 2.b5 Sf5 3.b6 ab 4.g4 Ra4 5.g5 Rb4 6.g6 hg 7.a4 Rh5 8.a5 Rg5 9.a6 ba 10.h4 Bb7 11.h5 Qc8 12.h6 gh 13.f4 Sg7 14.f5 Kd8 15.f6 ef 16.c4 Bd6 17.c5 Bf4 18.c6 dc 19.d4 Sd7 20.d5 Sf8 21.d6 cd 22.e4 Kc7 23.e5 Kb8 24.e6 fe (Original: 22.e3 Kc7 23.e4 Kb8 24.e5 Ka8 25.e6 fe)

86) Unto Heinonen:
1.g4 Sf6 2.Bh3 Sh5 3.gh Sa6 4.Be6 de 5.h4 e5 6.Sh3 Bf5 7.0-0 Q:d2 8.a4 0-0-0 9.Ra3 Qg5+ 10.hg Rd6 11.f4 Rg6 12.hg hg 13.Raf3 Rh6 14.gh gh

87) Roberto Osorio:
1.a4 b5 2.ab Sf6 3.Ra6 Sd5 4.Rh6 a5 5.b4 Sa6 6.Bb2 Rb8 7.Bf6 ef 8.ba5 Ba3 9.ba Bb2 10.Sa3 Ke7 11.Qb1 Bc1 12.Qb7 Sb6 13.ab

88) Kostas Prentos:
1.c3 Sh6 2.Qa4 Sf5 3.Q:a7 Sh4 4.Q:b8 R:a2 5.b3 Rc2 6.Ra6 ba 7.Qb6 Bb7 8.g4 B:h1 9.Bg2 cb 10.Bc6 dc 11.Ba3 Qd3 12.Bd6 ed 13.e4 Be7 14.e5 0-0 15.e6 fe 16.g5 Rf4 17.g6 Rd4 18.f4 hg 19.f5 Kh7 20.f6 gf

89) Kostas Prentos:
1.d4 c6 2.Qd3 Qb6 3.Qg6 Qb3 4.ab hg 5.Ra6 Rh3 6.Rb6 Rg3 7.hg ab 8.Rh7 Ra2 9.Bh6 gh 10.e3 Bg7 11.Ba6 Be5 12.c4 Bd6 13.Sc3 Ba3 14.ba R:f2 15.Sge2 d5 16.Kd2 Bh3 17.gh ba

Comments and open problems: Supporting Pawns is a rich tool to reinforce a given theme, as their invisibility make the captures more paradoxical, as in entry 20 for CFs or in entries 75 and 76 for PRs. But here we concentrate when supporting Pawns are the heart of the classical FPG. A first open problem is to improve the homogeneity of entry 88, for instance:

- IP(B,B,R,R) & IP(P,P,P).

Entry 87 shows a double CC rendition by the same couple of supporting Pawns (note that the first CC is a particular IP case, while the second one is not, since the pawns are going back to their original lines). Our next open problems list asks to the possibility of going further with a triple CC rendition:

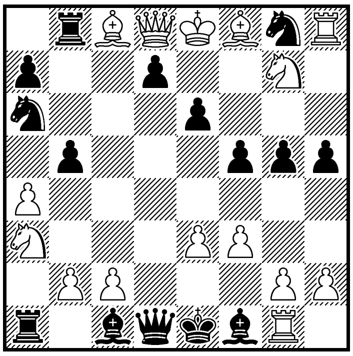
- CC((UU),(VV),(WW)).

5.5.2 Belfort type IN & IN

Interchange is of course easier in the mixed-colored setting, as it doesn't involve imposters. Hence we can find several entries, all of them belonging to the "Belfort" type:

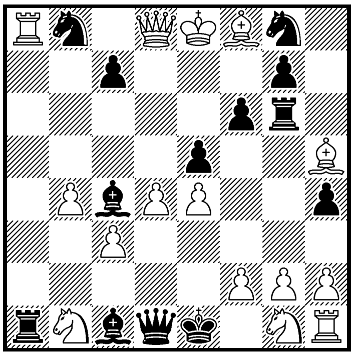
- IN(Kk) & IN(Qq) & IN(Rr) & IN(Bb) & IN(Bb): **90** (C?)
- IN(Kk) & IN(Qq) & IN((SW(R))r) & IN(Bb): **91** (C?)
- IN(Qq) & IN(Rr) & IN((SW(R))r) & IN(Bb) & IN(Bb): **92** (C+)
- IN(R(SW(r))) & IN((SW(R))r): **93** (C+)
- IN(R(SW(r))) & IN(R(SW(r))): **93-a** (C+)
- IN(Bb) & IN(Bb) & IN(Ss): **94** (C+)
- IN(Ss) & IN(Ss): **95** (C+)

