

## Els sona



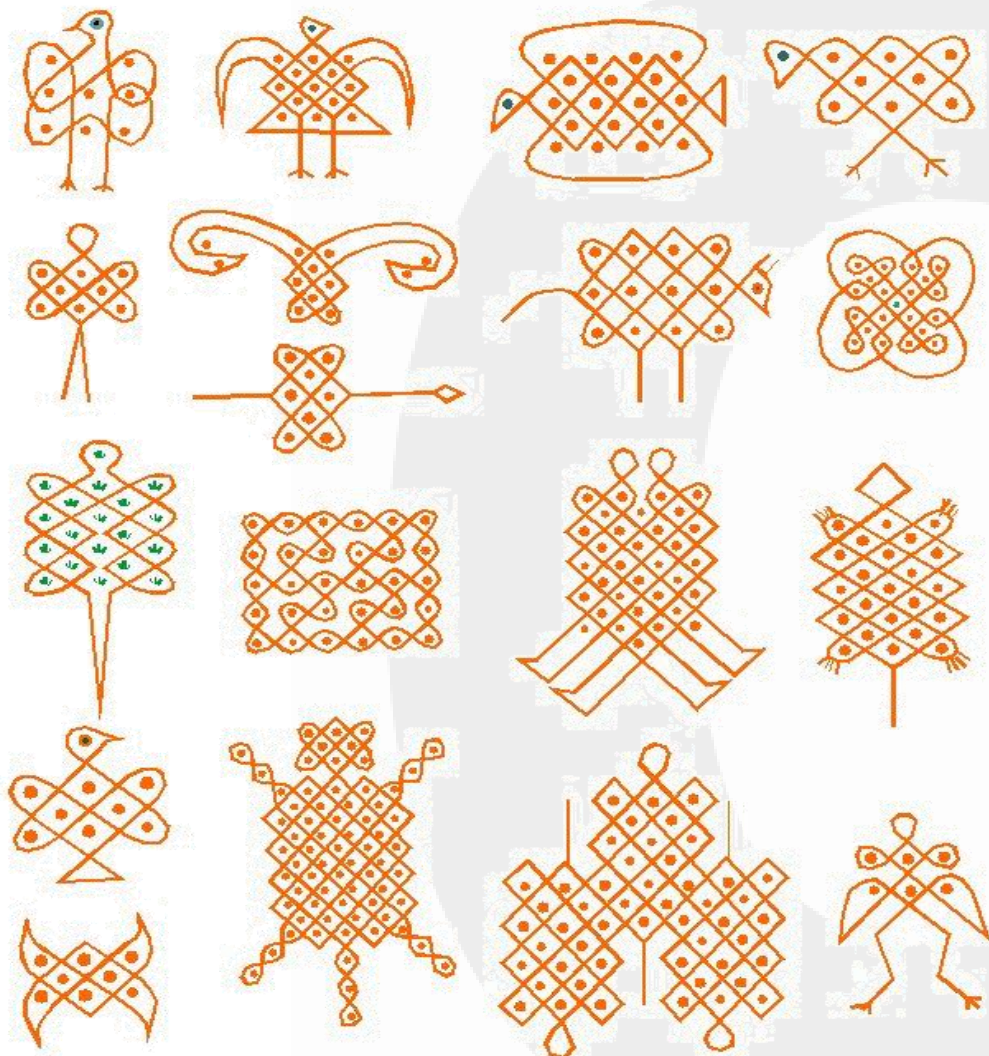
Generalitat de Catalunya

**Departament d'Ensenyament**

Centre de Recursos Específics de Suport  
a la Innovació i la Recerca Educativa

**cesire**

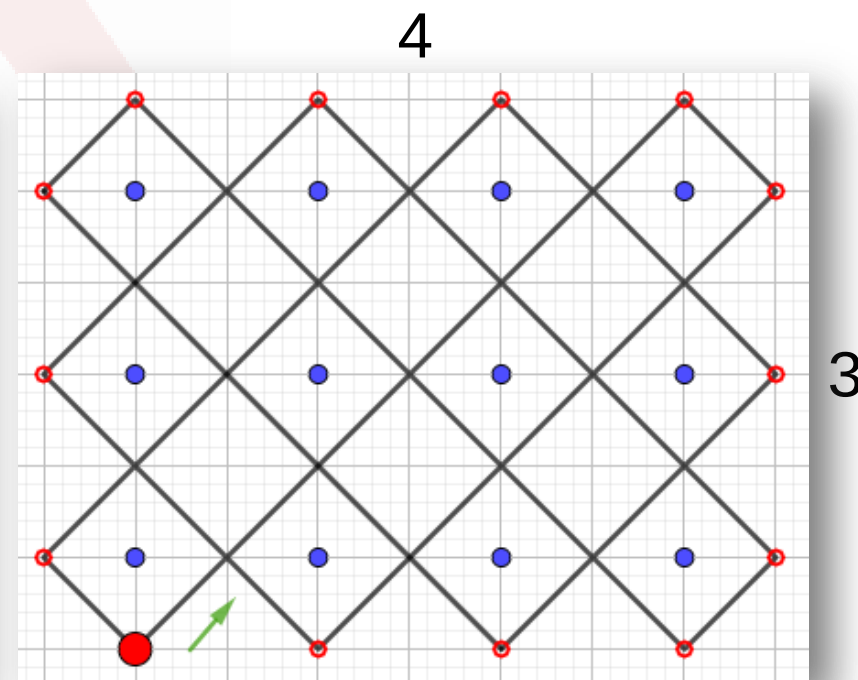
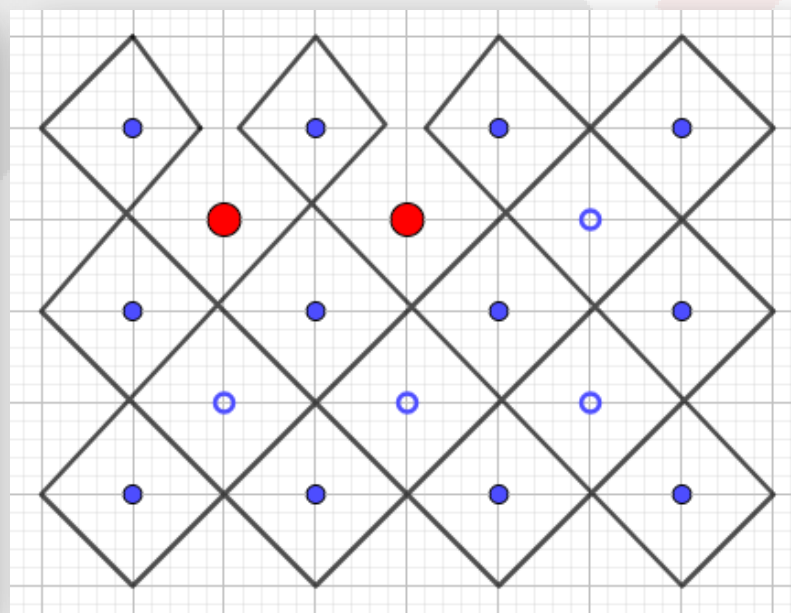
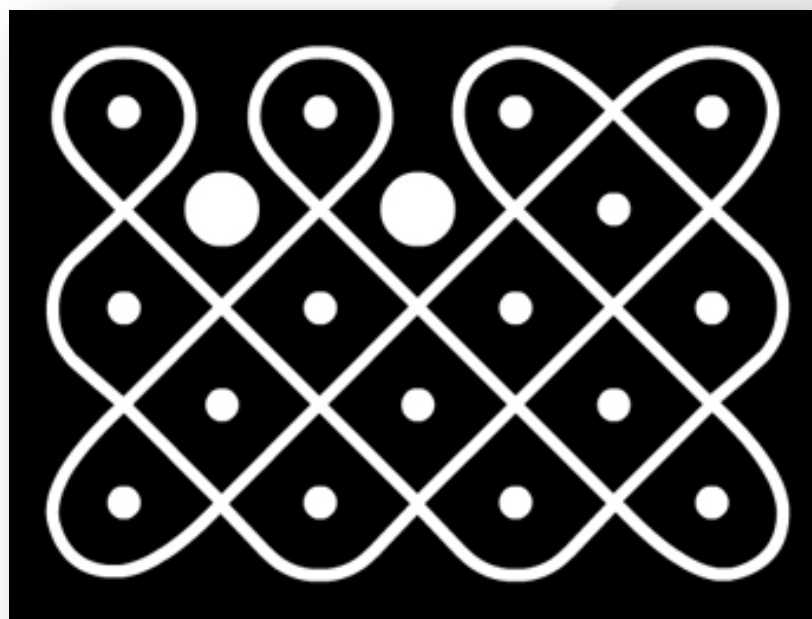
## Sona (plural) i lusona (singular)

