

Is this the longest Chess game?

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1 Introduction

In my experience, most chess games end in a few moves. If you want to play a lot of chess moves, you just play a lot of chess games. Still, there are games that seem to go on foreverrrrrrrrr. Perhaps the players are trying to *lull each other into a false sense of security while waiting for the moment to strike*, or perhaps they are stalling in a game of *Chess to the Death*.

Although many people “know how to play” chess, almost nobody fully understands the rules of chess, most authoritatively given by FIDE [1]. (See for example Figure 1 for a minor chess scandal that erupted in 2019 over an obscure corner case in the rules.) Several of these “deep cuts” have to do with game-ending conditions that were introduced to avoid interminable games.

Many chess moves are reversible (e.g. moving the knight forward and back to its starting position [4]), so informal games of chess could last forever with the players repeating a short cycle. In AD 1561, Ruy López added the “fifty-move rule” to prevent infinite games.¹ This rule (detailed below) ensures that irreversible moves are regularly played, and so the game always makes progress towards an end state. Another rule, “threefold repetition” also guarantees termination as a sort of backup plan (either of these rules would suffice on its own).

So, chess is formally a finite game. This is good for computer scientists, since it means that chess has a trivial $O(1)$ optimal solution. This allows us to move onto other important questions, like: What is the longest chess game? In this paper I show how to compute such a game, and then gratuitously present all of its 17,697 moves. Even if you are a chess expert (“chexpert”), I bet you will be surprised at some of the corner cases in the rules that are involved.

Speaking of rules, let’s first detail the three main rules that limit the length of the game. These rules cause the game to end in a draw (tie) when certain conditions are met.

1.1 The seventy-five move rule

The “fifty-move rule,” [8] as it is usually known, requires that an irreversible move is played at a minimum pace. For the sake of this rule, irreversible moves are considered captures and pawn moves,² including promotion and *en passant* (which is also a capturing move) but not the movement of a previously promoted piece. Specifically [1]:

9.3. The game is drawn, upon a correct claim by the player having the move, if:

- he writes his move on his scoresheet and declares to the arbiter his intention to make this move, which shall result in the last 50 moves having been made by each player without the movement of any pawn and without any capture, or
- the last 50 consecutive moves have been made by each player without the movement of any pawn and without any capture.

Note that what is provided here is the option for a player to *claim* a draw (and the two provisions essentially allow either player to claim the draw at the moment of the 50th move). If neither player is interested in a draw, either because they think their position is still winning, or are just trying to create the longest ever chess game, the game legally continues. That’s why what is actually relevant for this paper is provision 9.6, which defines a draw:

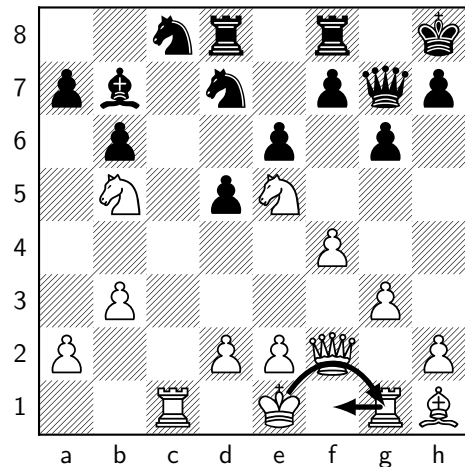


Figure 1: (*Nepomniachtchi – So, 2019.*) White to move during a speed Chess960 (aka “Fischer Random”) tournament. In this variant, the pieces start in different positions, but castling rules are such that the king and rook end up on the same squares that they would in normal chess. As a result, it is possible for the king or rook to not move during castling, or for the destination square for the king to already be occupied by the rook. Attempting to castle in the position depicted, grandmaster Ian Nepomniachtchi first touched the rook to move it out of the way. However, piece-touching rules require that when castling, the player first moves the king (and “Each move must be played with one hand only”); but how? The rook is occupying g1! One commenter suggested tossing the king into the air, then sliding the rook to f1 while the king is airborne, and then watching the king land dead center on its target. The arbiter required Nepo to make a rook move instead, but this was later appealed, and the game replayed.

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¹This rule only applied to games started after its introduction, so it is possible that some pre-1561 games are still in progress and may never end.
²Other irreversible moves include: Castling, moving a piece so as to lose castling rights, and declining to capture *en passant* (such capture must be made immediately, so if the option is not taken, it cannot be regained). The fifty-move rule could be soundly expanded to include these, but, that’s just like, not the rule, man.

9.6. If one or both of the following occur(s) then the game is drawn:

... 9.6.2. any series of at least 75 moves have been made by each player without the movement of any pawn and without any capture. If the last move resulted in check-mate, that shall take precedence.

Draws after 75 moves (per player, so really 150 moves) are compulsory.

Interestingly (at least as interesting as anything in this dubious affair) it is known that some otherwise winning endgame positions require more than 50 moves to execute (Figure 2). The rules of chess have at various times allowed for longer timers in such known situations, but were later simplified to the fixed 50 (and 75) move limit.

1.2 Fivefold repetition

The 75-move rule is rarely applied in practice, but its counterpart, “threefold repetition” [9] is often the cause of draws in modern chess. This rule states that if the same position appears three times, the players can claim a draw:

9.2.2. Positions are considered the same if and only if the same player has the move, pieces of the same kind and colour occupy the same squares and the possible moves of all the pieces of both players are the same. [...]

Like the 75-move rule, this rule has an optional version (upon three repetitions) and a mandatory one in 9.6:

[The game is a draw if ...]

9.6.1. the same position has appeared, as in 9.2.2, at least five times.

Fascinatingly (at least as fascinating as anything in this questionable undertaking), this rule used to require *consecutive* repetition of moves. However, there exist infinite sequences of moves with no consecutive n -fold repetition. For example, in the starting position, white and black can move either of their knights out and back. Let **0** be $\mathfrak{d}c3 \mathfrak{a}c6 \mathfrak{d}b1 \mathfrak{a}b8$ (queenside knights move, returning to the starting position) and **1** be $\mathfrak{d}f3 \mathfrak{a}f6 \mathfrak{d}g1 \mathfrak{a}g8$ (kingside). Now the Prouhet–Thue–Morse sequence [7] 0110100110010110...³ can be executed. This infinite sequence is cube-free (does not contain SSS for any non-empty string S) [6], and therefore never violates the consecutive threefold repetition rule [2].

Many implementations of chess ignore these rules or treat them incorrectly. Implementation of the seventy-five move rule simply requires a count of how many moves have transpired since a pawn move or capture, but programs typically do not force a draw after 75 moves. Repetition requires more work, since the program must keep track of each of the states reached since the last irreversible move. There are also some corner cases, such as ambiguity as to whether the starting position has “appeared” before the first move [4]. The ubiquitous FEN notation for describing chess positions does not even include any information about states previously reached.

³Let s_0 be the string “0”, then s_i is $s_{i-1}\bar{s}_{i-1}$ where $\bar{0} = 1$ and $\bar{1} = 0$.

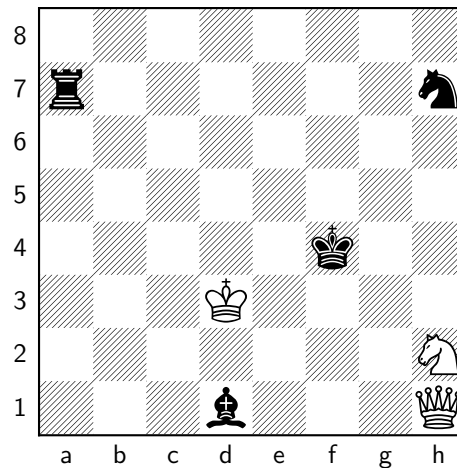


Figure 2: Black to move and mate in 545 moves (!). The position was found (by Zakharov and Makhnichev [10]) while building an endgame tablebase of all possible 7-piece positions. Of course, the game ends prematurely in a draw because of the 75-move rule.

1.3 Dead position

The informal version of this rule (“insufficient material”) states that if neither side has enough pieces to mate the opponent (for example, a king and bishop can never mate a bare king) then the game is drawn. Again, the formal rule is more subtle:

5.2.2. The game is drawn when a position has arisen in which neither player can checkmate the opponent’s king with any series of legal moves. The game is said to end in a ‘dead position’. This immediately ends the game...

This clearly includes the well-known material-based cases like king and knight vs. king, but it also surprisingly includes many other specific positions, especially those with forced captures (Figure 3).

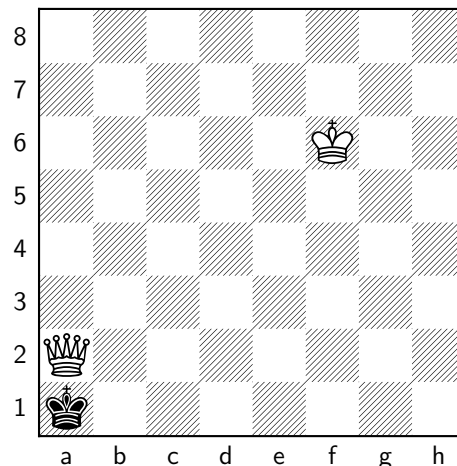


Figure 3: Black to move and draw in 0 (!). Most players and even chexperts believe that the only legal move is $Kxa2$, and that the game then ends in a draw with “insufficient material.” However, this game is *already over*. Since neither black nor white can win via any series of legal moves, by rule 5.2.2 the game immediately ends in a ‘dead position’. (Although see Section 1.3.1 for possible ambiguity in this rule.)

The insufficient material rule is curious in that it requires non-trivial computation to implement. In order to know whether the position is a draw, an implementation needs to be able to decide whether or not a series of moves that results in checkmate exists. Note that this is not nearly as bad as normal game tree search because the two sides can collaborate to produce the mate (it is not a $\exists\forall\exists\dots$ but rather $\exists\exists\exists\dots$). Still, such “helpmates” can still be quite deep (dozens of moves) and are interesting enough to be a common source of chess puzzles. Proving the non-existence of a helpmate can be very difficult indeed (Figure 4).⁴

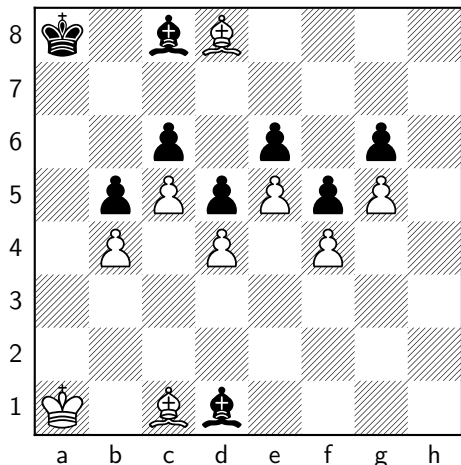


Figure 4: Thinking of implementing the rules of chess? To be correct, you’ll need your program to be able to deduce that no helpmates are possible in this position and thus the game is over. Stockfish rates this as +0.4 for white, even searching to depth 92. (Position is due to user `supercat` on Chess StackExchange.)

1.3.1 Ambiguity

Moreover, this rule contains some ambiguity. The phrase “any series of legal moves” is usually taken to mean something like, “the players alternate legal moves and follow most of the normal rules of chess.” In my opinion it is hard to justify an interpretation like this.

First, the rules specifically define “legal move”, with 3.10.1 saying “A move is *legal* when all the relevant requirements of Articles 3.1 – 3.9 have been fulfilled.” These requirements describe the movement of each piece as you are familiar (e.g. 3.3 “The rook may move to any square along the file or the rank on which it stands.”). They also disallow capturing one’s own pieces, or moving when in check. However, they allow as legal some moves that would otherwise be prohibited, like capturing the opponent’s king (this is excluded by 1.4.1, outside the definition of “legal”). Capturing the opponent’s king is generally not useful for demonstrating that checkmate is possible (Figure 5), so this is mostly a curiosity.

Second, what is a “series” of legal moves? It seems completely consistent to allow the white player to make several legal moves in a row, for example. The rules about alternating moves are again outside the definition of “legal move” and “series” is never defined.

We could instead interpret “any series of legal moves” as “taking the entirety of the rules of chess, any continuation of the game that ends in checkmate for either player.” I like this better, although it creates its own subtle issues. For example, should the position

⁴Perhaps an enterprising reader can prove that for generalized chess, it is NP-hard to decide whether the game has ended due to this rule?