90 **Unto Heinonen**
R308 Probleemblad
V–VI/2006



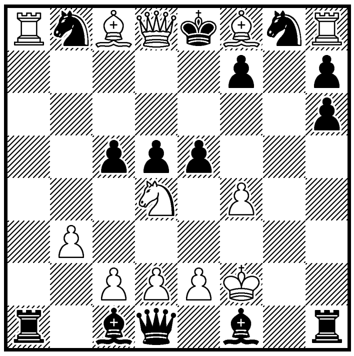
PG in 29.0 moves (15+15)

91 **Unto Heinonen**
P0179 StrateGems
VII–IX/2005



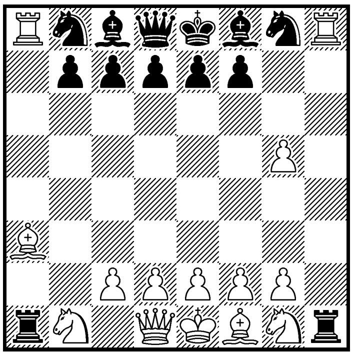
PG in 23.0 moves (15+13)

92 **Unto Heinonen**
10223 Die Schwalbe
XII/1998
1. Honorable Mention



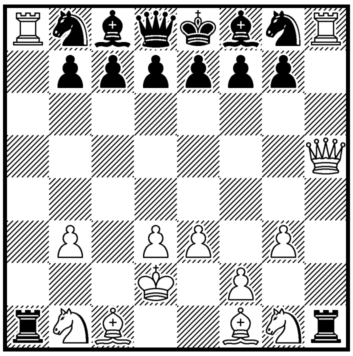
PG in 21.5 moves (12+14)

93 **Joost de Heer**
R40 Problemesis X/2001



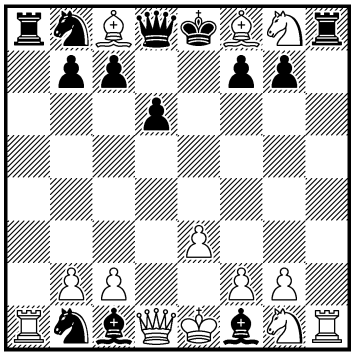
PG in 8.0 moves (14+13)

93-a **Étienne Dupuis**
R32 Problemesis IV/2001



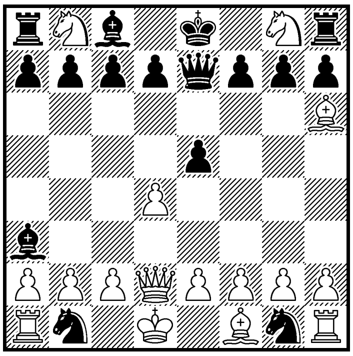
PG in 10.0 moves (13+14)

94 **[TG]** **Helmut Zajic**
Guus Rol
Hans Uitenbroek
Peter van den Heuvel
37th FIDE-Congress
"Belfort" 1994



PG in 13.0 moves (13+13)

95 **Andrew Buchanan**
Problemesis 2002



PG in 11.5 moves (16+16)

90) Unto Heinonen:
1.d4 h5 2.Bh6 f5 3.Kd2 Kf7 4.Ke3 Ke6 5.Kf4 Kd5 6.Kg5 Ke4 7.f3+ Ke3 8.Kg6+ Kf2 9.Kf7 g5 10.a4 Bg7 11.Ra3 B:d4 12.Bf8 Be3 13.Qd6 Rh6 14.Q:c7 Rd6 15.Rc3 Rd1 16.Sa3 Ra1 17.Rc6 Bc1 18.e3 Ke1 19.Ba6 b5 20.Rh6 Bb7 21.Rh8 Be4 22.Bc8 Bd3 23.Sh3+ Bf1 24.Sf4 Sa6 25.Se6 Rb8 26.Sg7 e6 27.Rg1 Qf6+ 28.Ke8 Qd4 29.Qd8 Qd1