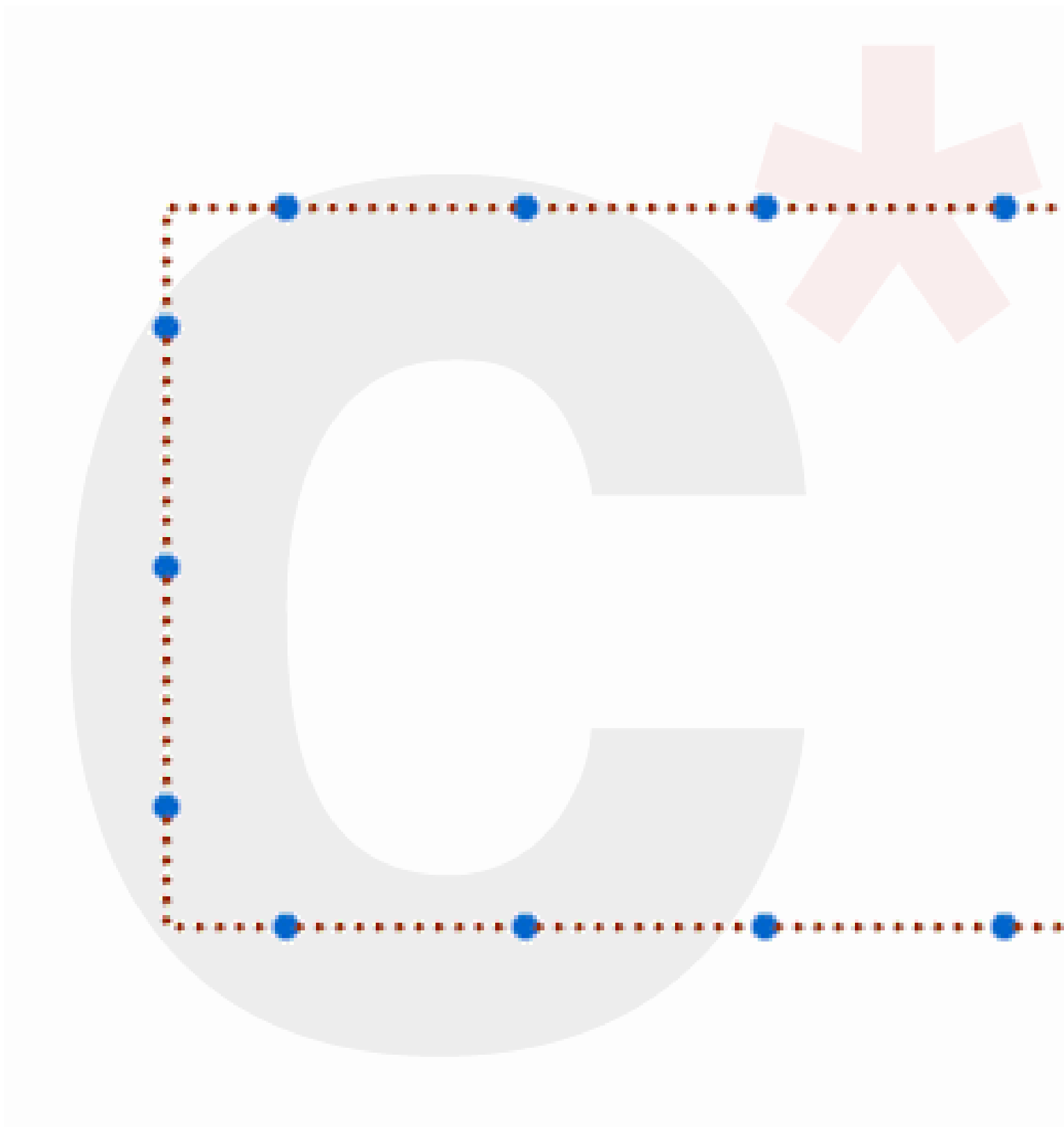


- Dibuixos del poble chokwe (Nord-est d'Angola)
- Es tracen al terra acompanyant una narració
- Es valora la simetria...
- ... i que siguin *monolineals*

# El perro y el cazador

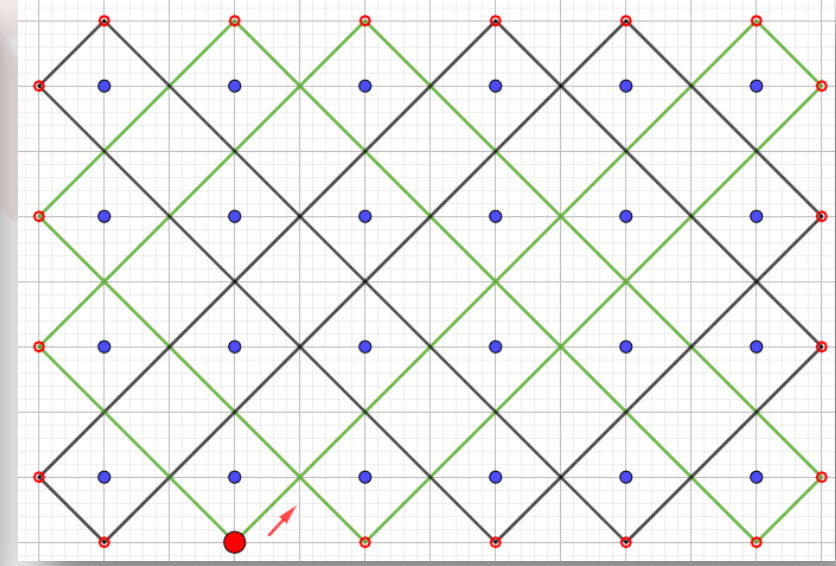
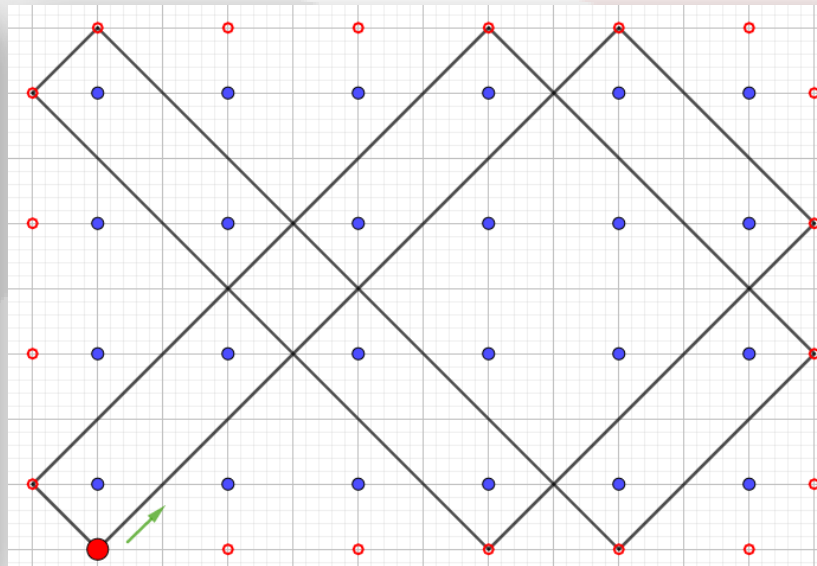
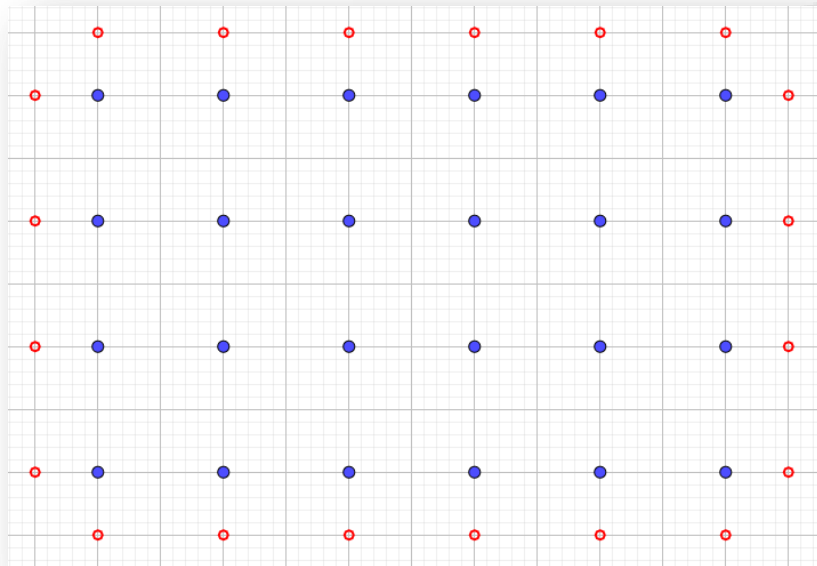
*El gos i el caçador:* <https://youtu.be/bhdEuKmJOEc>



