THE MYSTIC

Ramon Llull

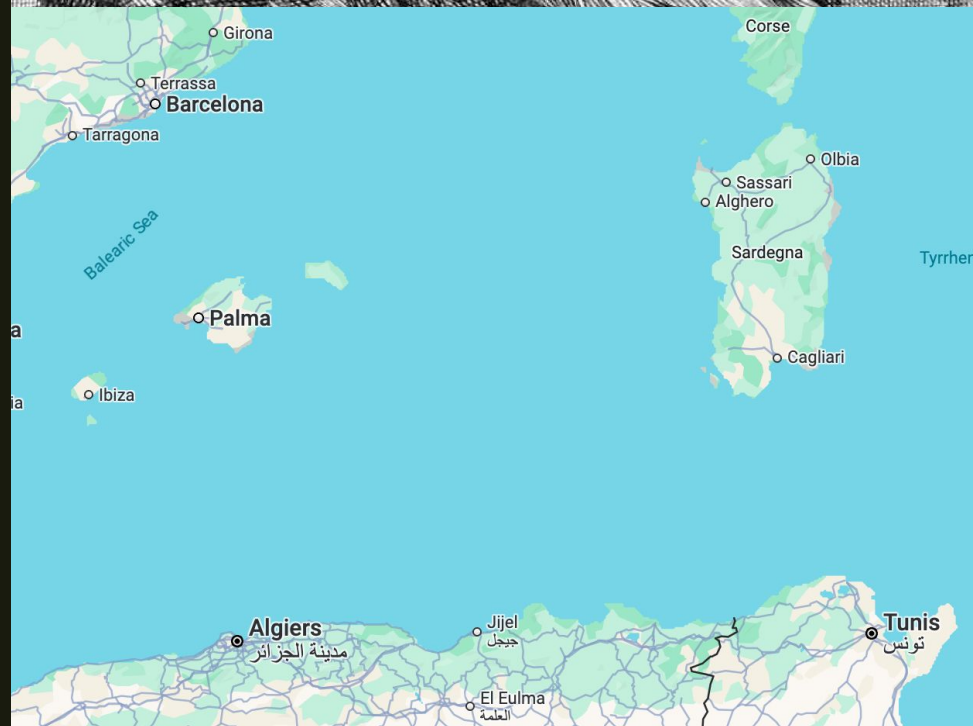
Agenda

- Ramon Llull
- Electoral systems
  - *How Natana was elected abbess*
  - *Method for the election of persons*
  - *The Art of Elections*
- Problems within the systems
- Llull today

If you have a question at any time, just ask.

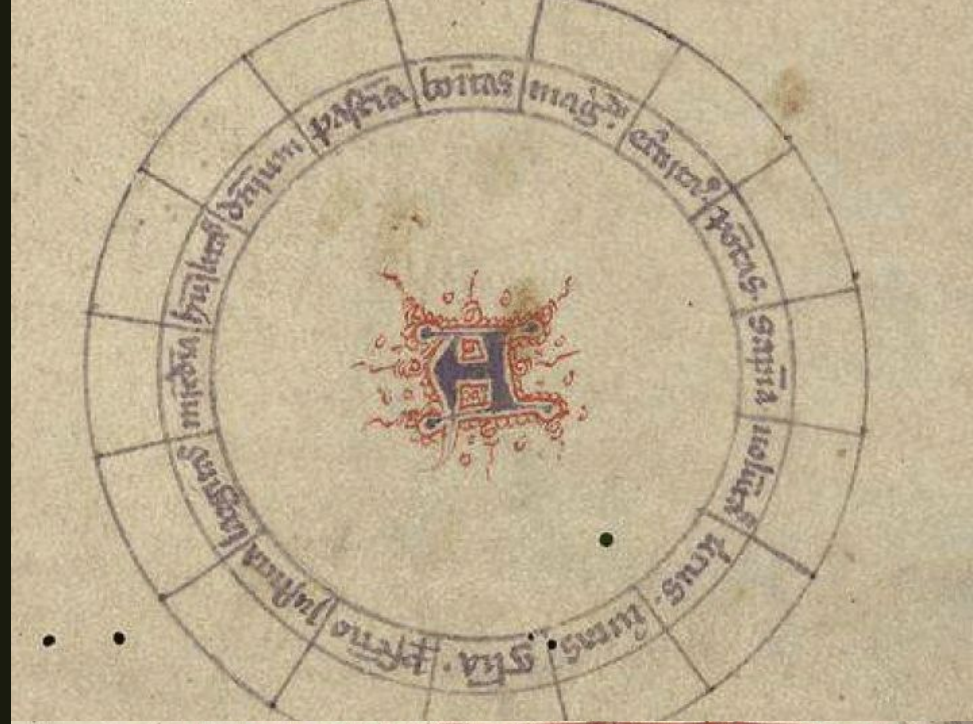
Ramon Llull (1232–1316)