91) Unto Heinonen:
1.e4 h5 2.Be2 h4 3.Bh5 e5 4.Ke2 Ke7 5.Kf3 Kd6 6.Kg4 Kc5 7.d4+ Kc4 8.Bd2 Ba3 9.Bb4 Qf6 10.c3 Qf3+ 11.Kg5 f6+ 12.Kg6 Rh6+ 13.Kf7 Rg6 14.Da4 Kd3 15.Q:d7 Kc2 16.Qd8 Be6+ 17.Ke8 B:a2 18.Bf8 Bc4 19.b4 Bc1 20.R:a7 Kd1 21.R:b7 Ra1 22.Ra7 Ke1 23.Ra8 Qd1

92) Unto Heinonen:
1.h4 Sf6 2.h5 Rg8 3.h6 gh 4.Sf3 R:g2 5.Rg1 Rh2 6.Rg8 Rh1 7.Rh8 Sg8 8.b3 Bg7 9.Ba3 Bb2 10.Sd4 e5 11.Bf8 c5 12.f4 Qa5 13.Kf2 Q:a2 14.Bh3 Q:b1 15.Qg1 Qd1 16.R:a7 Bc1 17.R:b7 Ra1 18.Ra7 Bb7 19.Qg5 Bg2 20.Ra8 d5 21.Bc8 Bf1 22.Qd8+

93) Joost de Heer:
1.h4 g5 2.hg h6 3.R:h6 a6 4.R:a6 Rh1 5.Rh6 R:a2 6.Rh8 R:b2 7.Ra8 Ra2 8.Ba3 Ra1

93-a) Étienne Dupuis:
1.e3 h5 2.Q:h5 a5 3.Q:a5 R:h2 4.g3 Rg2 5.Rh8 Rh2 6.Qh5 R:a2 7.b3 R:c2 8.Ra8 Ra2 9.d3 Ra1 10.Kd2 Rh1

94) Helmut Zajic, Guus Rol, Hans Uitenbroek, Peter van den Heuvel:
1.Sc3 Sf6 2.Sd5 Se4 3.S:e7 S:d2 4.Sg8 Sb1 5.Be3 Bd6 6.B:a7 B:h2 7.Bc5 Bf4 8.Bf8 Bc1 9.e3 d6 10.Bd3 Be6 11.B:h7 B:a2 12.Bf5 Bc4 13.Bc8 Bf1 (14.c4 f5 15.Qa4+ Kf7 16.Qd7+ Qe7 17.Qd8 Sd7 18.Kd1 Rb8 19.Ra8)

95) Andrew Buchanan:
1.Sf3 Sc6 2.Sd4 Se5 3.Sc6 Sf6 4.d4 Se4 5.Lh6 Sd2 6.Sc3 Sb1 7.Dd2 Sf3+ 8.Kd1 e5 9.Sd5 La3 10.Sde7 Sg1 11.Sg8 De7 12.Sb8

Comments and open problems: Some very nice “Belfort type” combinations are still unknown, among them:

- IN(Kk) & IN(Qq) & IN(Rr) & IN(Rr).
- IN(Bb) & IN(Bb) & IN(Ss) & IN(Ss).
- IN(Rr) & IN(Rr) & IN(Ss) & IN(Ss).

5.5.3 Miscellaneous

We collect here the remaining classical FPGs we found in the literature but, first of all, entry 67 which is also a record game in this setting (with a different symbolic notation).

- (DO & PH)(S,S) & SW(s,s)

We now present the new entries:

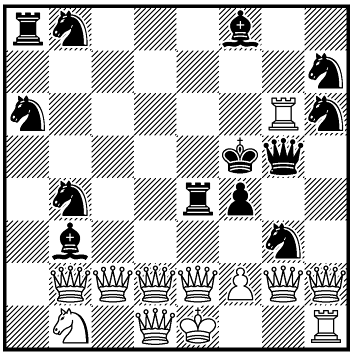
- PC(Q,Q,s) & PC(Q,Q) & PC(Q,Q): **96** (C?, EM)

- PC(R,R) & PC(R,R): **97** (C+, FT, EM)
- PC(Q,Q) & PC(Q,Q,Q) & PC(q,q) & PC(q,q): **98** (C?, EM)
- SW(r,r,k,q) & SW(b,b) & SW(s,s) & SW(S,S): **99** (C?, EM)
- SW(Q,q) & SW(R,r) & SW(B,b): **100** (C?, EM)
- RU(K,k) & SW(R,r): **101** (C+, EM)

Note that in some of the entries containing PC(Q), some Queens could be replaced by Rooks to produce new fulfilled cases.