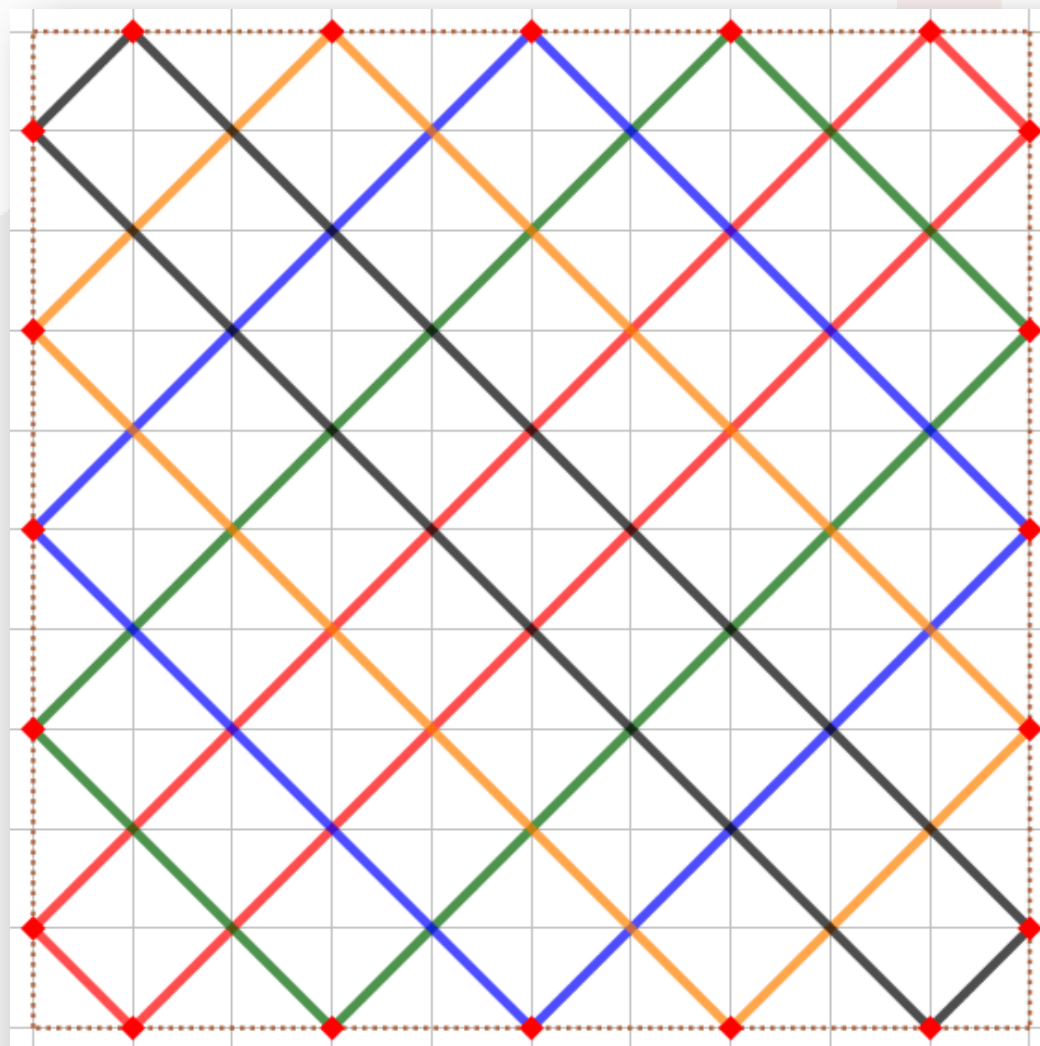


6

4



2 itineraris



5 itineraris

# Investiguem

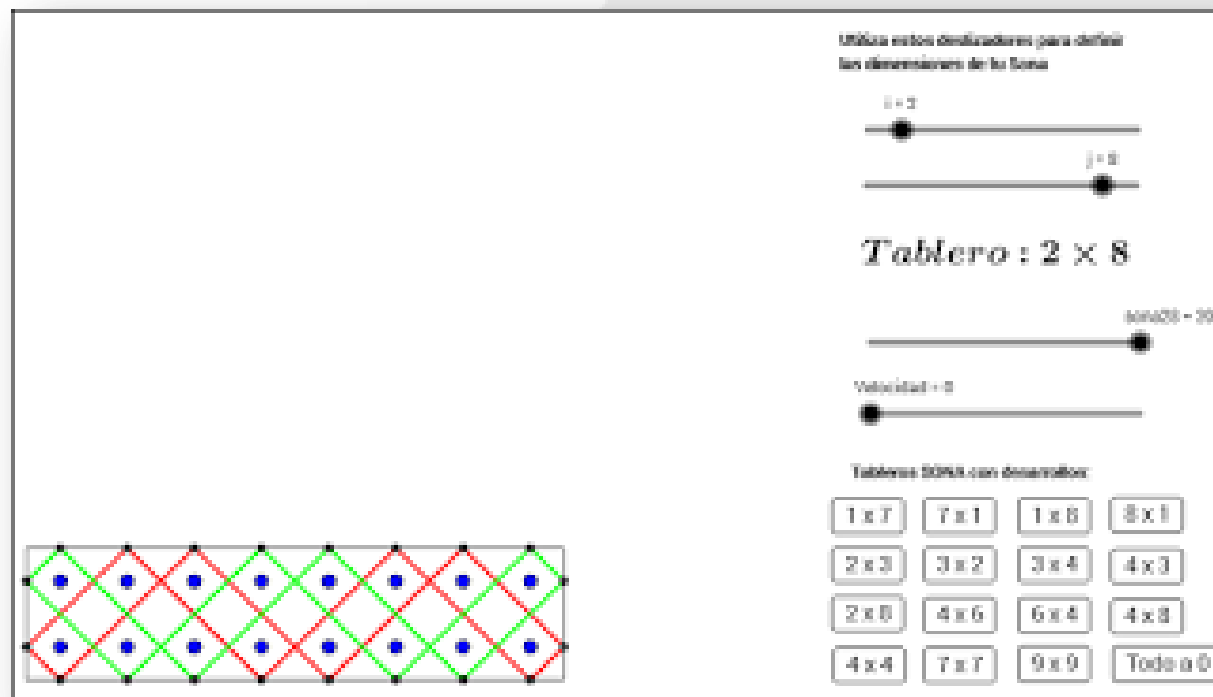
Per un rectangle de costats  $a$  i  $b...$

- Quantes trajectòries calen?
- Quants “rebots” hi haurà?

# Investiguem

Per un rectangle de costats  $a$  i  $b$ ...

- Quantes trajectòries calen?
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Aplicació GeoGebra (Antonio Bueno)  
<https://www.geogebra.org/m/tEH57xjd>

# Investiguem

Per un rectangle de costats  $a$  i  $b$ ...

- Quantes trajectòries calen?
- Quants “rebots” hi haurà?

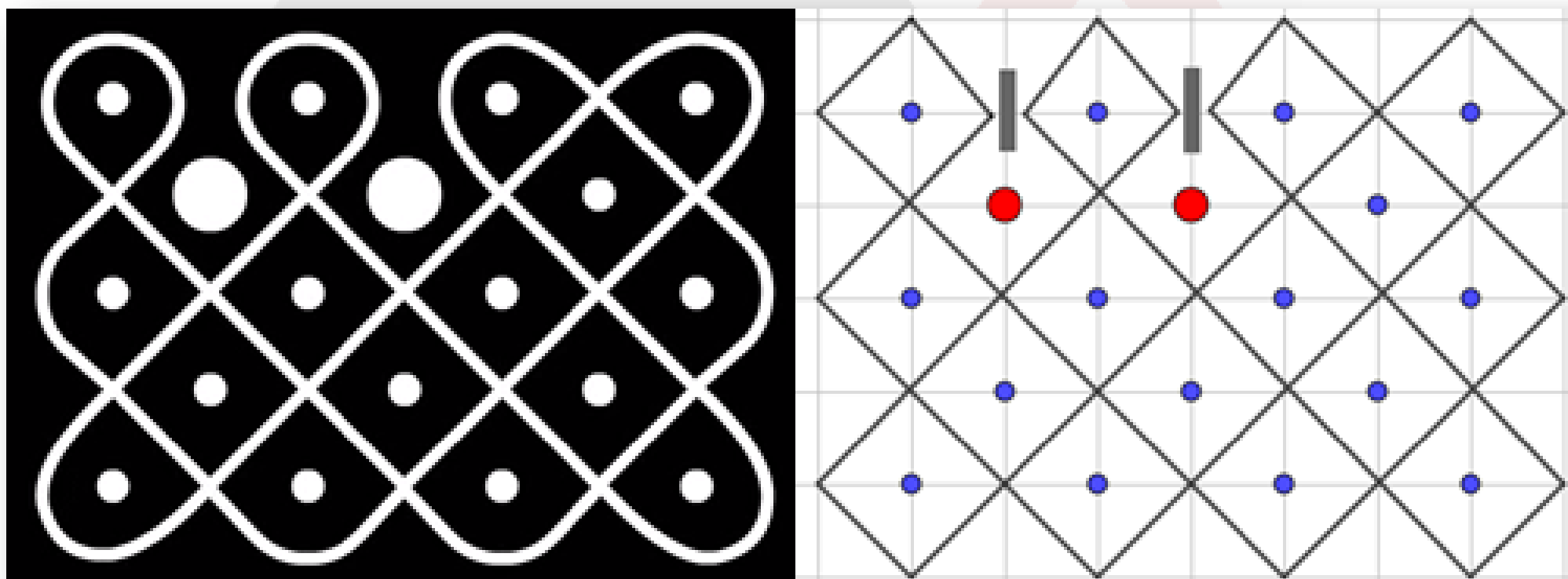
## Investiguem

|    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|---|---|---|---|---|---|---|---|---|----|
| 1  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  |
| 2  | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2  |
| 3  | 1 | 1 | 3 | 1 | 1 | 3 | 1 | 1 | 3 | 1  |
| 4  | 1 | 2 | 1 | 4 | 1 | 2 | 1 | 4 | 1 | 2  |
| 5  | 1 | 1 | 1 | 1 | 5 | 1 | 1 | 1 | 1 | 5  |
| 6  | 1 | 2 | 3 | 2 | 1 | 6 | 1 | 2 | 3 | 2  |
| 7  | 1 | 1 | 1 | 1 | 1 | 1 | 7 | 1 | 1 | 1  |
| 8  | 1 | 2 | 1 | 4 | 1 | 2 | 1 | 8 | 1 | 2  |
| 9  | 1 | 1 | 3 | 1 | 1 | 3 | 1 | 1 | 9 | 1  |
| 10 | 1 | 2 | 1 | 2 | 5 | 2 | 1 | 2 | 1 | 10 |