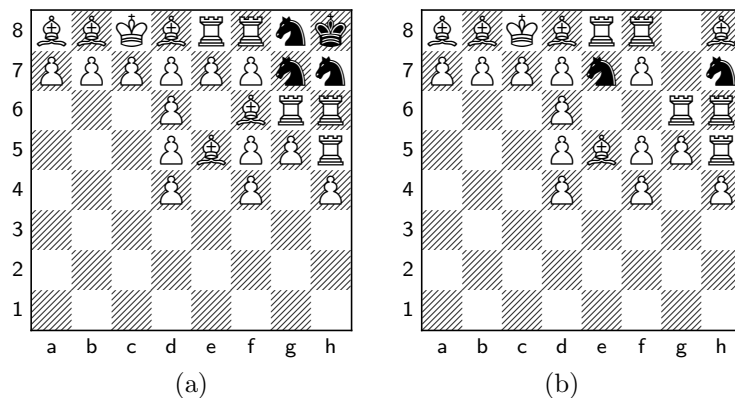


Figure 5: In this contrived and impossible position (a), white has many easy paths to mate. All of black’s pieces are pinned. There is also a “series of legal moves” where black mates white: $\text{♙xg7++} \text{♜xh8??} \text{♞xe7++}$. Capturing the king (by moving twice in a row) is a “legal move” (despite not being allowed by other rules), and doing so unpins black’s knight to deliver a smothered mate (b). Of course, abuse of this dubious technical possibility doesn’t change the status of the position, since we already have a mating sequence by white.

be considered dead if there is a checkmating sequence, but it requires entering a fivefold repetition or exhaustion of the 75-move rule? If so, this would end the game prematurely, and so it has implications for the longest possible game (Section 2.1). Even more esoterically, this interpretation causes the rule to be self-referential: A sequence must also be allowed by the rule being defined. A normal person would take the “least fixed point” (in the Kripke sense [3]) of this self-referential definition (fewest positions are drawn). But it is also consistent to interpret it *maximally*—in which case the longest chess game is zero moves!

For completeness, note that there are other routes to a draw (stalemate, draw offers) which we can ignore; it is easy to avoid these situations when generating the longest game.

2 Generating the longest game

It is generally not hard to avoid repeating positions, so the main obstacle we’ll face is the 75-move rule. Let’s call an irreversible move that resets the 75-move counter a *critical move*; this is a pawn move or capturing move (or both). The structure of the game will be a series of critical moves with a maximal sequence of pointless reversible moves in between them. If we execute the maximum number of critical moves and make 149 moves (just shy of triggering the compulsory version of the 75-move rule) between them, then this will be fairly easily seen as a maximal game.

In fact, for most positions, it is easy to waste 149 moves and return to the exact same position. So, the strategy for generating the longest game can mostly be broken into two tasks: Make a game with a maximum number of critical moves (it can also contain other moves) and then pad that game out to maximum-length excursions in between its critical moves.⁵

⁵The first phase was constructed by hand. Software for inserting excursions and checking the result is available at: sf.net/p/tom7misc/svn/HEAD/tree/trunk/chess/longest.cc

2.1 Maximal critical moves

Critical moves are pawn moves and captures. There are 16 pawns, each of which has 6 squares to move into before promoting, so this is 16×6 critical moves. There are 14 capturable pieces, plus the 16 pawns (they can be captured after promoting); capturing them nets an additional $16 + 14$ critical moves for a total of 126. Each critical move can be made after a maximum of $75 + 74$ reversible moves, giving $(75 + 74 + 1) \times 126 = 18900$ moves. The final move would capture the last piece, yielding a draw due to the remaining kings being insufficient material (“dead position”). This is our starting upper bound.

We will not quite be able to use the entire critical move budget. If pawns only move forward in single steps, they will eventually get blocked by the opposing pawn on the same file. Pawns can move diagonally off their starting file only by capturing. We have plenty of capturing to do anyway, so this is no problem. With four captures per side, the pawns can be doubled, with a clear route to promotion, like in Figure 6.

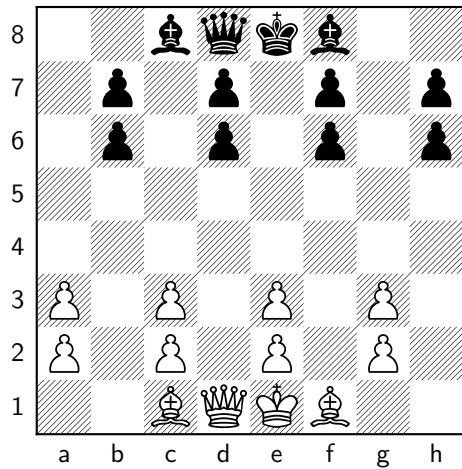


Figure 6: One way to clear the promotion routes for all pawns with eight captures.

However, each of these captures is *both* a pawn move *and* a capturing move. This means that we lose $4 + 4$ critical moves off our total budget. $150 \times (126 - 8) = 17700$ is the new upper bound.

Parity. If a critical move (such as a pawn move) is made by white, then the first non-critical move is made by black. The players alternate these pointless moves until black has made 75 and white 74. Now it is white’s move, and white must make a critical move or the game ends due to the 75-move rule. If instead we wanted black to make the next critical move, this would happen after black has made 74 and white 74 non-critical moves. Any time this happens we lose one move against the upper bound. So, we want to minimize the number of times we switch which player is making the critical moves. Obviously we must switch at least once, because both black and white must make critical moves. This reduces the upper bound to 17699.

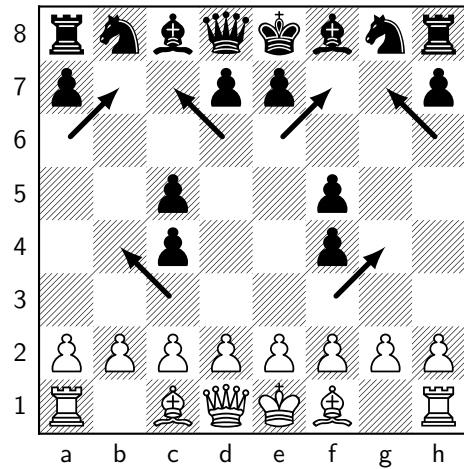
Starting condition. The first critical move should be made by black. The starting position (with white to move) is analogous to the situation just described, as if black has just made a critical move, and it’s white’s turn. White will play 75 reversible moves,

black plays 74, and the 150th move is black making the first critical move.

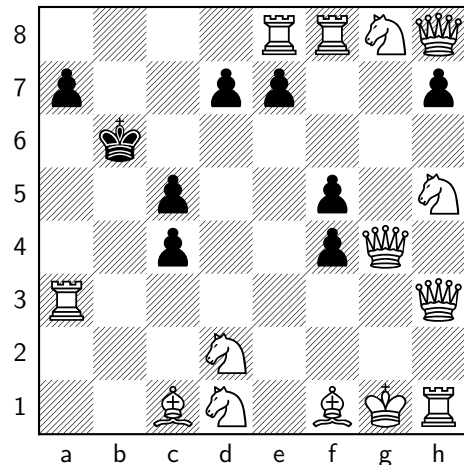
Note that white is quite constrained during this beginning phase, as pawn moves are critical moves and must be avoided. Only the white knights can escape the back rank. When we try to insert 149 pointless moves, we’ll only be able to move the knights and rooks, and doing this 75 times must leave e.g. one of the knights on an opposite-colored square.⁶ So we have to be a little careful about the position in which we make black’s first critical move.

Since white can only free their two knights, these are the only pieces that can be captured by black pawns. So it will not be possible for black to double four sets of their pawns as in Figure 6. This would require white to have a phase of critical moves to free pieces to capture, then black again to finish doubling pawns, then white again to promote its freed pawns. Each switch costs one move off the naive max. We can be more efficient with an asymmetric approach.

Black’s first phase of critical moves instead results in this:

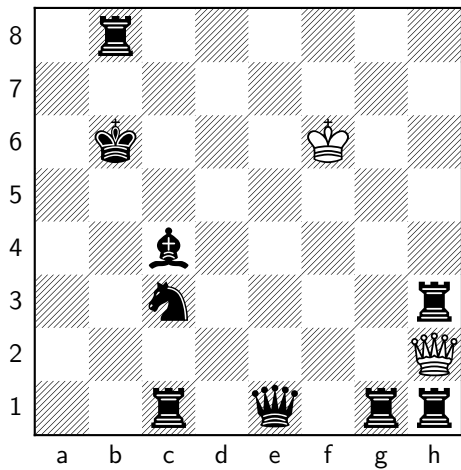


The white b and g pawns have a clear route to promotion. White can free each of the remaining 6 pawns with a single capture. Between this and black’s two pawn captures, this is the optimal 8 pawn moves that are also captures. Since black has plenty of freed pieces, white can promote all of their pawns during their own phase of critical moves, resulting in:

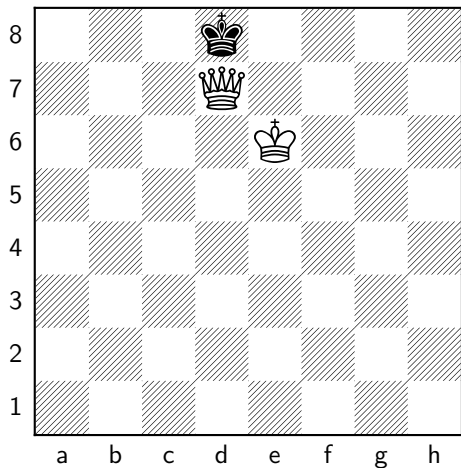


Now black can promote all of its pawns and capture white’s pieces. We actually leave the white queen; this turns out to be essential:

⁶Knight moves always change the color of the knight’s square, and same for rook moves constrained to the a1/b1 or g1/h1 squares.



Finally, white captures all of black's pieces, and mates the black king:



Since we switch which color is making critical moves a total of three times, we must come shy of the naïve maximum of 17,700 moves by three. This gives us an upper bound of 17,697 for this approach, which we will be able to achieve.

Ending condition. The way this game ends is subtle for several reasons. First, note that we left the white queen on the board and used it for mate. It is required that white be the one mating for parity reasons, similar to the reason black must make the first critical move. Since white makes critical moves in the last phase, black leads on non-critical moves; at the moment white makes the checkmating move, black has made 75 non-critical moves, and white 74. White's 75th move mates.

But doesn't this trigger the 75-move rule? No, this rule (9.6.2; Section 1.1) has a special exception for checkmate: "If the last move resulted in checkmate, that shall take precedence." Essentially, we can treat checkmate as a type of critical move.

Why not capture the white queen too? This would be a critical move, but once two kings remain, the game ends immediately in a draw. So there is no length advantage here over checkmate. In fact, attempting to capture may *shorten* the game: Consider the position in Figure 3 where black is *forced* to capture the queen. This game is over prior to the capture, so this is shorter than the checkmating sequence! Even if the king had an escape square, it is arguable (Section 1.3.1) that the game is over in any case: There is no "series of legal moves" that leads to mate. Either the king captures the queen (and then clearly no mate is possible with just the two kings) or the king escapes, but in doing so plays the 75th non-critical move, and triggers a draw by the 75-move rule.

The most foolproof way to ensure that mate is always possible is for the game itself to end in mate. This sidesteps any ambiguity

about the way the 75-move condition should be interpreted, as well.

2.2 Inserting excursions

The game described in Section 2.1 has 118 critical moves in 289 total moves. There is some inefficiency between the critical moves, but this doesn't matter since we are trying to generate a long game anyway. In fact, the next step will be to add *as much inefficiency as possible* in between the critical moves.

Each "critical section," which is the series of moves ending in a critical move, can be treated independently. If black ends the section with a critical move, then we want 75 + 74 non-critical moves to be played, and then black's critical move. For white, of course, 74 + 75. There are many ways we could try to make these 149 moves; we don't even have to use the moves that are already there as long as we end up in the right position to make the critical move. But a simple approach suffices.

For each critical section, we loop over all of the positions encountered, and attempt inserting excursions that return us to the same position but waste moves. There are two types of excursions we try: Even excursions (each player makes two moves) and odd (each player makes three moves).

Even excursions. This four move sequence moves two pieces of X_1 and X_2 of opposite colors. X_1 moves from s_1 to d_1 then X_2 from s_2 to d_2 , then X_1 moves from d_1 back to s_1 , and X_2 from d_2 back to s_2 . Easy. Any piece can perform this maneuver other than pawns (which would be critical moves anyway) as long as there are legal squares (considering check, etc.). All of s_1 , d_1 , s_2 , d_2 must be distinct. No shorter excursions are possible.

Odd excursions. This is the straightforward extension to three squares ($s_i \rightarrow m_i \rightarrow d_i \rightarrow s_i$), for a six-move sequence. The squares for each piece must be distinct but it is possible for e.g. m_2 to equal s_1 . Knights cannot perform this trick; each move changes the color of the square the knight sits on, which causes a contradiction with a cycle of length three. All other pieces can do it with sufficient room. The king, for example, can move horizontally, then diagonally, then vertically back to its starting square.

Note that odd excursions are not possible early in the game (prior to white moving any pawns), because even when the knights are free, the rooks only have two squares (and thus the same color parity argument applies as knights). Some opportunity can be created by having a black knight capture one of white's bishops. Fortunately, we do not need any odd excursions at this point in the game.

We find excursions by just looping over possible moves that satisfy the criteria, prioritizing odd excursions if the target (divided by two) is odd. In order to avoid triggering the fivefold repetition rule, we also keep track of all of the positions encountered, and never enter a position more than two times. (Here we avoid even threefold repetition.) It is not necessary to look beyond the critical section, because critical moves make it impossible to return to a prior position.

