Lominoes for G4GX

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Lominoes are L-shaped polyominoes of width one, they were named by Alan Schoen [1]. The lomino "$Li \times j$" can be obtained by taking a rectangle with i columns and j rows, and removing all but the bottom row and leftmost column (Figure 1). In order that the resulting piece be L-shaped we require $i \geq 2$ and $j \geq 2$. We consider **free** lominoes (which can be flipped over), so $Li \times j$ is the same as $Lj \times i$. For more information on lominoes in general, see Alan Schoen's article [1]. For details on the puzzle below and how it was created, see my G4G9 exchange document [3] which can be found on my web site [4].
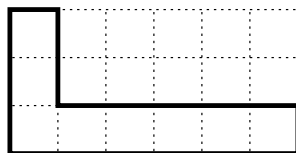

Figure 1: The lomino $L6 \times 3$, which has area 8.

Instructions:

Figures 2 and 3 contain all lominoes of area 8, 9, and 10. Cut these pieces out along the solid lines (to avoid cutting up this book, download a pdf copy of this document at [4]). Your challenge is to pack the eleven pieces into a 10×10 square. There are 5 solutions to this puzzle, not counting rotations and reflections. However, there is only one solution where all the pieces are face up—the lettering provides a clue to help you find this solution. No solution is given here, you can find one on my web site [4].

Using a subset of these 11 pieces, one can also make 17 rectangles of various sizes [2]: $9 \times j$ for $j = 10, 9, \ldots, 3$, 10×8, 11×6, 11×5, 11×4, 12×7, 12×6, 13×7, 13×5, and 15×6. For these challenges, turning over pieces is allowed, and will be necessary in most cases.

[1] Alan H. Schoen, A Potpourri of Polygonal and Polyhedral Puzzles, in *Homage to a Pied Puzzler*, edited by Ed Pegg, Jr, Alan H. Schoen and Tom Rodgers, A K Peters, 2009.

[2] Ishino Keiichiro, Puzzle Will Be Played, Lomino100 puzzle
http://puzzlewillbeplayed.com/1010/Lomino100/

[3] George Bell, Lominoes for G4G9, G4G9 exchange book.

