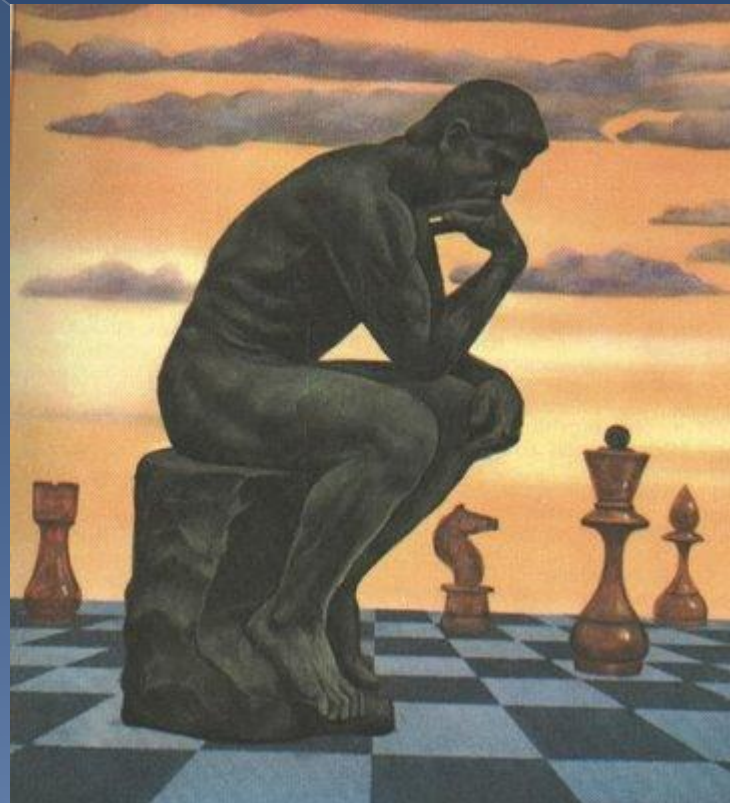
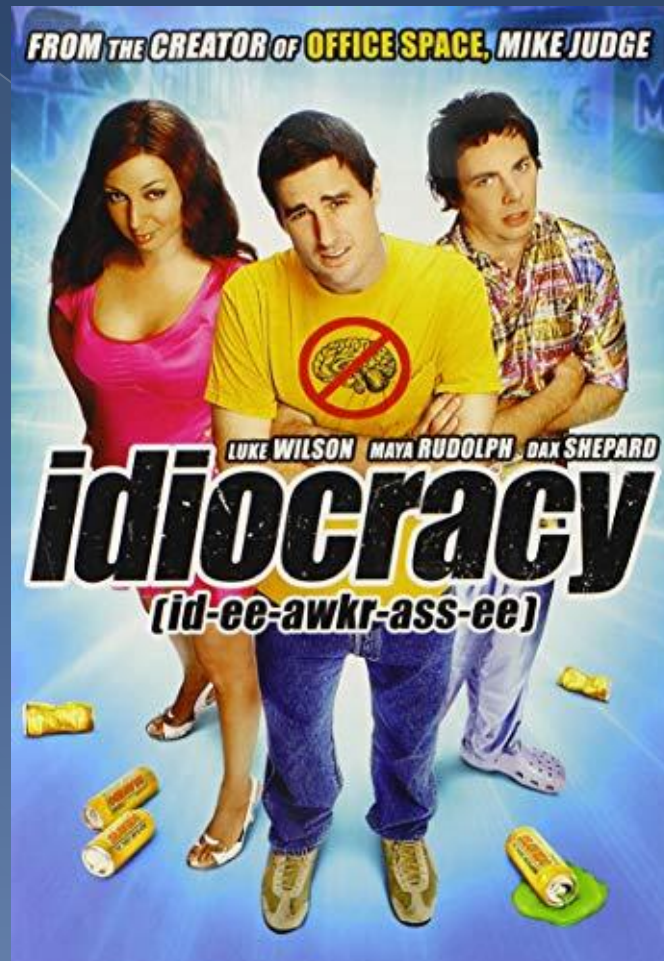


# THE EDUCATIONAL POWER OF CHESS



LEONTXO GARCÍA

# DEMOCRACY-IDIOCRACY



# Why the world needs chess at the 21st century?

- Sloterdijk: “The current society does not motivate you to think”.

# 120 YEARS OF WORLDWIDE RESEARCH

## EDUCATIONAL CHESS STUDENTS

Better academic performance

Develop greater intelligence  
(including emotional)

## VERY SIGNIFICANT IMPROVEMENTS

**Mathematics** (Trier,  
Aarhus, Barcelona)

**Reading** (Margulies,  
Barcelona)

# GARDNER'S EIGHT INTELLIGENCES

1. LINGUISTIC
2. LOGICAL-MATHEMATICAL
3. SPATIAL
4. INTRAPERSONAL
5. INTERPERSONAL
6. MUSICAL (CHESS)
7. BODILY-KINESTHETIC (CHESS)
8. NATURALISTIC?



**CHESS**

- CHESS AND 21<sup>ST</sup> CENTURY:
- INTERNET
  
- -FLEXIBLE THINKING
- -Permanent adaptation to a reality that changes every day
- CRITICAL THINKING
- -DECISION-MAKING

# VERY STRONG CONNECTION: SCHOLASTIC-COMPETITION

- 100% STUDENTS: BASIC KNOWLEDGE
  - DRAMATIC INCREASE (3%):
- -EXTRA-CURRICULAR CHESS CLASSES
- -CLUB MEMBERS
- -FEDERATION REGISTERED PLAYERS
- -EASIER SPONSORSHIP AND SUPPORT
- -...97%

# A VERY EFFICIENT APPROACH

- TRANSVERSAL: Emotional Intelligence
  - INTERDISCIPLINARY
- -Maths
- -Language/Reading
- -History
- -English (Foreign Language)
- -...



