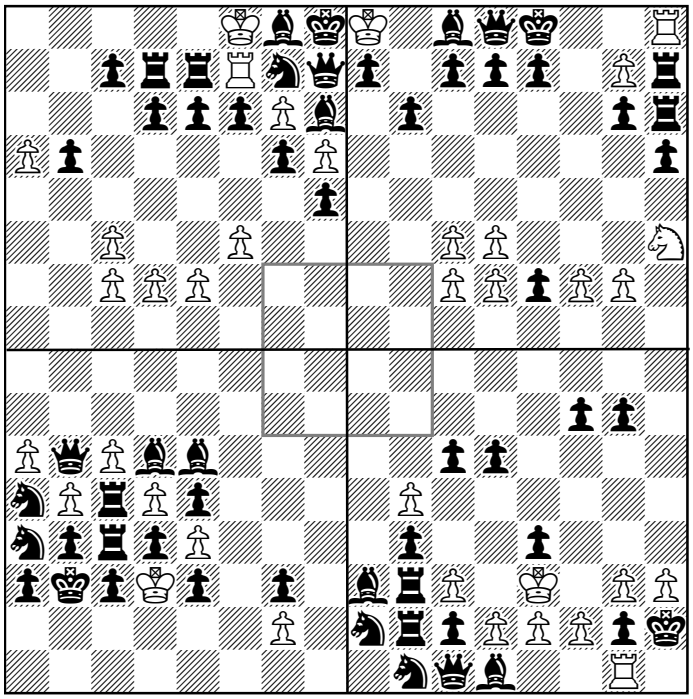
A retroanalytic combinatorial chess problem

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In this article I use problem **1** to introduce Komadokus[1,2], a family of combinatorial chess compositions inspired by Sudoku and Latin square theory. Instead of numerical symbols, here pieces are used as the elements to be arranged, following the usual Sudoku principle that no element may be repeated within the central ranks, files, and smaller subgrids. Their distinctive feature is that these arrangement constraints are integrated with the requirements of chess legality: the clues are not arbitrary, but arise from retroanalytic considerations imposed by the surrounding chess positions. Komadokus may be regarded as conditional orthodox retro problems, in which the constraints to be fulfilled are interdependent across multiple diagrams.

(1) Joaquim Crusats
Original

A (14+14) (14+13) **B**



C (11+15) (13+16) **D**

Add one each of wQ, wR, wB, and wS to each 2×2 grid, with no repetition in any rank or file of the central 4x4 grid

The reader is invited to actively solve the problem. The part to be filled with non-repeating units is the grey-framed box at the centre of the four diagrams, which consists of 16 squares divided into four 2×2 grids. A white queen, rook, bishop, and knight must be placed in each of the four 2×2 central grids so that the positions in all four diagrams are legal. Additionally, each rank and file within the 16-square central 4×4 grid must contain one piece of each type (QRBS).

The problem has a unique solution, provided that all four diagrams (A–D) are legal. A chain of consecutive retroanalytical deductions, each one narrowing the range of possibilities, forms the basis of the solution procedure. Some of the diagrams contain particularly concise information, and recognizing and exploiting these positions is essential to reducing the number of possible cases. The problem has been designed with a try and a solution in which the positions of two pieces could be interchanged in all four diagrams, were it not for a thematic illegality in one of them.

I hope you will find this unusual problem both challenging and rewarding. A detailed solution will appear in the next issue of the bulletin. Readers who wish to explore the solution further before then are welcome to share their findings, comments or remarks at sepa.problemas@gmail.com.

[1] Etymological note. The term presented here, *Komadoku*, follows the pattern of *Sudoku*. The latter is an abbreviation of 数字は独身に限る (*sūji wa dokushin ni kagiru*), literally "the digits are limited to being single", referring to the rule that numbers must not be repeated. The first element, 数 (*sū*), comes from 数字 (*sūji*, "numbers"), while *doku* derives from 独身 (*dokushin*, "single" or "unmarried"). In *Komadoku*, the initial element 数 (*sū*) has been replaced by 駒 (*koma*), the Japanese word for a game piece, especially a *shōgi* piece and, more generally, a piece in board games. This substitution preserves the sound pattern of *Sudoku* while adapting the meaning to chess pieces. The term can be interpreted as a mixed-reading formation, combining the native Japanese *kun'yomi* reading *koma* of 駒 with the Sino-Japanese *on'yomi* reading *doku* inherited from *Sudoku*. Although this is not the most common pattern for Japanese compounds, such mixed-reading formations are not unprecedented, particularly in newly coined names. In this case, *koma* immediately suggests game pieces while preserving the connection with *Sudoku*.

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