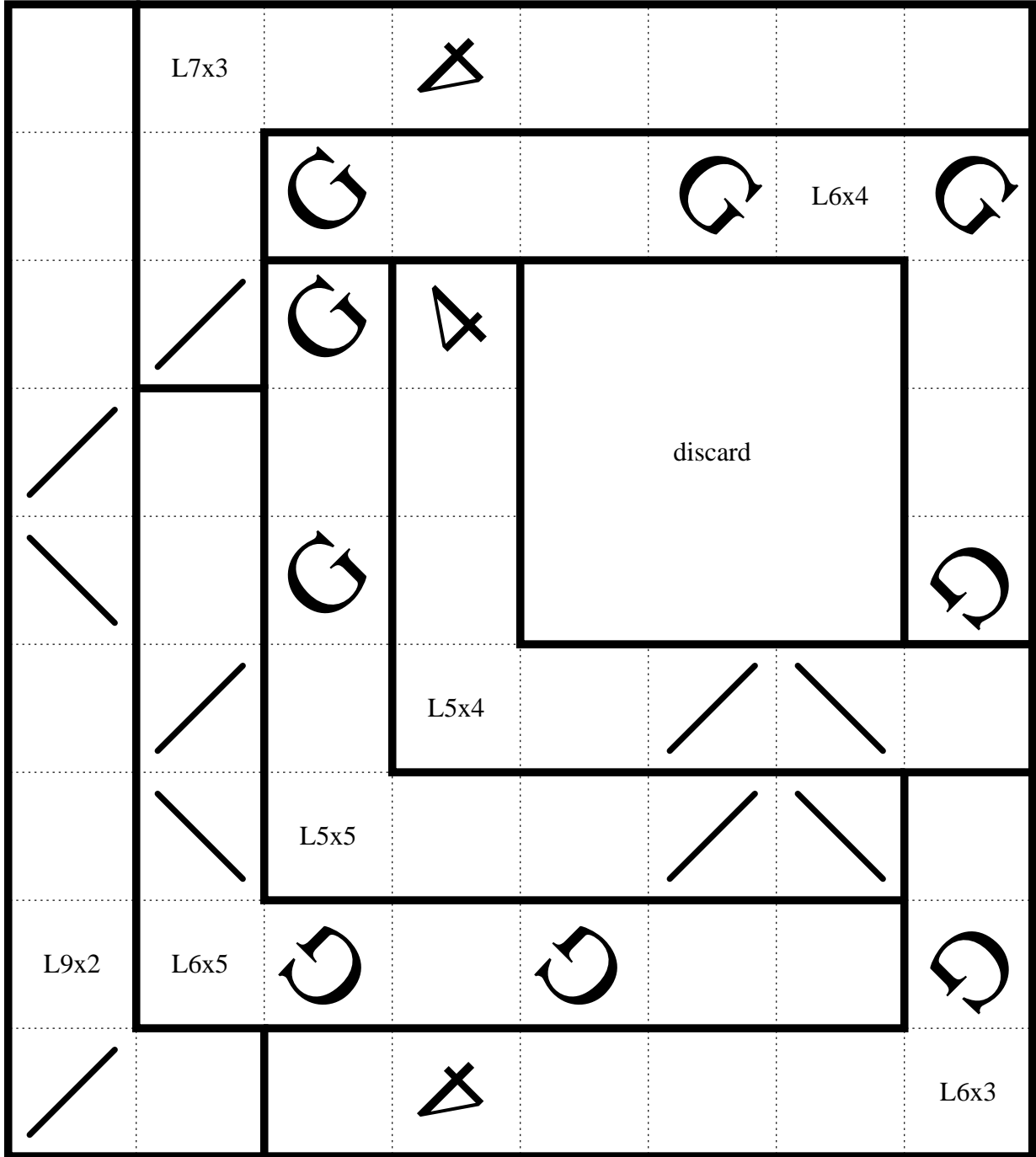[4] http://home.comcast.net/∼gibell/puzzles/
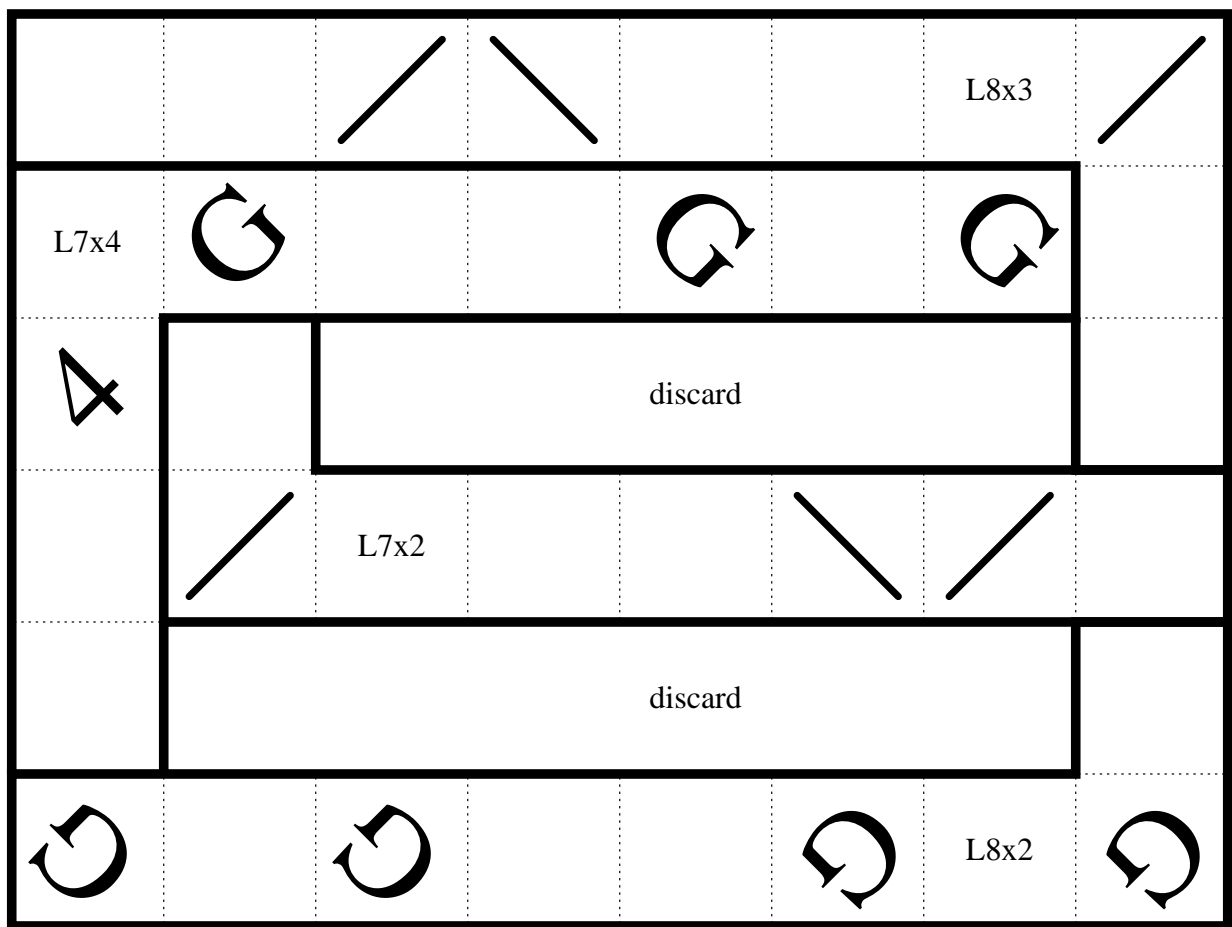
Figure 2: The first 7 lominoes for the puzzle task.

Figure 3: The final 4 lominoes for the puzzle task.