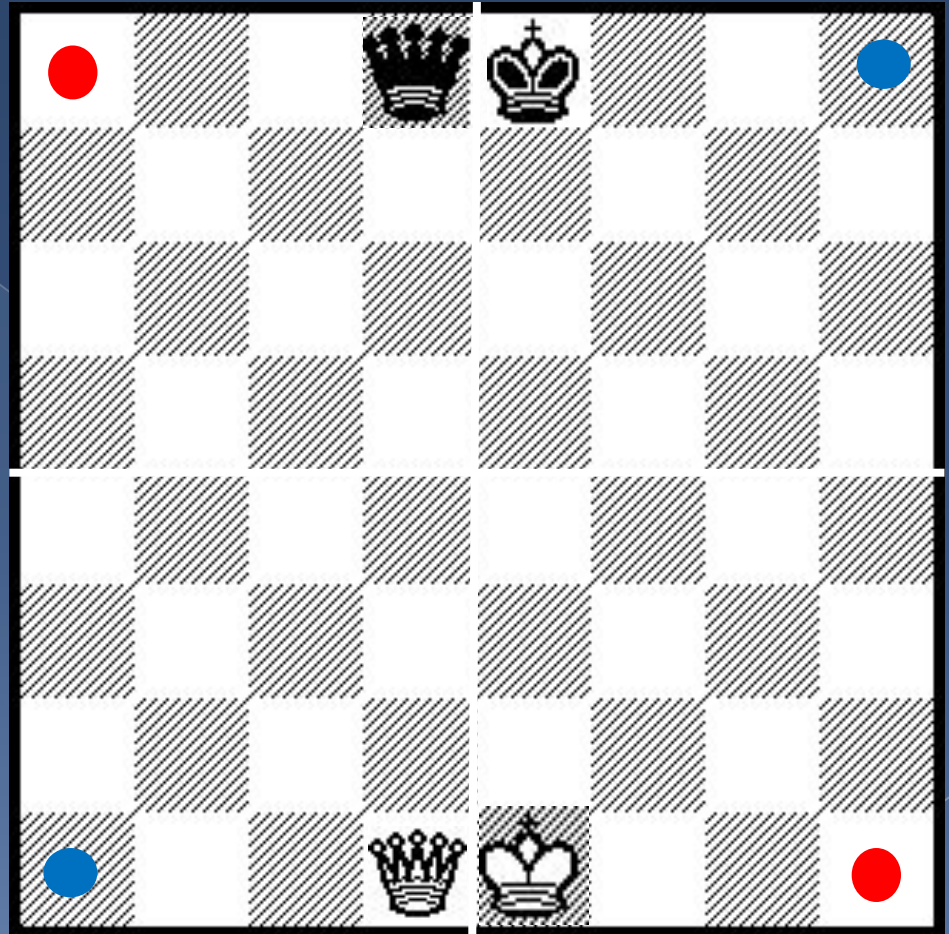
# Is the chess board simmetrical?