This process is not at all guaranteed to work; it may fail to fill the critical section. Indeed, as discussed in Section 2.1, we must have at least one move of slack whenever we switch from a critical move by one player to the other. In practice this approach succeeds readily, and manages to waste 149 moves in each critical section of the input game, save for the three times that parity requires one move of slack. The full game is uselessly included in a very tiny font in Section 4.

1029. ♠c2 ♠d6 1030. ♠b2 ♠c7 1031. ♠a3 ♠g7 1032. ♠c1 ♠f8 1033. ♠d3 ♠d6 1034. ♠c2 ♠c6
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1871. ♠h1 ♠c6 1872. ♠h2 ♠b3 1873. ♠c1 ♠c6 1874. ♠a6 ♠a4 1875. ♠b8 ♠a2 1876. ♠e8 ♠a4
1877. ♠h1 ♠h4 1878. ♠g1 ♠a3 1879. ♠g8 ♠a4 1880. ♠f8 ♠a6 1881. ♠g8 ♠c8 1882. ♠e3 ♠a6
1883. ♠db3 ♠h6 1884. ♠d1 ♠g6 1885. ♠h1 ♠h6 1886. ♠d5 ♠e6 1887. ♠f7 ♠f6 1888. ♠g8 ♠e6
1889. [g6] ♠e4 1890. ♠f2 ♠a5 1891. ♠h4 ♠a2 1892. ♠c2 ♠a5 1893. ♠c8 ♠f8 1894. ♠g4 ♠a3
1895. ♠

wa4 2502. wd8h h5 2503. wd8 h4 2504. h3 b5 2505. h2 b3 2506. wdd4 wa3 2507. wh3 2508. h2 h3 2509. wd8 h4 2510. h2 b2 wa6 2511. wb2 wa3 2512. h1 wa6 2513. h1 h5 2514. wb2 wb6 2515. fh8 wa6 2516. wd8 wa5 2517. fh4 wb7 2518. hg8 wa6 2519. wd1 wb7 2520. h3 h6 2521. fh1 wa8 2522. ad2 wb7 2523. h4 wa8 2524. h1 h6 2525. fh1 wa6 2526. wf6 h6 2527. fh8 wa6 2528. whd4 wa8 2529. dh5 wa6 2530. wh3 wa6 2531. wd4 wa4 2532. wf6 h6 2533. h4 h6 2534. h4 wa2 2535. wh5 wa6 2536. wa3 wa5 2537. hb2+ wb6 2538. ac1 wa5 2539. [c7] kd6 2540. wh3 kd5 2541. dh6 kd3 2542. fh1 kd4 2543. wh2 wb5 2544. wa2 wb6 2545. wf8 wa4 2546. fh8 wa6 2547. fh3 b6 2548. dh8 kd4 2549. wb2 c8 2550. hb2 wb7 2551. ac1 c6 kd6 2552. fg4 kd4 2553. fh2 kd2 2554. hb4 kd4 2555. ac3 wb6 2556. hb2 wb7 2557. ac1 c8 2558. wd1 wa6 2559. wdc2 wb7 2560. wb3 wb6 2561. ad2 kd6 2562. ac1 kd2 2563. fh8 kd6 2564. ad2 kd3 2565. ac1 h3 2566. fh1 kd3 2567. fg3 wa5 2568. fg1 wa3 2569. fh8 wa5 2570. wa2 kd4 2571. wa2 kd5 2572. fh8 kd4 2573. dh8 wb5 2574. fh8 kd5 2575. wh2 kd4 2576. wa4+ wb6 2577. fh1 kd3 2578. wa3 kd4 2579. h1 kd3 2580. wa2 kd5 2581. h3 wb5 2582. dh5 wb6 2583. og3 kd6 2584. h5 wa6 2585. c8 kd6 2586. hg2 wa6 2587. ah3 kd6 2588. af1 wa6 2589. 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[e3] wa3 2640. og4 wa6 2641. wdg4 wa6 2642. wh5 wa6 2643. fh8 wa4 2644. ga2 kd6 2645. wdc2 wa6 2646. fh8 kd6 2647. ad5 wa6 2648. aa8 wa6 2649. dh8 kd6 2650. ad2 wa5 2651. wh6 kd5 2652. whh5 wa5 2653. weh2 wa6 2654. we2 kd6 2655. ac1 kd6 2656. wh2 wa6 2657. wh5 wa5 2658. fh8 wa4 2659. fh1 wa6 2660. h1 wa5 2661. ad5 wa4 2662. dh8 kd6 2663. fh8 wa5 2664. ag2 wa4 2665. fh7t wa6 2666. fh8 wa5 2667. fh8 wa4 2668. ah3 kd6 2669. ag2 kd6 2670. weg4 kd6 2671. ae4 wa6 2672. ag2 wa6 2673. fh1 wa6 2674. ad2 wb5 2675. ac1 wa6 2676. fh8 wa3 2677. wd1 wa6 2678. wdg4 wa4 2679. whh3 wa3 2680. dh8 kd6 2681. fh8 wa5 2682. wd1 wb6 2683. wh2 kd6 2684. wh3 wb7 2685. dh5 wb6 2686. ad3 wa5 2687. ac2 wa6 2688. fh1 wa5 2689. [e4] kd6 2690. wf7 wa3 2691. wa4 kd3 2692. wfg6+ wb7 2693. aa3 wa5 2694. oa2 wa7 2695. og4 wb3 2696. ob4 wb1+ 2697. fhad1 wb3 2698. fh8 wa2 2699. h4 wa2 2700. h4 wa2 2701. ac6 kd6 2702. ob8 wa7 2703. fh1 wa2 2704. wfg4 kd6 2705. h1 wa2 2706. ac6 wa2 2707. ob8 wa5 2708. wad1 wa7 2709. fg1 wa3 2710. h1 wa4 2711. fh6 wb3 2712. ad8 wa6 2713. ob8 wa3 2714. wa4 wb1+ 2715. wgd1 wb3 2716. wfg4 fh7 2717. oa2 wg7 2718. wgh4 kd3 2719. wfg4 wa2 2720. wh2 kd3 2721. wdc2 wa5 2722. wa4 kd4 2723. ob4 kd3 2724. ad4 wa6 2725. ob4 wa6 2726. ac1 kd3 2727. wfg7 wa6 2728. fh6+ wa6 2729. fh7 kd3 2730. hc7 wa3 2731. fh8 kd2 2732. wd1 wa6 2733. we8 wa5 2734. fh7 kd4 2735. fh8 wa6 2736. fhf3 h6 2737. wh3 wa6 2738. wh3 wa6 2739. [e5] fh7 2740. og7 wa4 2741. ad2 wa2 2742. 2742. fh7 wa4 2743. wh3 h6 2744. whb1 wa6 2745. wa4 wa8 2746. h4 fh7 2747. dhb3 wa6 2748. ad4c+ wb5 2749. wh3 wa6 2750. wfg4 wa5 2751. h2 wa6 2752. fh2 wb5 2753. fh4 wa4 2754. ad4 ob2 2755. ad4c+ wb4 2756. wg1 wb5 2757. wfg4 wa6 2758. wa2 wb5 2759. fh2 wa6 2760. fh4 wb5 2761. wh3 wa6 2762. whb3+ wb5 2763. ob4 wa6 2764. fh5 wa8 2765. h4 wa8 2766. wd1 wa8 2767. fh3 wa6 2768. wd1 kd6 2769. h1 h6 2770. h3 wa6 2771. h1 wa5 2772. wab1 wb6 2773. wcd1 wa4 2774. wd1 wa2 2775. wb3 wa4 2776. fh3 fh7 2777. web3 wa5 2778. h3 wa6 2779. oa2 kd2 2780. ob4 wa2 2781. h2 wa2 2782. wh4 wa4 2783. wh3 wa6 2784. ac1 wa4 2785. dh5 wa6 2786. wfg7 fh8 2787. wh6+ fh6 2788. fh8 wa5 2789. 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[f8=R] wb7 2890. wh4 wa2 2891. whg5 wa6 2892. od5 wa2 2893. wdd4 kd2 2894. wfg6 wa3+ 2895. wd2 wa3 2896. ob4 kd2 2897. wfd6 wa8 2898. fg1 wh2 2899. wh4 kd2 2900. wfg5 wb7 2901. h1 wa2 2902. dh8 wb7 2903. mds wa5 2904. wdf6 kd2 2905. wfg2 fh3 2906. wd2 wb3 2907. od5 wh3 2908. wdd4 kd3+ 2909. wd2 kd2 2910. wdd4 wb1 2911. fhg7 kd2 2912. wdf6 wa2 2913. wd4 wa4 2914. wd1 wa2 2915. fh1 wa6 2916. fh1 wa6 2917. ob4 wa6 2918. h3 wa2 2919. fh1 wa2 2920. wh4 wa2 2921. fg1 wa5 2922. h1 wa4 2923. wh3 wa5 2924. ad2 wa7 2925. ac3 wb6 2926. ac1 wa6 2927. wdg4 wa5 2928. hc8 wa6 2929. od5 wa5 2930. od3 wa6 2931. fh3 wa5+ 2932. we2 wa6 2933. of2 wa5 2934. wh3 wa3 2935. od1 wa2+ 2936. dh2 wa3 2937. fh2 wa2 2938. wg1 wa3 2939. [wha3] wa7 2940. ag2 wa6 2941. aa8 wa7 2942. oh6 wa6 2943. fa6+ wa7 2944. aa2 wa6 2945. whh3 wb5 2946. of2 wa4 2947. fh6 wa3 2948. gh6 wa4 2949. ad5 wa5 2950. hc2 wa5 2951. fh2 wb4 2952. whg7 wa5 2953. oh3 wa4 2954. dh8 wa5 2955. wfg5 wa4 2956. wfg7 wa4 2957. fh8 wa4 2958. whg7 wa5 2959. wfg7 wa4 2960. of2 wa5 2961. wh8 wa4 2962. fh1 wa4 2963. wg2 wb5 2964. wgg4 wa4 2965. aa2+ wb5 2966. of1 wb4 2967. ad2 wa3 2968. aa8 wa4 2969. oh6 wa3 2970. fh8+ wb4 2971. fh8 wa5 2972. fh8 wb6 2973. od1 wb5 2974. whh3 wa6 2975. wfg6+ wa7 2976. wgg4 wa6 2977. fa6+ wa7 2978. aa3 wa6 2979. og8 wa7 2980. wd4 wa6 2981. fh8 wa5 2982. ad2 wa6 2983. oh3 wa7 2984. ad2 wa6 2985. fh1 wa7 2986. wfc3 wa6 2987. whb3+ wb6 2988. fh3 [f8] 2989. wfg5 wb7 2990. og2 wa7 2991. h1 wa6 2992. fh6+ wa5 2993. we6+ wa5 2994. h1 wa6 2995. wf4+ wa2 2996. wfg7 wa6 2997. fh1 wa5 2998. ob3 wa6 2999. fh4 wd5 3000. aa8 wa6 3001. h3 wd5 3002. dh6 wa6 3003. oa1 wb5 3004. aa3 wb6 3005. hc2 wa6 3006. fh4 wb7 3007. h2 wa6 3008. dh2 wb6 3009. h2 wb5 3010. aa3 wb6 3011. ac1 wb5 3012. fh7 wa6 3013. wfg7 wa5 3014. ob3 wa6 3015. og8 wa5 3016. h1 wa6 3017. fh8 wa5 3018. h1 wa6 3019. ad2 wa5 3020. ag2 wa6 3021. wh8 wa5 3022. fh4 wa6 3023. wf4+ wa6 3024. wg5 wa6 3025. wgg3+ wa2 3026. wfg5 wa6 3027. h6+ wa5 3028. fh6 wa5 3029. fh7+ wa6 3030. fh6+ wa7 3031. fh7 wa6 3032. aa3 wa6 3033. wgg4 wa7 3034. wg5 wa6 3035. fh1 wa7 3036. wgg3 wa6 3037. wfg4 wa6 3038. wh2 [f2] 3039. aa1 wb5 3040. hc8 wa4 3041. ad2 wb5 3042. hc8 wa4 3043. oa4 wb5 3044. whf3 wb6 3045. fh1 wb5 3046. fh5 wa4 3047. mds wa5 3048. ae3 wa6 3049. fh6+ wb7 3050. od6+ wa7 3051. fh8 wa6 3052. we2 wa6 3053. fa6+ wa7 3054. ob5+ wa7 3055. ob3 wa7 3056. fb5+ wb7 3057. od6+ wa7 3058. fh4 wa6 3059. fa6+ wa5 3060. aa2 wa6 3061. hc1 wa6 3062. wa1 wa7 3063. fh3 wa6 3064. fh8 wa7 3065. oa4 wb7 3066. fh7 wa6 3067. fh6+ wa7 3068. fh8 wa6 3069. aa4 wb5 3070. ad2 wa4 3071. ac1 wb5 3072. dh8 wa4 3073. wfg4 wa5 3074. we2 wa6 3075. aa2 wa7 3076. fh8 wa6 3077. wh8 wa6 3078. wef3 wa4 3079. fh3 wa5 3080. od2 wa4 3081. hc8 wa5 3082. aa1 wa4 3083. hc8 wa5 3084. aa3 wa6 3085. ac1 wa7 3086. aa4 wa6 3087. aa3 wa6 3088. ad3 [f1=R] 3089. hc3 fh4 3090. wfc3 fh3 3091. wh5 wa2+ 3092. oh3 wa6 3093. fg3 wa3 3094. hc8 wb7 3095. ab2 wa7 3096. wgd4 wa6 3097. wdd5 wa5 3098. og7 wa2 3099. ae4 wa3 3100. fh6 wa1 3101. hc6 wa1 3102. hc8 wa1 3103. oh4 wa3 3104. oh3 wa5 3105. fh8 wa5 3106. ob1 wa2 3107. od2 wa4 3108. ad3 wa5 3109. wfg4 fh2 3110. wgg3 wb6 3111. dh5 wa5 3112. hc1 wa6 3113. hc3 wb5 3114. wdd4 wa6 3115. wdf4 wa7 3116. wfd4 wa6 3117. wdg4 wa7 3118. ac1 fh3 3119. ab2 wa6 3120. ac1 wa3 3121. hc8 fh3 3122. whh5 fh2 3123. wh5 wa6 3124. wgg3 wa6 3125. of1 wa6 3126. od2 fh4 3127. wh2 wa2+ 3128. wfg3 fh3+ 3129. wh2 wa6 3130. wh8 wa6 3131. wdd4 wa4 3132. we3 wa5 3133. weh3 wa6 3134. ab2 fh1 3135. ac1 wa5 3136. hb3 wa6 3137. h3 wa3+ wa6 3138. fh4 [xf4] 3139. ah1 wa4 3140. we3 h4+ 3141. wq2 wa6+ 3142. wh3 wa5 3143. ab2 wq2 3144. h2 fh7 3145. fh6+ wa6 3146. oe3 wb4 3147. wdg4 wa5 3148. hc7 fh6 3149. og2 kd6 3150. h1 wa6 3151. ob1 kd2 3152. wa5+ wa6 3153. wa3 wa6 3154. wa5+ wa6 3155. we7+ wa5 3156. aa8 wa6 3157. aa8 fh6 3158. ad2 kd6 3159. aa3 wa6 3160. aa3 fh6 3161. h1 wa6 3162. oe3 fh6 3163. fg3 fh7 3164. we7 wa4 3165. wdh6 wa5 3166. wh6 wa4 3167. dh1 wa5 3168. ohg7 wb6 3169. wh6+ wa6 3170. we3 fh7 3171. dh6 wa6 3172. dh5 wa5 3173. h1 wa6 3174. ac1 wa5 3175. fg1 wa4 3176. h1 wa4 3177. wq2 wa4+ 3178. og3 h4 3179. dh5 kd4 3180. wh2 h4+ 3181. wq1 wa4+ 3182. wh2 wa4 3183. wh3 wa4 3184. h3 wa4 3185. ad2 fh3 3186. ac2 wa5 3187. ad3 fh4 3188. og7 [h6] 3189. fa6+ wb7 3190. aa5 wa7 3191. aa8 wa4 3192. wgg3 wa5 3193. oe8+ wa6 3194. ab2 wa2+ 3195. wf2 wa1 3196. od6 wa1 3197. og3 wa7 3198. h3 wa6 3199. oe8 wa1 3200. aa1 wb6 3201. oa4 wa3+ 3202. wh4 wa1 3203. fh3 wa6 3204. od2 kd1 3205. wf1 wa6 3206. wf2 wb7 3207. fh8 wa6 3208. ad2 wa6 3209. aa4 wa4 3210. od6 wa6 3211. aa3 wa7 3212. aa5 wa5 3213. wb2 wa6 3214. we3 wa1 3215. wf2 wa5 3216. wh8 wa6 3217. wh3 wa1 3218. wh2 wa4 3219. oe8 wa1 3220. wg3 wa2+ 3221. wf2 wa5 3222. wq3 wa4 3223. ac1

