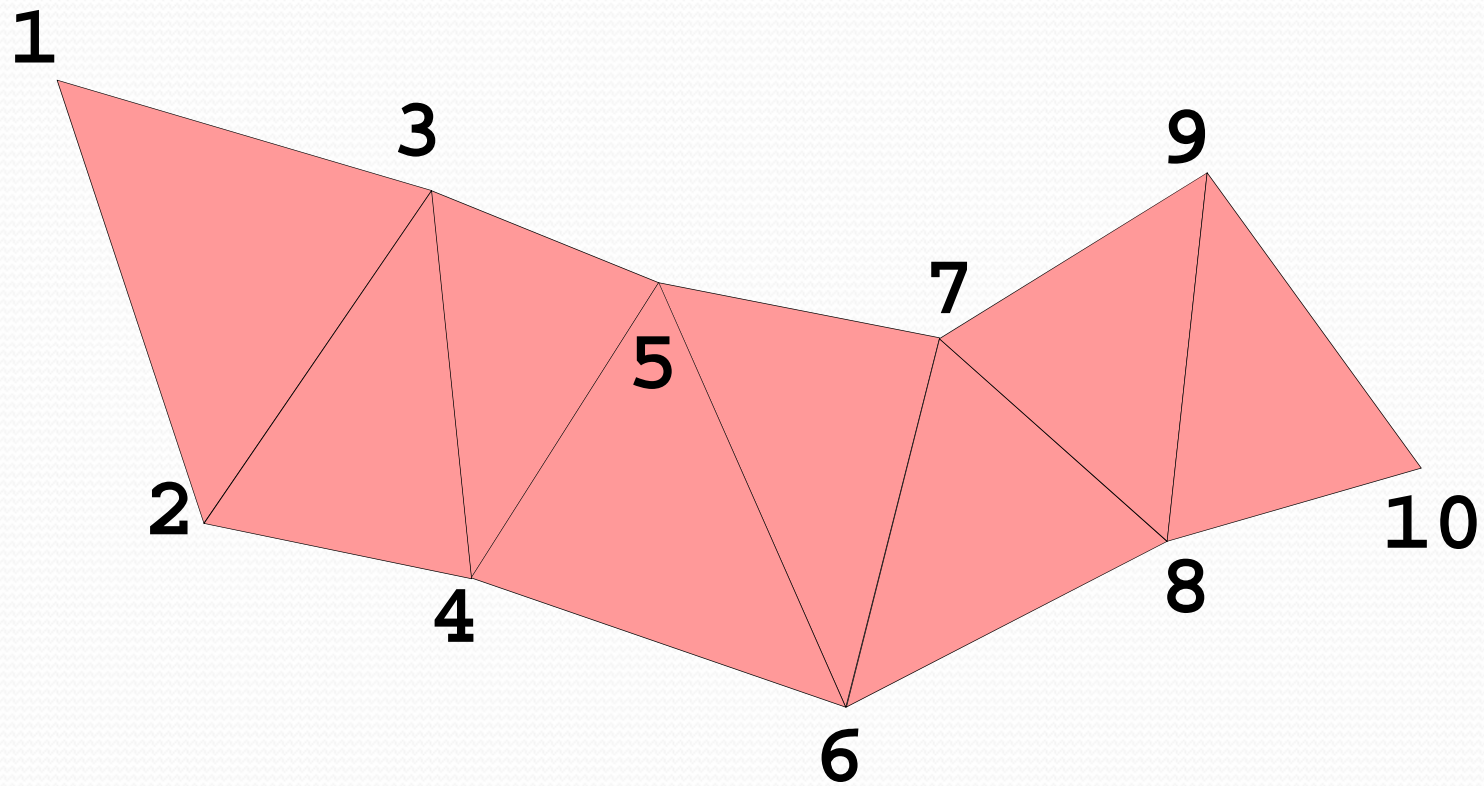


Mesh compression

Carlos Andújar

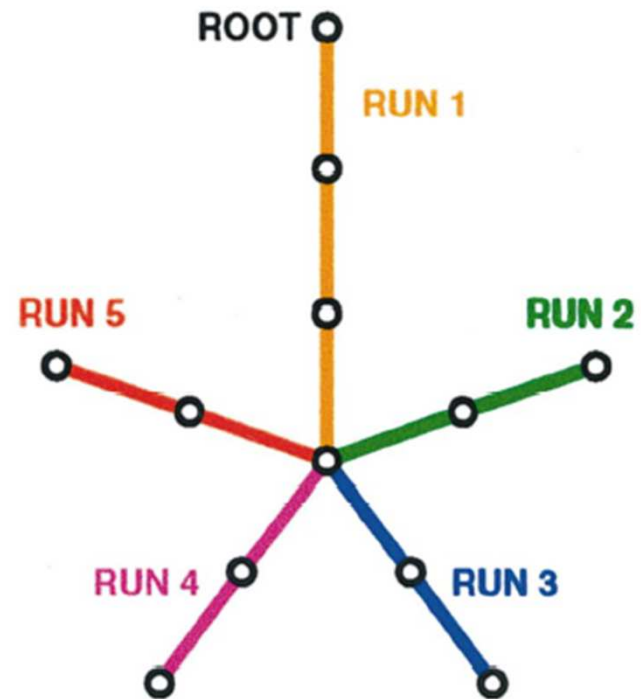
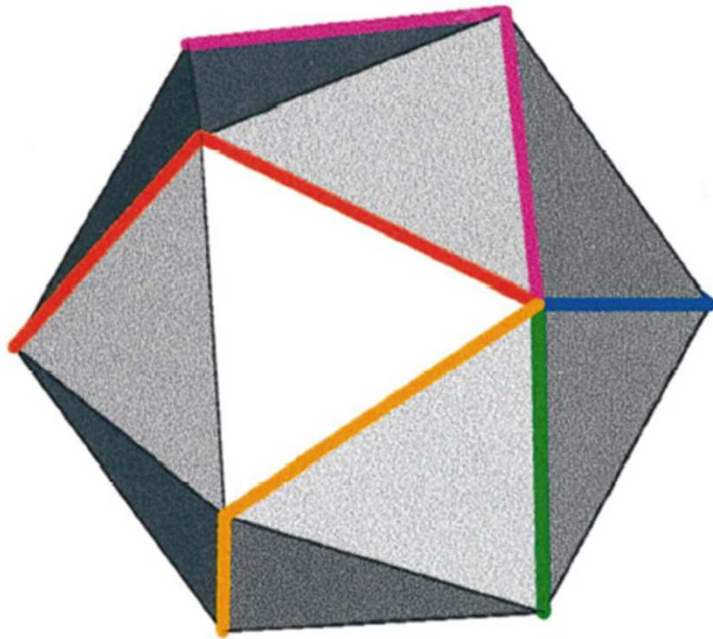
Abril 2013

Triangle Strips

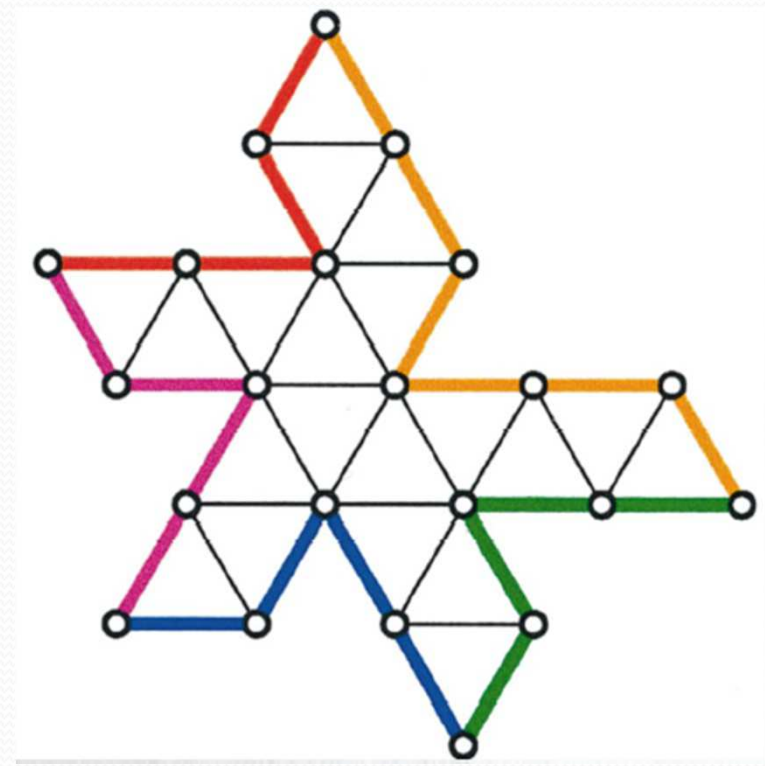
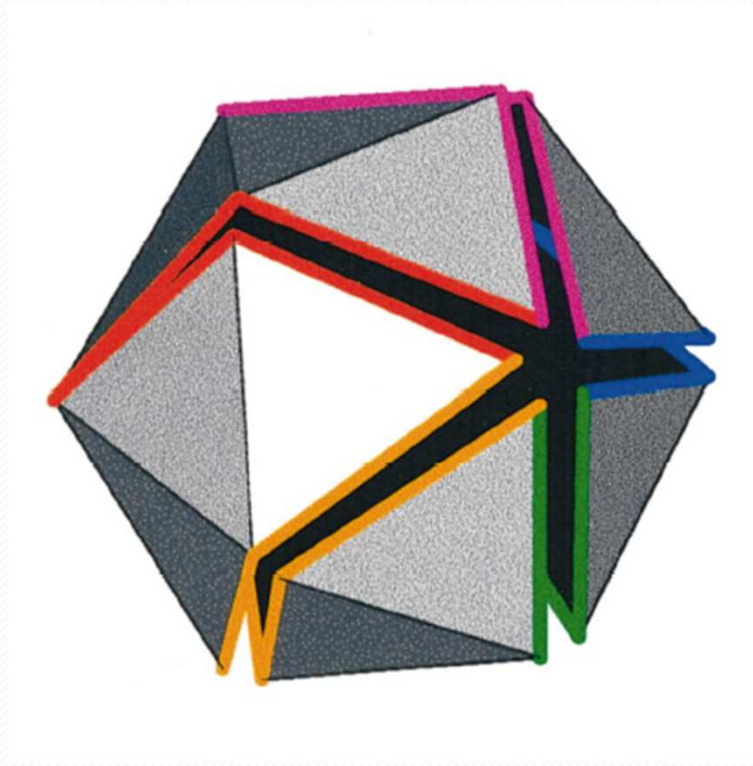


