

# Cosmic Crystallography

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## Question

Does geometry really exist?

## Question

In what geometry do we exist?

### Question

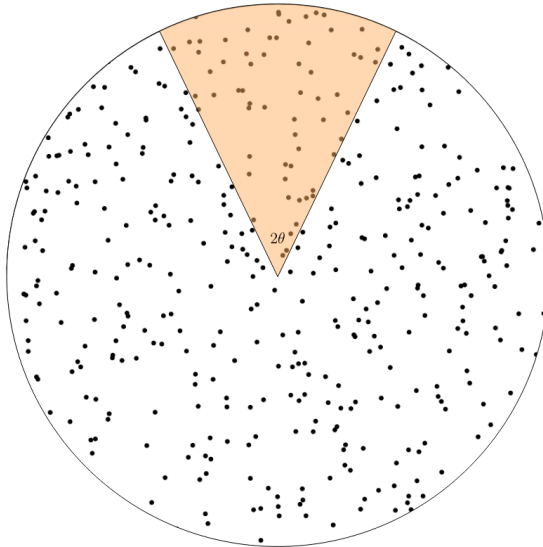
In what geometry do we exist?

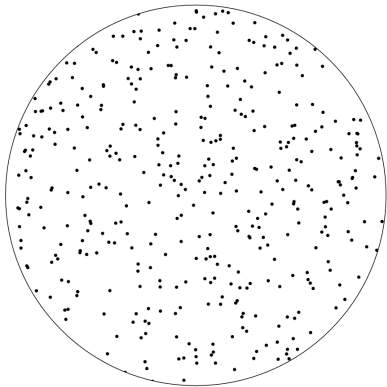
### Answer

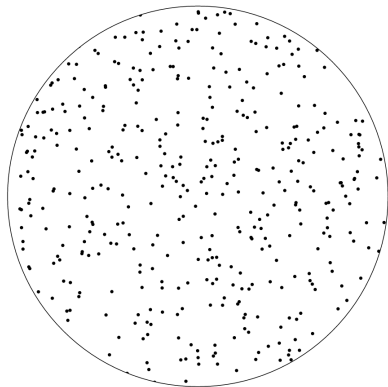
Who knows? [1]

# POV: You are Flat Stanley







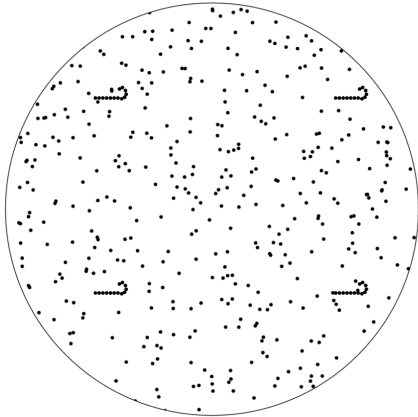


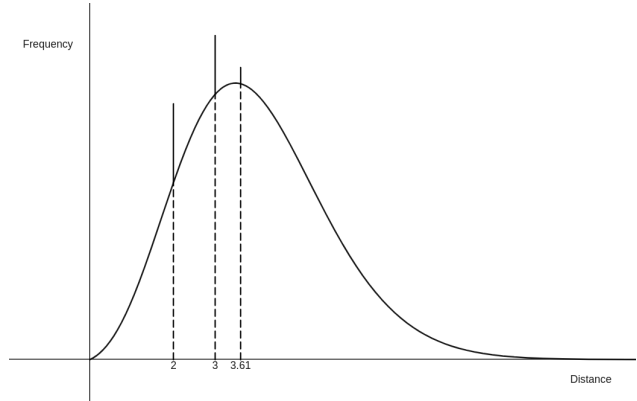
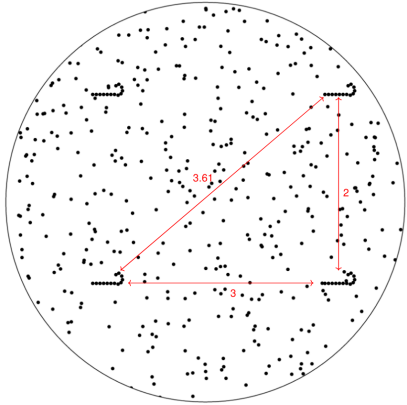
## Pair Separation Histogram

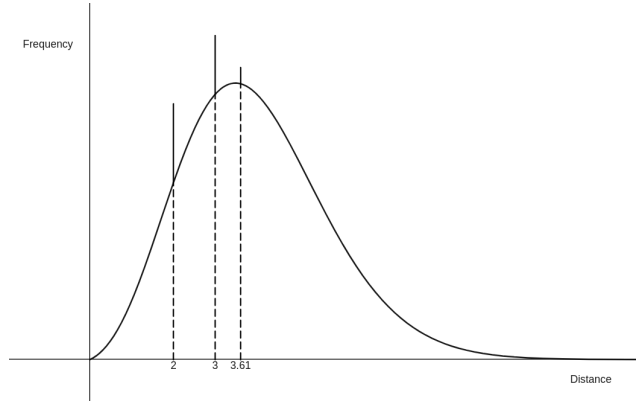
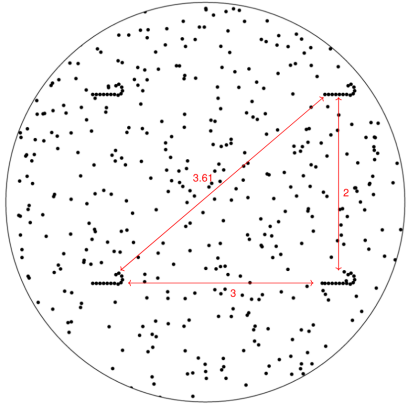
- 1 Collect  $n$  points  $p_i = (x_i, y_i)$
- 2 Compute  $d(p_1, p_2)$  for all pairs of points
- 3 Plot frequency vs. distance