wa5 3224. ofef wa7 3225. oe8+ wb6 3226. og7 wa7 3227. wf3 wa4 3228. wq3+ wa6 3229. wh3 wa7 3230. wq3 wa4 3231. wh2 wa6 3232. aa8 wa7 3233. ob3 wb7 3234. od2 wa6 3235. fa6+ wb7 3236. fh6 wa6 3237. aa3 wb6 3238. ae4 [fxe4] 3239. wh3 wa6 3240. aa4 wa4 3241. oe6 wa6 3242. fh6 wa5 3243. od8+ wa7 3244. fh8 kd6 3245. wh3 wb8 3246. wq3 wa6 3247. wb3+ wa8 3248. oe6+ wa8 3249. wa1 wb8 3250. fh1 kd8 3251. od4 wa8 3252. wa3 kd8 3253. oe6 wa8 3254. wa5 kd8 3255. wb3 wa8 3256. od4 kd8 3257. wa1 wa8 3258. oe6 kd8 3259. we3 wa8 3260. wb3 wa8 3261. wq2 wa8 3262. wa8 wa8 3263. od8 wa8 3264. wcc2 wa8 3265. wb3+ wa8 3266. wh3 wa6 3267. fh8 kd6 3268. wh3 wa7 3269. wh2 wb8 3270. we3 wa7 3271. aa3 kd5 3272. ac1 wa6 3273. fh6+ wa7 3274. oe6+ wa6 3275. wh3 kd4 3276. we3 wa4 3277. fh8 kd4 3278. wh3 wa6 3279. we3 kd3 3280. og7 kd4 3281. aa4 wa4 3282. aa4 wa5 3283. aa3 wa4 3284. dh3 wb6 3285. aa3 wa4 3286. wq3 h4+ 3287. wh3 wa4 3288. oe6 [f4] 3289. kd3 wa7 3290. wq3 kd4 3291. ab2 wb6 3292. hc8 wb7 3293. wq1 wa4 3294. whg7 wa1+ 3295. wq2 wa6 3296. og5 wa4 3297. hb3+ wa6 3298. dh3 kd6 3299. we3 wa7 3300. fh6 wa6 3301. of1 wa2 3302. we3 wa1 3303. wq3 wa2 3304. wq1 wa6 3305. wq3 wa6 3306. od2 wa6 3307. hc8 wa6 3308. hc8 wa6 3309. fh8 wa7 3310. wq7 wa6 3311. h1 wa4 3312. h1 wa7 3313. hb3+ wa6 3314. hc3 wa7 3315. wq3 wa5 3316. wq3 wa6 3317. oe6 wa5 3318. wq1 wa1+ 3319. wq2 wa4 3320. wq1 wa6 3321. wh8 wa7 3322. hc1 kd3 3321. hc3 wa6 3324. wh2 wa7 3325. hc2 wa6 3326. wq3 wa5 3327. hc8 wa6 3328. wh7 wa7 3329. wh8 wa6 3330. ac1 kd4 3331. og5 wa4 3332. oe6 wa3 3333. wh3 wa4 3334. od4 wa6 3335. oe6 wa5 3336. dh3 wa5 3337. aa3 wa6 3338. wq6 [f3] 3339. fa6+ wb7 3340. og4 wa4 3341. fh1 fh7 3342. od4 wa7 3343. hc2 wa7 3344. oa5+ wa6 3345. wq2 h7 3346. fg1 wb5 3347. oe6 fh7 3348. ob3 wa6 3349. ob4 wa4 3350. fh1 wa6 3351. wf2 kd6 3352. wf1 wa6 3353. wf2 wa4 3354. fh1 wa5 3355. aa1 wa4 3356. od2 fh7 3357. ob4 wa3 3358. hc2 fh7 3359. dh8 wa5 3360. hc2 h7 3361. od2 fh7 3362. oa5 wa7 3363. hb1+ wa6 3364. aa1 wa6 3365. wq2 wa6 3366. wh3 fh7 3367. wh2 wa6 3368. wh3 wa6 3369. ob3+ wb7 3370. oa5+ wa6 3371. ac6 wb7 3372. ac3 wa7 3373. od1 wa4 3374. of2 fh7 3375. ac3 wb7 3376. od1 wq7 3377. oe6 fh7 3378. wh4 wa4 3379. wh3 kd4 3380. fa6 fh4 3381. fh1 wa4 3382. h1 wa3 3383. od4 wa4 3384. aa5 wa6 3385. fa6+ wa6 3386. fa5+ wa6 3387. aa3 wa6 3388. og8 [f2] 3389. aa1 wa5 3390. fh1 wa5 3391. aa3 wa5 3392. of6 wa3 3393. wq1 wb5 3394. aa2 wa6 3395. dh8 kd3 3396. wd5 wa3 3397. og4 h3+ 3398. wq2 fh3 3399. wfg8 fh4 3400. wdg5 wa7 3401. m8+ wa6 3402. we7+ wa5 3403. hc8 kd4 3404. fh1 fh4 3405. fh1 wa6 3406. we7+ wa5 3407. oe6 wa6 3408. fh8 wa7 3409. fa8+ wa6 3410. m8d8 wa7 3411. wh8 wa6 3412. whg8 wa3 3413. wq5 fh4 3414. wh8 fh3 3415. wh2 h3+ 3416. wq2 wa3 3417. wh2 wa3 3418. of6 wa3 3419. hc1 kd3 3420. fh1 wa5 3421. wh2 wa6 3422. og8 wa3 3423. of6 wa5 3424. mds wa6 3425. aa1 wa5 3426. wf3 wa6 3427. wq2 wa6 3428. wh3 wa6 3429. wq8 wa5 3430. wq8 wa5 3431. og8 wa5 3432. ac1 wa5 3433. h1 wa5 3434. wq3 wa4 3435. wh3 wa2 3436. fa5 wa1 3437. aa3 wa4 3438. of6 [f1=B] 3439. hc3 wa6 3440. wq3 kd4 3441. of2 h4 3442. wq8 wa4 3443. h2 wa2 3444. wh7 wa1 3445. of1 kd4 3446. we4+ wb6 3447. wf4 kd2+ 3448. we1 kd3 3449. od2 wa5 3450. wh5 kd2 3451. fh7 wa2 3452. wd5+ kd3 3453. oe2 kd2 3454. of4 kd2 3455. we4 kd2 3456. wef3 wa6 3457. fh2 kd2 3458. od1 kd2 3459. wq4 wa4 3460. wh3 kd5 3461. wf2 kd2+ 3462. oe2 kd4 3463. of4 wa6 3464. we6 wa6 3465. od5+ wa6 3466. of6+ wa5 3467. fh7 wa6 3468. og8 wa4 3469. of6 wa7 3470. od2 wa4 3471. h3 wa3 3472. hc3 wa5 3473. wq8 wa4 3474. h1 fh1 3475. h2 wa4 3476. h1 wa6 3477. wh8 wa6 3478. dh3 kd4 3479. hc3 kd6 3480. og3 kd4 3481. og5 wa4 3482. oe6 wb5 3483. h2 wa6 3484. oh5 wa6 3485. of6 wa5 3486. dh3 wa6 3487. fa3+ wb6 3488. dh3 [dx3d3] 3489. hc1 wa3 3490. od4 wa6 3491. wq2 kd3 3492. ab2 wa2+ 3493. of2 wa3 3494. wh1 h1 3495. m8+ wa7 3496. wh4 wa3 3497. aa1 kb3 3498. wq7 kd3 3499. h2 wa2 3500. hb3 wa3 3501. fh8 wa6 3502. fh8 wa2 3503. og1 kd3 3504. of6 wa3 3505. m8d8 kd3 3506. wh1 wa1 3507. wq2 wa6 3508. m8b8 wa7 3509. h4 wa3 3510. h1 wa6 3511. wh8 wa1 3512. aa8 wa3 3513. m8a8 wa6 3514. ab2 wa1 3515. oe2 wa3 3516. od4 wa2 3517. wh1 wa1 3518. fb8+ wa6 3519. m8+ wa6 3520. m8e8 wa6 3521. oe2 wa4 3522. od4 wa5 3523. wh3 wa4 3524. wf2 kd3 3525. wq2 wa7 3526. od2 wa4+ 3527. wq1 wa6 3528. wq2 wa3 3529. ac1 kd3 3530. wh2 wa3 3531. aa3 ad3 3532. ac1 wa7 3533. oe6 wa6 3534. wq8 wa5 3535. wh8 wa6 3536. gh1 wa7 3537. h1 wa6 3538. ab2 [a6] 3539. aa1 wa5 3540. we7 wa1 3541. wf3 wa4 3542. cd5 wa5 3543. we4 wa4 3544. ac3 wa2 3545. fh1 wa4 3546. fh7 fh3 3547. ob4 wa3 3548. dh8 kd3 3549. dh8 kd4 3550. wh1 wa6 3551. dh8 wa7 3552. m8d8 wa3 3553. fh8 wa3 3554. fa8 kd6 3555. wa4 kd4 3556. fh8 kd5 3557. fa8 wa3 3558. hc3 3559. hc8 wa3 3560. hc3 fh3 3561. ob4 ad3 3562. ob4 ad5 3563. of2 wa4 3564. of2 wa4 3565. fh8 wa4 3566. wq3 kd4 3567. wh2 wa6 3568. h1 wa4 3569. wh7 wa1 3570. wh8 wa3 3571. aa1 fh7 3572. oe3 fh4 3573. od4 wa6 3574. 3574. wf3 wa5 3575. hc8 wa5 3576. hc8 ad3 3577. we7 wa1 3578. wa5 wa4 3579. aa1 wa6 3580. wh8 wa5 3581. wh5 ad3 3582. wh3 fh3 3583. we6 wa4 3584. od4 wa6 3585. we6 wa7 3586. ac3 wa7 3587. ab2 wa6 3588. ac3 [a5] 3589. wh4 wa1 3590. wh3 wa6 3591. ab4 wb7 3592. wq8 kd4 3593. fh7 wa6 3594. fh8 wa2 3595. ac3 fh4 3596. wq8 wa4 3597. we3 wa4 3598. h2 wa7 3599. od1 wa1 3600. wh3 ad3 3601. h7 wa1 3602. of6 wa6 3603. wh2 wa7 3604. of2 wa2 3605. od2 wa4 3606. ob3 wa4 3607. m8 wa6 3608. fh8 wa5 3609. od2 wa4 3610. wq1 wa4 3611. od2 h4+ 3612. wh3 wa4 3613. fh7 wa6 3614. fh7 wa7 3615. fh8 wa6 3616. we3 wa4 3617. od1 wa7 3618. ab4 wa6 3619. we3 wa1 3620. wh8 kd6 3621. wh8 kd4 3622. fh5 wa7 3623. wh3 fh5 3624. fh8 wa1 3625. wq1 wa4 3626. wq3 wa1 3627. wh8 wa4 3628. wq1 wa6 3629. wh8 wa5 3630. hc3 wa4 3631. fh4 wa6 3632. h4 wa4 3633. wh1 wa4 3634. og5 ad3 3635. we6 wa4 3636. hc5 kd4 3637. wh3 wa4 3638. ab2 [a4] 3639. fh1 wa6 3640. of3 wa5 3641. od4 wa7 3642. wq7 wa2 3643. od8+ wa8 3644. od7 wa1 3645. ac3 wa7 3646. of6 wa5 3647. wq1 wa6 3648. ab2 wa6 3649. ac1 wa5 3650. fh1 wa6 3651. fh5 wa5 3652. fh8 wa5 3653. oh5 wa4 3654. of4 wa3 3655. og6 wa4 3656. fh3 wa5 3657. fh8 wa2 3658. ab2 wa4 3659. wq2 wa7 3660. wq1 wa8 3661. ac3 wa7 3662. fh6 wa5 3663. fh8 wa6 3664. wf1 wa5 3665. oh8 wa1 3666. og6 ad3 3667. ob4 wa1 3668. wf2 wa8 3669. fh1 wa8 3670. ab2 wb8 3671. fh2 ad2 3672. fh8 wa5 3673. of6 wa5 3674. we6+ wa7 3675. dh8+ wa8 3676. we6+ wa7 3677. ac1 ad3 3678. ab2 wa7 3679. wh8 wa7 3680. wq8 wa6 3681. wh8 wa5 3682. of3 wa5 3683. od2 wa5 3684. dh5 wa4 3685. of6 wa6 3686. wf3 wa5 3687. wh3 wa5 3688. ac3 [a3] 3689. fh1 wa5 3690. wq2 wa6 3691. we7 wa6 3692. cd5+ wa7 3693. ob4 wa1 3694. wq3 wa2 3