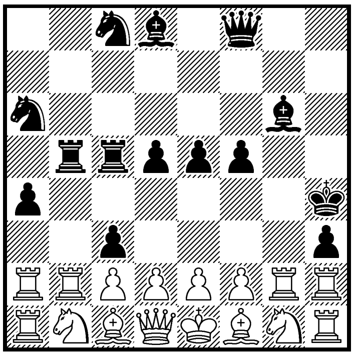
Obviously, plenty of other combinations are waiting to be found, we trust in the imagination of the composers to find many new jewels in the rear future.

96 **Nicolas Dupont**
6218 phénix XII/2010



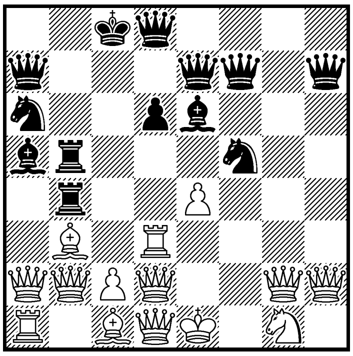
PG in 40.5 moves (12+13)

97 **Silvio Baier**
P0265 StrateGems IV/2010



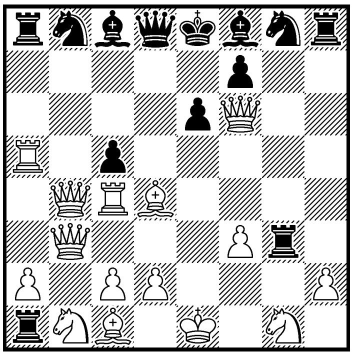
PG in 27.5 moves (16+14)

98 **Unto Heinonen**
R334 Probleemblad
I–III/2008
1. Prize



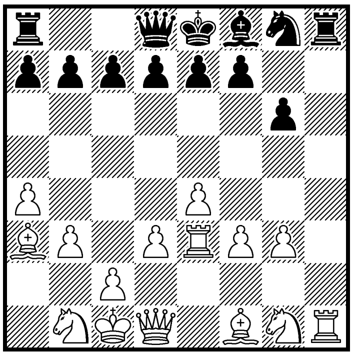
PG in 39.5 moves (14+13)

99 **Unto Heinonen**
R069 Probleemblad IX/1999
1. Prize



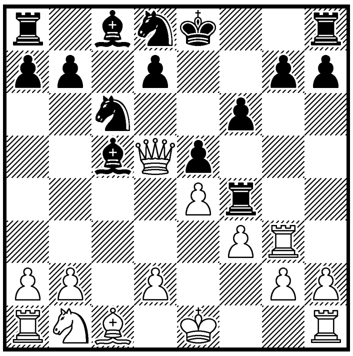
PG in 32.0 moves (15+13)

100 **Unto Heinonen**
R041 Probleemblad I/1999



PG in 19.0 moves (15+13)

101 **Andrej Frolkin**
7053 Die Schwalbe
VIII/1990
2. Prize



PG in 19.0 moves (14+15)

96) Nicolas Dupont:
1.e4 f5 2.e5 Kf7 3.e6+ Kf6 4.ed e5 5.h4 e4 6.h5 e3 7.h6 e2 8.hg h5 9.b4 h4 10.b5 h3 11.b6 Rh4 12.bc Sh6 13.g8Q h2 14.Qg3 hgS 15.Qh2 Re4 16.g4 f4 17.g5+ Kf5 18.g6 Sh3 19.g7 Sg5 20.g8Q Sh7 21.Qgg2 Qg5 22.d8Q b5 23.Qd3 efS 24.Q3e2 b4 25.d4 b3 26.d5 b2 27.d6 bcS 28.d7 S:a2 29.d8Q Sb4 30.Ra6 Sg3 31.Rg6 Be6 32.c8Q a5 33.Qc3 a4 34.Qb2 a3 35.c4 a2 36.c5 a1=S 37.c6 Sb3 38.c7 Sc5 39.c8Q Sca6 40.Qcc2 Bb3 41.Qdd2