Itineraris = m.c.d. (a, b)

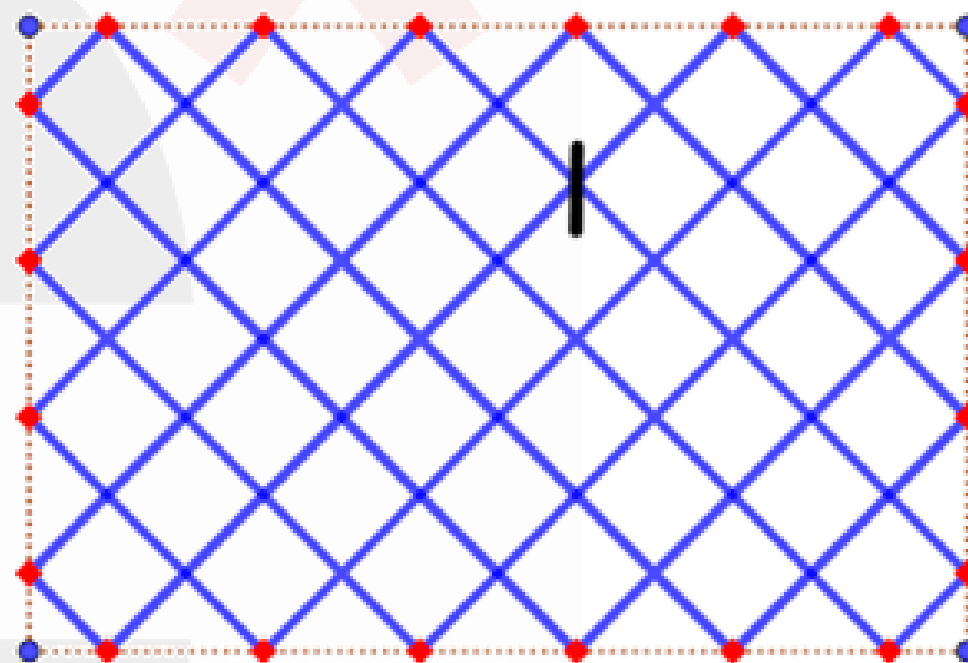
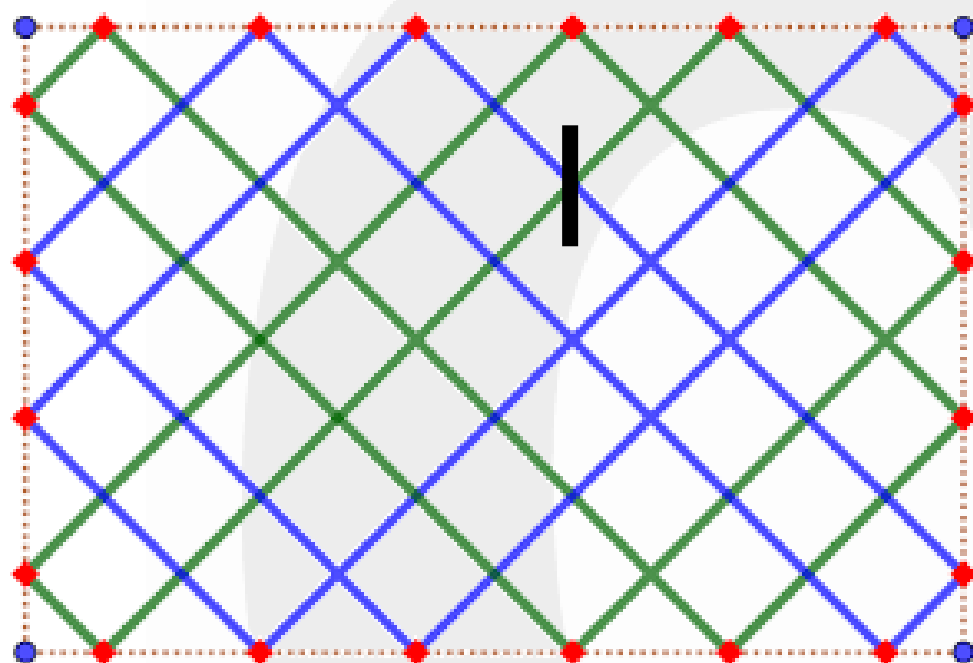
$$Rebots = \frac{(a+b) - mc.d.(a,b)}{mc.d.(a,b)}$$

# Investiguem



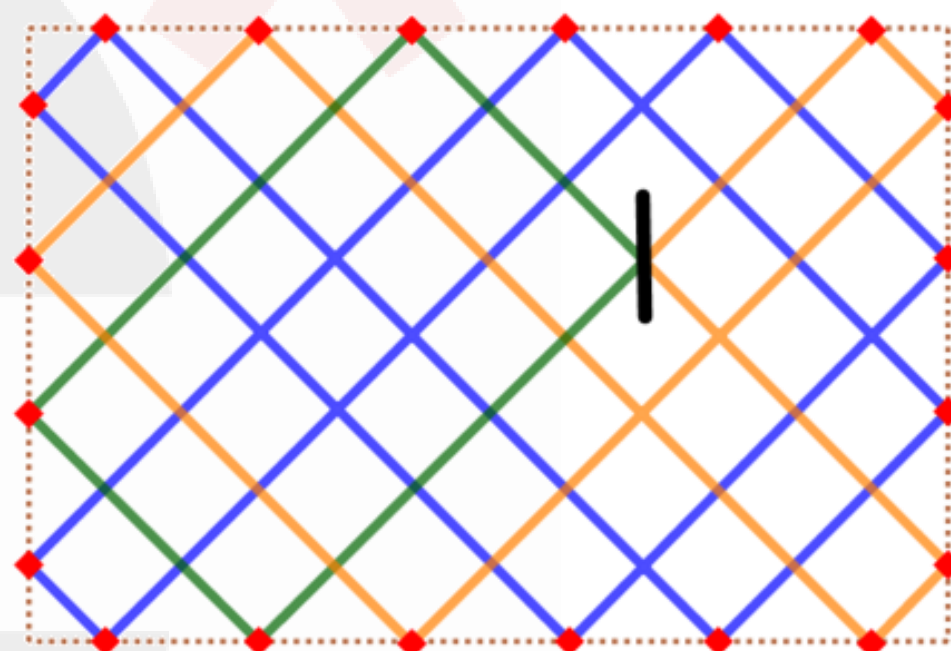
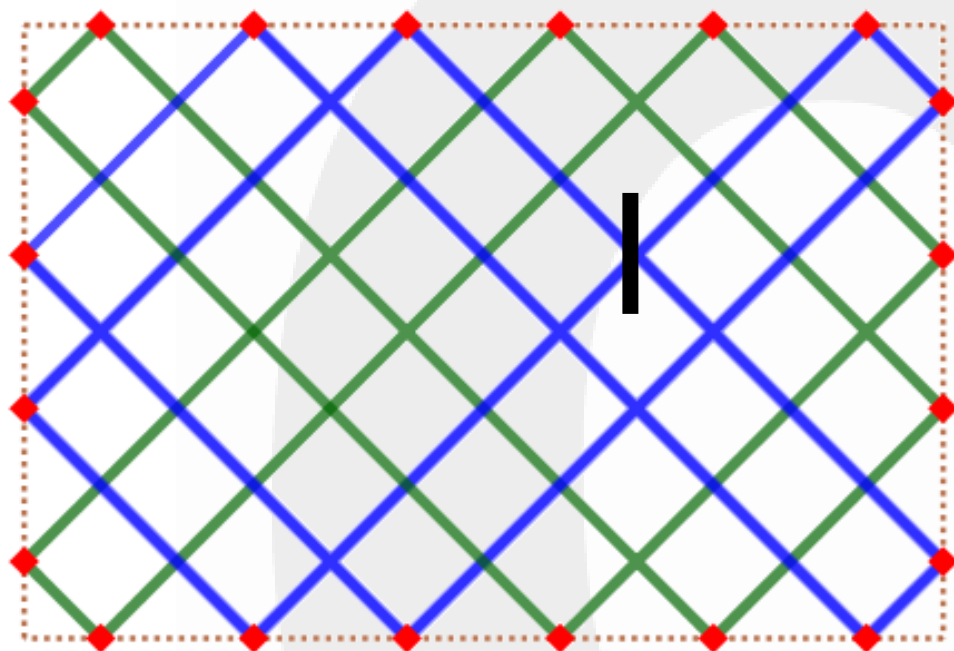
*Lusona amb miralls*