3943. ʁg3 ʁb3 3944. ʁg2 ʁg6 3945. ʁc8 ʁe4 3946. ʁf2 ʁb2 3947. ʁf8d ʁd4 3948. ʁc6 ʁd3 3949. ʁdc7 ʁb3 3950. ʁg1 ʁg4 3951. ʁg8 ʁe4 3952. ʁh8 ʁd3 3953. ʁd1 ʁd4 3954. ʁg1 ʁe4 3955. ʁg2 ʁd4 3956. ʁf5 ʁa4 3957. ʁf2 ʁe4 3958. ʁd5 ʁd3 3959. ʁe4 ʁe4 3960. ʁf8 ʁb5 3961. ʁgd8 ʁa6 3962. ʁf8 ʁe4 3963. ʁhg8 ʁb3 3964. ʁh8 ʁd3 3965. ʁd1 ʁd4 3966. ʁf1 ʁg4 3967. ʁg2 ʁb2 3968. ʁc8 ʁb3 3969. ʁf2 ʁd2 3970. ʁf1 ʁc3 3971. ʁf3 ʁb3 3972. ʁe5 ʁa3 3973. ʁh8 ʁf5 3974. ʁh4 ʁd3 3975. ʁe2 ʁe4 3976. ʁe4 ʁa6 3977. ʁf6 ʁa3 3978. ʁe5 ʁb6 3979. ʁc4+ ʁb7 3980. ʁd2 ʁb6 3981. ʁe1 ʁa4 3982. ʁh1 ʁa5 3983. ʁe2 ʁb6 3984. ʁc8 ʁa5 3985. ʁc8 ʁb4 3986. ʁg3 ʁf4 3987. ʁh3 ʁe4 3988. ʁf4 [c1=N] 3989. ʁg7 ʁa3 3990. ʁf1 ʁd4 3991. ʁf3 ʁg3 ʁa8 3992. ʁtg4 ʁe2 3993. ʁe6 ʁa6 3994. ʁh3 ʁd6 3995. ʁh4 ʁb6 3996. ʁgh5 ʁa5 3997. ʁf4 ʁc7 3998. ʁd2 ʁc6 3999. ʁg4 ʁd4 4000. ʁgg6 ʁe2 4001. ʁd3 ʁf3 4002. ʁf4 ʁe2 4003. ʁgg5 ʁd3 4004. ʁgg6 ʁe4 4005. ʁgg4 ʁd4 4006. ʁf7 ʁe2 4007. ʁfh5 ʁb7 4008. ʁgh4 ʁc7 4009. ʁe4 ʁd6 4010. ʁf6 ʁb6 4011. ʁf1 ʁc7 4012. ʁe6+ ʁb6 4013. ʁg4 ʁa8 4014. ʁf6 ʁe4 4015. ʁfg4 ʁd3 4016. ʁhg3 ʁa6 4017. ʁf3 ʁa6 4018. ʁh4 ʁd6 4019. ʁf3 ʁd4 4020. ʁf1 ʁg6 4021. ʁhg3 ʁd3 4022. ʁb2 ʁb6 3023. ʁd1 ʁe6 4024. ʁf4 ʁd3 4025. ʁg8 ʁc1 4026. ʁf8 ʁf5 4027. ʁg7 ʁd3 4028. ʁd3 ʁc3 4029. ʁd1 ʁb5 4030. ʁfh5 ʁb6 4031. ʁg4 ʁe4 4032. ʁe6 ʁf1 4033. ʁd2 ʁe4 4034. ʁe2 ʁa5 4035. ʁf4 ʁe1 4036. ʁh7 ʁe5 4037. ʁh8 ʁe4 4038. ʁe2 [c4] 4039. ʁd8 ʁe6 4040. ʁf1 ʁa2 4041. ʁg1 ʁe2 4042. ʁf7 ʁc6 4043. ʁe8 ʁc3 4044. ʁe1 ʁd6 4045. ʁf6 ʁe4 4046. ʁh2 ʁa1 4047. ʁc3 ʁg3 4048. ʁf3 ʁd4 4049. ʁg1 ʁd6 4050. ʁh2 ʁa8 4051. ʁg8 ʁd3 4052. ʁh7 ʁe2 4053. ʁh8 ʁe5 4054. ʁd8 ʁc6 4055. ʁe2 ʁa1 4056. ʁe3 ʁd4 4057. ʁf3 ʁd6 4058. ʁf6 ʁd4 4059. ʁd2 ʁe6 4060. ʁcb1 ʁe4 4061. ʁbc3 ʁe5 4062. ʁe2 ʁc6 4063. ʁg8 ʁa5 4064. ʁg2 ʁa6 4065. ʁg1 ʁa5 4066. ʁf3 ʁc3 4067. ʁd2 ʁe5 4068. ʁe8 ʁc6 4069. ʁe6 ʁe6 4070. ʁh8 ʁa4 4071. ʁf1 ʁc3 4072. ʁg8 ʁa2 4073. ʁh8 ʁe5 4074. ʁf6 ʁc6 4075. ʁe1 ʁb6 4076. ʁf1 ʁe6 4077. ʁf8 ʁb6 4078. ʁh7 ʁd3 4079. ʁh8 ʁa7 4080. ʁh2 ʁa5 4081. ʁh8 ʁc1 4082. ʁhd8 ʁc2 4083. ʁf3 ʁd3 4084. ʁh8 ʁe4 4085. ʁhd8 ʁd4 4086. ʁe8 ʁg4 4087. ʁc8 ʁe4 4088. ʁg4 [ʁxe2] 4089. ʁh8+ ʁa6 4090. ʁfc8 ʁd5 4091. ʁf1 ʁa5 4092. ʁe8 ʁg3 4093. ʁf7 ʁde5 4094. ʁh5 ʁb5 4095. ʁf1 ʁc4 4096. ʁf3 ʁh1 4097. ʁb6 ʁe6 4098. ʁa6+ ʁb4 4099. ʁac6 ʁg3 4100. ʁe4 ʁbe5 4101. ʁef6 ʁa4 4102. ʁd2 ʁb4 4103. ʁdf2 ʁb5 4104. ʁd1 ʁb7 4105. ʁd2 ʁb5 4106. ʁd8 ʁh1 4107. ʁf8 ʁe8 ʁa5 4108. ʁa6+ ʁb4 4109. ʁb6 ʁa5 4110. ʁh3 ʁe4 4111. ʁf3 ʁb3 4112. ʁbb8 ʁc2 4113. ʁc6 ʁg3 4114. ʁc8 ʁg5 4115. ʁf1 ʁb5 4116. ʁe5 ʁd3 4117. ʁh5 ʁg5 4118. ʁf7 ʁb5 4119. ʁf1 ʁbe5 4120. ʁd2 ʁf5 4121. ʁd3 ʁh5 ʁfe5 4122. ʁd8 ʁd5 4123. ʁd8 ʁg5 4124. ʁf1 ʁd6 4125. ʁf2 ʁe5 4126. ʁh3 ʁc3 4127. ʁh8 ʁe2 4128. ʁh5 ʁa6 4129. ʁh3 ʁe5 4130. ʁh8 ʁe4 4131. ʁdf2 ʁa5 4132. ʁd1 ʁe6 4133. ʁf8 ʁe4 4134. ʁbd8 ʁb6 4135. ʁb8+ ʁa7 4136. ʁa8+ ʁb7 4137. ʁa8 ʁb6 4138. ʁge3 [c3] 4139. ʁg1 ʁa6 4140. ʁf6+ ʁc7 4141. ʁff1 ʁf4 4142. ʁg4 ʁc8 4143. ʁg3 ʁc6 4144. ʁg2 ʁg5 4145. ʁf2 ʁf5 4146. ʁb3 ʁd4 4147. ʁf8 ʁb5 4148. ʁa1 ʁc6 4149. ʁf6 ʁa6 4150. ʁd4 ʁd8 4151. ʁg4 ʁb7 4152. ʁgg3 ʁf4 4153. ʁg4 ʁff5 4154. ʁe1 ʁd8 4155. ʁf1 ʁc6 4156. ʁd4 ʁd8 4157. ʁf6+ ʁc6 4158. ʁc4 ʁb5 4159. ʁc3 ʁd4 4160. ʁf8 ʁc6 4161. ʁb3 ʁd4 4162. ʁd2 ʁc6 4163. ʁf2 ʁb5 4164. ʁh8 ʁb5 4165. ʁe1 ʁe2 4166. ʁf1 ʁf4 4167. ʁd2 ʁf5 4168. ʁg3 ʁf4 4169. ʁe4 ʁa5 4170. ʁd2 ʁh5 4171. ʁg1 ʁa5 4172. ʁh8 ʁc7 4173. ʁe8 ʁb6 4174. ʁg4 ʁc7 4175. ʁf5 ʁa6 4176. ʁg4 ʁg5 4177. ʁh3 ʁa6 4178. ʁf3 ʁe4 4179. ʁf1 ʁb4 4180. ʁf6 ʁa6 4181. ʁf7 ʁb6 4182. ʁf6+ ʁa7 4183. ʁf8 ʁb6 4184. ʁh8 ʁd3 4185. ʁh3 ʁg4 4186. ʁg1 ʁg4 4187. ʁh1 ʁe4 4188. ʁf5 [c2] 4189. ʁd4+ ʁb7 4190. ʁh8 ʁa4 4191. ʁb1 ʁeb4 4192. ʁf6 ʁa3 4193. ʁg7 ʁg6 4194. ʁe6+ ʁa7 4195. ʁc3 ʁf4 4196. ʁc3 ʁh5 4197. ʁh8 ʁg3 4198. ʁc7+ ʁa6 4199. ʁc8+ ʁa5 4200. ʁc3 ʁa1 4201. ʁe4 ʁf1 4202. ʁe5 ʁg1 4203. ʁe3 ʁg1 4204. ʁfc8 ʁf4 4205. ʁf8 ʁa2 4206. ʁc8 ʁa1 4207. ʁc1 ʁa3 4208. ʁh1 ʁf5 4209. ʁf1 ʁf4 4210. ʁc5+ ʁa6 4211. ʁc8+ ʁa7 4212. ʁc7+ ʁa6 4213. ʁc3 ʁa7 4214. ʁf8 ʁe2 4215. ʁb8 ʁc1 4216. ʁbe8 ʁe2 4217. ʁe6+ ʁg6 4218. ʁc3 ʁc1 4219. ʁd1 ʁe2 4220. ʁe1 ʁb4 4221. ʁh1 ʁb7 4222. ʁc6+ ʁa7 4223. ʁf6 ʁb7 4224. ʁe3 ʁd3 4225. ʁh3 ʁab3 4226. ʁf5 ʁa3 4227. ʁh8 ʁa4 4228. ʁf6 ʁe4 4229. ʁh8 ʁa7 4230. ʁd2 ʁa4 4231. ʁg3 ʁa5 4232. ʁh3 ʁe5 4233. ʁd4 ʁa5 4234. ʁf4 ʁb6 4235. ʁa4+ ʁa6 4236. ʁf6+ ʁa7 4237. ʁh8 ʁb6 4238. ʁfe3 [c1=R] 4239. ʁh5 ʁd5 4240. ʁf7 ʁa6 4241. ʁf3 ʁb7 4242. ʁc3 ʁa1 4242. ʁb4+ ʁb5 4244. ʁg1 ʁf4 4245. ʁe6 ʁf5 4246. ʁf6 ʁf2+ 4247. ʁg2 ʁa3 4248. ʁbd4 ʁd5 4249. ʁd2 ʁd3 4250. ʁg6 ʁa7 4251. ʁa8 ʁf3 4252. ʁa8 ʁf2 4253. ʁh3 ʁa3 4254. ʁf4 ʁe2 4255. ʁf6 ʁd3 4256. ʁf5 ʁa6 4257. ʁf6 ʁb5 4258. ʁd4 ʁd5 4259. ʁb4+ ʁb5 4260. ʁe5 ʁa1 4261. ʁf6 ʁf4 4262. ʁge3 ʁf2+ 4263. ʁh3 ʁf5 4264. ʁh2 ʁg3 4265. ʁe6 ʁe2 4266. ʁbb3 ʁf4 4267. ʁb4 ʁc7 4268. ʁf7 ʁb7 4269. ʁh7 ʁe4 4270. ʁf7 ʁd4 4271. ʁf3 ʁe2 4272. ʁa3 ʁd5 4273. ʁb4+ ʁc7 4274. ʁc3+ ʁb7 4275. ʁe1 ʁc1 4276. ʁf3 ʁd2 4277. ʁh8 ʁd5 4278. ʁh5 ʁb6 4279. ʁf7 ʁb5 4280. ʁd2 ʁd5 4281. ʁf1 ʁd3 4282. ʁf7 ʁb1 4283. ʁh5 ʁc1 4284. ʁf5 ʁa5 4285. ʁh5 ʁa6 4286. ʁh4 ʁa1 4287. ʁh3 ʁa5 4288. ʁh1 [h5] 4289. ʁf4 ʁg1 4290. ʁg3 ʁb4 4291. ʁf7 ʁbb5 4292. ʁf6 ʁf3 4293. ʁf1 ʁe5 4294. ʁh4 ʁc7 4295. ʁf2 ʁb4 4296. ʁf4 ʁg6 4297. ʁde3 ʁb1 4298. ʁg4 ʁc5 4299. ʁg3 ʁg6+ 4300. ʁg5 ʁbb5 4301. ʁc2 ʁb4 