97) Silvio Baier:
1.a4 c5 2.a5 c4 3.a6 c3 4.ab a5 5.h4 a4 6.h5 Ra5 7.h6 Sa6 8.hg h5 9.b8R h4 10.Rb3 Rhh5 11.Rba3 Rhc5 12.b4 e5 13.b5 Ke7 14.b6 Kf6 15.b7 Se7 16.g8R d5 17.Rg3 Bf5 18.Rgh3 Kg5 19.R3h2 h3 20.g4 Kh4 21.g5 Sc8 22.g6 Be7 23.g7 Qf8 24.g8R Bd8 25.Rgg2 Bg6 26.b8R f5 27.Rb2 Rab5 28.R3a2

98) Unto Heinonen:
1.a4 e5 2.a5 e4 3.a6 e3 4.ab a5 5.h4 a4 6.h5 a3 7.h6 Ra4 8.hg Sa6 9.b8Q a2 10.Qb3 axb1Q 11.Qa2 h5 12.b4 h4 13.b5 Bb4 14.b6 Ba5 15.b7 Qb6 16.b8Q Qa7 17.Qbb2 Rb4 18.d4 ef+ 19.Kd2 Rh5 20.e4 Rhb5 21.Bc4 f1Q 22.Rh3 Qff6 23.Rd3 h3 24.d5 h2 25.d6 h1Q 26.dxc7 d6 27.Bb3 Be6 28.c8Q Qh7

29.Qcc3 Sh6 30.g8Q+ Kd7 31.Qg3 Qfe7 32.Qh2 f5 33.g4 f4 34.g5 f3 35.g6 f2 36.g7 f1Q 37.g8Q Qff7 38.Ke1 Sf5 39.Qcd2 Kc8 40.Qgg2

99) Unto Heinonen:
1.g4 c5 2.g5 Sc6 3.g6 Rb8 4.gh g5 5.Sf3 Bh6 6.Rg1 Kf8 7.Rg4 Qe8 8.Rc4 g4 9.e4 g3 10.e5 g2 11.e6 g1R 12.ed Rg3 13.d8Q Bh3 14.b4 B:f1 15.b5 Bh3 16.b6 Bc8 17.ba e6 18.a8Q Sge7 19.Qa4 Rhg8 20.h8B Ra8 21.Bd4 Rh8 22.Sa3 Sg8 23.Qf6 Qd8 24.Rb1 Ke8 25.Rb5 Bf8 26.Ra5 b5 27.Sg1 b4 28.Qdf3 b3 29.Qb4 b2 30.Qfb3 b1R 31.f3 Ra1 32.Sb1 Sb8

100) Unto Heinonen:
1.e4 h5 2.Q:h5 g6 3.Qd1 R:h2 4.g3 Rg2 5.Rh8 Bh6 6.a4 Kf8 7.Ra3 Kg7 8.Re3 Sf6 9.b3 Qg8 10.Ba3 Qh7 11.R:c8 Sa6 12.Rh8 Qg8 13.B:a6 Qd8 14.Bf1 Sg8 15.d3 Kf8 16.Kd2 Ke8 17.Kc1 Bf8 18.Rh1 Rh2 19.f3 Rh8

101) Andrej Frolkin:
1.e4 c5 2.Bd3 c4 3.Se2 cd 4.0-0 de 5.c4 e1R 6.c5 Re3 7.c6 Rf3 8.c7 Rf4 9.f3 e5 10.Kf2 Bc5+ 11.Ke1 Se7 12.Rh1 0-0 13.cdR Sec6 14.Re8 Sd8 15.Re6 Sbc6 16.Rg6 f6 17.Rg3 Kf7 18.Qb3+ Ke8 19.Qd5 Rh8

5.6 Highly challenging open problems

We finally select some of the already presented open problems, which might be considered as the most fascinating goals to be reached in the FPG land. We obviously focused on the difficulty, but with the hope that those problems remain manageable. We also focused on the homogeneity and purity of the involved themes.

- (CC & CF)(BB) & (CC & CF) (BB) and (IP & CF)(B,B) & (IP & CF) (B,B).
- (CC & CF)(BB) & (CC & CF) (bb) and (IP & CF)(B,B) & (IP & CF) (b,b).
- CF(CC(B),CC(b)) & CF(CC(S),CC(s)).
- CF(B,B,B) & CF(b,b,b).
- CF(S,S) & CF(S,S,S).
- (CC & CF)(SS) & (CC & CF) (ss) and (IP & CF)(S,S) & (IP & CF) (s,s).
- CF(Q,Q) & PR(q,q).
- CF(B,B) & PR(b,b).
- CF(S,S) & PR(s,s).
- CF(B,B) & AP(B,B) and CF(S,S) & AP(S,S).
- CF(B,B) & KP(B,B) and CF(S,S) & KP(S,S).
- CF(B,B) & SC(B,B) and CF(S,S) & SC(S,S).
- PR(Q,Q) & PR(r,r).
- PR(R,R) & SI(s,s).
- SI(S,S) & SI(s,s).
- IN(Kk) & IN(Qq) & IN(Rr) & IN(Rr).