# Investiguem

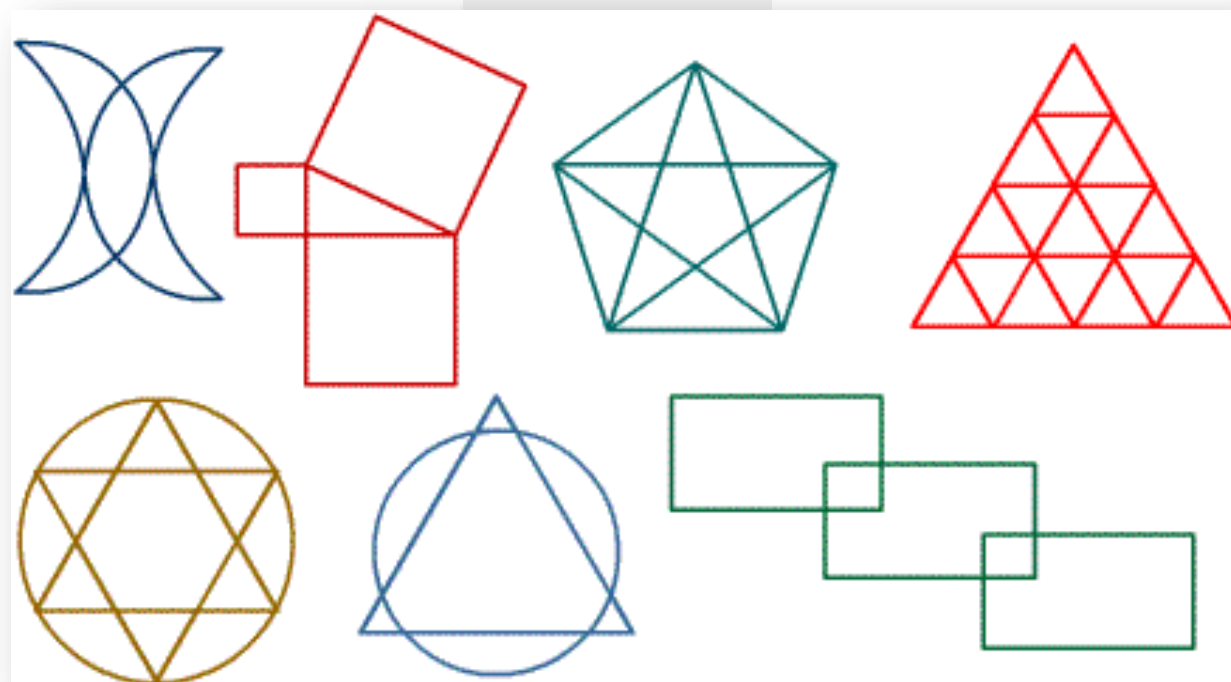
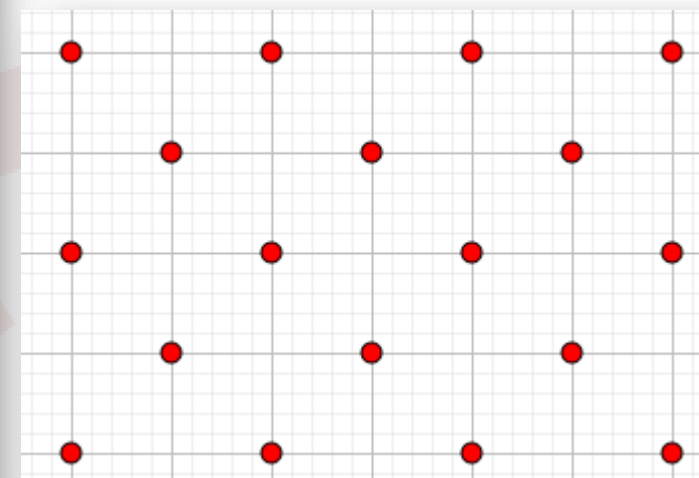
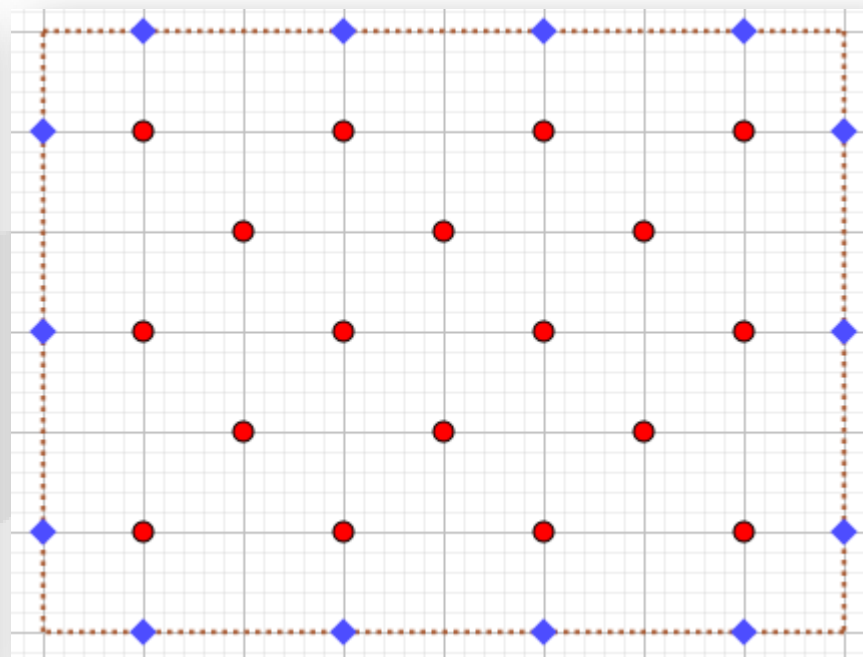
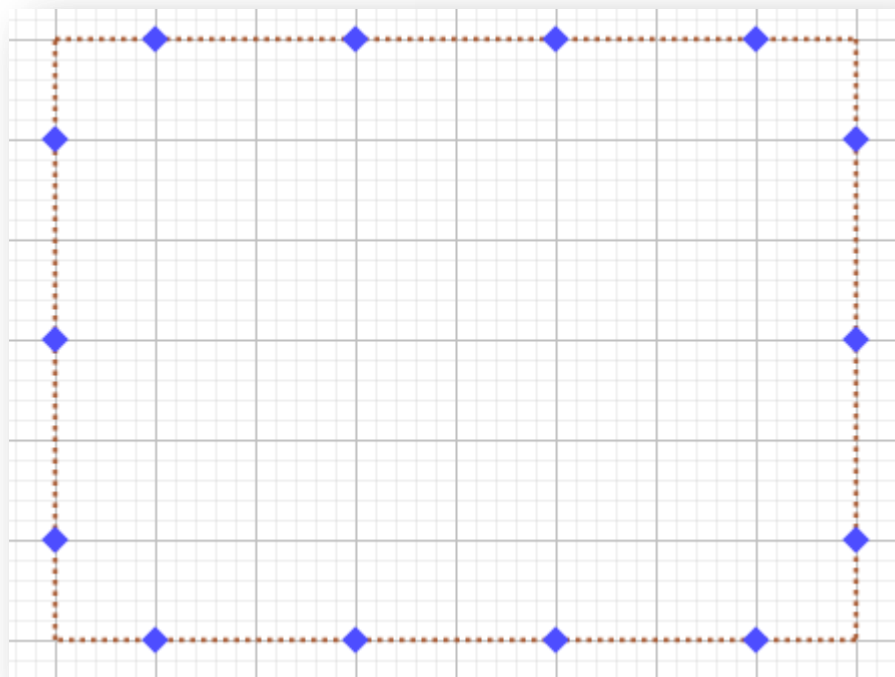