4302. ʁc3 ʁf8 4303. ʁh4 ʁg6+ 4304. ʁh3 ʁe5 4305. ʁh4 ʁe4 4306. ʁh3 ʁb1 4307. ʁg3 ʁb6 4308. ʁh4 ʁa7 4309. ʁf4 ʁa5 4310. ʁd8 ʁg6 4311. ʁe8 ʁb1 4312. ʁd1 ʁb4 4313. ʁf3 ʁb3 4314. ʁh4 ʁc6 4315. ʁf3 ʁb6 4316. ʁg3 ʁb5 4317. ʁf1 ʁa7 4318. ʁf7 ʁb6 4319. ʁd2 ʁc1 4320. ʁf1 ʁc2 4321. ʁg3 ʁd3 4322. ʁe2 ʁf3 4323. ʁe1 ʁh4 4324. ʁd2 ʁf3 4325. ʁf1 ʁg1 4326. ʁe1 ʁc3 4327. ʁge3 ʁc1 4328. ʁb1 ʁb4 4329. ʁd2 ʁa6 4330. ʁf4 ʁb6 4331. ʁh4 ʁe4 4332. ʁg3 ʁc4 4333. ʁh2 ʁc1 4334. ʁg2 ʁe2 4335. ʁh3 ʁe4 4336. ʁf2 ʁb5 4337. ʁff8 ʁd3 4338. ʁf3 [h4] 4339. ʁd4+ ʁa6 4340. ʁh8 ʁa1 4341. ʁf5 ʁee5 4342. ʁb1 ʁa4 4343. ʁb2 ʁc2+ 4344. ʁd2 ʁe4 4345. ʁdd3 ʁb3 4346. ʁd6+ ʁc7 4347. ʁf1 ʁe6 4348. ʁf2 ʁe4 4349. ʁf8 ʁa5 4350. ʁg3 ʁd4 4351. ʁd1 ʁb3 4352. ʁd2 ʁc4 4353. ʁf6 ʁe4 4354. ʁd6 ʁe6 4355. ʁf4 ʁe4 4356. ʁf8 ʁe6 4357. ʁf2 ʁe4 4358. ʁf6 ʁe4 4359. ʁf1 ʁe6 4360. ʁh5 ʁd3 4362. ʁc3 ʁc4 4363. ʁg3 ʁa6 4364. ʁd6+ ʁc7 4365. ʁh5 ʁg1 4367. ʁh8 ʁa4 4368. ʁf4 ʁg4 4369. ʁg5 ʁd3 4370. ʁf5 ʁc3 4371. ʁb1 ʁc2+ 4372. ʁf2 ʁc1 4373. ʁf5 ʁa5 4374. ʁbd1 ʁb6 4375. ʁe2 ʁa5 4376. ʁe1 ʁa3 4377. ʁd2 ʁa5 4378. ʁb2 ʁe4 4379. ʁbd1 ʁa2 4380. ʁf5 ʁa5 4381. ʁe5 ʁe2 4382. ʁd4 ʁe2 4383. ʁh8 ʁc1 4384. ʁa4 ʁb6 4385. ʁd4+ ʁc5 4386. ʁg7 ʁe4 4387. ʁh8 ʁc1 4388. ʁg2 [h3+] 4389. ʁf2 ʁa7 4390. ʁf7 ʁe6 4391. ʁg4 ʁb1 4392. ʁc4+ ʁc6 4393. ʁh1 ʁb7 4394. ʁd2 ʁf6+ 4395. ʁf3 ʁh6 4396. ʁc8+ ʁe7 4397. ʁf6 ʁe2 4398. ʁe4 ʁb7 4399. ʁe3 ʁa6 4400. ʁf1 ʁh7 4401. ʁa4 ʁb3 4402. ʁf5 ʁa7 4403. ʁf3 ʁac7 4404. ʁh2 ʁb7 4405. ʁh1 ʁc2 4406. ʁc3 ʁh7 4407. ʁf2 ʁe2 4408. ʁd4 ʁb7 4409. ʁh8 ʁg1 4410. ʁe4 ʁe2 4411. ʁg1 ʁc6 4412. ʁf4 ʁf4 4413. ʁf6 ʁe2 4414. ʁb2 ʁb1 4415. ʁd1 ʁd3 4416. ʁd4 ʁb1 4417. ʁh8 ʁb7 4418. ʁbc8+ ʁd6 4419. ʁc8 ʁc6 4420. ʁd2 ʁf6+ 4421. ʁf3 ʁe6 4422. ʁd2 ʁb7 4423. ʁd4 ʁc6 4424. ʁf8 ʁa7 4425. ʁf7 ʁf4 4426. ʁe1 ʁe2 4427. ʁa3 ʁb6 4428. ʁc4+ ʁb7 4429. ʁd2 ʁb6 4430. ʁfh5 ʁa4 4431. ʁf7 ʁb5 4432. ʁge3 ʁd3 4433. ʁfh7 ʁf5 4434. ʁf7 ʁc5 4435. ʁf3 ʁc1 4436. ʁf7 ʁh5 ʁa4 4437. ʁf5 ʁa5 4438. ʁf3 [h2] 4439. ʁd8 ʁc3 4440. ʁe4+ ʁb7 4441. ʁde3 ʁa7 4442. ʁhh5 ʁh4 4443. ʁef1 ʁe2 4444. ʁf6 ʁd6 4445. ʁd1 ʁe4+ 4446. ʁe2 ʁa6 4447. ʁd3 ʁg6+ 4448. ʁh3 ʁge6 4449. ʁg4 ʁe6 4450. ʁb1 ʁe2 4451. ʁg7 ʁc1 4452. ʁg4 ʁb7 4453. ʁbd2 ʁg7 4454. ʁh6 ʁe6 4455. ʁh3 ʁc3 4456. ʁg8 ʁa6 4457. ʁhd5 ʁg6 4458. ʁh6 ʁe6 4459. ʁg2 ʁhg6+ 4460. ʁg3+ ʁgd6 4461. ʁd3 ʁf6 4462. ʁf3 ʁfd6 4463. ʁb1 ʁa7 4464. ʁbd2 ʁf6 4465. ʁf2 ʁe4+ 4466. ʁe1 ʁc3 4467. ʁf2 ʁf1 4468. ʁe1 ʁc1 4469. ʁg2 ʁd4 4470. ʁgg8 ʁh4 4471. ʁf8 ʁd4 4472. ʁf5 ʁd3 4473. ʁdf2 ʁf5 4474. ʁfe3 ʁd3 4475. ʁf6 ʁe4 4476. ʁff8 ʁc1 4477. ʁh8 ʁc1 4478. ʁd1 ʁa5 4479. ʁf3 ʁee5 4480. ʁd1 ʁe4 4481. ʁd6 ʁb6 4482. ʁc6+ ʁa6 4483. ʁc3 ʁb6 4484. ʁb3 ʁe2 4485. ʁd2 ʁa8 4486. ʁe8 ʁa4 4487. ʁe8 ʁa5 4488. ʁfh5 [h1=R] 4489. ʁf3 ʁe6 4490. ʁf5 ʁeh6 4491. ʁc3 ʁa8 4492. ʁd8 ʁh4 4493. ʁb4+ ʁa7 4494. ʁb3 ʁb8 4495. ʁf4 ʁc4 4496. ʁa3+ ʁa6 4497. ʁa4 ʁg1 4498. ʁb4 ʁb7 4499. ʁe4 ʁa1 4500. ʁe5 ʁb5 4501. ʁf3 ʁa6 4502. ʁf2 ʁc4 4503. ʁe4 ʁa6 4504. ʁf1 ʁe1 4505. ʁfe3 ʁc5 4506. ʁf4 ʁc1 4507. ʁg3 ʁb8 4508. ʁf2 ʁf7 4509. ʁh8 ʁh4 4510. ʁe4 ʁe2 4511. ʁf4 ʁb7 4512. ʁc3 ʁb8 4513. ʁd6 ʁe4 4514. ʁa3+ ʁb6 4515. ʁb4+ ʁa7 4516. ʁb2 ʁd3 4517. ʁbd1 ʁh3 4518. ʁf5 ʁh1 4519. ʁe6 ʁa8 4520. ʁb4 ʁd4 4521. ʁd2 ʁhd4 4522. ʁbe4 ʁb6 4523. ʁb4+ ʁa6 4524. ʁc3 ʁb6 4525. ʁa3 ʁh6 4526. ʁc3 ʁh3 4527. ʁe8 ʁh6 4528. ʁe8 ʁh5 4529. ʁe3 ʁf4 4530. ʁh8 ʁc2 4531. ʁc3 ʁe6 4532. ʁcd1 ʁf4 4533. ʁff8 ʁa4 4534. ʁf1 ʁe2 4535. ʁfe3 ʁc5 4536. ʁf7 ʁc2 4537. ʁfh5 ʁc1 4538. ʁg4 [ʁxg4] 4539. ʁd8 ʁe4 4540. ʁb2 ʁb7 4541. ʁf4 ʁc3 4542. ʁf6 ʁb3 4543. ʁf5 ʁb4 4544. ʁf8 ʁg6 4545. ʁf7 ʁab5 4546. ʁa4 ʁg1 4547. ʁf8 ʁh4 4548. ʁh4 ʁg2+ 4549. ʁe3 ʁg7 4550. ʁf6 ʁf1 4551. ʁh8+ ʁa7 4552. ʁe4 ʁb7 4553. ʁh8+ ʁc7 4554. ʁd8 ʁb7 4555. ʁd6 ʁc4 4556. ʁf6 ʁe2 4557. ʁf4 ʁd4 4558. ʁf2 ʁg2+ 4559. ʁe3 ʁg1 4560. ʁf2 ʁd5 4561. ʁh5 ʁe4 4562. ʁh3 ʁe2 4563. ʁh3 ʁe5 4564. ʁf8 ʁg1 4565. ʁf7 ʁg6 4566. ʁh8 ʁd6 4567. ʁb2 ʁg6 4568. ʁh2 ʁa5 4569. ʁh5 ʁb3 4570. ʁf5 ʁc4 4571. ʁf3 ʁg4 4572. ʁf5 ʁh1 4573. ʁf6 ʁh1 4574. ʁf1 ʁg3 4575. ʁe1 ʁc3 4576. ʁf4 ʁb3 4577. ʁfh8 ʁc3 4578. ʁh4 ʁc1 4579. ʁh8 ʁh4 4580. ʁff8 ʁc4 4581. ʁf3 ʁb6 4582. ʁf2 ʁa3 4583. ʁd1 ʁa5 4584. ʁg7 ʁd3 4585. ʁgh8 ʁgc4 4586. ʁa8 ʁe4 4587. ʁa8 ʁg4 4588. ʁc4+ [ʁxc4] 4589. ʁh7 ʁf1 4590. ʁe3 ʁfg1 4591. ʁf2 ʁc6 4592. ʁc4+ ʁd5 4593. ʁf7 ʁf4 4594. ʁh7 ʁb5 4595. ʁh5 ʁf1 4596. ʁf6 ʁe5 4597. ʁf7 ʁb1 4598. ʁg8 ʁh8 4599. ʁc8 ʁg1 4600. ʁa6+ ʁb4 4601. ʁh6 ʁa5 4602. ʁf8 ʁa4 4603. ʁh6 ʁa5 4604. ʁa8 ʁe5+ 4605. ʁe4 ʁb5 4606. ʁa6+ ʁb4 4607. ʁh6 ʁa5 4608. ʁe8 ʁe2 4609. ʁc8 ʁhh4 4610. ʁh8 ʁh8 4611. ʁg4 ʁh1 4612. ʁf2 ʁd5 4613. ʁe8 ʁc4 4614. ʁh8 ʁc1 4615. ʁf6 ʁg1 4616. ʁh7 ʁh1 4617. ʁf5 ʁd5 4618. ʁf6 ʁg1 4619. ʁff5 ʁc2 4620. ʁh5 ʁc1 4621. ʁf5 ʁg6 4622. ʁh1 ʁh1 4623. ʁf1 ʁf1 4624. ʁb8 ʁfg4 4625. ʁe8 ʁb5 4626. ʁff8 ʁc6 4627. ʁb1 ʁa5 4628. ʁe4+ ʁd6 4629. ʁe7 ʁc6 4630. ʁf5 ʁb6 4631. ʁff8 ʁd3 4632. ʁd1 ʁc4 4633. ʁf2 ʁf1+ 4634. ʁe3 ʁh1 4635. ʁf2 ʁe6 4636. ʁg7 ʁg8 4637. ʁgh8 ʁc4 4638. ʁb2 [d6] 4639. ʁa8 ʁhg1 4640. ʁd1 ʁc3 4641. ʁg8 ʁc7 4642. ʁf4 ʁd3 4643. ʁe6 ʁc3 4644. ʁef5 ʁc3 4645. ʁfh7 ʁc3 4646. ʁh6 ʁa1 4647. ʁh8 ʁe6 4648. ʁg5 ʁa6 4649. ʁf1 ʁc4 4650. ʁgg7 ʁg3 4651. ʁf3 ʁe2 4652. ʁf4 ʁa3 4653. ʁg5 ʁa1 4654. ʁgh6 ʁe6 4655. ʁg5 ʁe6 4656. ʁe1 ʁc7 4657. ʁgg7 ʁa5 4658. ʁg5 ʁb3 4659. ʁgh6 ʁe6 4660. ʁd4 ʁc4 4661. ʁf4 ʁd5 4662. ʁh7