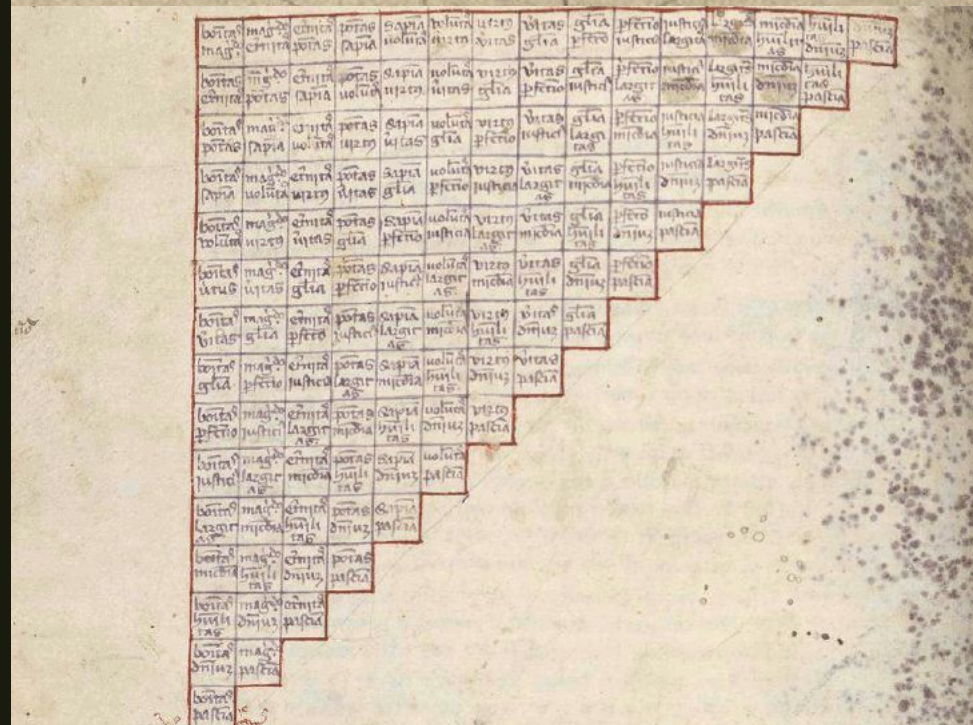
- > 200 written works in Catalan, Arabic, and Latin
- Three vows:
  - *to accept dying for Christ in converting the unbelievers to His service*
  - *to write a book, the best in the world, against unbelievers*
  - *to procure the establishment of monasteries, where various languages could be learned.*



Ars magna - The Great Art

- logical system to discover the truth
- universal religious law overcome the differences between Christianity, Judaism and Islam
- Ars as an instrument for an intercultural and interreligious dialogue





How Natana was elected abbess

- Chapter in the book: Libre d'Evast e d'Aloma e de Blanquerna
- Two stage system
- Number of pairs:

$$\frac{n(n-1)}{2}$$

- Example:

$$\frac{9(9-1)}{2} = 36$$

How Natana was elected abbess

- What about ties
  - *Two or more sisters win the same number of two-way contests vote again*
  - *Same number of votes within a contest odd number*
- Ambiguous: “and let her be elected who has the most votes in most cells”

“totaling most votes” VS
“winning most comparisons.

Method for the election of persons

- What about ties:
- Same number of votes within a contest odd number
  - *Both receive a point, both win*
  - *Both 0, both 0.5, both 1 point – what‘s the difference?*
- Two or more sisters win the same number of two-way contests vote again
  - *Drawing of a lot*
- Rankings of the candidates

Time-consuming: election of Natana: two - three hours with only 9 candidates

The Art of Elections

- Knockout procedure
- candidates enter, single file (A, B, C, D, …, K)
- Last one standing
- Problem: no ranking
- Manipulation (agenda setting): advantageous to be last (K)

Problems within the systems - Rational choice theory

- 3 Axioms:
- 1. completeness
  - xRy or yRx or xIy for all $x, y \in X$
- 2. reflexivity
  - xRx for all $x \in X$
- 3. transitivity
  - xRy and yRz, then xRz for all $x, y, z \in X$
  - yRx and zRy, then zRx for all $x, y, z \in X$
  - xIy and yIz, then xIz for all $x, y, z \in X$

Llull today

- Llull's 'great art' resembles a modern computer language forefather of computer science.
- 0/1 binary system

https://www.youtube.com/watch?v=-dbiEY4ClY0

THANK YOU FOR LISTENING

Questions?