Depending on the  
axis

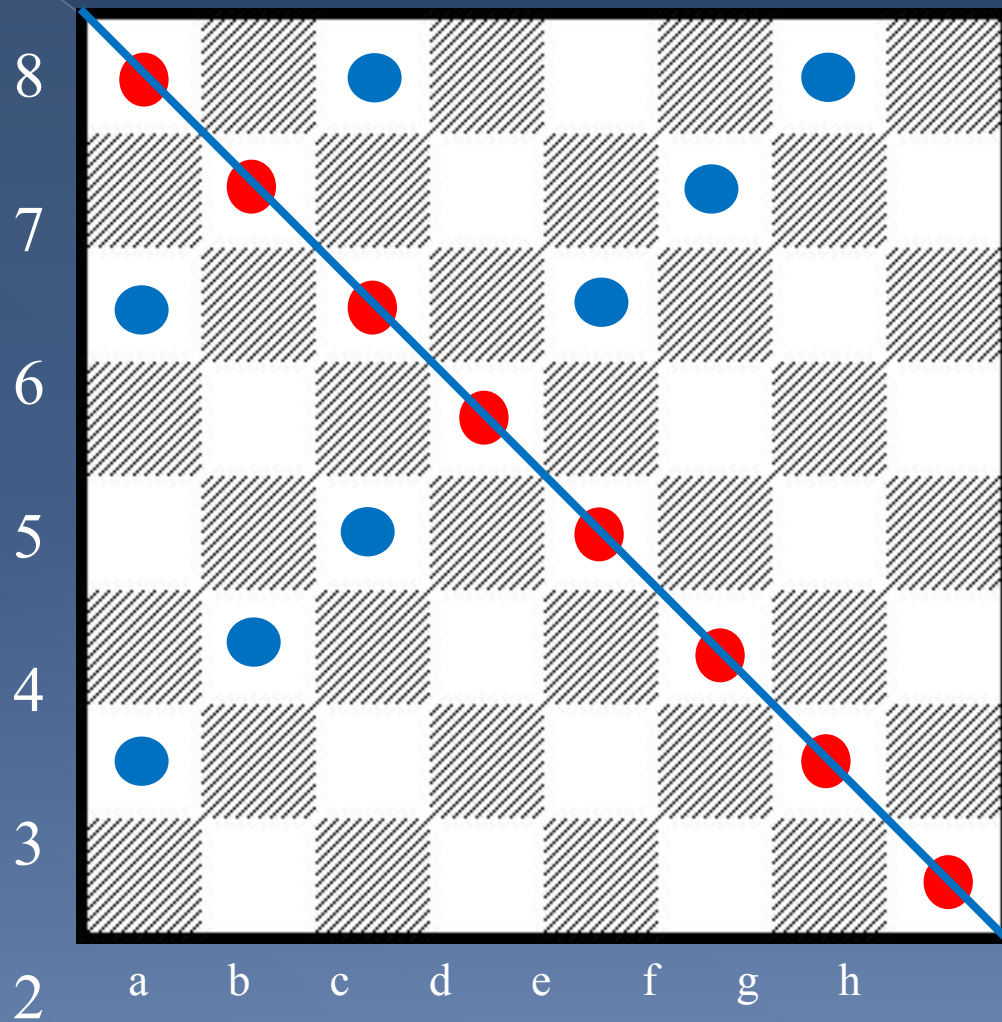
Vertical axis:  
**NO**

Horizontal axis: **NO**

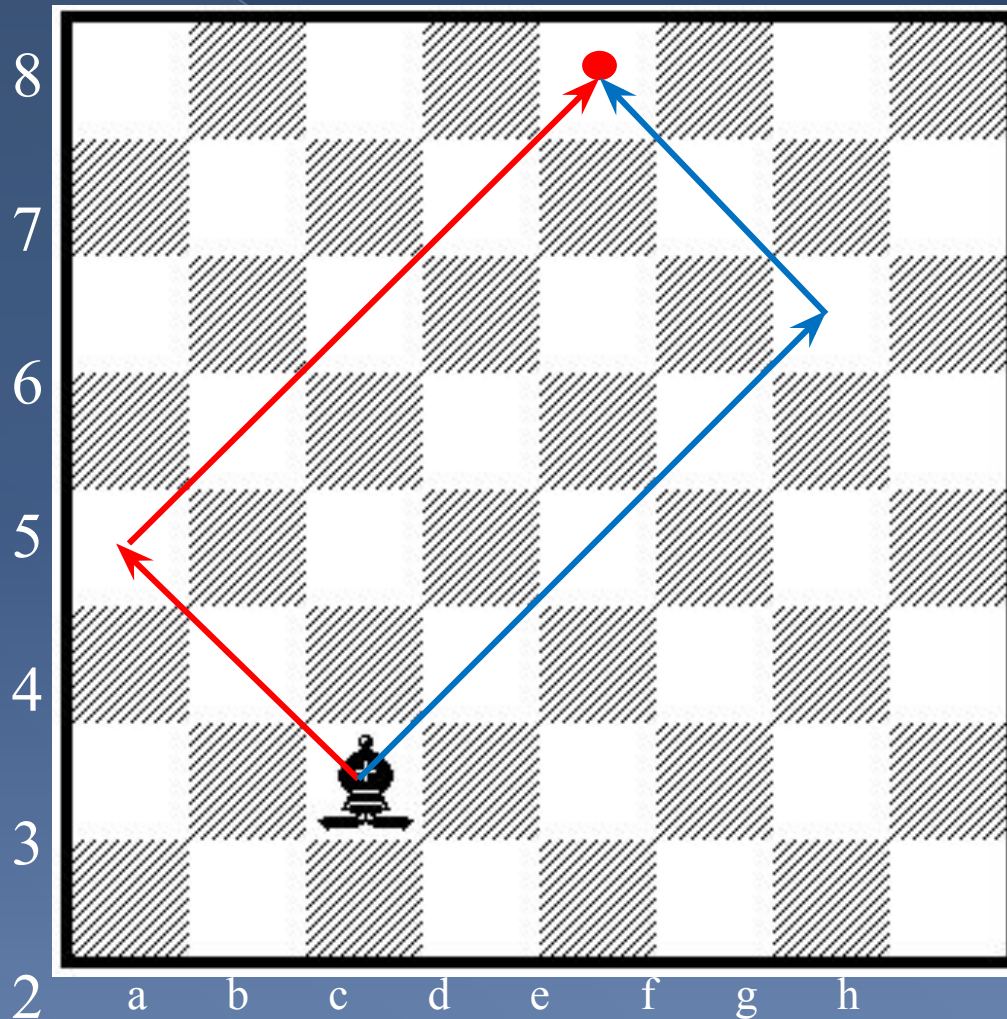
Different color  
corners