ʁda5 4663. ʁe3 ʁl1a3+ 4664. ʁf2 ʁag3 4665. ʁh5 ʁga3 4666. ʁf7 ʁc3 4667. ʁfh7 ʁcg3 4668. ʁw7 ʁc3 4669. ʁf7 ʁe3 4670. ʁf5 ʁc5 4671. ʁe6 ʁa5 4672. ʁh8 ʁd3 4673. ʁa8 ʁag5 4674. ʁg8 ʁa5 4675. ʁh3 ʁc3 4676. ʁh5 ʁa6 4677. ʁff8 ʁc4 4678. ʁf5 ʁh1 4679. ʁff8 ʁa6 4680. ʁgh8 ʁc4 4681. ʁh3 ʁc1 4682. ʁzh5 ʁl1g3 4683. ʁb2 ʁg1 4684. ʁf3 ʁh1 4685. ʁff8 ʁa2 4686. ʁhd8 ʁd5 4687. ʁde8 ʁc4 4688. ʁg1 [d5] 4689. ʁse5 ʁd4 4690. ʁh6+ ʁb7 4691. ʁfh6 ʁb5 4692. ʁef5 ʁh4 4693. ʁg3 ʁh6 4694. ʁc3 ʁf1+ 4695. ʁe3 ʁfg1 4696. ʁg6 ʁg4 4697. ʁfh3 ʁ3g2 4698. ʁh2 ʁc2 4699. ʁg8 ʁc6 4700. ʁhg2 ʁf1 4701. ʁd3 ʁb6 4702. ʁef8 ʁe5 4703. ʁe8 ʁd6 4704. ʁa4+ ʁb7 4705. ʁb2 ʁh1 4706. ʁc3 ʁg1 4707. ʁg6 ʁe4 4708. ʁeg6 ʁb8 4709. ʁh3

