

1 | Fifteen Square Puzzle

From the definition of the problem, we have the state (A, B) :

- A is a list $(a_1 \dots a_{15})$ with all the values skipping the empty square
- B is a tuple (X, Y) containing the coordinates of the empty square

We also define "out of order" as pairs of not-necessarily-continuous values that are not strictly increasing, and "parity" as $\text{mod } 2$ of the number of out-of-order pairs plus the row number of the empty square.

1.1 | Defining Transitions