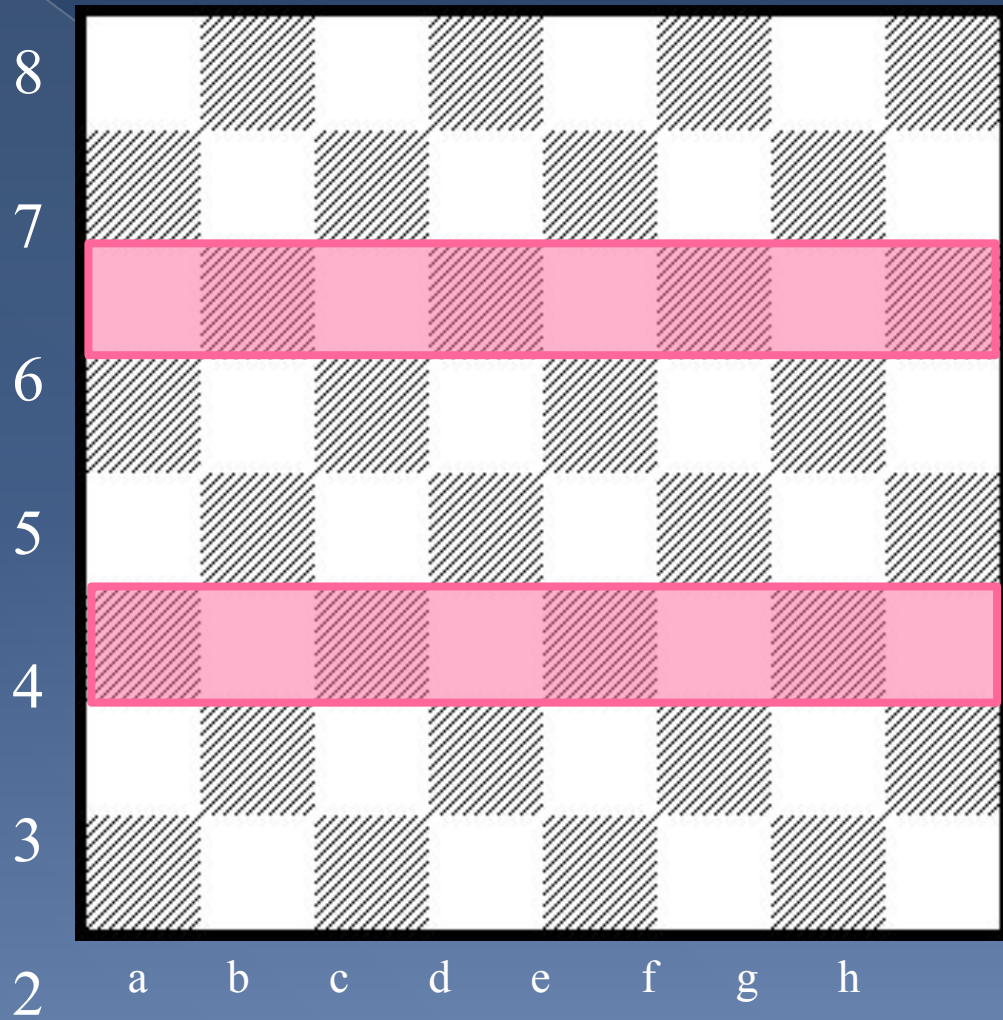
# DIAGONAL AXIS: YES!

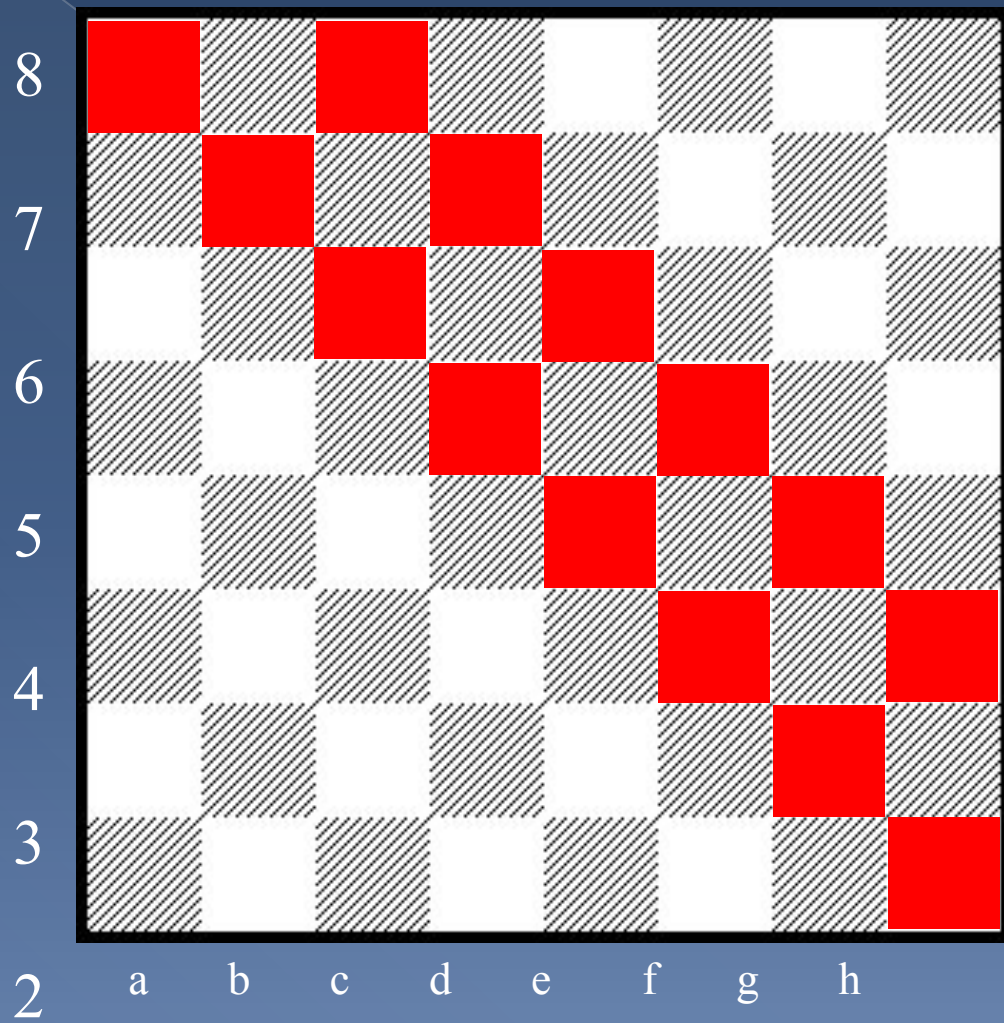


STUDENTS **ACCEPT** THIS IS **ALSO** A RECTANGLE



Although it is  
inclined!