1 2 3 4 5 6 7 8 9 10

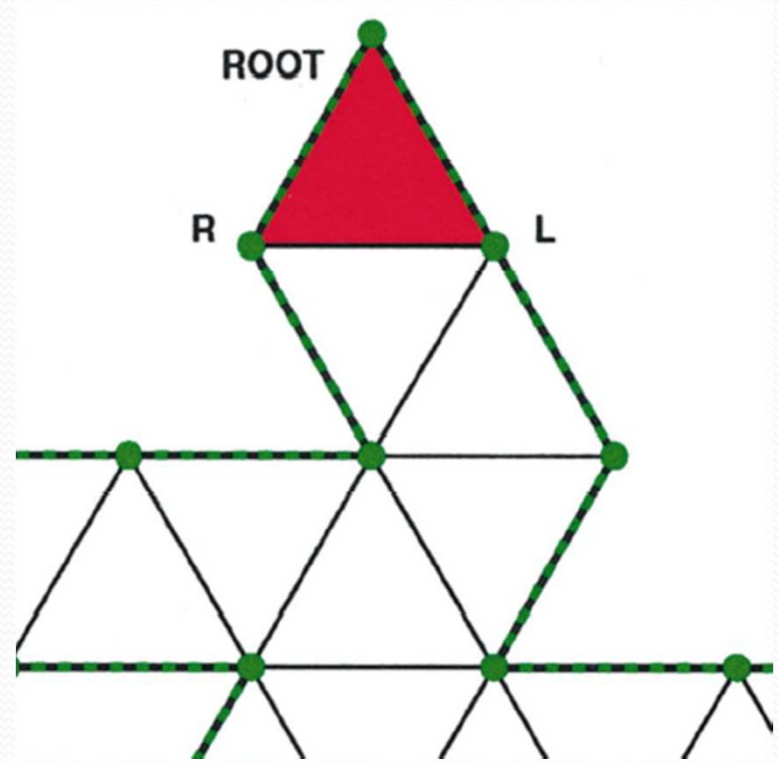
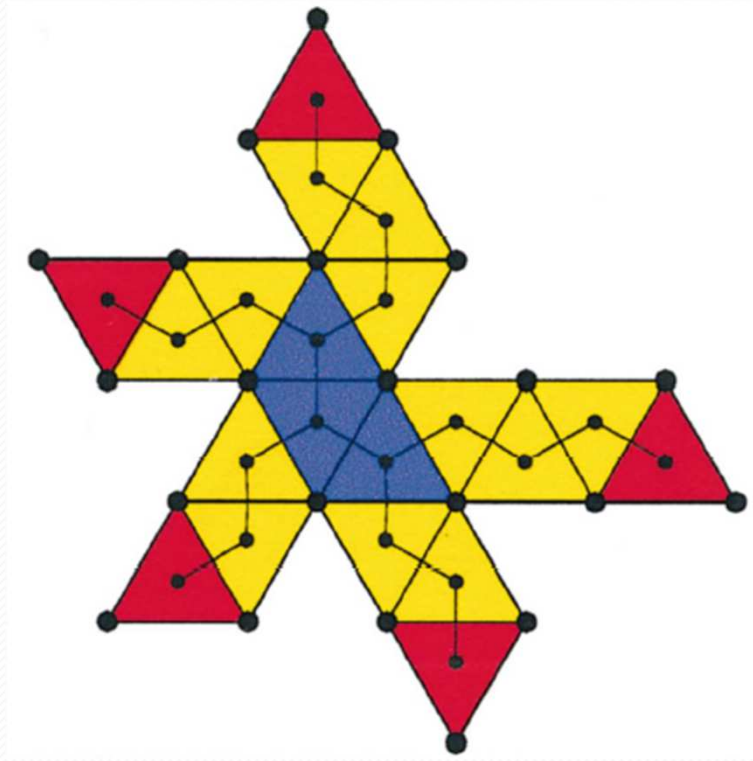
Vertex Spanning Tree (VST)



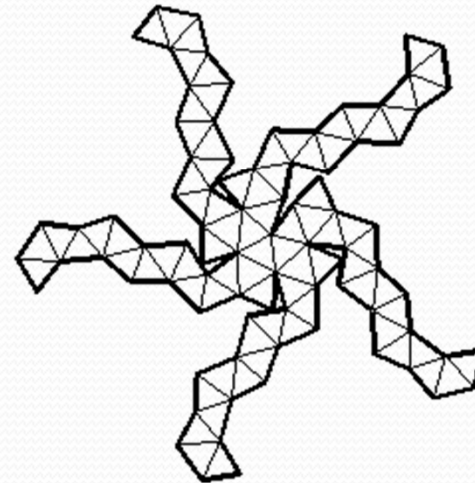
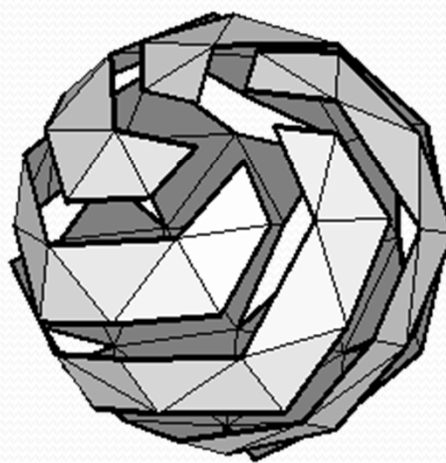
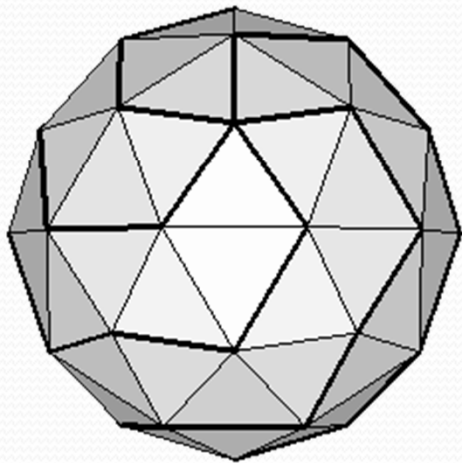
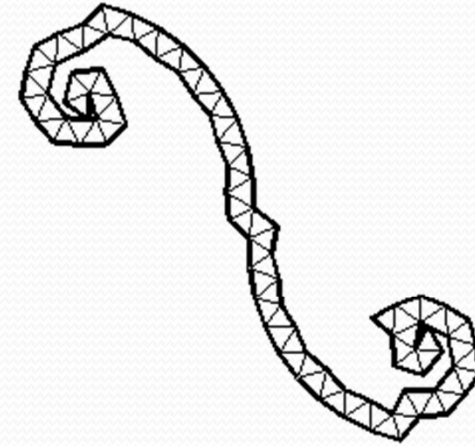
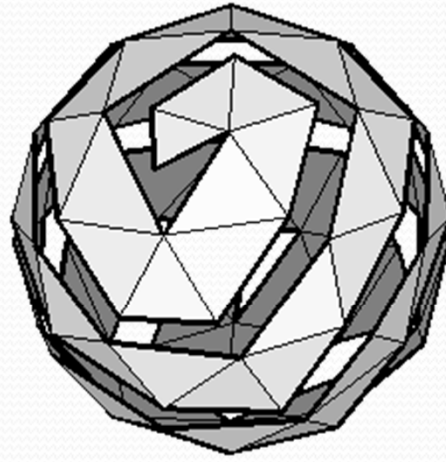
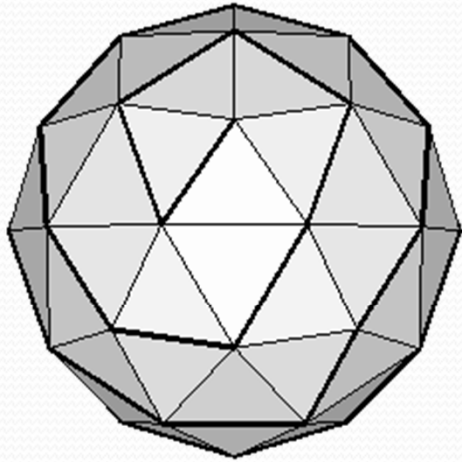
Polígon definit pel VST



Triangle Spanning Tree (TST)

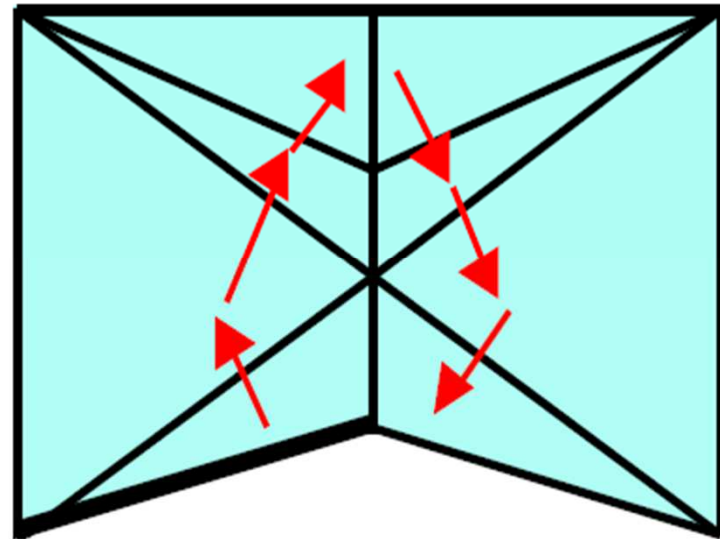
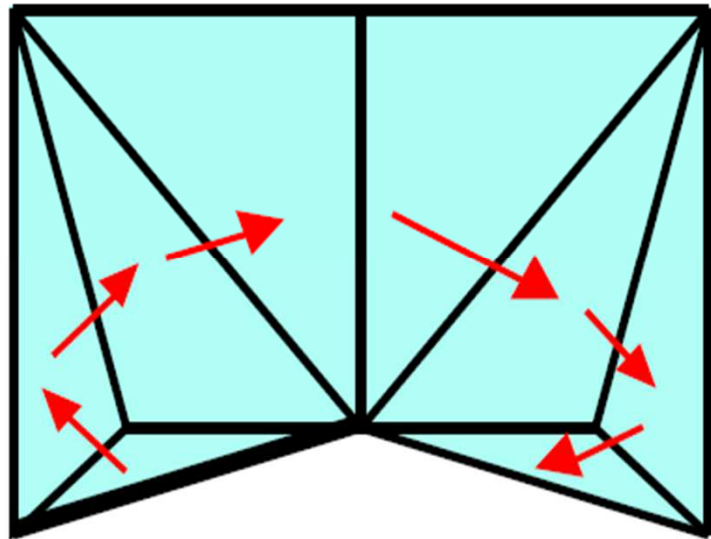