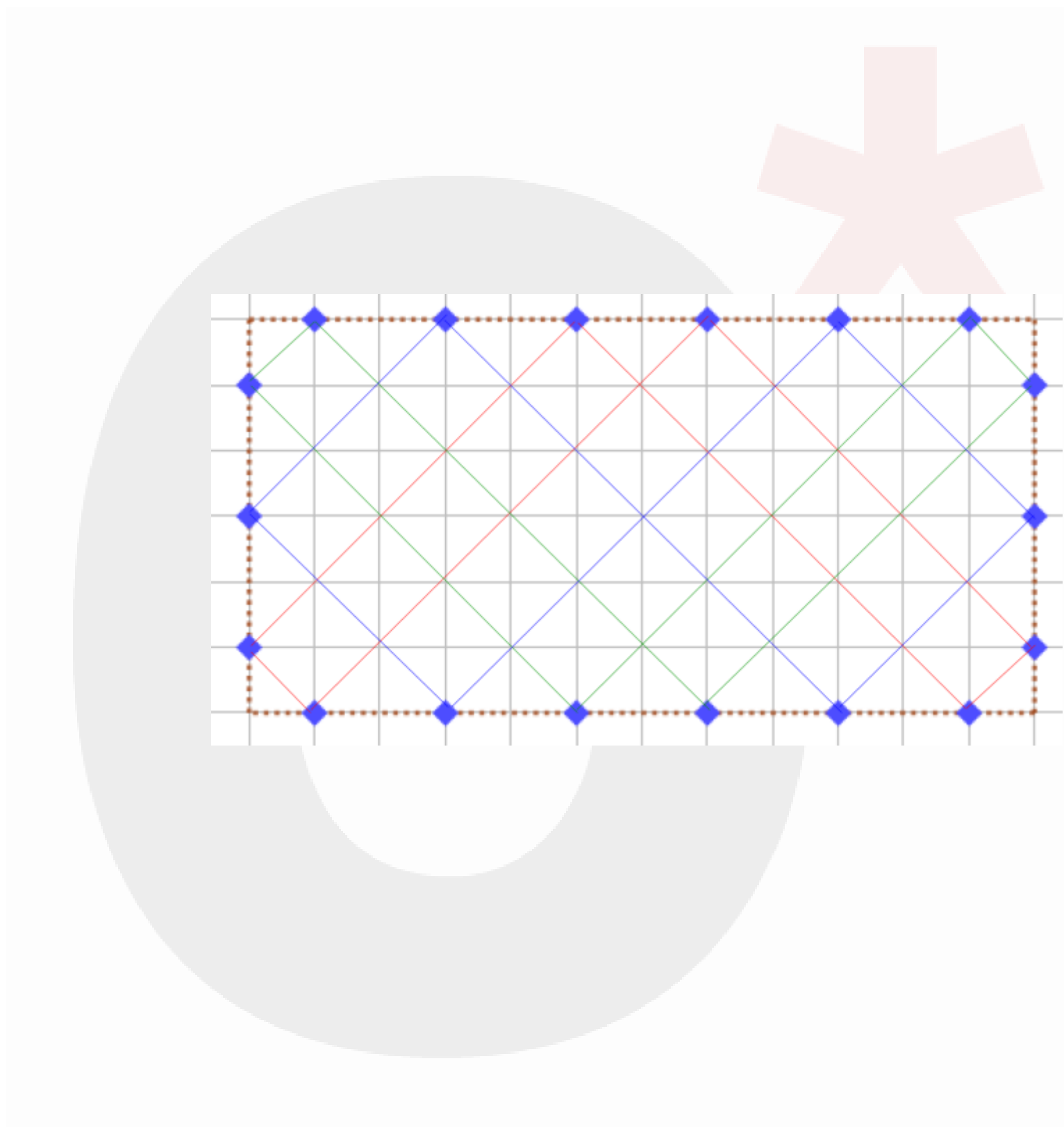
Col·loquem miralls per reduir itineraris. On?