6 Conclusion

It doesn't make sense to claim that a given proof game is a FPG or not, as it depends on the chosen list of selected themes and on the chosen variation. Indeed, as already mentioned, it might be interesting to add some known themes, as e.g. Phoenix, Tempo move or Repeated move. Moreover, concerning the variations, we probably also missed some nice possibilities.

We trust in the feeling of our colleagues to be able to correctly distinguish between the right and the wrong themes that might lead to "reasonable" new FPGs even if, as shown above, it might not always be easy. Anyway, the most important feature obviously remains the thematic content, not the fact that a given proof game is classified as a FPG or not... [1]

[1] Examples 32 and 70 are preliminary published. Both are participating in the Roberto-Osorio-55-JT. This award will be published soon.

A Definitions of the themes

For a given theme, a unique definition in the literature doesn't always exist. We generally use the most general one. For example, a Switchback of a piece is sometimes defined as only two moves (forth and back), and sometimes as a sequence of moves followed by the reverse sequence. We choose this later. Subsection A.1 provides more details and explanations about the following definitions.

- **The Ceriani-Frolkin family**:
  - **Ceriani-Frolkin (CF)**: A promoted piece is captured.
  - **Prentos (KP)**: Ceriani-Frolkin with the extension that this promoted piece is captured by an Officer (not by a Pawn).
  - **Schnoebelen (SC)**: Ceriani-Frolkin with the extension that this promoted piece does not move.
- **The circuit family**:
  - **Circuit (CI)**: A piece, original or promoted, leaves and returns to a given square (after any path).
  - **Donati (DO)**: A promoted piece leaves and returns to its promotion square.
  - **Pawn circuit (PC)**: A Pawn promotes and returns to its initial square.
  - **Rundlauf (RU)**: Circuit with the extension that the path draws a polygon of non-zero area.
  - **Switchback (SW)**: Circuit, with the extension that the path is divided into two parts, a forward path followed by the reverse backward path.
- **The Imposter family**:
  - **Anti-Pronkin (AP)**: Ceriani-Frolkin with the extension that an original piece of same nature and color moves to the CF promotion square.
  - **Imposter Pawn (IP)**: A Pawn stands on a line which is not its original one, but could legally have been (according to retroanalysis), and the original Pawn no more stands on this line.
  - **Meta-Pronkin (MP)**: A Pawn promotes and goes back to the initial square of another Pawn which promotes to a piece of the same nature and color.
  - **Meta-Sibling (MS)**: A piece, original or promoted, moves to the promotion square of another promoted piece of the same nature and color.
  - **Pronkin (PR)**: An original piece is captured, while a promoted one, of same nature and color, moves to the initial square of the original piece.
  - **Sibling (SI)**: A piece, original or promoted, moves to the initial square of another original piece of the same nature and color.
- **The multiple-men family**:
  - **Cross capture (CC)**: (At least) two pieces of the same color are captured by Pawns, in such a way that those Pawns interchange their lines.
  - **Interchange (IN)**: (At least) two pieces, original or promoted, change (cyclically) their places.
  - **Lois (LO)**: Double Interchange of (at least) two pieces on the same couple of squares, the first Interchange being visible on the board while the second begins, and this second Interchange being visible on the board too.
  - **Pawn interchange (PI)**: (At least) two Pawns promote and move with (cyclic) shift to their interchanged initial squares.
- **The enhancement family**:
  - **Phantom (PH)**: The thematic piece of a one-man theme is captured on its thematic square.
  - **Thematic capture (TC)**: A one-man theme does not require the capture of the thematic piece, but this piece is nevertheless captured.

A.1 Comments and remarks

We have the following inclusions (the theme from the left is a particular case of the theme from the right):

- **SC** $\subset$ **KP** $\subset$ **CF**.
- **DO** $\subset$ **CI[1]**, **RU** $\subset$ **CI** and **SW** $\subset$ **CI**.
- **PR** $\subset$ **SI**.
- **LO** $\subset$ **IN & IN**.
- **DO & PH** $\subset$ **KP**.