Exemples de VST+TST

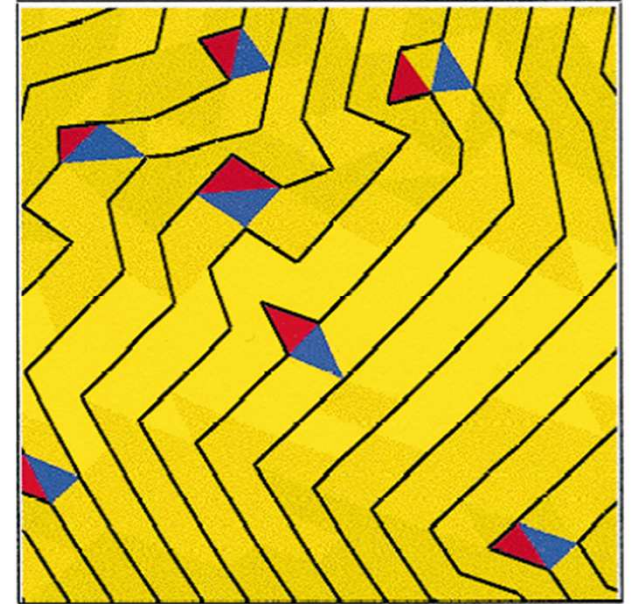
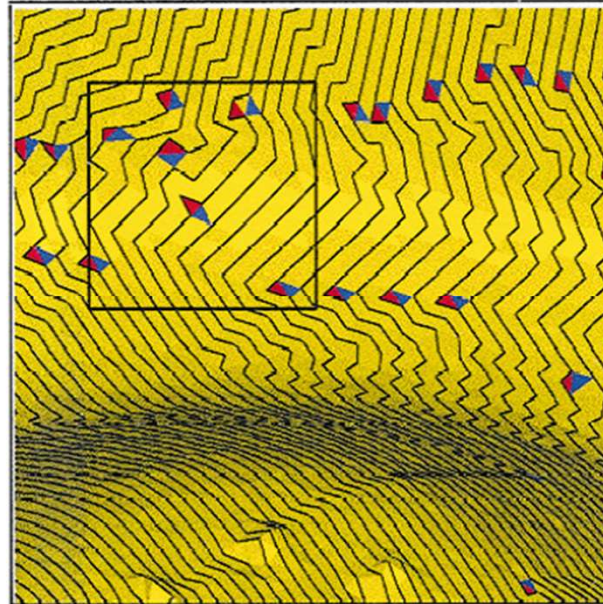
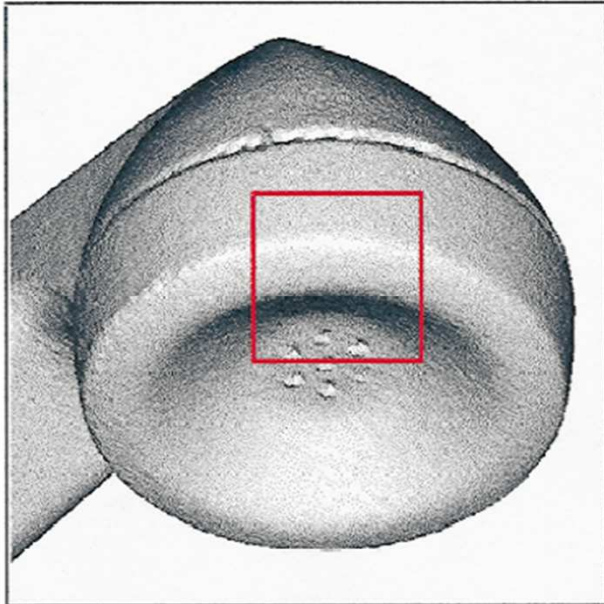


Triangle Spanning Tree (TST)

- Dos arbres amb el mateix TST (L R L R L R) però diferent topologia:

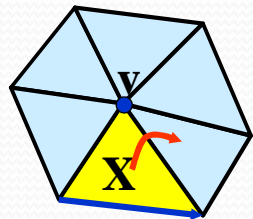


Topological Surgery

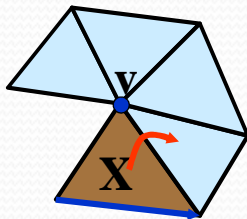


Edge breaker

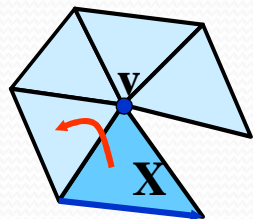
- **C:** (50%) v no pertany a B



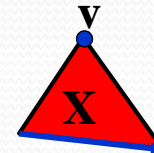
- **L:** (2.5%) v precedeix g a B



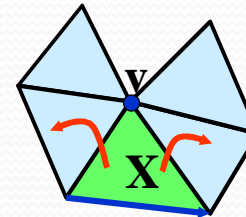
- **R:** (36.3%) v segueix g a B



- **E:** (5.6%) v precedeix i segueix a g a la frontera

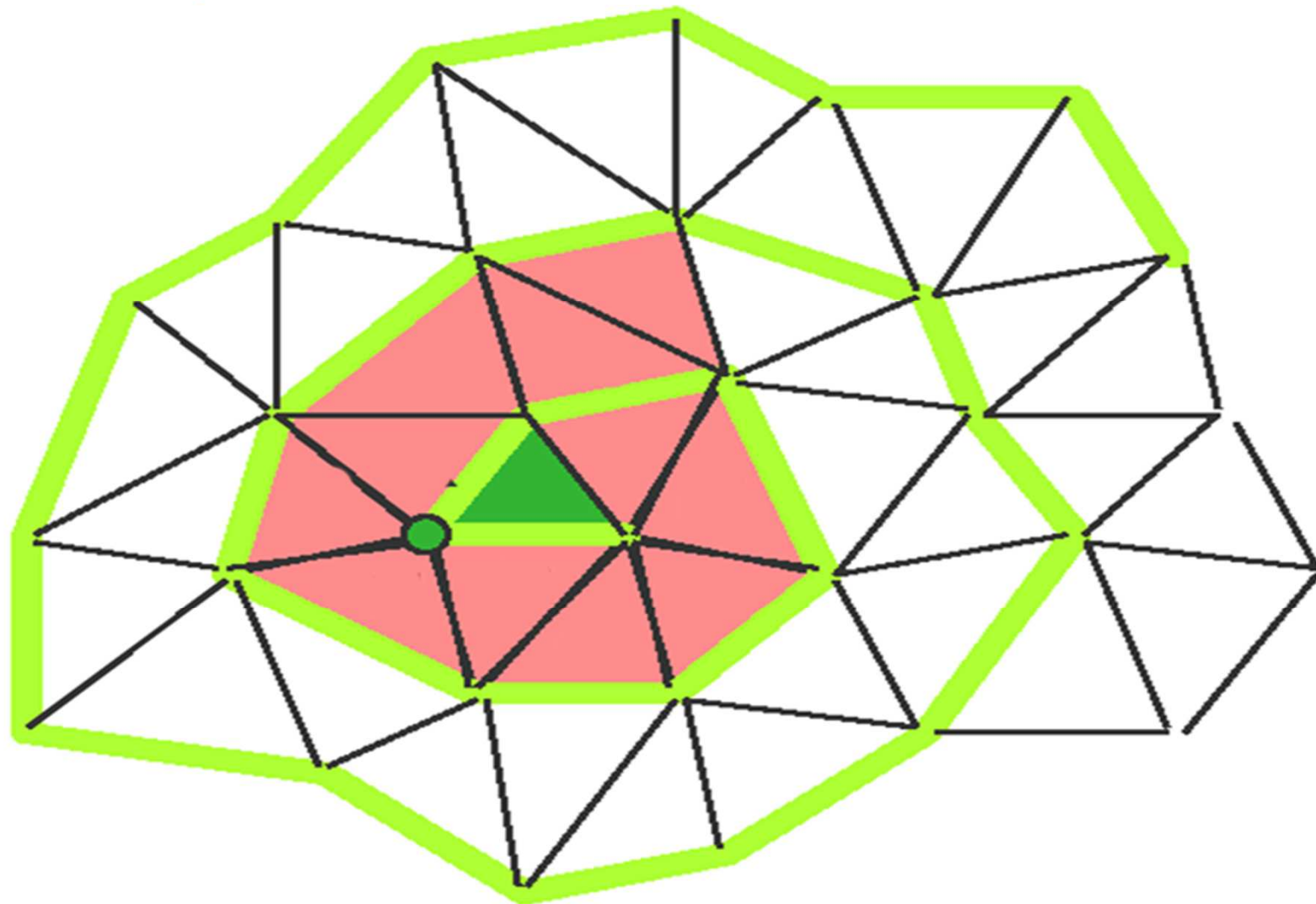


- És una fulla del TST
- **S:** (5.6%) v és a qualsevol altre lloc de la frontera B

