

Dear *calica*,

*Thank you so much for being an amazing person this year! We are grateful to have you in the party and now we are thrilled to give you a small gift of appreciation! We heard you love a geometrical puzzle, d'oh of course! And cats!! Who doesn't love cats?! So here it is, a present for you that might be far from perfect, a present that was so fun to construct, a present that we wish sparks you joy too!*

*Merry Christmas and Happy New Year!*

*– Your Santa*



# cartological cats



You are given several sets of four identical-shaped pieces each. You must place those pieces into the grid whose possible slots are already given. The pieces can be rotated but cannot be mirrored. It is your task to determine which piece goes where so the grid becomes a valid puzzle with a single solution.

The goal of the puzzle itself is to draw a single snake-like loop by shading some cells without touching itself. In other words:

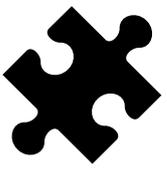
- If a cell is shaded, then exactly two of its neighboring cells are shaded.
- All shaded cells must be connected.
- There is exactly one connected component of unshaded cells inside the loop.

Note that each piece has some numbers in it. The numbers are your clues. How the clues act strictly differs from a piece to another piece in the same set. It is also your task to determine which piece uses which rule. The four rules are:

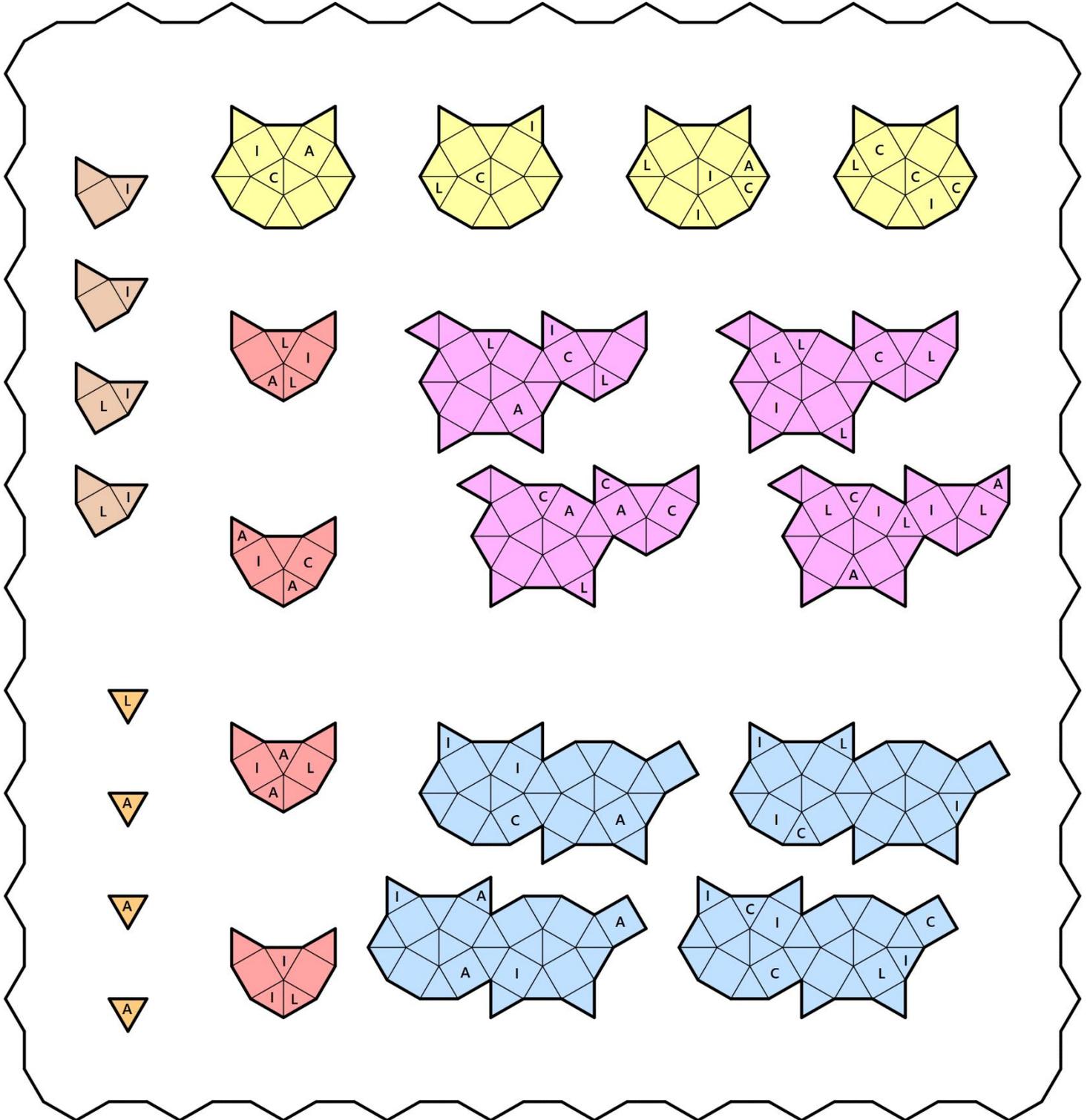
1. The clues cannot be shaded and tell how many of its neighboring cells are shaded.
2. The clues cannot be shaded and tell how many of its corners are touching the loop.
3. Odd clues must be shaded, even clues must be unshaded.
4. Even clues must be shaded, odd clues must be unshaded.

Good luck and happy solving!

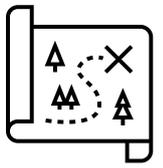
*P.S. Oops, we think we forgot to mention that each number has been replaced by a letter. Different letters refer to different numbers. And yes, it is again your task to determine which letter represents which number.*



# The Pieces



# The Grid



(also available at <https://bit.ly/cartological-cats> with answer check)