♯b7 5369. ♯f8 ♯b6 5370. ♯f8 ♯ag5 5371. ♯e4 ♯a5 5372. ♯e8 ♯gd3 5373. ♯f7 ♯d5 5374. ♯e6 ♯c3 5375. ♯f7 ♯h3 5376. ♯f8 ♯b1 5377. ♯d6 ♯d1+ 5378. ♯d2 ♯d3 5379. ♯h2 ♯b5+ 5380. ♯e6 ♯c3 5381. ♯f7 ♯c1 5382. ♯f8 ♯e5+ 5383. ♯f6 ♯a5 5384. ♯a2 ♯c4 5385. ♯h2 ♯b7 5386. ♯e7+ ♯a6 5387. ♯e8 ♯b6 5388. ♯a8 [♯xa8] 5389. ♯d6+ ♯a7 5390. ♯d1 ♯a4 5391. ♯d6 ♯a6 5392. ♯d4+ ♯c5 5393. ♯h4 ♯e2 5394. ♯f7+ ♯b7 5395. ♯e7 ♯ah8 5396. ♯c5+ ♯b8 5397. ♯c4 ♯d3+ 5398. ♯e4 ♯h3d 5399. ♯e6 ♯c3 5400. ♯d7 ♯h7 5401. ♯f4 ♯d2+ 5402. ♯d5 ♯a2 5403. ♯e6 ♯d2+ 5404. ♯d4 ♯dh2 5405. ♯f4 ♯e4 5406. ♯f7 ♯e1 5407. ♯h6 ♯d3 5408. ♯e6 ♯cc2 5409. ♯e7 ♯c3 5410. ♯f5 ♯c1 5411. ♯f7 ♯b1 5412. ♯e4 ♯c1 5413. ♯f1 ♯h2h3 5414. ♯f7 ♯d1 5415. ♯d4 ♯e1+ 5416. ♯e6 ♯e2 5417. ♯c4 ♯a7 5418. ♯c5+ ♯b8 5419. ♯b4 ♯a7 5420. ♯f2 ♯a8 5421. ♯f7 ♯c5 5422. ♯f6+ ♯b7 5423. ♯f8 ♯c5 5424. ♯e7 ♯a6+ 5425. ♯f6 ♯a4 5426. ♯d4+ ♯c5 5427. ♯d6 ♯a4 5428. ♯h8 ♯c4 5429. ♯f8 ♯b4 5430. ♯d1 ♯e1 5431. ♯f3 ♯c3 5432. ♯d1 ♯e8 5433. ♯d6 ♯e1 5434. ♯g3 ♯b6 5435. ♯d6+ ♯a5 5436. ♯e5+ ♯a6 5437. ♯h2 ♯b6 5438. ♯b8+ [♯xb8] 5439. ♯f2+ ♯b7 5440. ♯g3 ♯e6 5441. ♯e5 ♯g7 5442. ♯f5 ♯d1 5443. ♯f4 ♯d2 5444. ♯f1 ♯d5 5445. ♯c4 ♯gg3 5446. ♯f4 ♯e1 5447. ♯f1 ♯b1 5448. ♯f5 ♯b6 5449. ♯g5 ♯h3h2 5450. ♯g8 ♯e4+ 5451. ♯e5 ♯h8 5452. ♯f8 ♯h2 5453. ♯g8 ♯c5+ 5454. ♯f6 ♯c4+ 5455. ♯e7 ♯c3+ 5456. ♯f6 ♯d2 5457. ♯g5 ♯dh2 5458. ♯h6 ♯hh3 5459. ♯g5 ♯e3 5460. ♯f5 ♯eg3 5461. ♯f1 ♯b7 5462. ♯f5 ♯c1 5463. ♯f1 ♯e3 5464. ♯f4 ♯eg3 5465. ♯g4 ♯d2 5466. ♯f4 ♯e8 5467. ♯c4 ♯b8 5468. ♯e7 ♯g7+ 5469. ♯f6 ♯b6 5470. ♯f7 ♯b7 5471. ♯f4 ♯e6 5472. ♯f1 ♯d1 5473. ♯f4 ♯e3 5474. ♯f5 ♯eh3 5475. ♯h7 ♯c1 5476. ♯f5 ♯c2 5477. ♯f1 ♯c1 5478. ♯f4 ♯gg1 5479. ♯c5 ♯a1 5480. ♯g5 ♯c3 5481. ♯g4 ♯c4 5482. ♯g3 ♯c6 5483. ♯f2 ♯b7 5484. ♯c2 ♯b6 5485. ♯f2+ ♯e3 5486. ♯f4 ♯e2 5487. ♯h2 ♯e1 5488. [♯xb8+] ♯e6 5489. ♯b6+ ♯d7 5490. ♯a7+ ♯c6 5491. ♯e3 ♯a4 5492. ♯d3 ♯a6 5493. ♯d8 ♯h4 5494. ♯e7 ♯e4 5495. ♯f8 ♯e6+ 5496. ♯f7 ♯e5 5497. ♯d6+ ♯b7 5498. ♯h6 ♯g3 5499. ♯f6 ♯f1 5500. ♯h3 ♯c7 5501. ♯e6 ♯c3 5502. ♯c4+ ♯d8 5503. ♯e6 ♯c7 5504. ♯d5 ♯c1 5505. ♯e6 ♯d3 5506. ♯h3 ♯f1 5507. ♯h6 ♯b7 5508. ♯h3 ♯a6 5509. ♯h6 ♯e8 5510. ♯f7 ♯e5 5511. ♯e3 ♯e1 5512. ♯h6 ♯h2 5513. ♯d6 ♯hh1 5514. ♯d3 ♯c6 5515. ♯d6+ ♯b5 5516. ♯f8 ♯c6 5517. ♯f6 ♯e6+ 5518. ♯f7 ♯e4 5519. ♯f6 ♯e2 5520. ♯e7 ♯e4 5521. ♯a3 ♯eh4 5522. ♯e7 ♯b5 5523. ♯d8 ♯ec6 5524. ♯h8 ♯h3 5525. ♯d8 ♯c3 5526. ♯d3 ♯a4 5527. ♯b1 ♯c4 5528. ♯d3 ♯g4 5529. ♯e3 ♯gg1 5530. ♯e5 ♯c3 5531. ♯f6 ♯d7 5532. ♯a7+ ♯c6 5533. ♯b6+ ♯d7 5534. ♯b8 ♯c6 5535. ♯h8 ♯b6 5536. ♯b8+ ♯a5 5537. ♯g3 ♯f7 5538. [♯xel] ♯b6 5539. ♯f5 ♯h6 5540. ♯f4 ♯h2 5541. ♯h4 ♯a6 5542. ♯h3 ♯b1 5543. ♯f5 ♯gc1 5544. ♯d3+ ♯b6 5545. ♯h3 ♯h5 5546. ♯f1 ♯d5 5547. ♯e1 ♯d1 5548. ♯h1 ♯a1 5549. ♯g1+ ♯b7 5550. ♯f2 ♯f3 5551. ♯c5 ♯h5 5552. ♯f2 ♯a8 5553. ♯g1 ♯a1 5554. ♯e1 ♯b6 5555. ♯g1+ ♯c7 5556. ♯h1 ♯b6 5557. ♯g2 ♯ab1 5558. ♯h1 ♯c7 5559. ♯e1 ♯d5 5560. ♯e5 ♯dcl 5561. ♯f5 ♯f3 5562. ♯f1 ♯h5 5563. ♯h3 ♯c3 5564. ♯f1 ♯f7 5565. ♯h3 ♯cc2 5566. ♯d3 ♯cc1 5567. ♯d2 ♯a6 5568. ♯d3+ ♯c4 5569. ♯h3 ♯f7 5570. ♯h4 ♯g1 5571. ♯h3 ♯hg6 5572. ♯f4 ♯h6 5573. ♯e5 ♯bc1 5574. ♯f4 ♯e2 5575. ♯h4 ♯h2 5576. ♯g3 ♯b6 5577. ♯h4 ♯g8 5578. ♯e1 ♯f7 5579. ♯c2 ♯hh1 5580. ♯e1 ♯6h4+ 5581. ♯f5 ♯h6 5582. ♯d1 ♯6h3 5583. ♯e1 ♯c6 5584. ♯f6 ♯b6 5585. ♯e6+ ♯b5 5586. ♯e4 ♯a5 5587. ♯e1 ♯g5 5588. [♯xc1] ♯f3+ 5589. ♯e7 ♯g8 5590. ♯d1 ♯g2 5591. ♯g1 ♯e2 5592. ♯f1 ♯ff2 5593. ♯e8 ♯g3 5594. ♯a1+ ♯a2 5595. ♯f6 ♯d1 5596. ♯f5+ ♯d5 5597. ♯e4 ♯b6 5598. ♯b4+ ♯a6 5599. ♯g4 ♯h2 5600. ♯g8 ♯hg2 5601. ♯e6+ ♯a5 5602. ♯g8 ♯a6 5603. ♯g4 ♯h2 5604. ♯g8 ♯f2 5605. ♯g4 ♯b6 5606. ♯b4+ ♯a6 5607. ♯e4 ♯b6 5608. ♯f4 ♯a5 5609. ♯e4 ♯h2 5610. ♯f5 ♯f2 5611. ♯e6 ♯a2 5612. ♯f5+ ♯b6 5613. ♯f6+ ♯a5 5614. ♯c6 ♯h1 5615. ♯f6 ♯hh3 5616. ♯a1 ♯h1 5617. ♯g7 ♯g8 5618. ♯a1+ ♯b4 5619. ♯f1 ♯a5 5620. ♯c1 ♯gg2 5621. ♯f1 ♯b3 5622. ♯e7 ♯g8 5623. ♯c1 ♯f3 5624. ♯f1 ♯b3 5625. ♯g1 ♯f3 5626. ♯b1 ♯c3 5627. ♯g1 ♯f3 5628. ♯d1 ♯f3 5629. ♯b1 ♯g5 5630. ♯d1 ♯h7 5631. ♯c1 ♯g8 5632. ♯d2 ♯f7 5633. ♯c1 ♯d3 5634. ♯f6 ♯f3+ 5635. ♯f4 ♯d3 5636. ♯d2 ♯dh3 5637. ♯c1 ♯a6 5638. [♯xc3] ♯d5 5639. ♯g3 ♯h2 5640. ♯c3 ♯b7 5641. ♯c6+ ♯a5 5642. ♯c2 ♯c6 5643. ♯e7 ♯c3 5644. ♯h7 ♯b6 5645. ♯f7 ♯cc2 5646. ♯h4 ♯g2 5647. ♯e7 ♯b7 5648. ♯f8 ♯a5 5649. ♯a4 ♯a8 5650. ♯g7 ♯ah5 5651. ♯f4 ♯a5 5652. ♯a4 ♯h4 5653. ♯f8 ♯hh2 5654. ♯d7 ♯b7 5655. ♯a4 ♯g2 5656. ♯h4 ♯b7 5657. ♯h5 ♯g5 5658. ♯h4 ♯c6 5659. ♯e7 ♯b7 5660. ♯f7 ♯g2 5661. ♯e7 ♯c6 5662. ♯f7 ♯e4 5663. ♯h7 ♯c6 5664. ♯h8 ♯c3 5665. ♯h7 ♯h6 5666. ♯e7 ♯h2 5667. ♯g6 ♯a5 5668. ♯h7 ♯a4 5669. ♯c2 ♯c6 5670. ♯d1 ♯ch3 5671. ♯c2 ♯e3+ 5672. ♯f6 ♯eh3 5673. ♯h7 ♯b7 5674. ♯c2 ♯h7 5675. ♯c6 ♯h3 5676. ♯h1 ♯a6 5677. ♯c6+ ♯a7 5678. ♯c3 ♯a6 5679. ♯e6 ♯d5+ 5680. ♯f6 ♯c2 5681. ♯g3 ♯ch2 5682. ♯c7 ♯h1 5683. ♯c3 ♯g2 5684. ♯c3 ♯d5 5685. ♯d4 ♯a2 5686. ♯b2 ♯f7 5687. ♯c3 ♯b6 5688. [♯xh3] ♯a7 5689. ♯h8 ♯a5 5690. ♯h7 ♯b8 5691. ♯e7 ♯b7 5692. ♯h2 ♯e8 5693. ♯c7+ ♯a6 5694. ♯f4 ♯b5 5695. ♯f5 ♯h6 5696. ♯c4+ ♯b6 5697. ♯f7 ♯h3 5698. ♯f4 ♯h1 5699. ♯f1 ♯f5 5700. ♯d1 ♯a5 5701. ♯d4 ♯h6 5702. ♯f6 ♯h1 5703. ♯d4 ♯f6 5704. ♯d1 ♯f5 5705. ♯f1 ♯b6 5706. ♯d1 ♯a5 5707. ♯f1 ♯a2 5708. ♯f4 ♯a5 5709. ♯f8 ♯h3 5710. ♯f4 ♯d7 5711. ♯f7 ♯e8 5712. ♯e6 ♯h6+ 5713. ♯e7 ♯b5 5714. ♯c4+ ♯b6 5715. ♯c7+ ♯b5 5716. ♯d8 ♯h1 5717. ♯c7 ♯h4 5718. ♯f4 ♯h1 5719. ♯d6 ♯a6 5720. ♯e7 ♯b7 5721. ♯c7+ ♯a6 5722. ♯h2 ♯b7 5723. ♯c2 ♯f7 5724. ♯h2 ♯d1 5725. ♯h7 ♯h1 5726. ♯g7 ♯b8 5727. ♯h7 ♯hh5 5728. ♯f6 ♯h1 5729. ♯g7 ♯a7 5730. ♯f6 ♯e1 5731. ♯h8 ♯h1 5732. ♯h5 ♯g5 5733. ♯h8 ♯g2 5734. ♯h3 ♯g5 5735. ♯a3+ ♯b7 5736. ♯g3 ♯b6 5737. ♯h3 ♯c5 5738. [♯xf7] ♯gg1 5739. ♯h2 ♯d5 5740. ♯a2+ ♯c6 5741. ♯a5 ♯e1 5742. ♯d2 ♯c5 5743. ♯c3+ ♯b5 5744. ♯e8+ ♯b4 5745. ♯e6 ♯a1 5746. ♯b3+ ♯c5 5747. ♯b7 ♯hd1 5748. ♯c8+ ♯d6 5749. ♯d8+ ♯c5 5750. ♯e8 ♯a5 5751. ♯e7 ♯aa1 5752. ♯f7 ♯b4 5753. ♯d8 ♯c5 5754. ♯g5+ ♯d6 5755. ♯d8+ ♯c6 5756. ♯c8+ ♯d6 5757. ♯a8 ♯c5 5758. ♯c8+ ♯b6 5759. ♯b7+ ♯c5 5760. ♯a8 ♯h1 5761. ♯b7 ♯he1 5762. ♯b3 ♯h1 5763. ♯d1 ♯b4 5764. ♯b3+ ♯a5 5765. ♯e6 ♯a6 5766. ♯g7 ♯ae1 5767. ♯f7 ♯b5 5768. ♯e8+ ♯b4 5769. ♯c3 ♯b5 5770. ♯f4 ♯c5 5771. ♯e3+ ♯b4 5772. ♯d2+ ♯c5 5773. ♯d8 ♯c6 5774. ♯d2 ♯h5 5775. ♯a5 ♯hh1 5776. ♯f6 ♯eg1 5777. ♯f7 ♯h8 5778. ♯a2 ♯hh1 5779. ♯b1 ♯d5 5780. ♯a2+ ♯e4 5781. ♯h2 ♯d5 5782. ♯b8 ♯c5 5783. ♯h2 ♯b5 5784. ♯h3 ♯c5 5785. ♯h7 ♯g6 5786. ♯h6 ♯g5 5787. ♯h3 ♯c6 5788. [♯xh1+] ♯b6 5789. ♯d1 ♯g1 5790. ♯e6 ♯g7 5791. ♯d8+ ♯a7 5792. ♯e8 ♯d7 5793. ♯f8 ♯d2 5794. ♯e8 ♯d6+ 5795. ♯e7 ♯b6 5796. ♯f8 ♯a5 5797. ♯h8 ♯h6 5798. ♯c3+ ♯a4 5799. ♯c6+ ♯a3 5800. ♯c7 ♯h2 5801. ♯f8 ♯h6 5802. ♯e7 ♯a4 5803. ♯c6+ ♯a3 5804. ♯c3+ ♯a4 5805. ♯h3 ♯a5 5806. ♯c3+ ♯b6 5807. ♯h8 ♯a5 5808. ♯f8 ♯d6 5809. ♯h8 ♯b6 5810. ♯f8 ♯d5 5811. ♯e8 ♯d6 5812. ♯f7 ♯a7 5813. ♯e7 ♯d8 5814. ♯e6 ♯d6+ 5815. ♯e5 ♯d2 5816. ♯e6 ♯a6 5817. ♯f8 ♯a7 5818. ♯g7+ ♯d7 5819. ♯f8 ♯d8 5820. ♯e8 ♯d7 5821. ♯c8 ♯g7 5822. ♯e8 ♯b7 5823. ♯d8 ♯g7 5824. ♯h8 ♯b6 5825. ♯d8+ ♯a6 5826. ♯d1 ♯b6 5827. ♯d6 ♯g1 5828. ♯e6 ♯g8 5829. ♯f7 ♯g1 5830. ♯e7 ♯g5 5831. ♯f7 ♯b7 5832. ♯h1+ ♯b6 5833. ♯h7 ♯c6 5834. ♯h1+ ♯d7 5835. ♯f6 ♯e8 5836. ♯g2 ♯g8 5837. ♯e6 ♯g7 5838. [♯xg7] ♯d8 5839. ♯f7 ♯c8 5840. ♯h6 ♯d8 5841. ♯g5+ ♯d7 5842. ♯c3 ♯c6 5843. ♯c5+ ♯b7 5844. ♯g1 ♯c6 5845. ♯e1 ♯b7 5846. ♯c3 ♯b8 5847. ♯c2 ♯a8 5848. ♯f5 ♯b7 5849. ♯g7 ♯b6 5850. ♯d7 ♯a6 5851. ♯c6+ ♯a5 5852. ♯a4+ ♯b6 5853. ♯d4+ ♯b7 5854. ♯g4 ♯b6 5855. ♯d4+ ♯a5 5856. ♯a4+ ♯b6 5857. ♯c6+ ♯a5 5858. ♯c7+ ♯a6 5859. ♯c6+ ♯a7 5860. ♯d7+ ♯a6 5861. ♯d3+ ♯b6 5862. ♯d7 ♯a5 5863. ♯f5+ ♯b6 5864. ♯f8 ♯b7 5865. ♯g7 ♯f7 5866. ♯f7 ♯b7 5867. ♯g6 ♯a8 5868. ♯f7 ♯b8 5869. ♯c2 ♯a8 5870. ♯c3 ♯b8 5871. ♯a3 ♯b7 5872. ♯c3 ♯a6 5873. ♯e1 ♯b7 5874. ♯g1 ♯c6 5875. ♯c5+ ♯b7 5876. ♯c3 ♯c6 5877. ♯e1 ♯d7 5878. ♯e3 ♯d8 5879. ♯g5+ ♯d7 5880. ♯h6 ♯d8 5881. ♯h4+ ♯c8 5882. ♯h6 ♯b7 5883. ♯g7 ♯c8 5884. ♯f8 ♯d8 5885. ♯f7 ♯d7 5886. ♯f6+ ♯e8 5887. ♯e6 ♯d8 5888. [♯d7+] 1-0

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