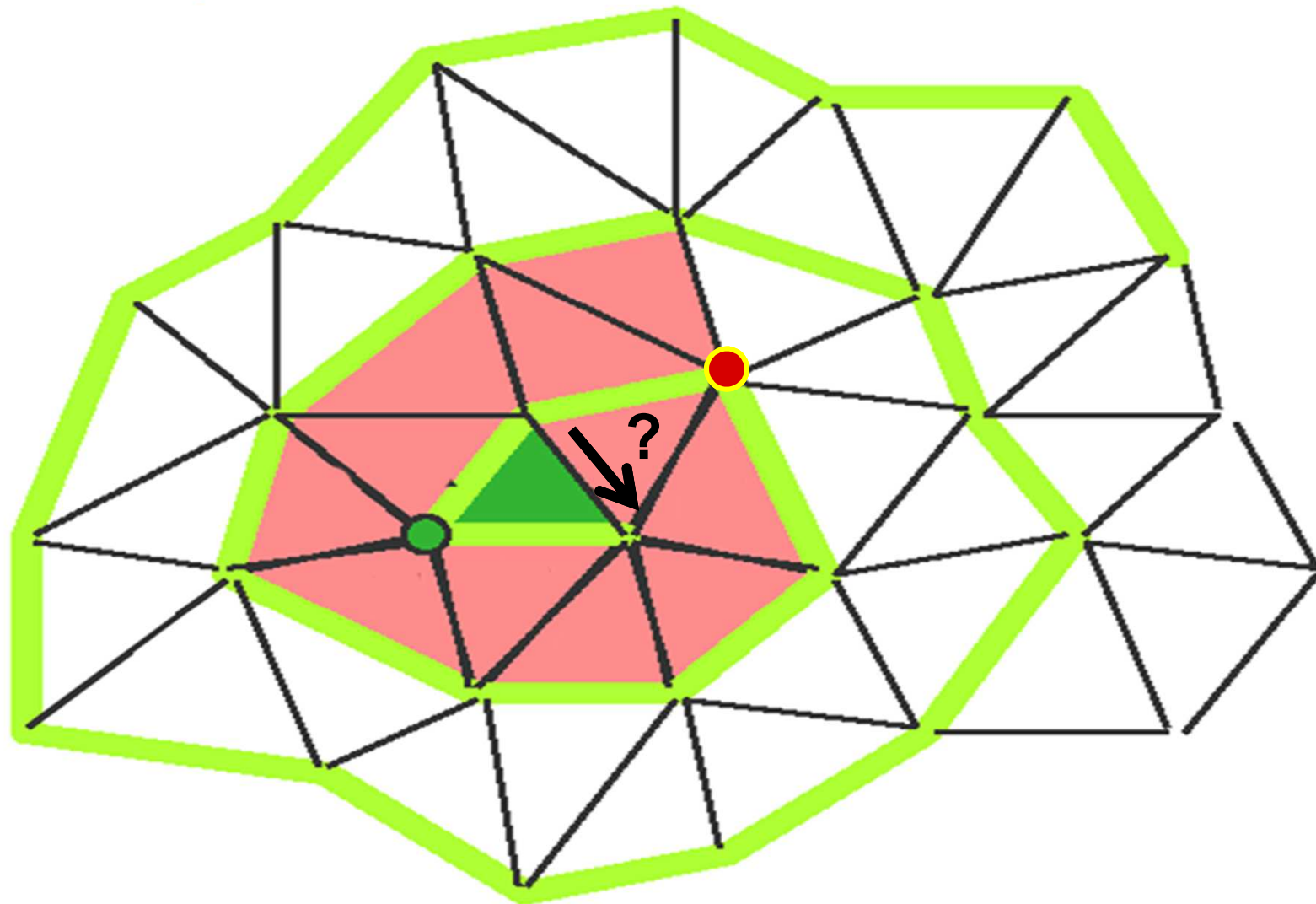


- Bifurcació del TST

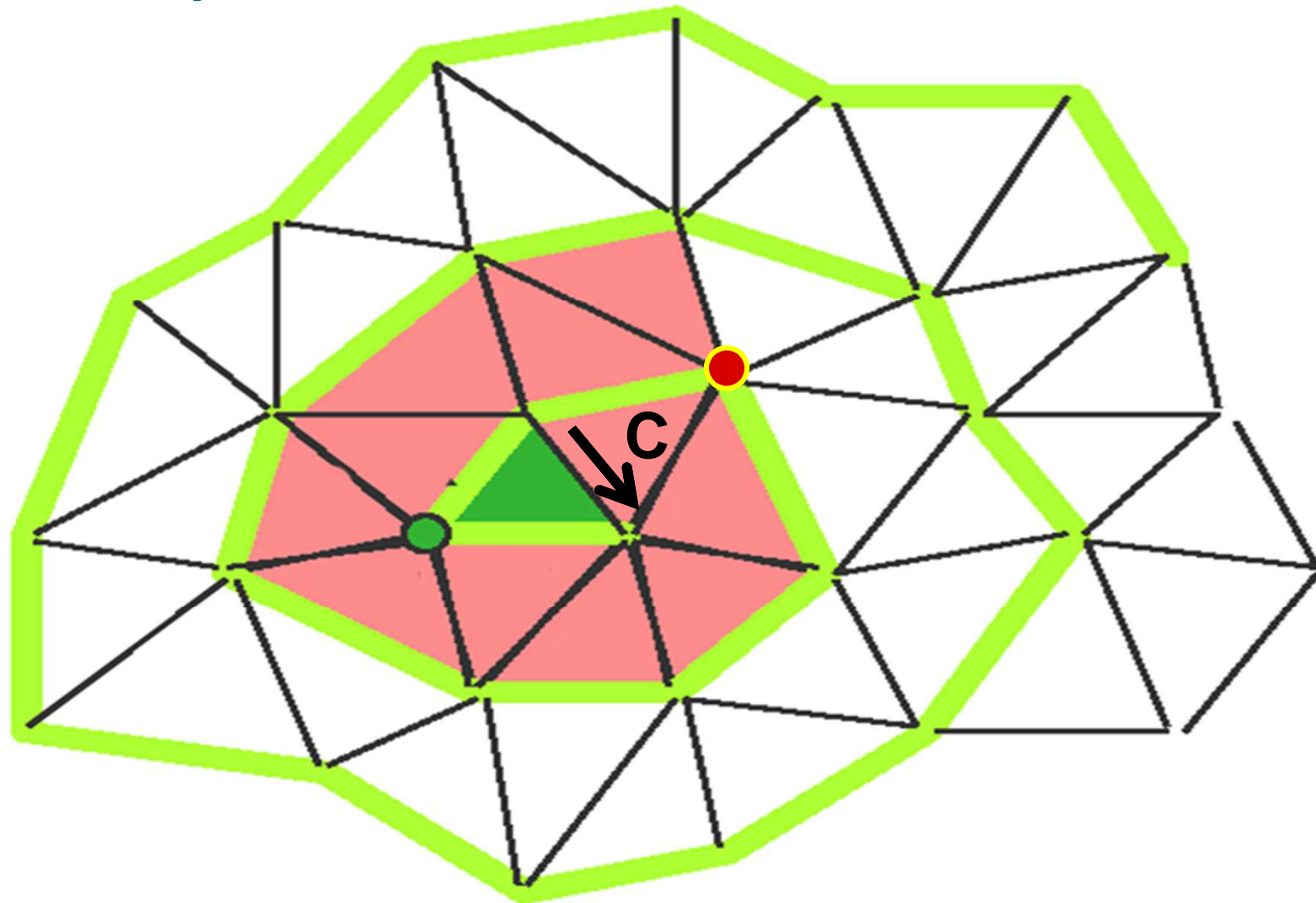
Exemple



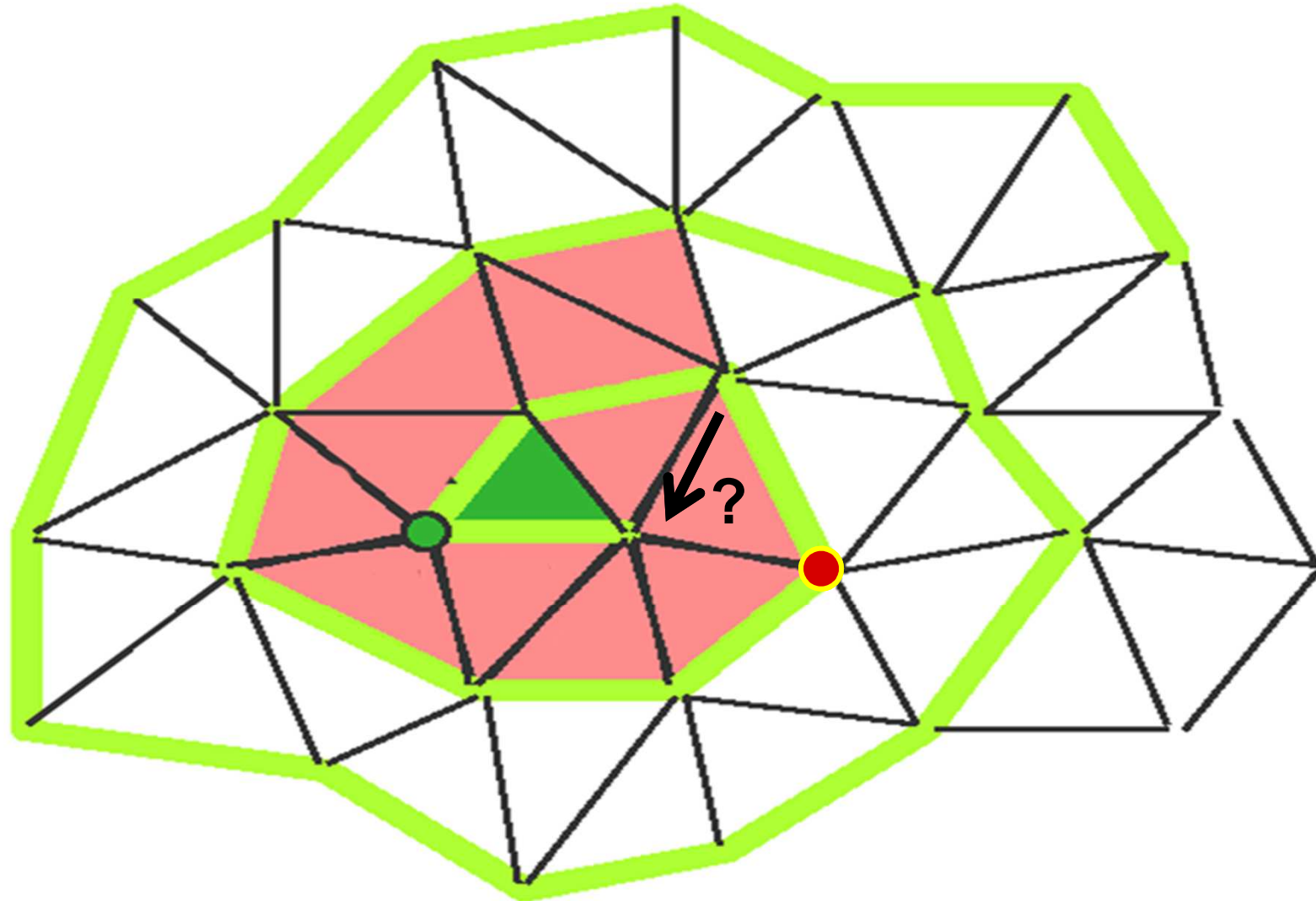
Exemple



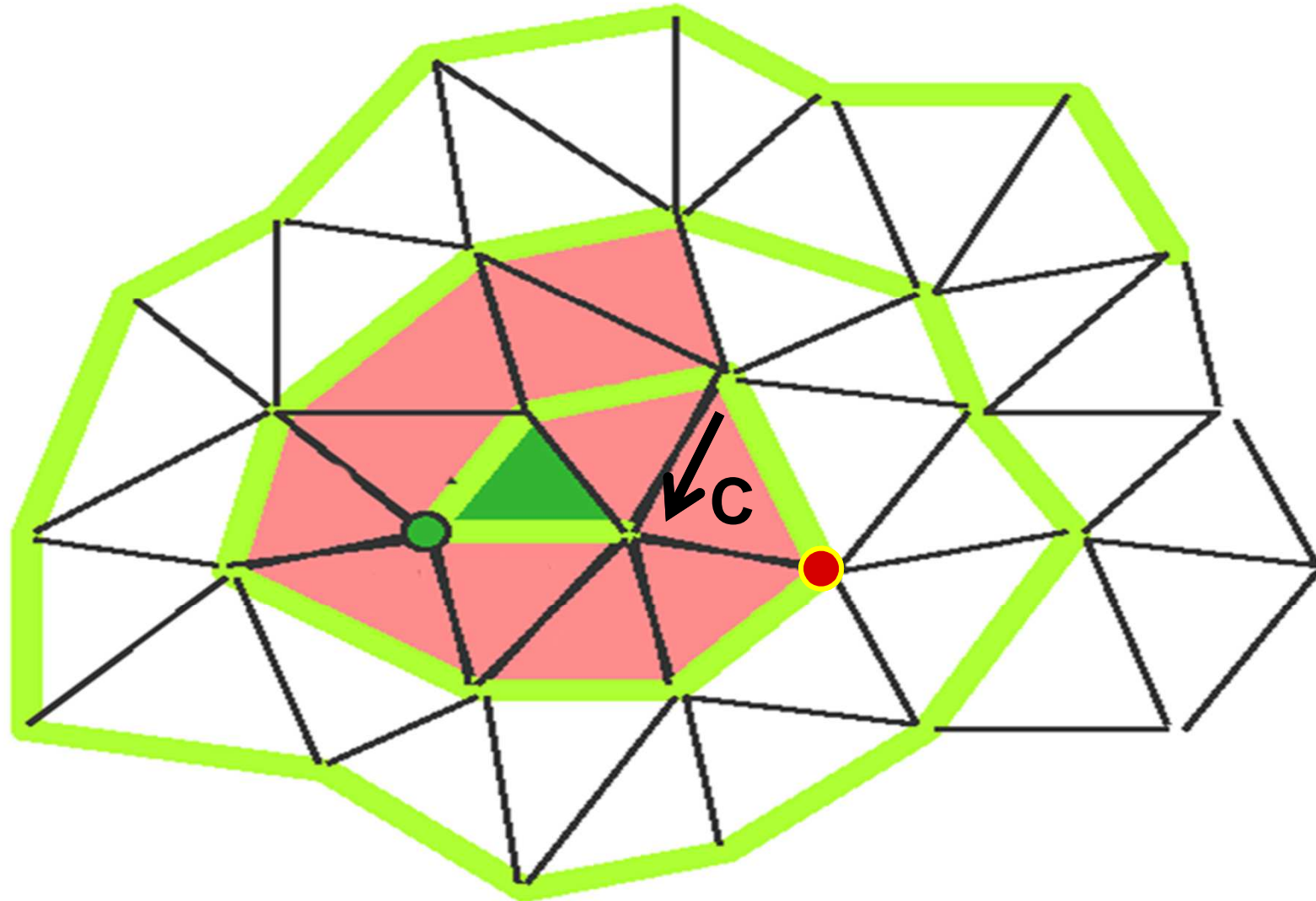