¿How many squares are on the chess board?

The first answer is **64**

But, is the whole board a square?

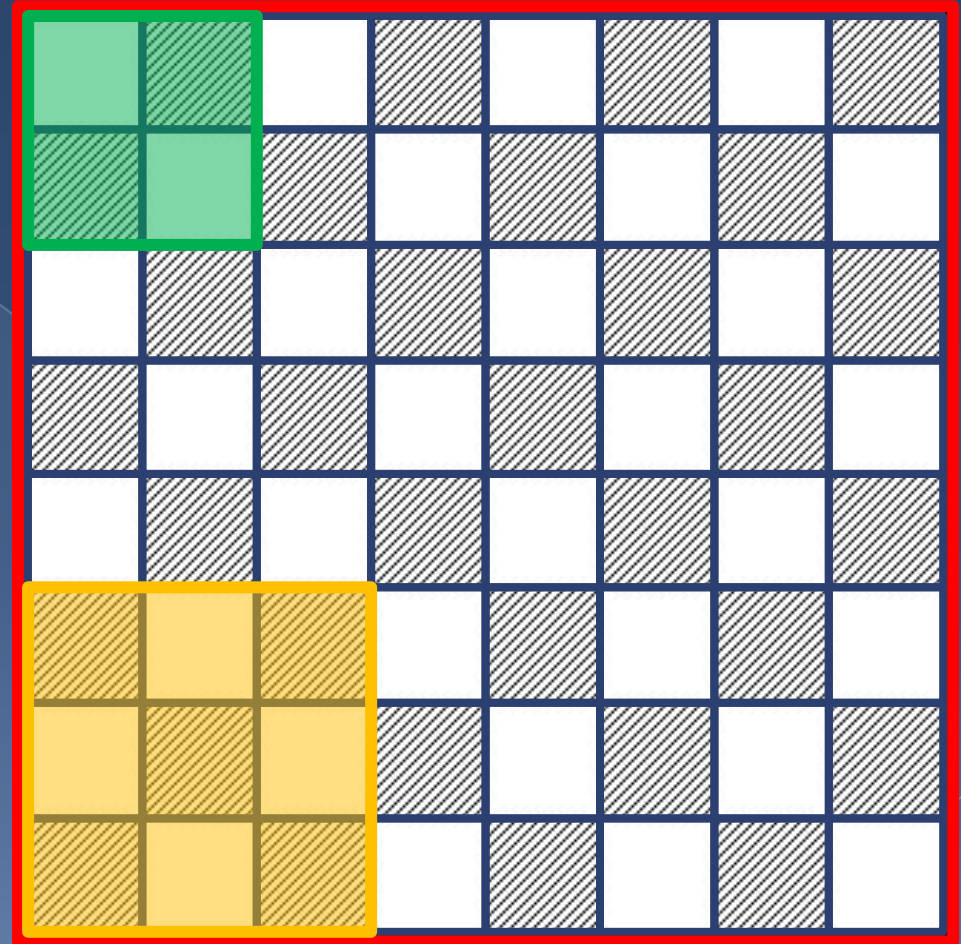
... then we get **65**

But there are many more...