We also have, for each piece A, the following equality:

- **AP(A) = MS(A) & CF(A)**.

Because of the compacting procedure (see subsection 2.5), the symbolic notation MS(A) & CF(A) is never used. Note also that, when Sibling involves two pieces of the same color and is marked without suffix (see subsection 2.5 too), then:

- **SI** $\subset$ **IN**.

More precisely, for each piece A, SI(A,A) is an Interchange onto the original squares, in particular, A=R or S.

Remark that PH is often a particular case of TC, but not always. For example PR(Q,Q) needs the capture of the first Pronkin Queen, hence this captured Queen can never be denoted TC(Q). But it is denoted PH(Q) when its capture occurs on the d1 square.

Concerning the Circuit family, note the following remarks:

- It is sometimes asked that a Circuit needs at least three moves, or that a Switchback needs only two moves. We preferred to use the general definitions given above, which are also in common usage.
- For the same piece to perform two Circuits, it is necessary for the first one to be over while the second begins. For example, Ra1-b1-c1-b1-a1 is not a double circuit.
- Only the initial square is occupied twice during a Rundlauf. As it draws a polygon, it cannot be a Switchback (and vice-versa), but it can admit self-intersections. A Rundlauf without self intersections might be called a Loop.

Finally, note the following general remarks:

- In an Anti-Pronkin, the original piece can reach the CF promotion square before this later theme is fully effective.
- In the case of a promoted Meta-Sibling piece, its promotion square is different from the one of the other promoted piece, otherwise Meta-Sibling would be the Donati theme.
- In a Pronkin, the promotion can occur before the original piece is captured. When the promoted piece has reach the initial square of the original piece, it is considered as a new original piece. In particular a new Pronkin (e.g. a second Queen) can be constructed with it.

B Prospective variations

Generally speaking, we do not want to be too strict while defining the FPG field, leaving an open possibility for variations to enter this world. What should be preserved (the heart of the philosophy, say) is that a FPG must perform at least four tricks presenting a kind of unity, e.g. divided into two couples or performing some cyclic feature. The second part of the article will deal with such variations (fairy FPGs should also be an important field to further investigate).

We define what might be called basic variations, but a composition of such basic variations leads to another admissible variation (a couple of examples are provided at the end of this subsection).

B.1 Recurrent renditions by the same man

The classical FPG definition asks for two couples of different pieces of same nature, i.e. four pieces are involved. This new possibility opens the scope, allowing the same piece to take part more than once in the feature.

The essence of a classical FPG is X(A,A) i.e. two pieces A of the same nature performing the theme X. If we allow (A,A) to be a unique piece A but performing two times X, we then have (X & X)(A), and the recurrence content is preserved. We call this the "one-man" effect. This is the inspiration of the following FPG variations, which then show the requested four tricks but with less than four pieces.

If a proof game performs a one-man effect and a half basic FPG, we then have a **one-man & one-couple** FPG. There are two possibilities with clear meaning:

- **(X & X)(A) & Y(B,B)** (obviously (X & X)(a) & Y(b,b) works too).
- **(X & X)(A) & Y(b,b)** (obviously (X & X)(a) & Y(B,B) works too).

Note that such symbolic notations involve three thematic pieces.

It is not always obvious to decide whether or not a given piece performs two themes. For example, we already mentioned the case of a piece performing the Donati theme, when moreover the Circuit is a Rundlauf. The question of whether or not this feature shows two themes will be examined in the second part of the article.

At its time, a FPG may involve only two thematic pieces. There are two different ways to handle this situation:

a) The **one-man & one-man** FPG variation also presents two possibilities with clear meaning:

- **(X & X)(A) & (Y & Y)(B)** (obviously (X & X)(a) & (Y & Y)(b) works too).
- **(X & X)(A) & (Y & Y)(b)**

b) The **one-couple** FPG variation, with the following two possibilities with clear meaning:

- **(X & Y)(A,A)** (obviously (X & Y)(a,a) works too).
- **(X & Y)(A,a)**

Finally, the full thematic content can be realized by only one piece A, performing twice a one-man effect. This defines the **one-man** FPG, with only one possibility with clear meaning:

- **(X & X & Y & Y)(A)** (obviously (X & X & Y & Y)(a) works too).