Exemple



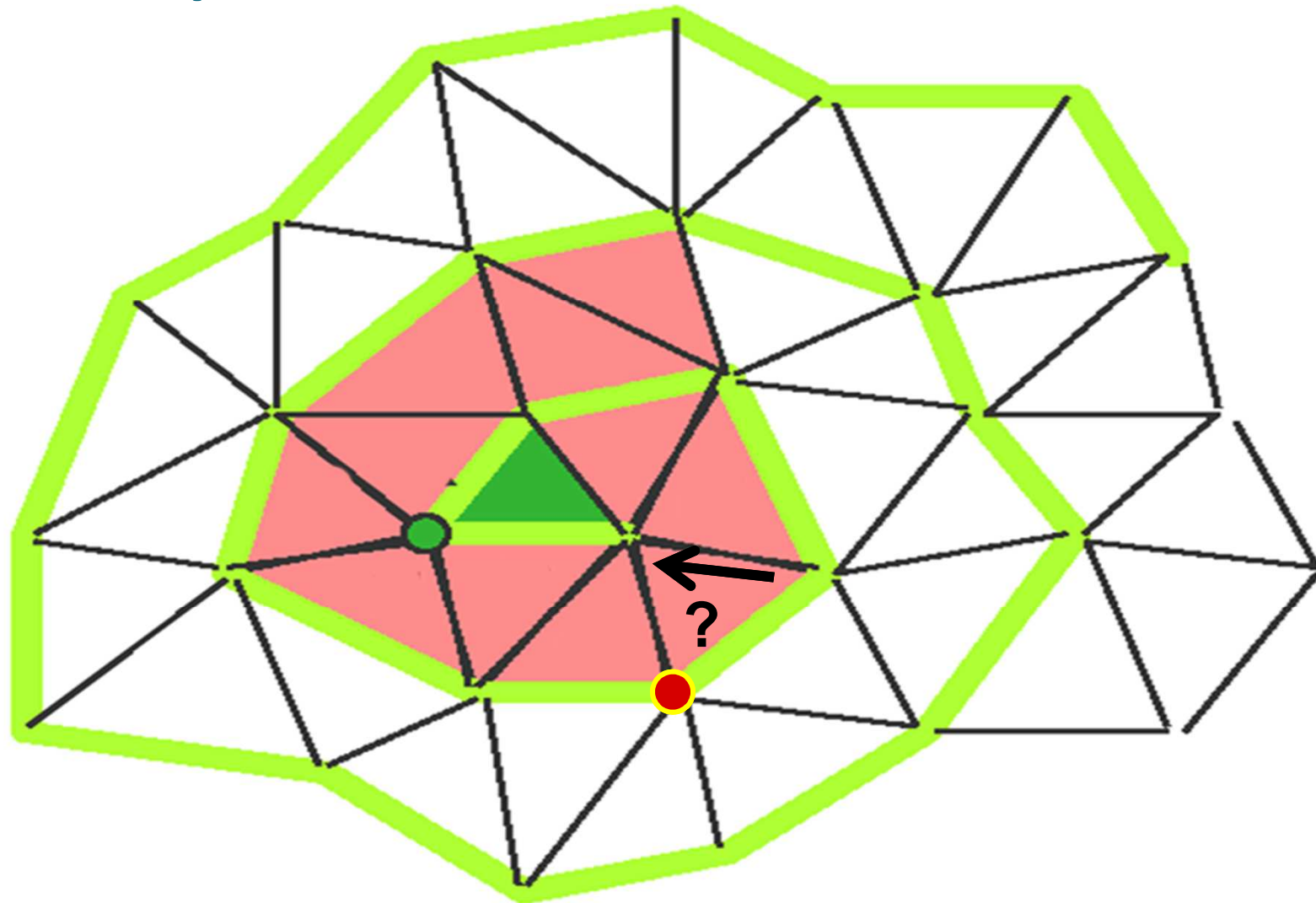
Exemple



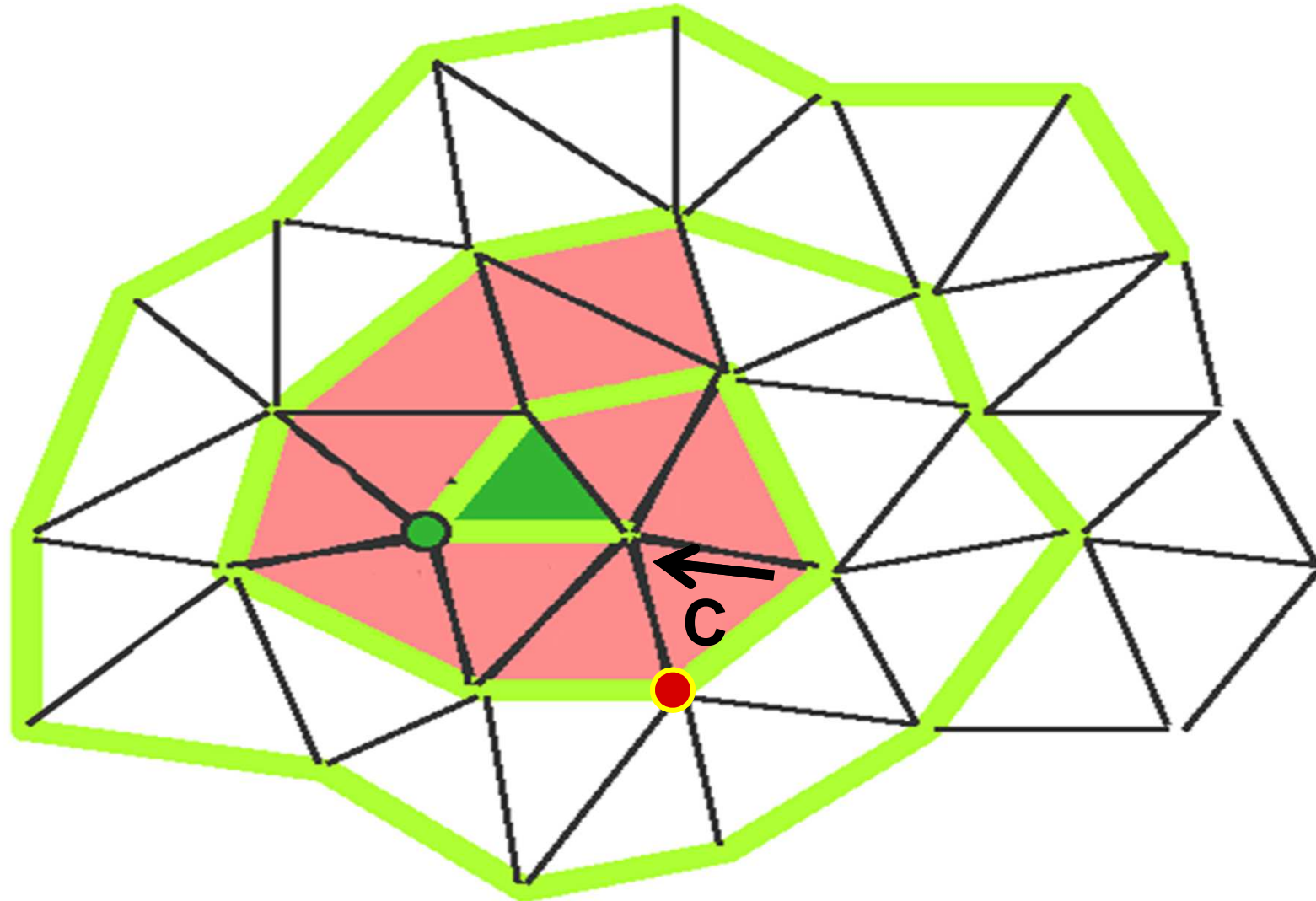
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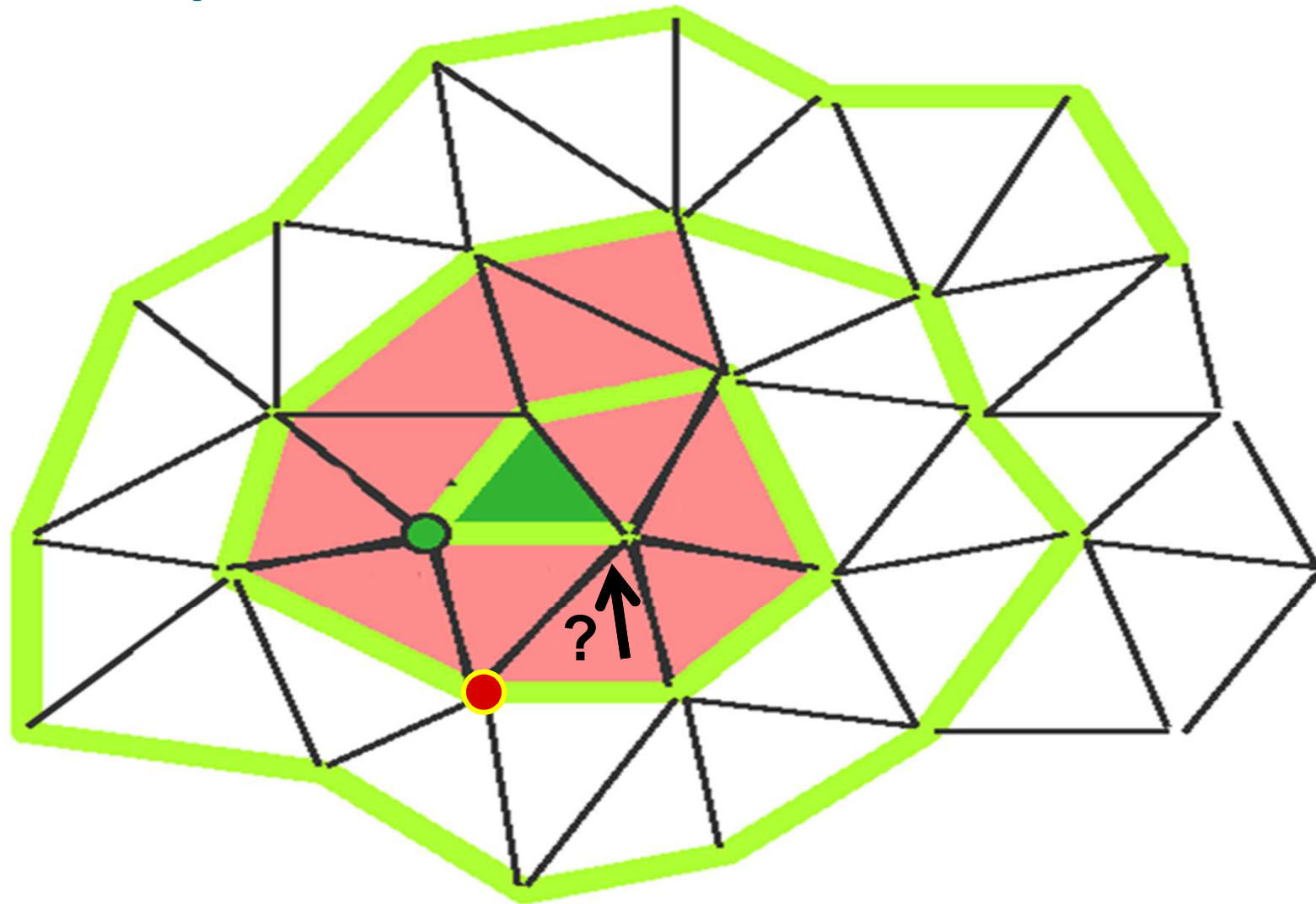