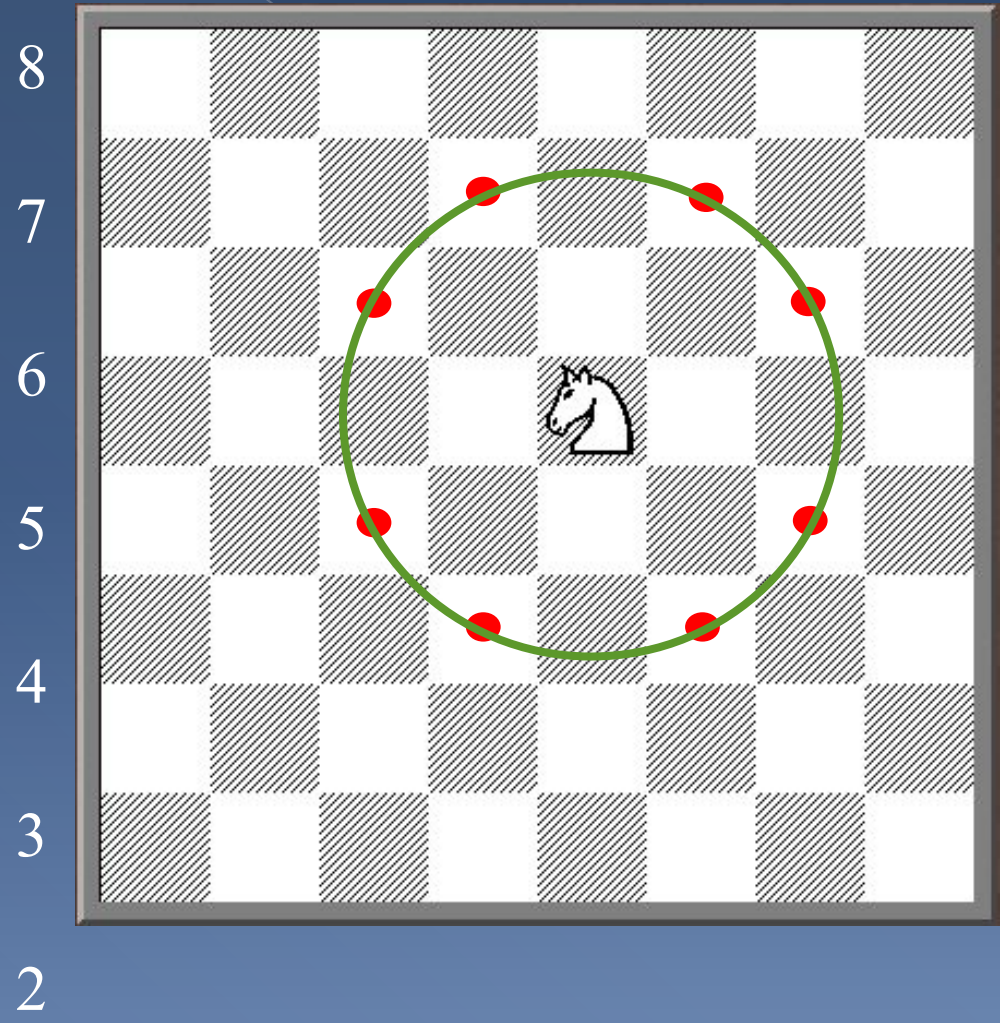
2x2, 3x3, 4x4, 5x5, 6x6, 7x7

...indeed many more!