Note that, as for classical FPGs, the number of letters A, B, C... is always equal to the number of different thematic pieces. This is a rule that we will also always keep in the second part of the article, as it provides an easily understandable and strong link between the thematic content of a FPG and their symbolic notations.

The second part of the article will also deal with the following remaining possibilities we have in mind:

B.2 Crossed FPGs

In this variation, each theme is realized by a couple of pieces of different nature, each couple containing respectively two pieces of same nature. Then the recurrence aesthetic is kept, but in a crossed way. The meaning of the following three possibilities is clear:

- **X(A,B) & Y(A,B)** (obviously X(a,b) & Y(a,b) works too).
- **X(A,B) & Y(a,b)**
- **X(A,b) & Y(B,a)**

B.3 Completeness FPGs

In this variation, the recurrence aesthetic is kept regarding themes, but regarding piece nature it is replaced by “Completeness”, i.e. a set (Q,R,B,S), or even (Q,R,B,S,K,P). For the moment, we don’t give any definition of FPGs involving this later set. For the first one, let (A,B,C,D) = (Q,R,B,S) as (non-ordered) sets. Once again the meaning of the following three possibilities is clear:

- **X(A,B) & Y(C,D)** (obviously X(a,b) & Y(c,d) works too).
- **X(A,B) & Y(c,d)**
- **X(A,b) & Y(C,d)**

Any of the four pieces involved in a complete set might be original or promoted. The suffix notation we have already used (see subsection 2.5) permits to distinguish between them. In particular X(A,B)[2] & Y(C,D)[2] means that the four thematic pieces perform the famous AUW (Allumwandlung).

Note that this variation, as well as the forthcoming ones, doesn’t satisfy the coupling rule. For example, if X=Y, then X(A,B) & X(C,D) can also be denoted X(A,C) & X(B,D). But nevertheless, we think that such a rendition follows the “right spirit” to legitimately be considered as a (non-classical) FPG.

B.4 One-rendition FPGs

Classical FPGs and the above prospective variations always need at least two themes or a double rendition of a same theme. This new possibility opens the scope (as for one-man FPGs), allowing only one rendition of a theme in the feature. As at least four tricks are involved in any FPG, this theme must be at least a four-men one (see the beginning of section 2).

The main such multiple-men themes we have in mind are “long” CC and “long” IP. For example, a2xb3xc4 and c2xb3xa4, leads to a long CC, while a2xb3xc4xd5xe6 and e2 no more stands on its original line, leads to a long IP. Even if the four requested thematic pieces are present (the captured pieces), long CC and long IP are clearly not classical FPGs. They are called **one-rendition** FPGs providing the four captured pieces, where they are divided into two couples of pieces respectively of the same nature. Details will be given in the second part of the article.

B.5 Multi-phase and cyclic FPGs

In this last next coming variation, either:

- The whole thematic content is shown in several phases (twins or multi-solutions) or
- the proof game shows a cyclic Interchange of (at least) three pieces, as part of the thematic content.

A two-phase FPG performing the theme X in the first one, and the theme Y in the second, is denoted X/Y. Note that a cyclic FPG can also be one-rendition, when the cyclic Interchange occurs with four or more pieces, and the FPG doesn’t show any additional thematic content.

Obviously, the above variations are only described in their basic symbolic notation, but possible extensions will also be defined. Moreover, as already mentioned, variations can be combined, leading to new admissible variations. For example, we can glue one-man and crossed FPGs to obtain (X & Y)(A) & (X & Y)(B), or we can also glue completeness and multi-phase FPGs to obtain X(A,B)/Y(C,D).

C Glossary

AP	Anti-Pronkin
C+	Computer-tested
C?	Not computer-tested
CC	Cross capture
CF	Ceriani-Frolkin
CI	Circuit
DO	Donati
EM	Extra material
FPG	Future Proof Game
FT	Fully thematic
HOTF	Helpmate of the Future
IN	Interchange
IP	Imposter Pawn
KP	(Kostas) Prentos
LO	Lois
LT	List of themes
MP	Meta-Pronkin
MS	Meta-Sibling
NSM	Non-standard material
PC	Pawn circuit
PH	Phantom
PI	Pawn interchange
PR	Pronkin
RU	Rundlauf
SB	Single box
SC	Schnoebelen
SI	Sibling
SW	Switchback
TC	Thematic capture
TG	Truncated Game
TT	Twenty themes

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