SHRINKING MEN ARTICLES BY PAUL BISSICKS PUBLISHED IN PROBLEM OBSERVER 2011-2013

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SHRINKING MEN: KINGS AND ROOKS

Shrinking Men: No unit may move further (geometrically) than the last time it moved.

About two years ago, my interest in Fuddled Men led to my coming across some Shrinking Men problems. These were composed by the inventor of Shrinking Men, Ronald Turnbull.

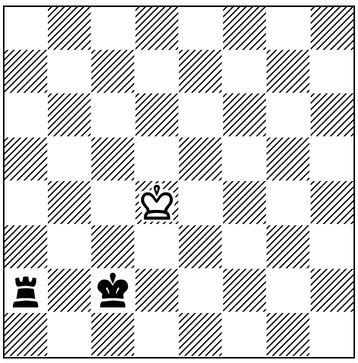
I got in touch with Ronald, and we have since developed a significant number of lightweight settings that seem suitable for publication. (Some of these have been collaborations whilst others have been independent compositions.) This article is for the purpose of sharing some of these settings with Problem Observer readers. (All of them have been computer-tested.)

I have been fortunate to have Ronald's advice on successive drafts. I have accepted a good majority of his suggestions, but any errors that remain are mine alone.

Readers will be encouraged as the text proceeds to try to solve some of the problems, and the solutions will be given later in the text.

Let's look at Problem I. The diagram is not misprinted, and it is in fact quite possible for the lone WK to deliver mate (with Black's help) in all three parts. I will show a way of solving part (a) in the fourth paragraph from now, but we need first to consider the range of the kings. (The range of a unit is the maximum distance it can move ignoring interferences.)

I R.Turnbull & P.K.Bissicks



H#2 Shrinking Men
(b) BR->c1 (c) –BR

There are two possibilities for each king. It may have a range of 1D (1 square diagonal), as it would in normal chess, or it may be “shrunk” to 1O (1 square orthogonal).

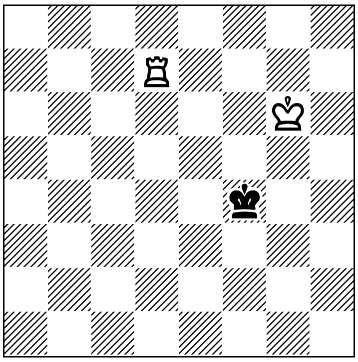
To decide the range of the kings, we need a retroanalytical principle. The one used, in Shrinking Men and its opposite genre Growing Men, is the *Ceriani* principle: *the powers of units are determined by their most favourable histories*. This means (in Shrinking Men) that *units are deemed to have reached their squares in a way which least reduces their range.* (In Growing Men, units are deemed to have reached their squares in a way which makes them least expanded.)

The key question for each K is therefore whether it could have reached its square entirely by 1D moves (or castling followed by 1D moves). It is fairly clear that the answer for Problem I is yes, so that both Ks have range 1D.

It is now possible to solve part (a). We may start by guessing (reasonably) that the BK will go to a3. There is only one route 1.Kc2-b3 2.Kb3-a3 in Shrinking Men, and the effect of 2.Kb3-a3 is to shrink him. This means that he does not guard b4, and 1.Kb3 Kc5 2.Ka3 Kb4 is mate, with the WK taking two of the BK’s three “+” flights and the BR blocking the third. (The shrunken BK has no star flights.) I would now encourage readers to solve parts (b) and (c).

Let us now consider Problem II. The stipulation of this problem may be explained as follows: *Black makes three moves in succession to reach a position where White can mate in one. Black may not move into check at any stage, or give check except possibly at his last move.*

II R.Turnbull



Ser-H#3 Shrinking Men
(b) reflect L < > R

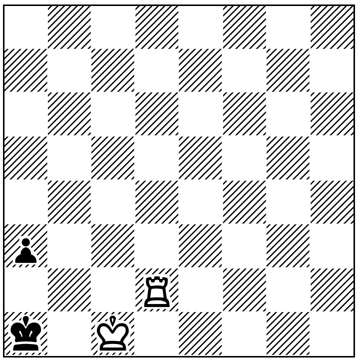
What range do the Ks have? This time it is only 1O, because they *must* have made a 1O move as this is the only way for a king to change its colour of square.