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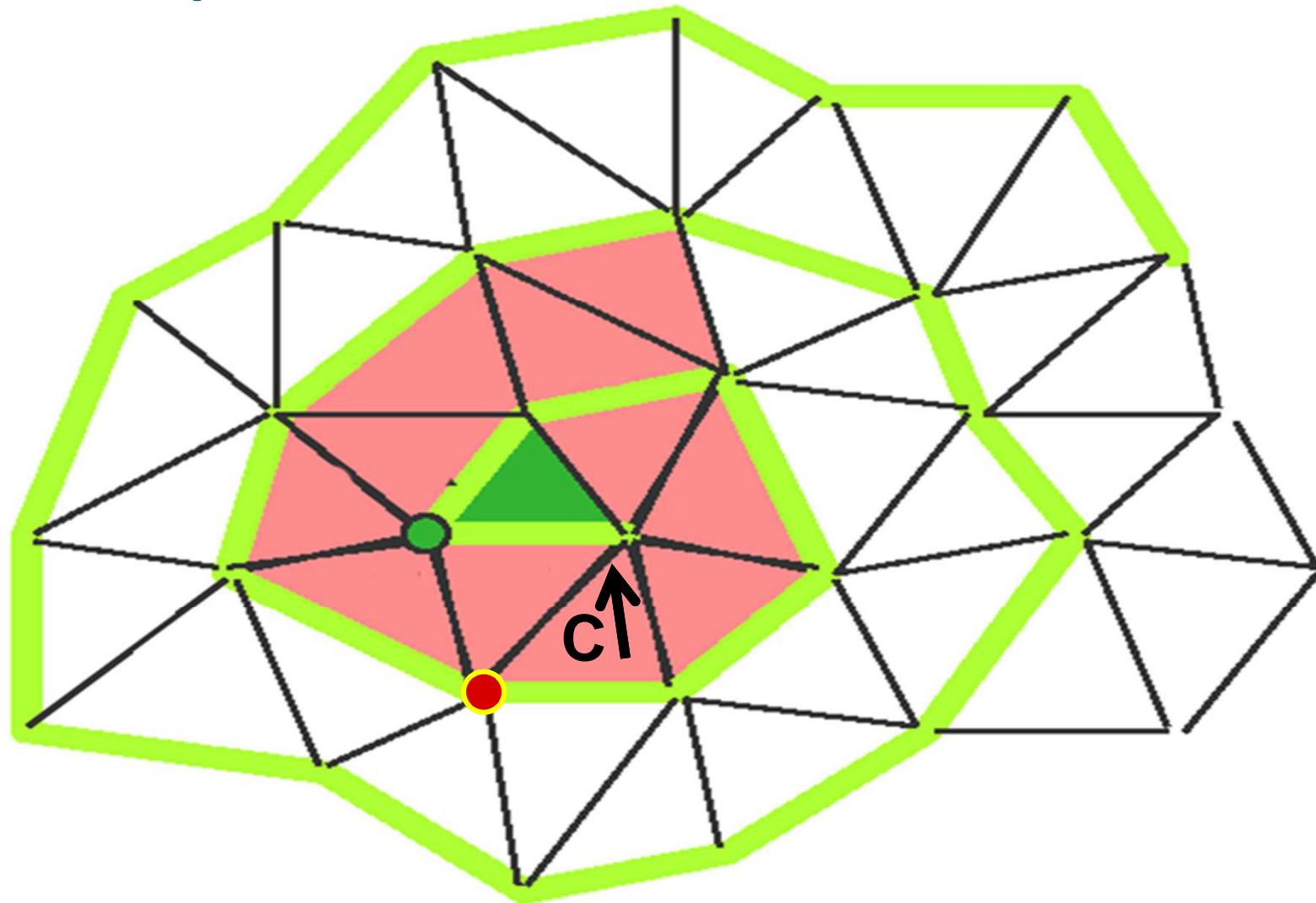
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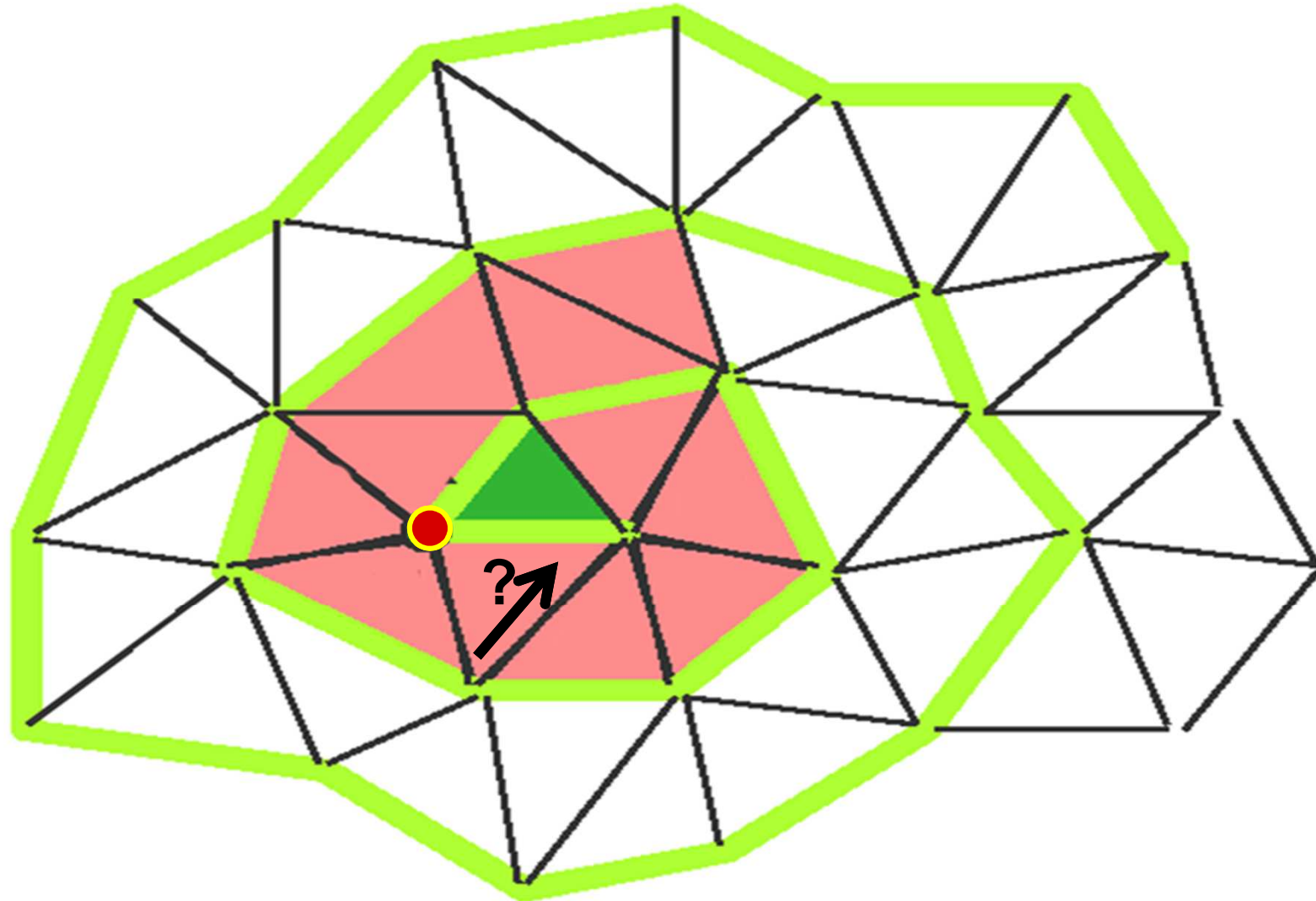
