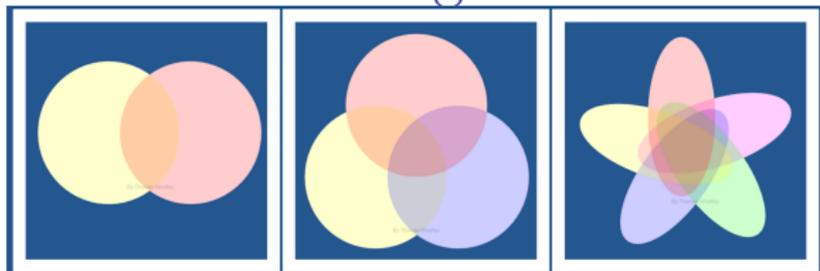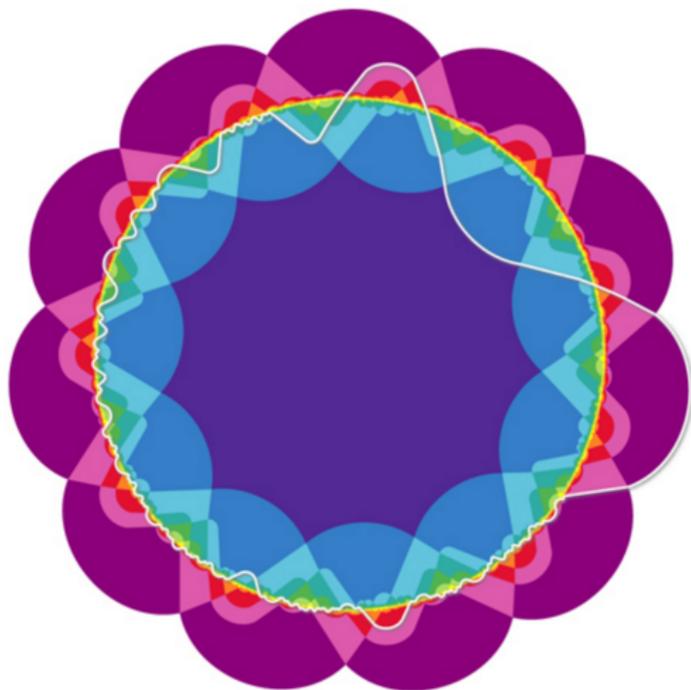# A puzzler about Venn diagrams

- ▶ The 2-set diagram above has 2-fold rotation symmetry: rotate it through a half circle and it remains the same
- ▶ The 3-set diagram has 3-fold rotation symmetry: rotate it through one third of a circle, or two thirds of a circle, and it remains the same
- ▶ The 5-set diagram has 5-fold rotation symmetry.

Question: Is there a drawing of a 4-set Venn diagram that has 4-fold rotation symmetry?

Answer: No! There can only be a drawing of an N-set Venn diagram that has N-fold rotation symmetry *if N is a prime number*

A symmetric 11-set Venn diagram

Recently discovered, see
`https://www.newscientist.com/article/`
`dn22159-logic-blooms-with-new-11-set-venn-diagram/`