We will look at how to work out the range of a rook when we come to Problem V. For now, I would ask readers to accept that the WR has 4O (4 squares orthogonal) in each part. This means that it could play to d3 or h7 but not d2 or d1 in part (a).

The only effect of the reflection in part (b) is to “unshrink” both Ks to a range of 1D. If they wish, therefore, readers may solve part (b) from the diagram, assuming that the Ks have 1D. (The solution that arises in this way is the one I will give in due course.) I would now encourage readers to solve both parts of Problem II.

It seems sensible at this point to give the solutions to parts (b) and (c) of Problem I: (b) 1.Rb1 Ke3 2.Kc1 Kd2 & (c) 1.Kb1 Kc3 2.Ka1 Kb2. A WK which has preserved 1D thus mates a shrunken BK (in all three parts) – a not uncommon event in Shrinking Men, though, as one might expect, most problems have at least one supporting white unit.

III R.Turnbull & P.K.Bissicks



#2 Shrinking Men set play

Let us turn to Problem III, in which the WR has a range of 4O. (It is just coincidence that its range is the same as Problem II.) The set play is not difficult to find: 1...a2 2.Kb2. The interesting question is whether White has a way of marking time in order to preserve it. I would encourage readers to think about this before reading on.

At this juncture, I will give the solutions to Problem II: (a) 1.Kg4 2.Kh4 3.Kh5 Rh7 (b) (1D Ks) 1.Ke4 2.Ke5 3.Ke6 Kf5. The mate in part (a) seems worth noting as an example of what can be achieved with 1O Ks, and I hope readers will feel as I did that the mid-board ideal mate in part (b) with just three units was a very good find by Ronald.

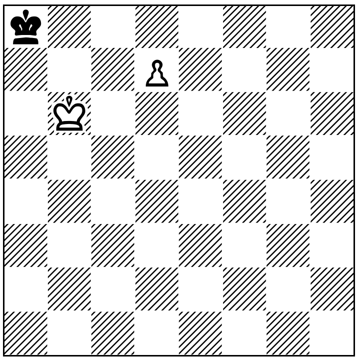
It may seem natural to suppose that White can preserve the set play in Problem III by moving his R along the second rank. However, moving it to the right causes it to lose control of all the squares to the left of d2, thus allowing 1...Ka2!, whilst moving it to c2 shrinks it to 1O, also allowing 1...Ka2! The surprising conclusion is that White cannot preserve the set play. However, there are not many possible keys left, and I would encourage readers at least to work out what the key is likely to be, though it may not be easy to imagine the mate after 1...a2.

What happens to a P that promotes? It may seem reasonable that it is still the same individual, and retains the very limited range (at most 1D) of the pawn that it was before. This convention ("promotees remain shrunken") was used for the original problems in this genre. However, the opposite convention ("promotees unshrunken") can also produce worthwhile problems. This imposes no restriction on the range of newly promoted pieces.

The "promotees remain shrunken" convention should be regarded as the standard (default) one. All the problems in this article use p.r.s. apart from part (b) of Problem V.

It seems good at this point to return briefly to Problem III. The key is 1.Rb2!, leading to the set play being changed to 1...a2 2.Rb1! However, the essence of the set mate reappears after 1...axb2 2.Kxb2 as a bare kings mate.

IV P.K.Bissicks

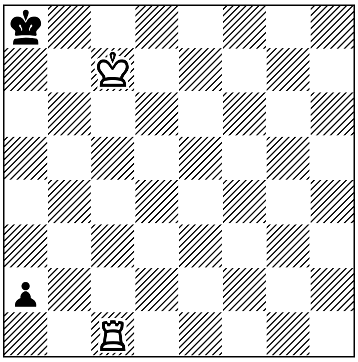


#2 Shrinking Men
(b) +wPc7

Let’s look at Problem IV. The lack of candidate moves means it is not difficult to solve. It is a simple example of the two short promotions (i.e. promotions with non-capturing moves) under the default p.r.s.: (a) 1.d8R! (promotion to Q, range 1O, would be indistinguishable) (b) 1.c8S! (an immobile dummy, promotion to B would be indistinguishable). In each case, 1...Kb8 2.Ka7 follows.