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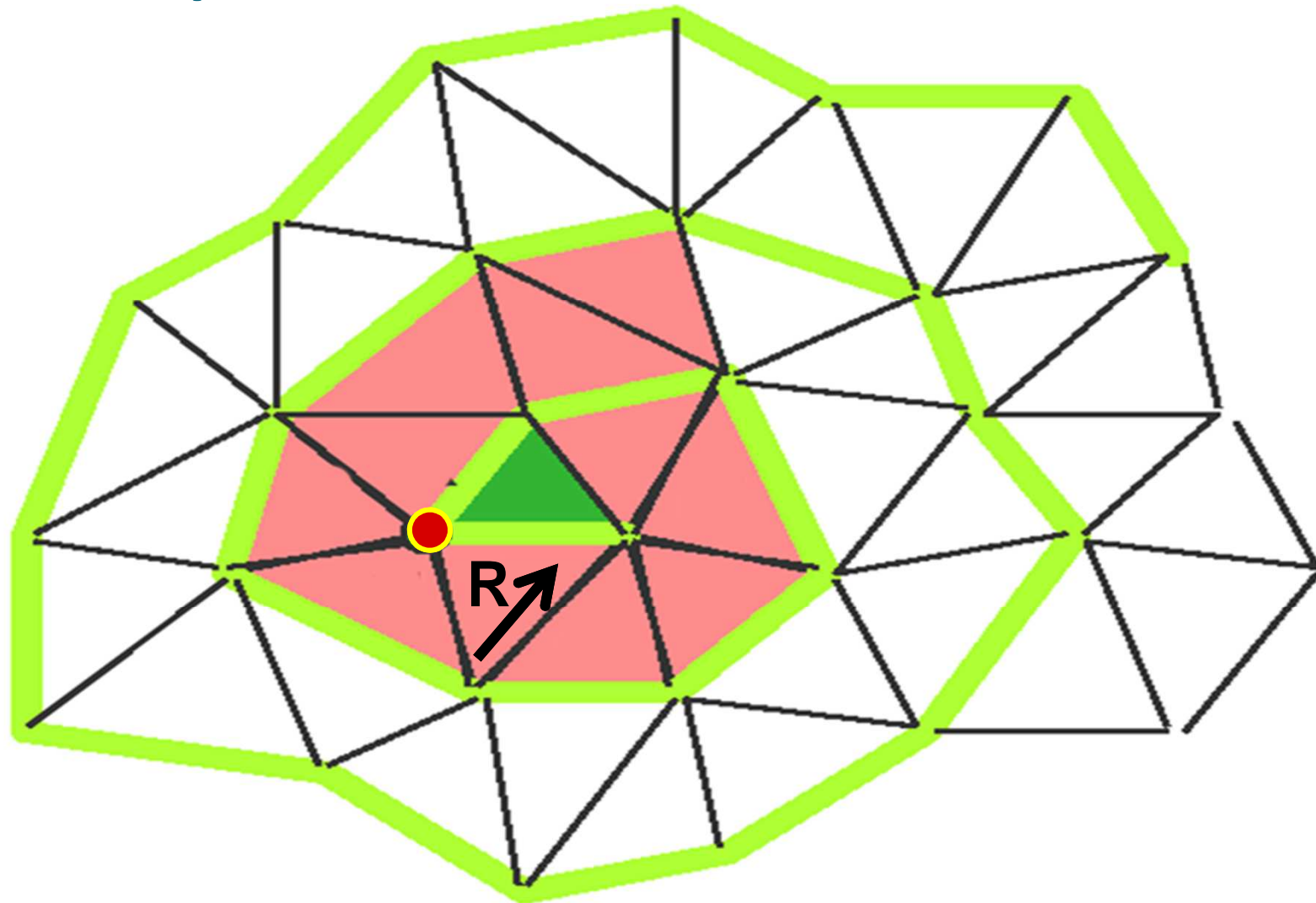
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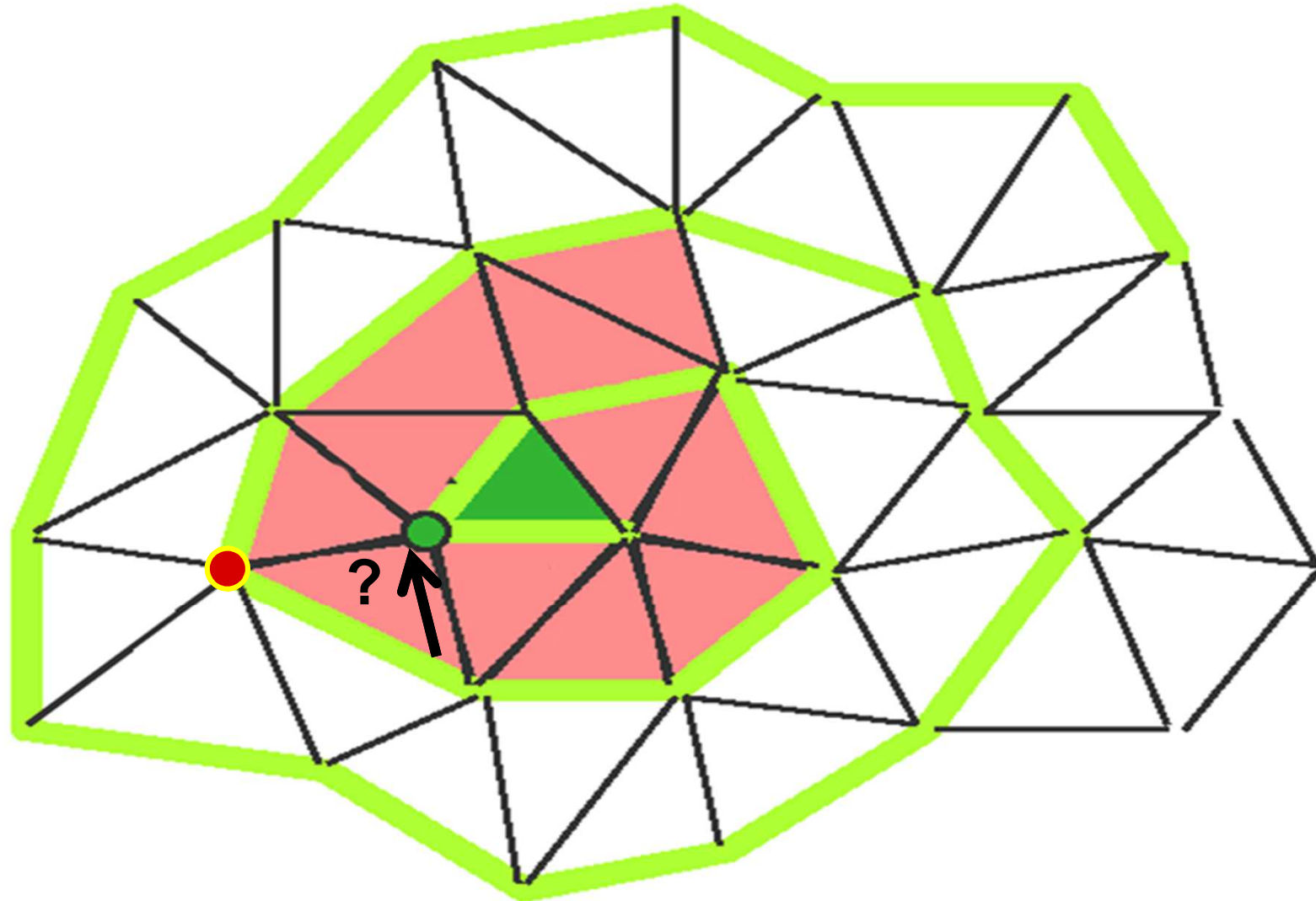
Exemple