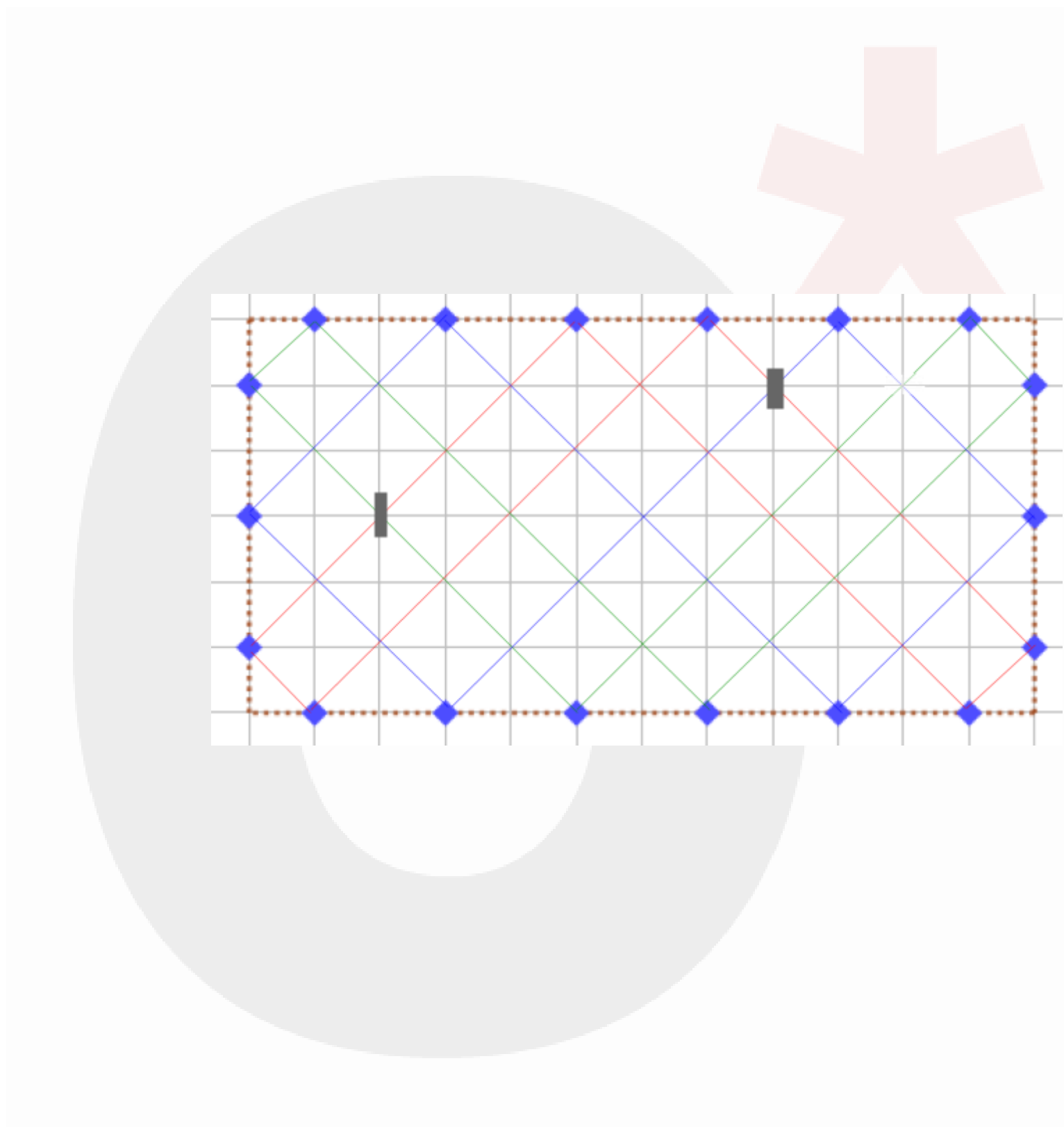
# Investiguem

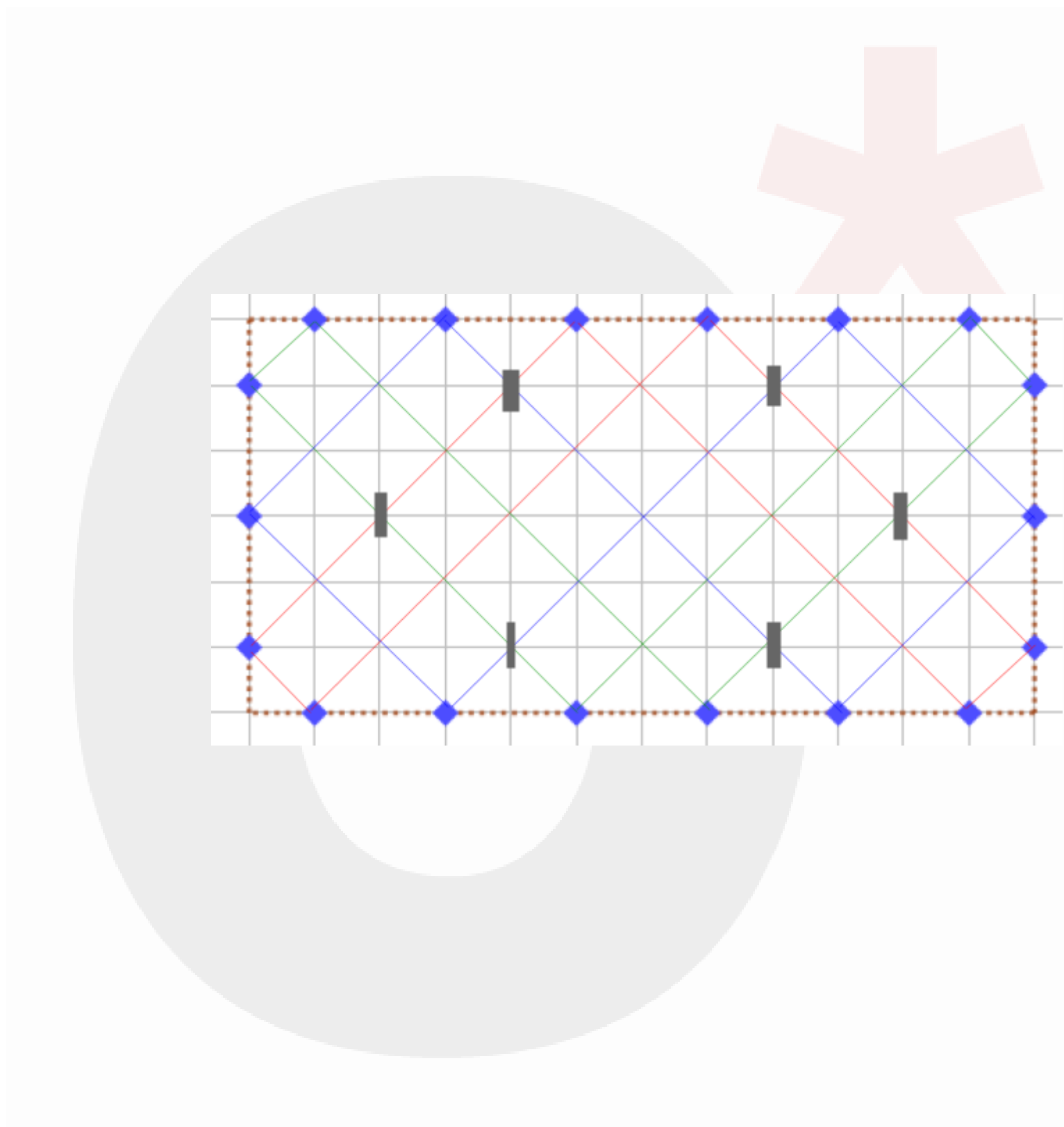


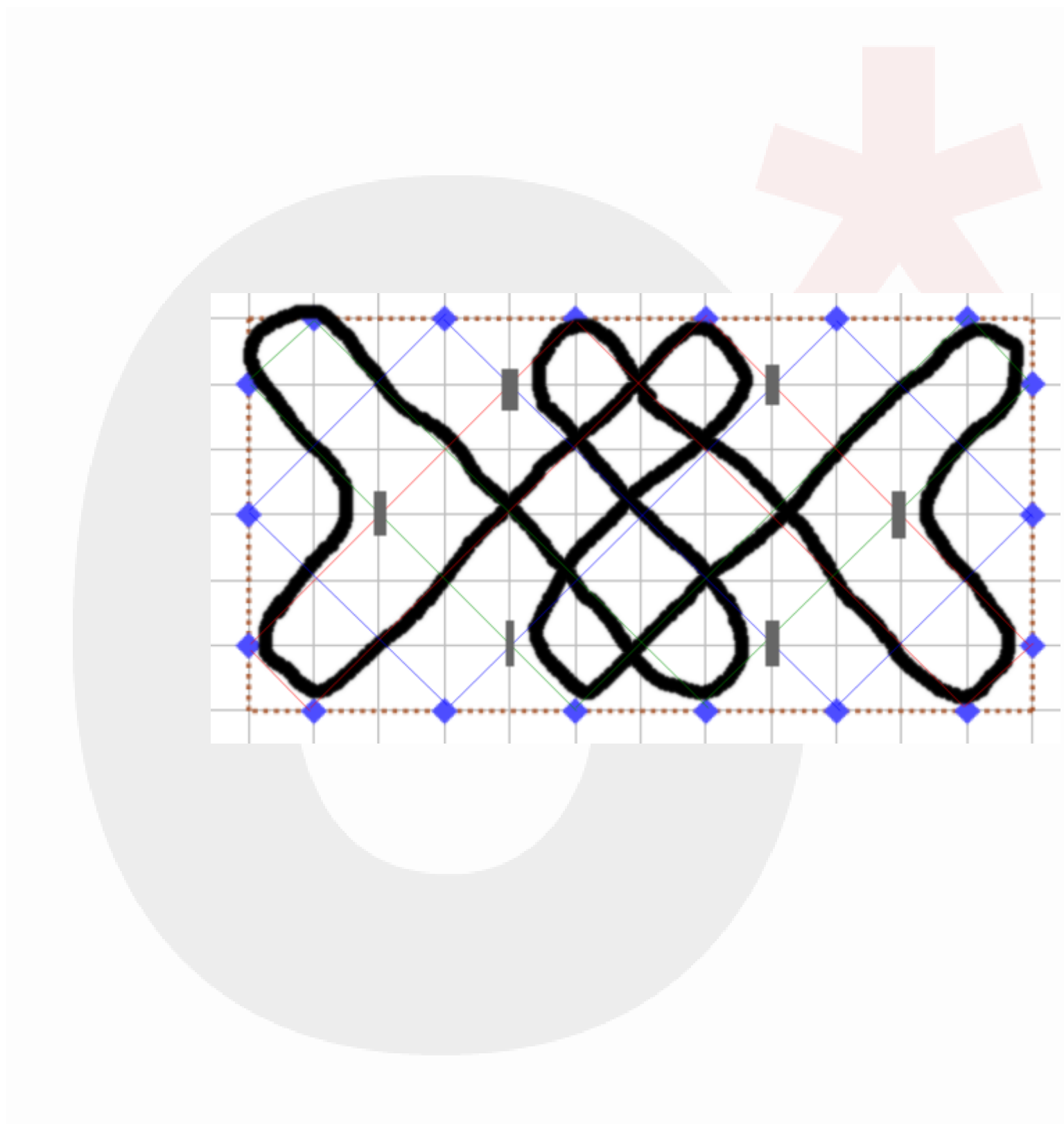
Col·loquem miralls per augmentar itineraris. On?