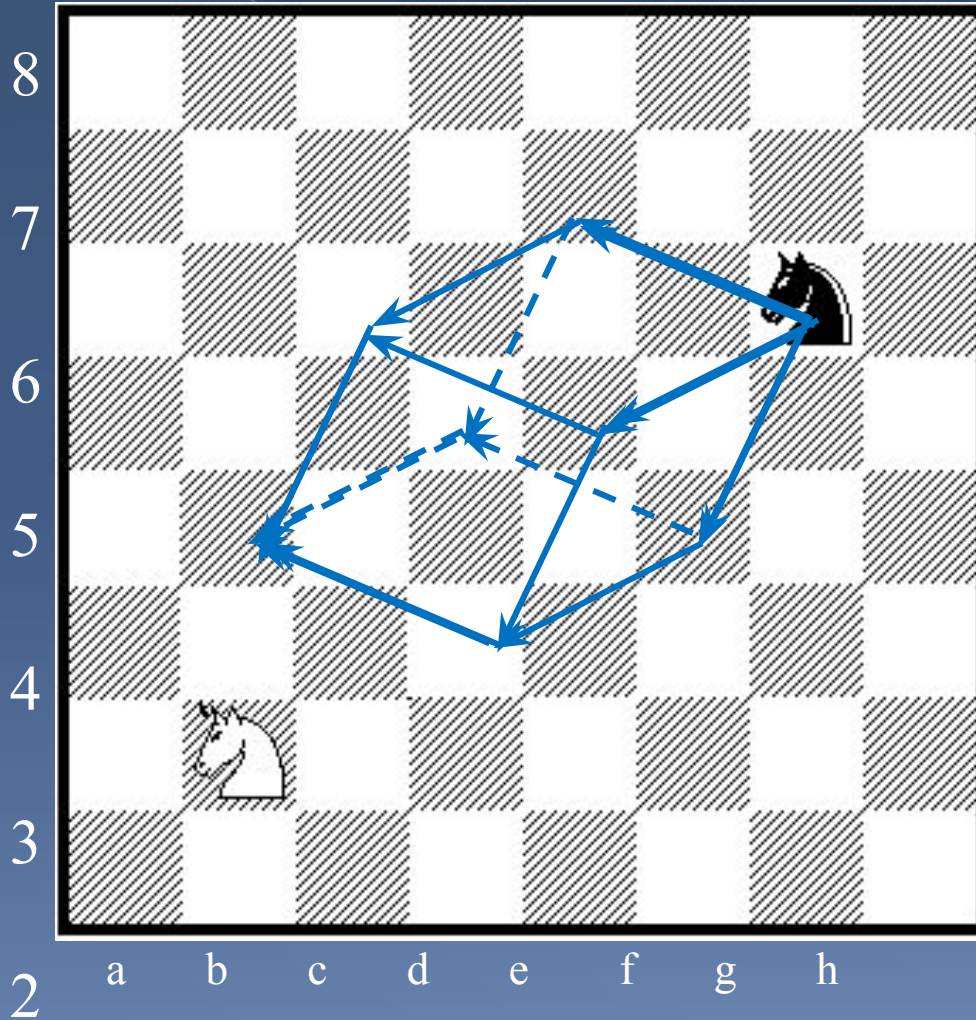
**TOTAL: 204**



# Circunferences on a square??



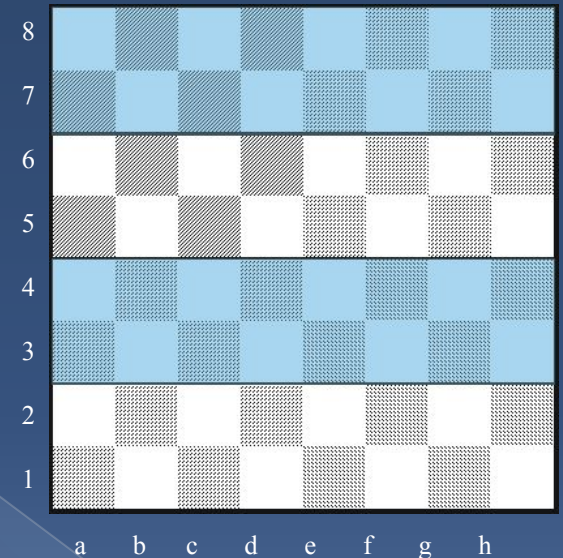
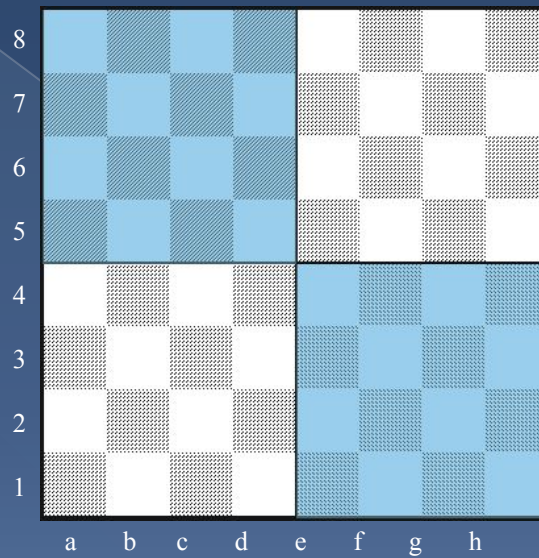
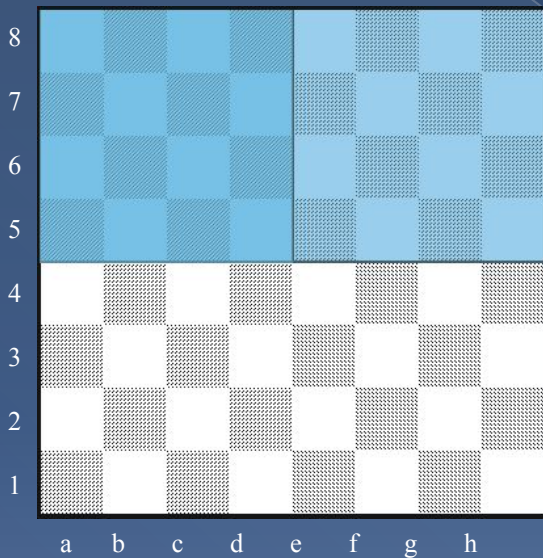
# Three dimensions geometry??





# Continuous

# Discontinuous



Aritmética emergente

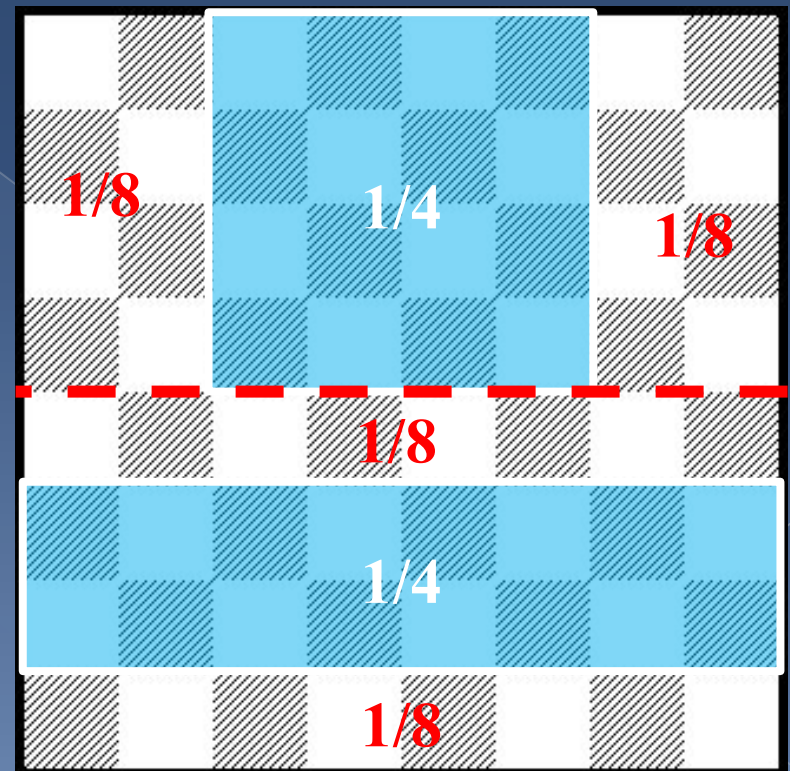
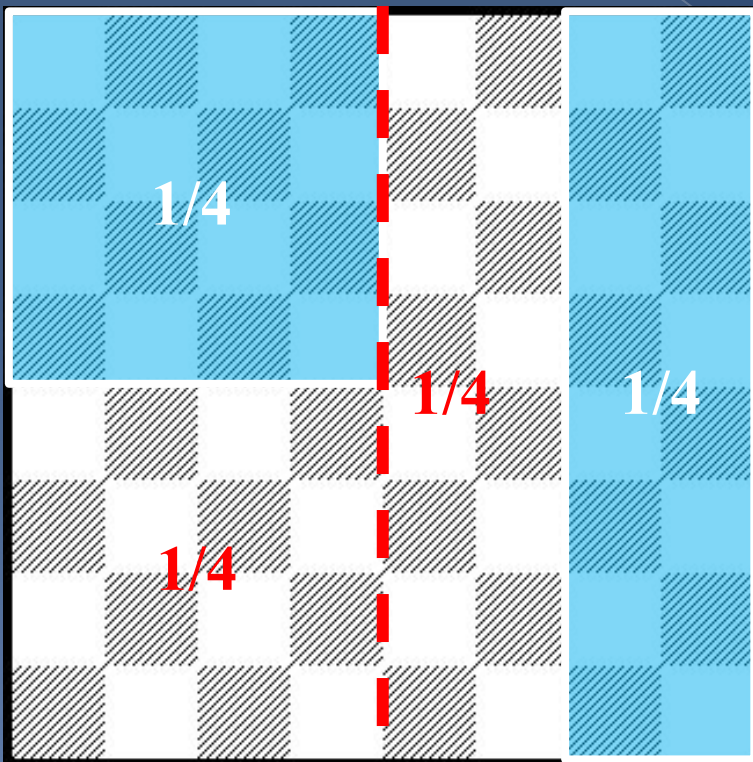
$$\frac{1/2}{2} = 1/4$$