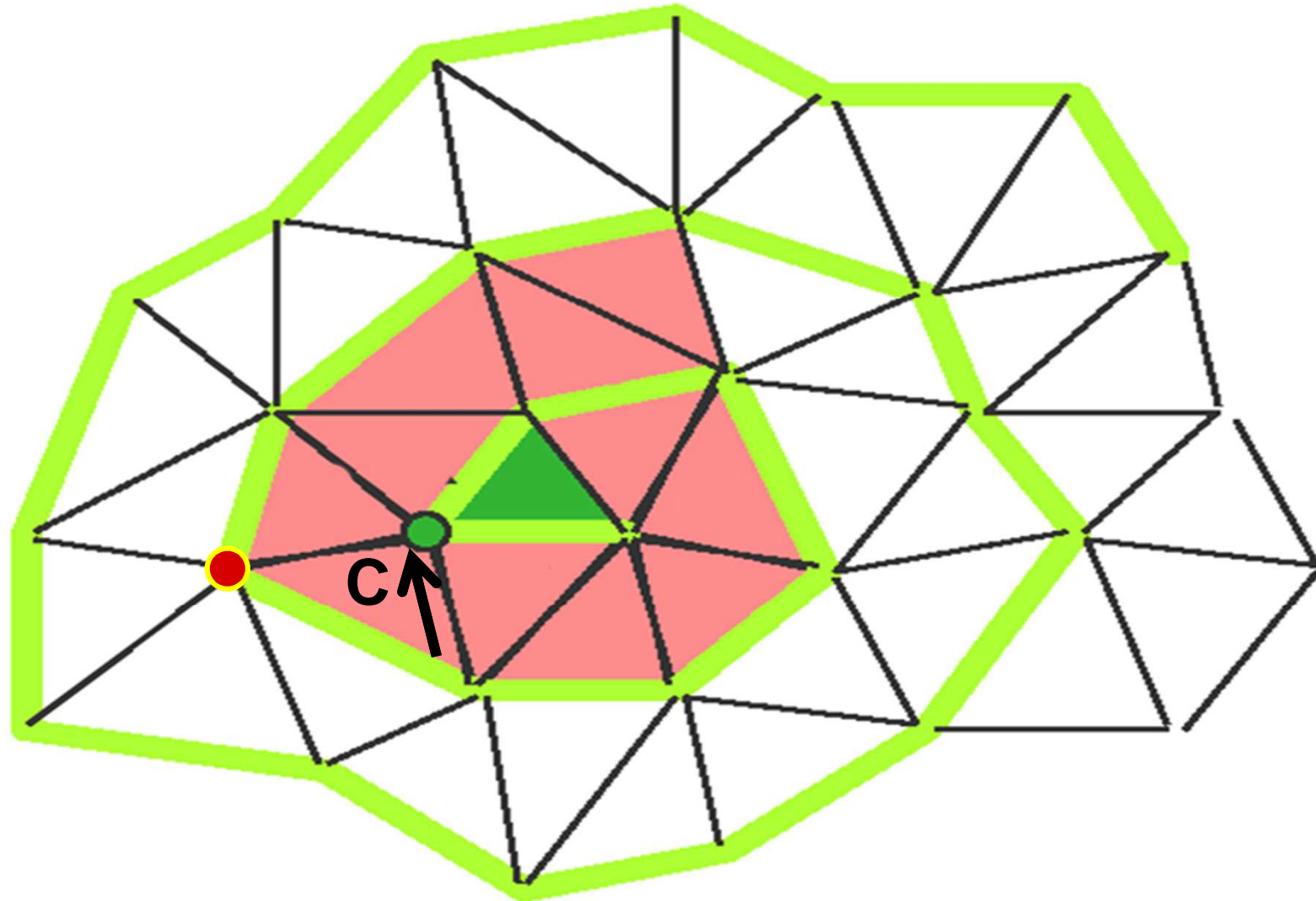
Exemple



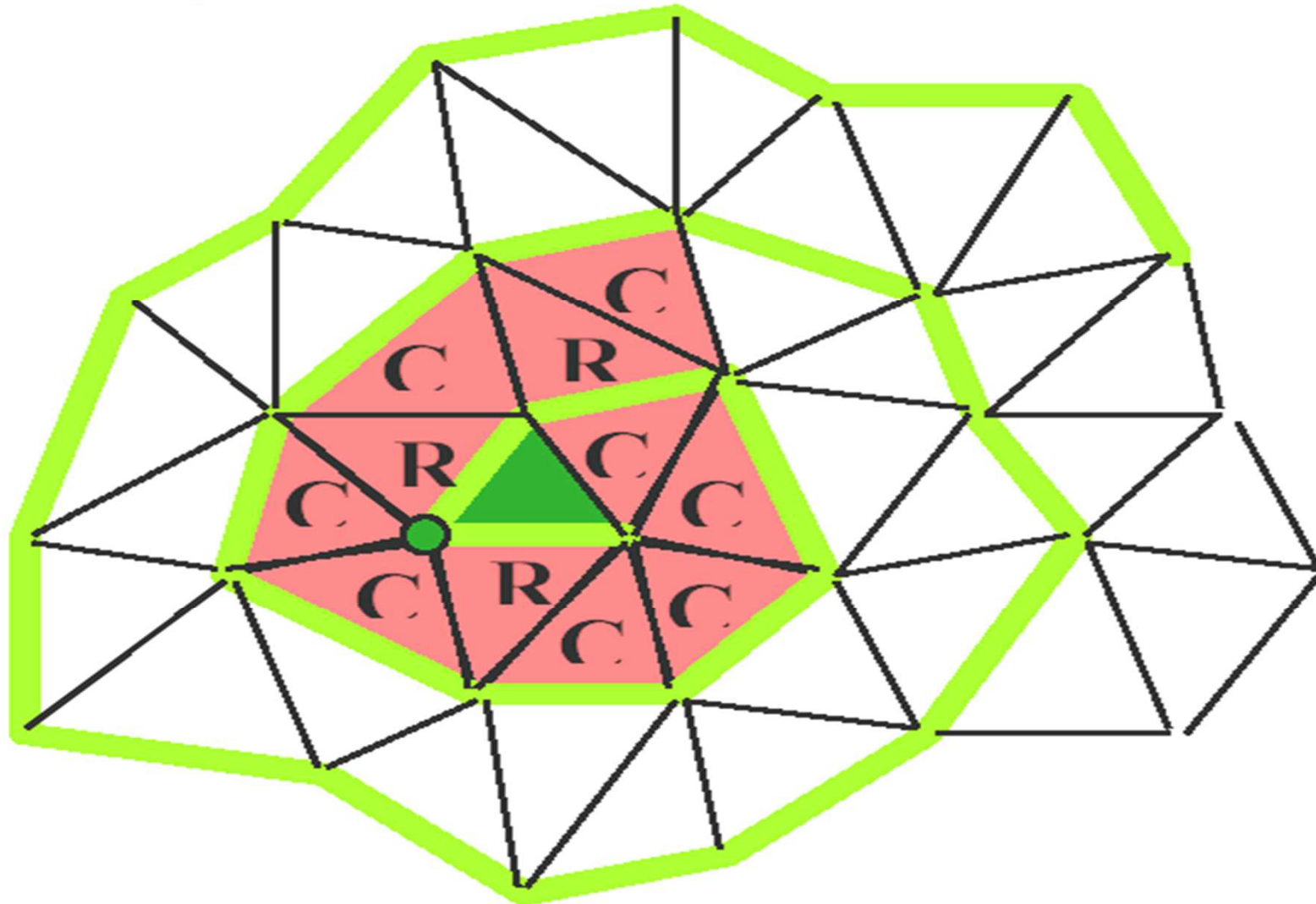
Exemple



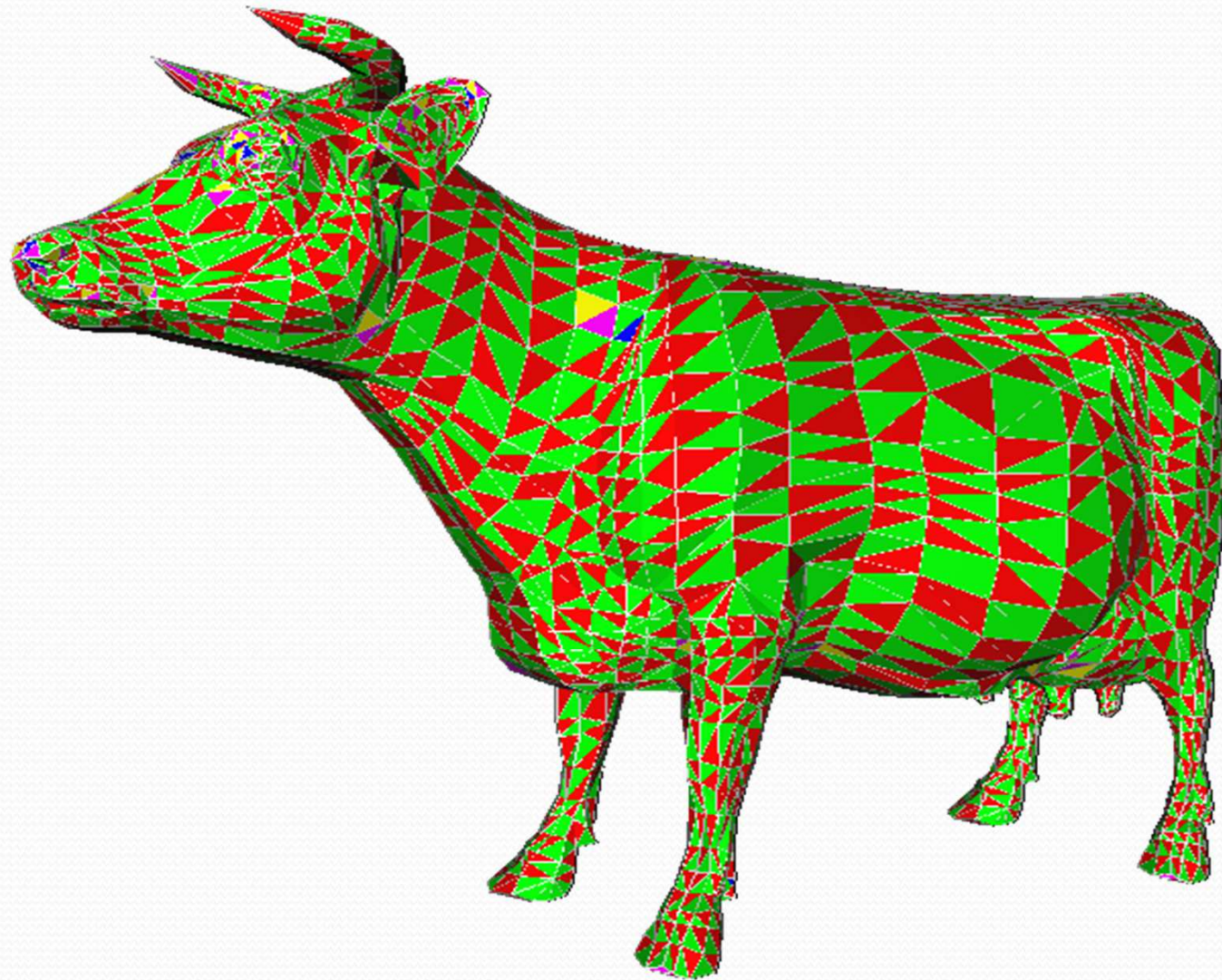
Exemple



Exemple



Demo

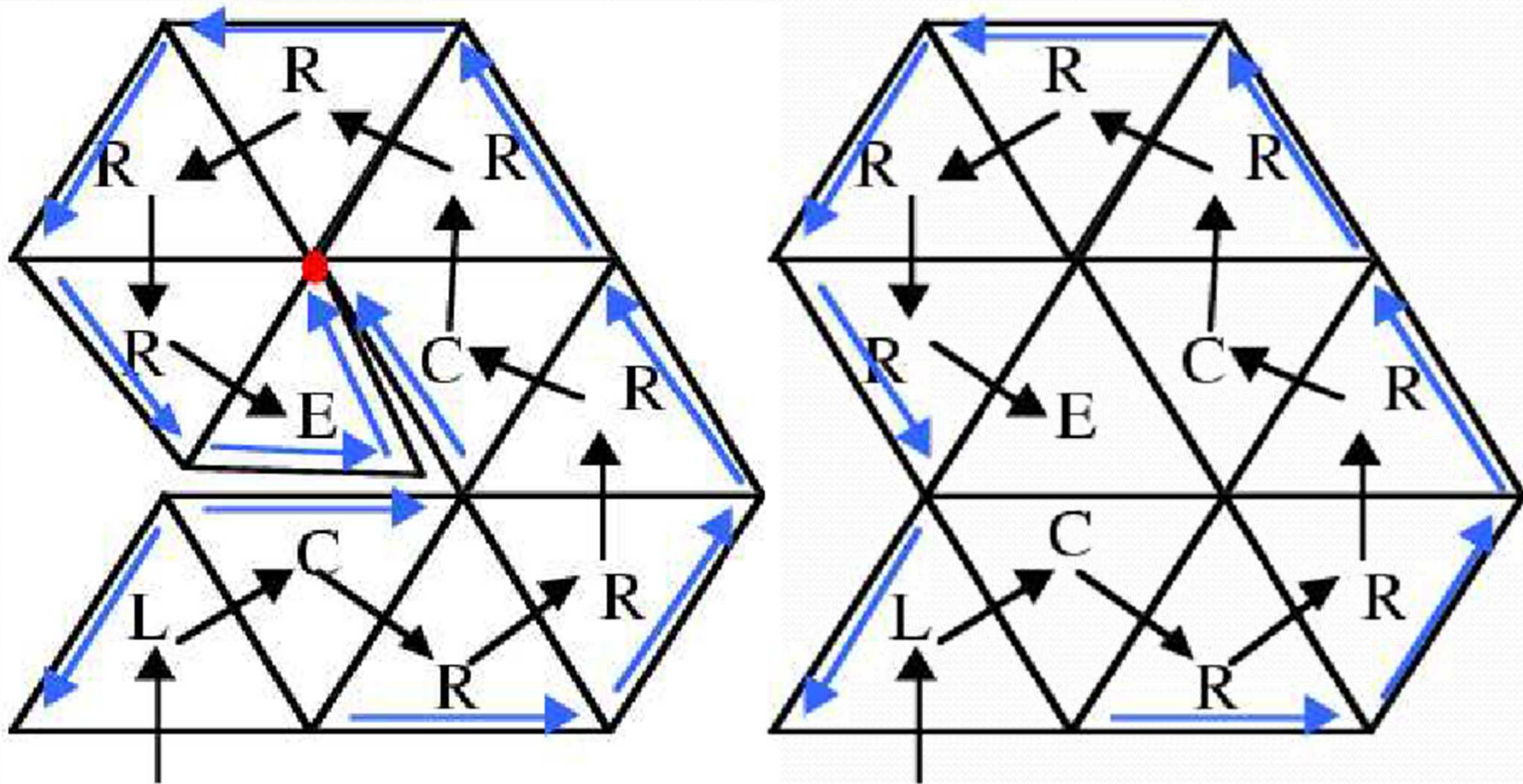


Codificació de cada símbol

C	L	E	R	S
0	110	111	101	100

C → C	C → R	C → S
0	11	10

Decompresió



Bibliografia

- Michael F. Deering. [Geometry compression](#). In *Proceedings of SIGGRAPH 95*, pages 13–20, August 1995.
- Gabriel Taubin and Jarek Rossignac. [Geometric compression through topological surgery](#). *ACM Transactions on Graphics*, 17(2):84–115, April 1998.
- Jarek Rossignac. [Edgebreaker: Connectivity compression for triangle meshes](#). *IEEE Transactions on Visualization and Computer Graphics*, 5(1):47–61, Jan–Mar 1999.
- Jarek Rossignac and Andrzej Szymczak. [Wrap&zip decompression of the connectivity of triangle meshes compressed with edgebreaker](#). *Computational Geometry*, 14:119–135, 1999.