I would encourage readers now to try to solve Problem VI (diagram later in text) as this has some similarities with Problem IV and does not require any insights from Problem V.

V P.K.Bissicks



#2 Shrinking Men (b) p.u.

Let’s look at Problem V. What is the range of WR? Its longest possible last move appears to be Rc8-c1, giving it a range of 7O. Let’s suppose that it has this range. What then was its previous move? It must have been Rc1-c8. Its previous move again? Obviously, Rc8-c1. Continuing in this way, we see that the rook has been on the c-file for the whole game. Is this a problem?

If p.u. is being used, then no, because the R might be a promoted rook (which has promoted on c8). Thus in part (b) the R *does* have 7O, and this part solves with 1.Kb6! (1.Rc6? a1Q/R!) Kb8 2.Ka7.

Let us now consider part (a), where the default p.r.s. is being used. Here, if the R is promoted, it will only have 1O. This is therefore unlikely to be its most favourable history. What range might it have if it started on a1 or h1? Clearly 7O is too optimistic, and 6O would also mean that the R has spent its whole life on the c-file.

Let's suppose that it has 5O. Its last move may then have been Rc6-c1 *or* Rh1-c1. There is thus no problem about a range of 5O, and part (a) now solves with 1.Rc6! Ka7 (1...a1R 2.Ra6) 2.Kb8.

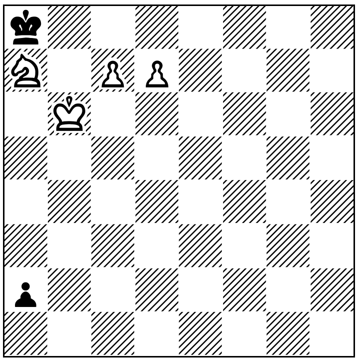
We were lucky that one of WR's two possible last moves was a (single-move) history. However, if, hypothetically, the R had been on c2, we could still have shown a history giving 5O, e.g. Rh1-h7-c7-c2.

Arguments similar to the above can be used to derive the following general rule for the range of a rook:

The range of a rook is normally: (i) if the default "promotees remain shrunken" convention is being used: <u>the distance to the second furthest board edge,</u> or (ii) if "promotees unshrunken" has been specified: <u>the distance to the top or bottom edge, whichever is further.</u>

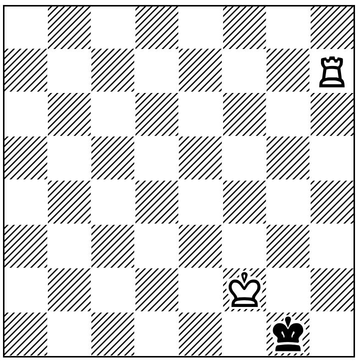
These rules are valid in most positions, though they occasionally fail because of factors such as home-square pawns. They always give at least as great a range under p.u. as under p.r.s.

VI R.Turnbull



#3 Shrinking Men
(solution later in text)

VII P.K.Bissicks



#3 Shrinking Men

It is time to look at Problem VII. The BK, which being on a dark square, is shrunk to 1O, appears to be in check from the WK. However, such a check would be illegal with White to play. To avoid it, the WK is deemed also to be shrunk to 1O. Meanwhile, the WR has 6O, as given by rule (i) above. (It would also have 6O, as given by rule (ii), if p.u. were being used.) The solution to this problem is given in the paragraph after next. It has a different feel from many of the other solutions.

In Problem VI, the strong B move is, paradoxically, 1...a1S!, angling for stalemate. The solution is 1.Sb5! a1S 2.c8S! Kb8 3.Ka7, 1...a1R 2.c8R! R~ 3.Sc7. Problem VI thus shows the two short p.r.s. promotions by Black answered by the identical promotions by White.

The solution to Problem VII is 1.Re7! Kh1 2.Re4 (zugzwang) Kg1 3.Re1, 2...Kh2 3.Rh4. The last mate is an example of an ideal mate in which each white unit has the minimum range possible.