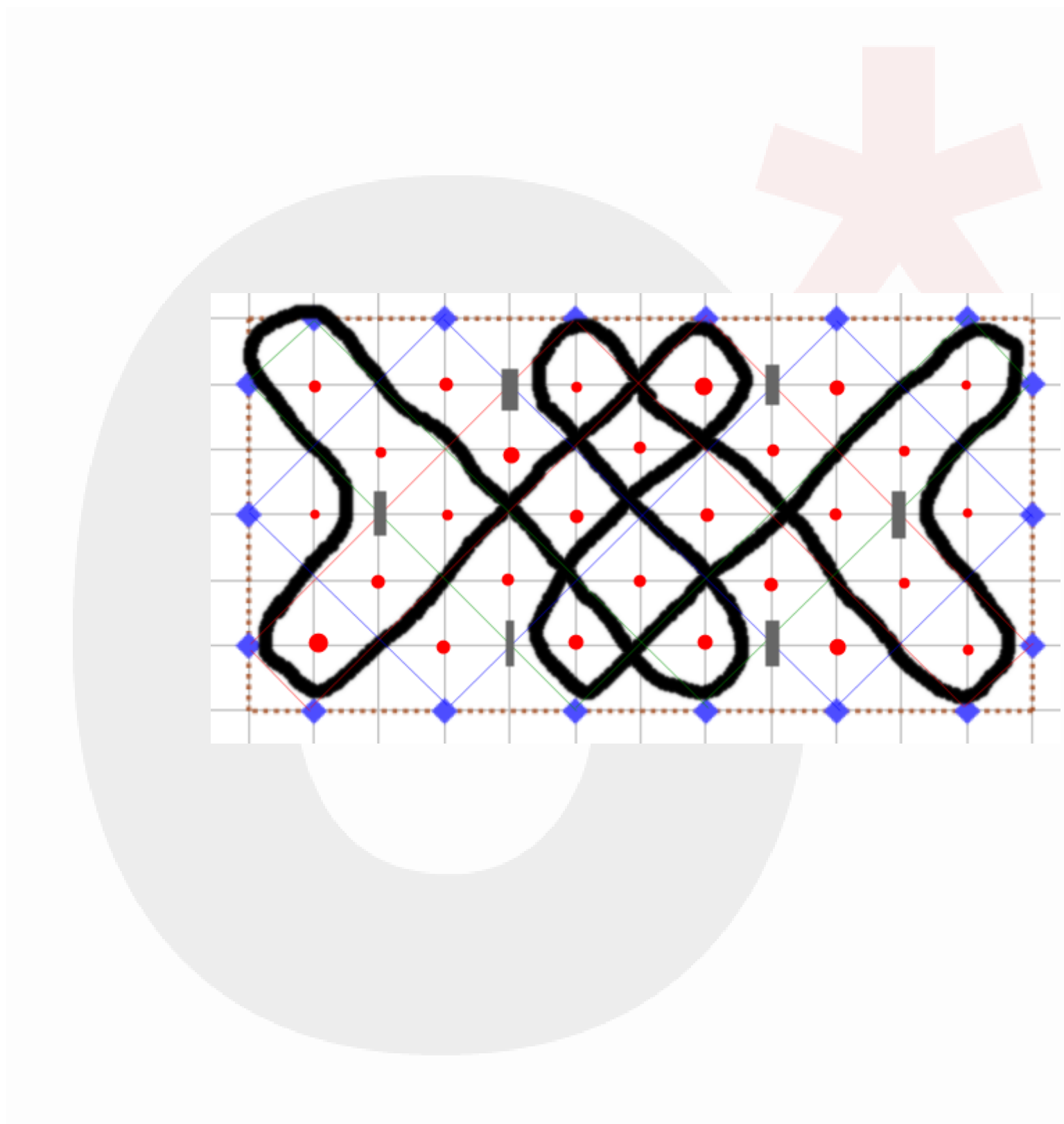


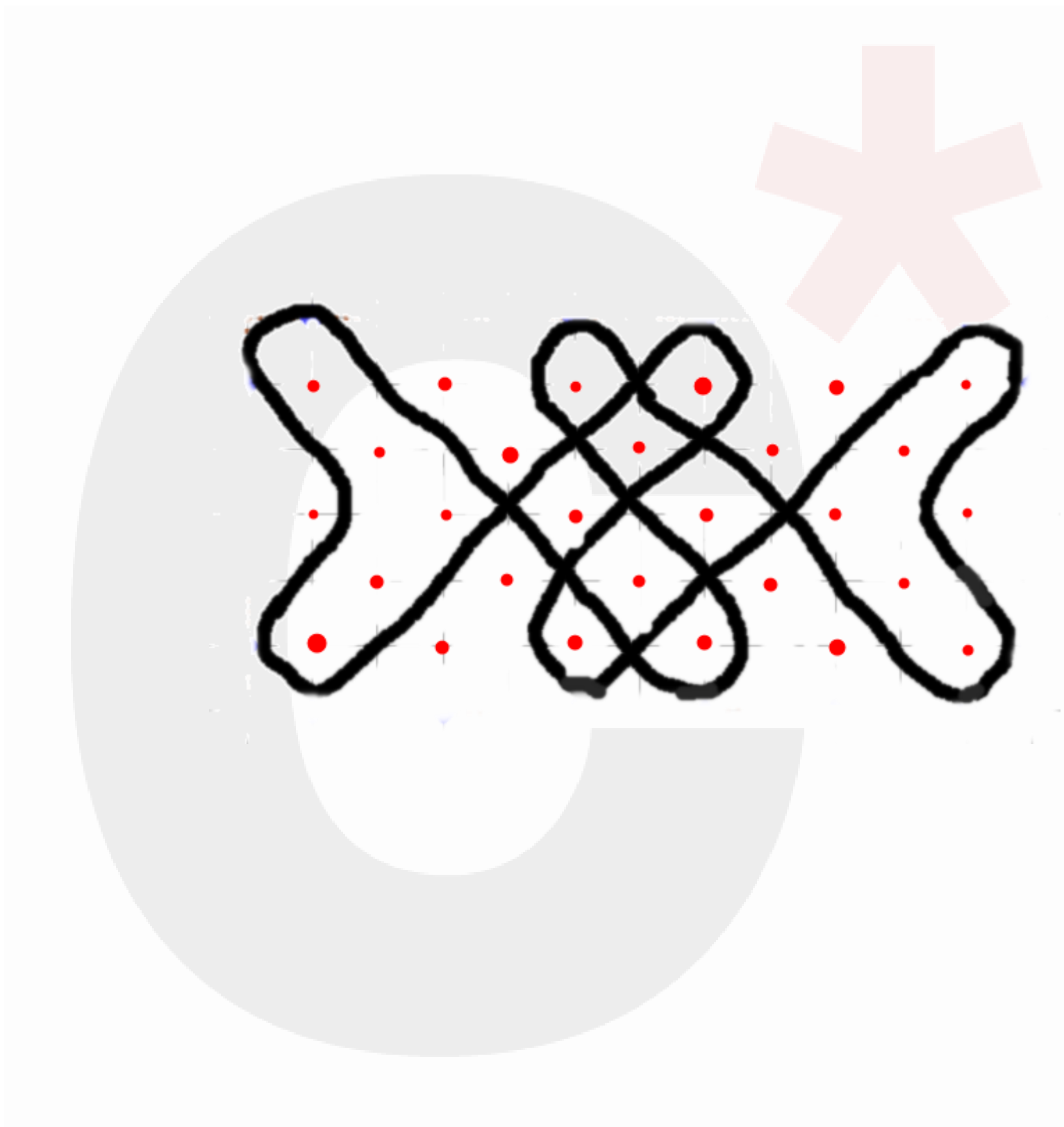




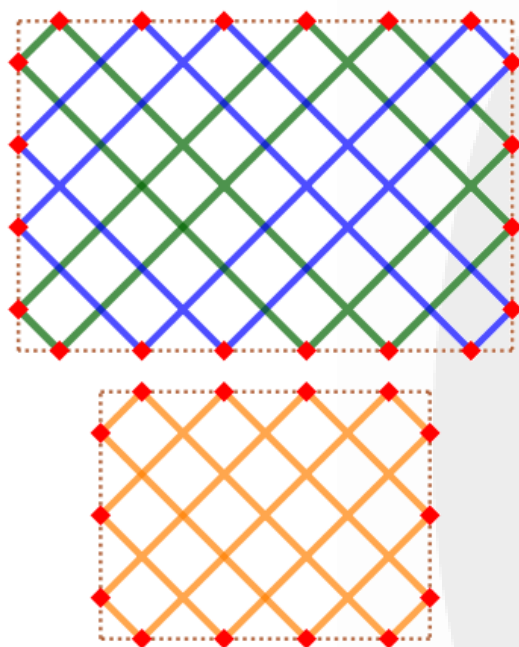




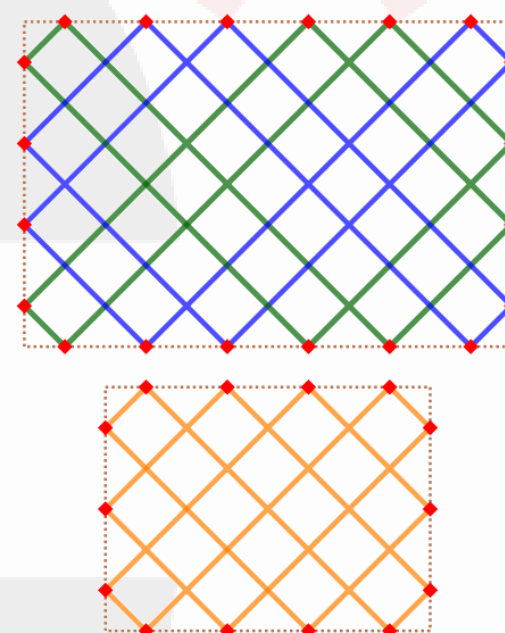
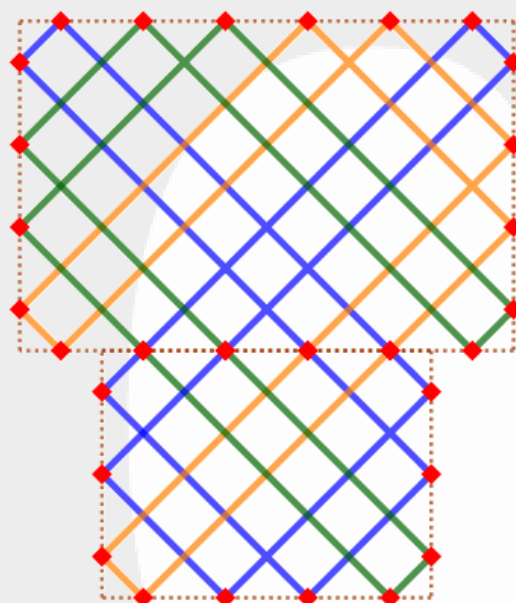




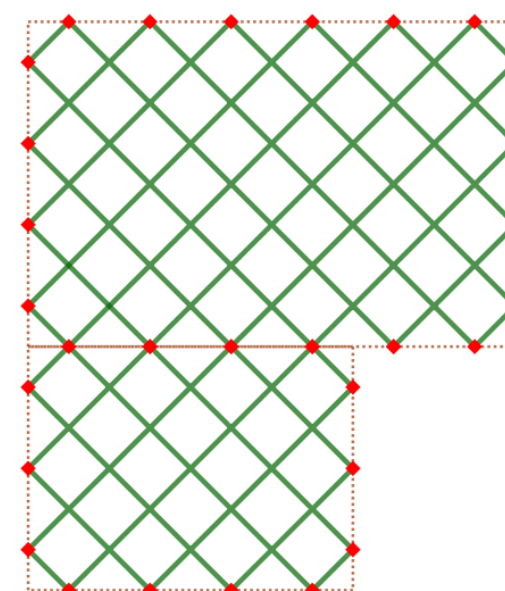
## Investiguem



$$2+1=3$$



$$2+1=1$$



Adossem sona

|     | Activitat Sona                                                                                                                                                                |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S   | Es pot ampliar amb alguna qüestió d'òptica amb miralls ( <a href="#">Lasermaze</a> )<br>Es pot ampliar també per ciències socials estudiant les zones on es fan <i>sona</i> . |
| T   | -----                                                                                                                                                                         |
| E   | -----                                                                                                                                                                         |
| (A) | Es pot ampliar a llengua amb la invenció de relats i a visual i plàstica amb el disseny del <i>lusona</i> corresponent. També es poden mirar els <i>sikku kolam</i> hindús.   |
| M   | Cerca de patrons numèrics i geomètrics.                                                                                                                                       |

## Per saber-ne més... de la part matemàtica

*Sona: una herramienta didáctica para primaria y secundaria* (Manuel García Piqueras)

<http://17jaem.semrm.com/aportaciones/n57.pdf>

*Els "sona": contes, geometria i nombres* (Blog Calaix +ie)

<http://calaix2.blogspot.com.es/2017/11/els-sona-contes-geometria-i-nombres.html>