$$1/4 + 1/4 = 2/4$$

$$1/4 = (4 \times 4) / 64 = (2 \times 8) / 64 = 16 / 64$$

$$2/4 = 32 / 64 = 1/2$$

## Problems with different quarters



# Chess and Arithmetic

⦿  $R + Q + N = 18$

⦿  $Q + 3P = 13$

⦿  $Q - R = 5$

⦿  $N + ? = 6$

⦿  $R = 5P$

⦿  $R = N + 2P$

⦿  $R = B + 2P$

⦿  $R = Q - R$

$$\text{Pawn} + \text{Rook} = \text{?}$$

$$\text{Knight} + \text{?} = 13$$



$$\text{Pawn} + \text{Pawn} + \text{Pawn} + \text{Pawn} + \text{Pawn}$$

$$\text{Knight} + \text{Pawn} + \text{Pawn}$$

$$\text{Bishop} + \text{Pawn} + \text{Pawn}$$



# THE REVOLUTIONARY PAWNS

◎ Philidor, 1726 – 1795



# Cold War, Hot Board.

- Match Fischer – Spassky, 1972, Iceland



# Remember-Remember



# Spanish Journal of Psychology, 2012/2016. Aciego, García and Betancort

Universidad de La Laguna,  
Tenerife, España.

✓ 170 chess players

✓ 60 football and basketball players

} Boys and girls,  
6 -16 years old

**Conclusion: Educational Chess students get  
better results on both, cognitive AND  
EMOTIONAL INTELLIGENCE**



# PRESCHOOL IS CRUCIAL

*“LEARNING BY PLAYING AND PLAYING BY  
LEARNING”*

KINDERGARTEN (3-5 YEARS OLD) IN URUGUAY,  
COLOMBIA, SPAIN AND OTHER COUNTRIES

CHESS FOR TEACHING VALUES



Pre-escolar

Talento















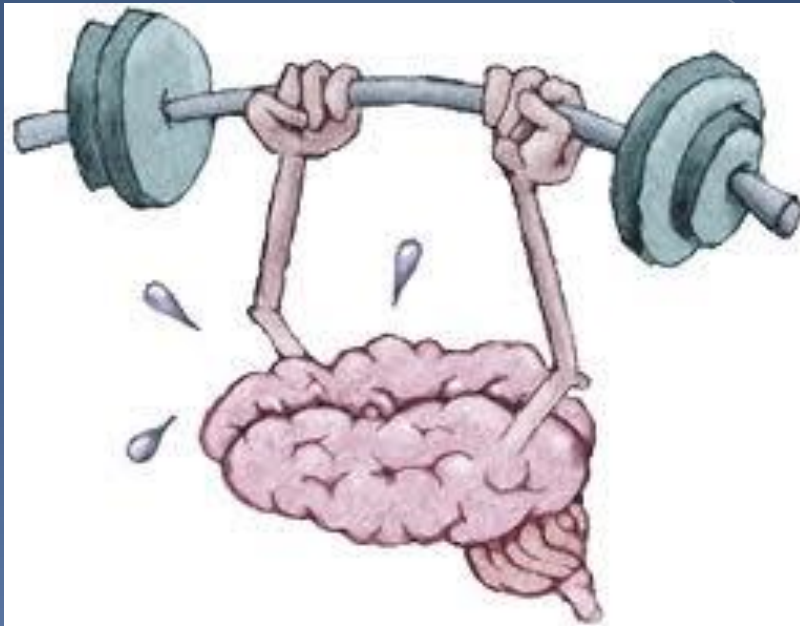
# OTHER SOCIAL USES

- ⦿ HYPERACTIV (ADHD)
- ⦿ AUTISM
- ⦿ ASPERGER SYNDROME
- ⦿ CHILDREN WITH CANCER
- ⦿ DOWN SYNDROM
- ⦿ BLIND/DEAF-MUTE/DISABLED

# OTHER SOCIAL USES

- ① UNEMPLOYED
- ① INDIGENTS
- ① SERIOUS MENTAL ILLNESS
- ① PRISONS
- ① REFORMATORIES (remand homes)
- ① DRUG ADDICTS REHABILITATION

# CHESS: THE BEST GYM FOR THE MIND



# CHESS vs. ALZHEIMER



 MEMORY

 CONCENTRATION

## **CONCLUSSION:**

**The frequent practice of chess slows brain ageing, and can prevent or delay Alzheimer's**

**Emma Pérez, director,  
European School, Madrid  
(chess in the curriculum since 1998):**

- “There is no other activity as powerful as chess in Preschool or Primary, because of the number of neuronal connections it produces”
- “Internet teaches all the rivers and lakes of the World, but chess teaches how to think”.

**HINDU PROVERB:**

**“ CHESS IS A SEA IN WHICH A  
GNAT MAY DRINK AND AN  
ELEPHANT MAY BATHE ”**

**leontxo@leontxo.com**