SHRINKING MEN: QUEENS

Shrinking Men: No unit may move further (geometrically) than the last time it moved.

We saw in my first article that the normal range of a rook is the distance to the second furthest board edge. (This is based on the default ‘promotees remain shrunken’ convention, which readers should always take to apply unless otherwise specified.)

This second article is for the purpose of giving the results for the normal range of a queen and some examples.

Normal range of queen

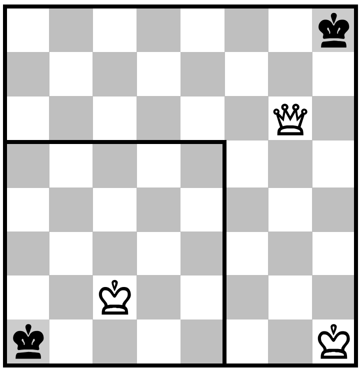
4O	3D	5O	7O	3D	3D	4O	5O
4O	3D	3D	6O	3D	3D	4O	3D
3D	3D	5O	5O	3D	3D	3D	4D
3D	3D	5O	4O	3D	3D	3D	4D
3D	3D	5O	4O	3D	3D	3D	4D
3D	3D	5O	5O	3D	3D	3D	4D
4O	3D	3D	6O	3D	3D	4O	3D
4O	3D	5O	7O	3D	3D	4O	5O

It is unfortunately not possible to give a formula as such for the range of a queen. The procedure is to take a blank board diagram, and starting from d1, mark the squares in descending order of range. We may begin by marking d1 with 7O, since the queen in practice is limited to this distance by the board edges, then d8 with 7O, d7 & d2 with 6O, and so on.

Stephen Emmerson and I have both done this, and we have agreed on the results given in the table. A moderately remarkable feature of them is that more squares have a range of 3D than all the other ranges put together. In fact, the 3D squares, 36 in all, include all the squares on the b, e & f files.

P.K.Bissicks – Originals

IX Mate in 3



VIII See text

It is time to look at the problems. Problem VIII is a simple reflection twin, but the WQ has fallen off the board. The challenge for readers is to put her back on the square within the 5 x 5 area such that (a) there is a unique mate-in-one (b) there is a unique but different mate-in-one when the position is reflected left < > right.

Problem IX seems to be a lucky find, which I hope readers will also attempt before reading on.

Problem VIII is solved by putting the WQ on e5 for a range of 3D and mate by 1.Qb2. She then goes on d5 in part (b) for a range of 4O and mate by 1.Qh5.

In Problem IX, in which the range of the WQ should not s avoid playing immediately to g7, which would be stalemate, but nevertheless aim to mate BK in the corner from g7. This means that she must play to f6 on her second move, whilst retaining exactly 2O, so the solution is 1.Qd6! Kg8/h7 2.Qf6 Kh8 3.Qg7 mate.

SHRINKING MEN: BISHOPS

Shrinking Men: No unit may move further (geometrically) than the last time it moved.

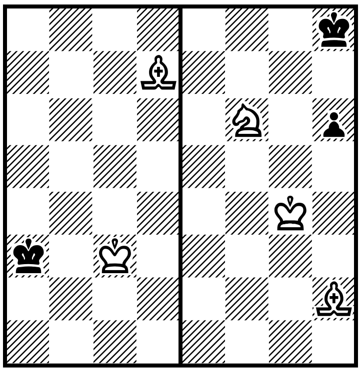
My first article on Shrinking Men, with seven problems, was published in the November 2011 and January 2012 issues. It gave the normal rules for King and Rook ranges. My second article, with a further two problems, was published in the March 2012 issue. It included a table for normal Queen ranges. I begin this third article with a table for normal Bishop ranges, based on the WB with a home square of f1. (This is worked out, as for Queen, by marking squares in decreasing order of range, beginning with the home square.) The results for the other WB and 2 BBs are similar.