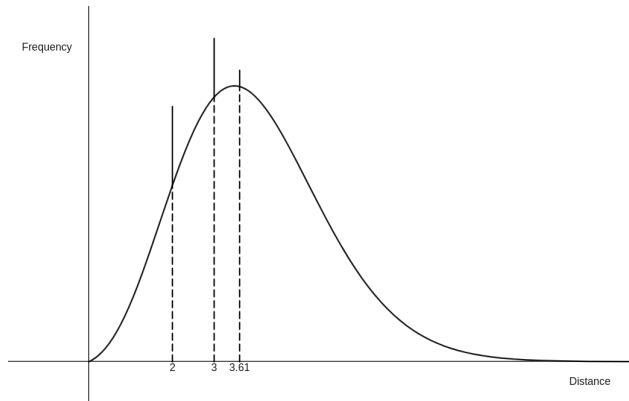
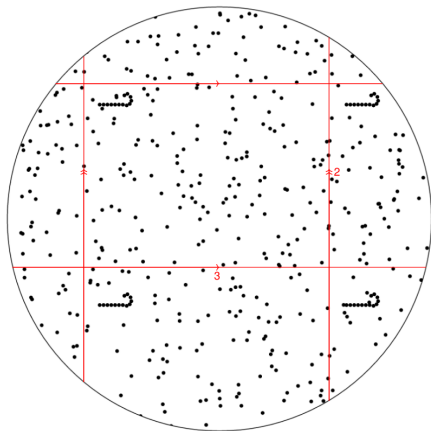


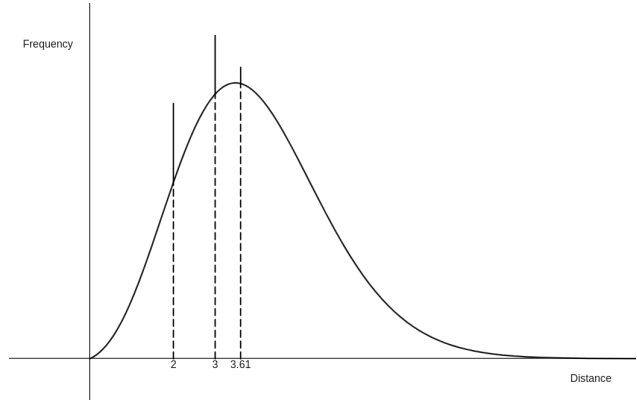
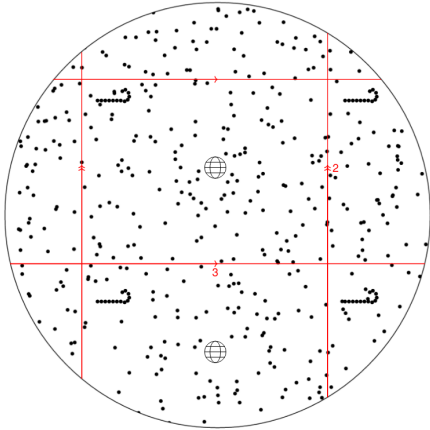


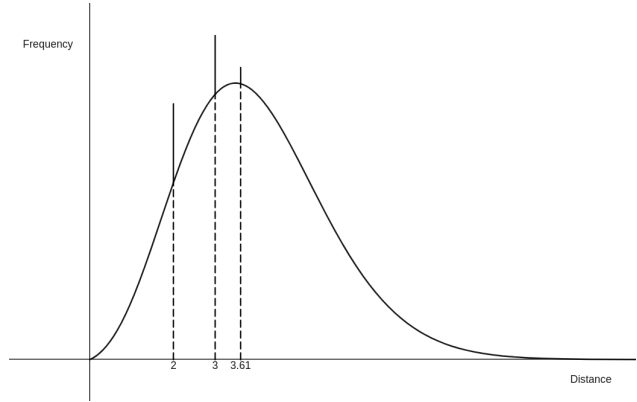
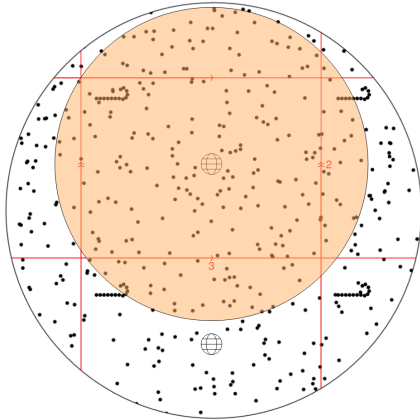












# References



M. P. Hitchman, *Geometry with an Introduction to Cosmic Topology*, 2018.