Normal Bishop ranges

2D		2D		3D		2D	
	2D		2D		3D		2D
5D		2D		2D		3D	
	4D		2D		2D		3D
2D		3D		2D		2D	
	2D		3D		2D		2D
2D		2D		4D		2D	
	2D		2D		5D		2D

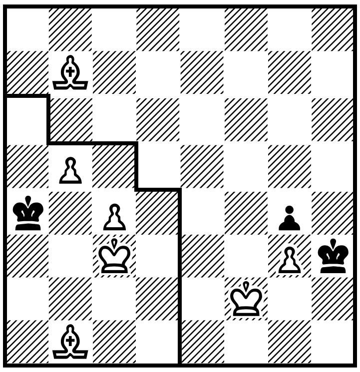
Based on WB initially on f1

P.K.Bissicks – Originals



X 3 moves XI see text

P.K.Bissicks – Originals



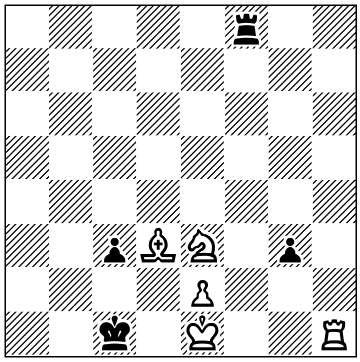
XII 2 moves XIII 4 moves

It is easily seen that 2D (i.e. 2 squares diagonal) is by far the most common range, occurring on 22 of a Bishop's 32 squares. Although this may seem to be a very limited range, this does not seem to be a significant bar to composition – the WB has 2D in all of the settings above.
In X, the BK, on his own colour square, is shrunk. White could mate immediately with 1.Kb2 if his Bishop had 3D, but even mate in 3 is tricky with only 2D. White does not begin with 1.Bb5? Ka2, when his B cannot maintain control of a4, but rather with 1.Bc6! (shrinking to 1D) Ka4 2.Bb5 ch Ka5/3 3.Kb4/2 or 1…Ka2 2.Bb5 Ka3/1 3.Kb2.
XI is also over 3 moves. Both Ks are shrunk. White prevails with 1.Bf4 (1.Bd6 illegal) h5 (not check) 2.Bh6 h4 3.Bg7. There is a twin h2 – e3. Here, the WB has 3D, but 1.Bxh6? would be stalemate. White has no waiting move with the Bishop, but he does with the K: 1.Kg3!, with the ensuing play as before.
1…Ka5/3 2.Kb4 is set in XII. The actual play is more difficult, which may make us suspect a retroanalytical twist and cause consideration of Black's last move. We see that this cannot have been 0…Kb3-a4, because White's King would have been in an illegal check; it must therefore have been 0…Ka3/b4/a5-a4. The result is that Black's King is shrunk to 1O, and 1.c5! Ka5/3 2.Kb4 prevails.
In XIII, White prevails with 1.Bd5 Kh2 2.Kg1 ch Kh3 3.Be4! Kxg3 4.Kh2. I would like to thank Ronald Turnbull, inventor of Shrinking Men, for helping me to arrive at this setting by showing a similar mate, first in The Problemist and then in Problem II Part (b) in this series (Nov. 2011 issue, p.43, solution at bottom of p.48: mate with Kc5 Re7 vs Kd6). Thanks also to Stephen Emmerson for coding Shrinking Men (and its opposite, Growing Men, see Problemist Suppl., Jul. 2013, p.296) into Popeye. All the problems in this article have been tested by it.

SHRINKING MEN: CASTLING

Shrinking Men: No unit may move further (geometrically) than the last time it moved.

P.K.Bissicks – Original



XIV 2 moves (b) c.r.u.

The default castling convention in Shrinking Men is ‘castling is a move of both king and rook’ (c.m.k.r.). As I mentioned in the January issue re: O2268, there are precedents for this in settings which have not been challenged. However, composers are free to specify the alternative convention ‘castled rook unshrunken’ (c.r.u.) if they wish.

In my example, the WB has 2D because it must have emerged via h3, the BK has 1O, and the BR 5O. After 1.0-0, 2.Rd1 mate cannot be prevented, because 1…c2 shrinks the pawn. In (b) the BR has 7O, because it may have arrived on f8 by castling. White prevails by cutting the Rook’s line – though not by 1.Bf5? Kb1! but rather 1.Sf5! 2.0-0.

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