

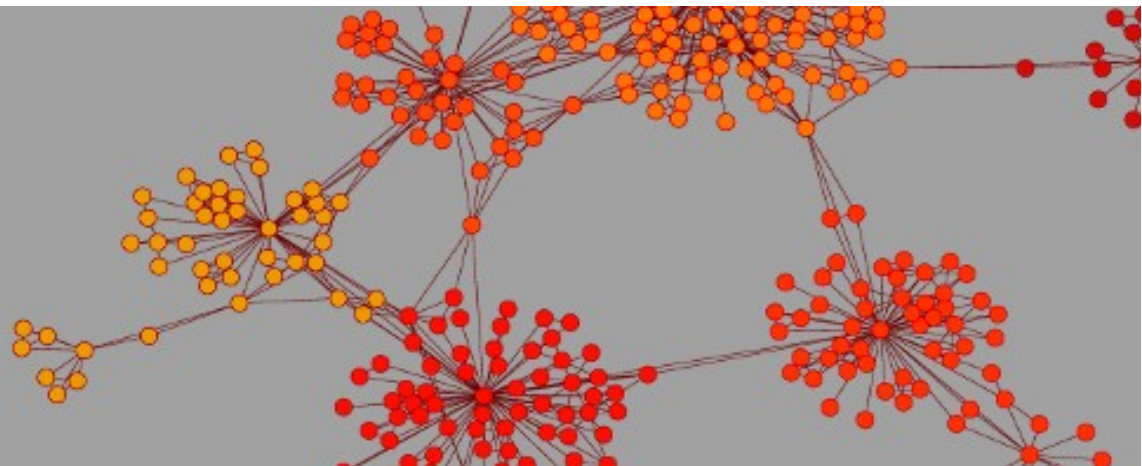
Tertúlia Recerca i Big Data | Big Data dins l'empresa

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XARXA CATALANA PER A L'ESTUDI DELS SISTEMES COMPLEXOS
CATALAN NETWORK FOR THE STUDY OF COMPLEX SYSTEMS



Dades?

- Generem en base a processos dinàmics
- Dinàmica humana
- Experiments
- Ciències socials
- Ciències de la vida: seqüenciació, -òmica
- Som els protagonistes de l'experiment

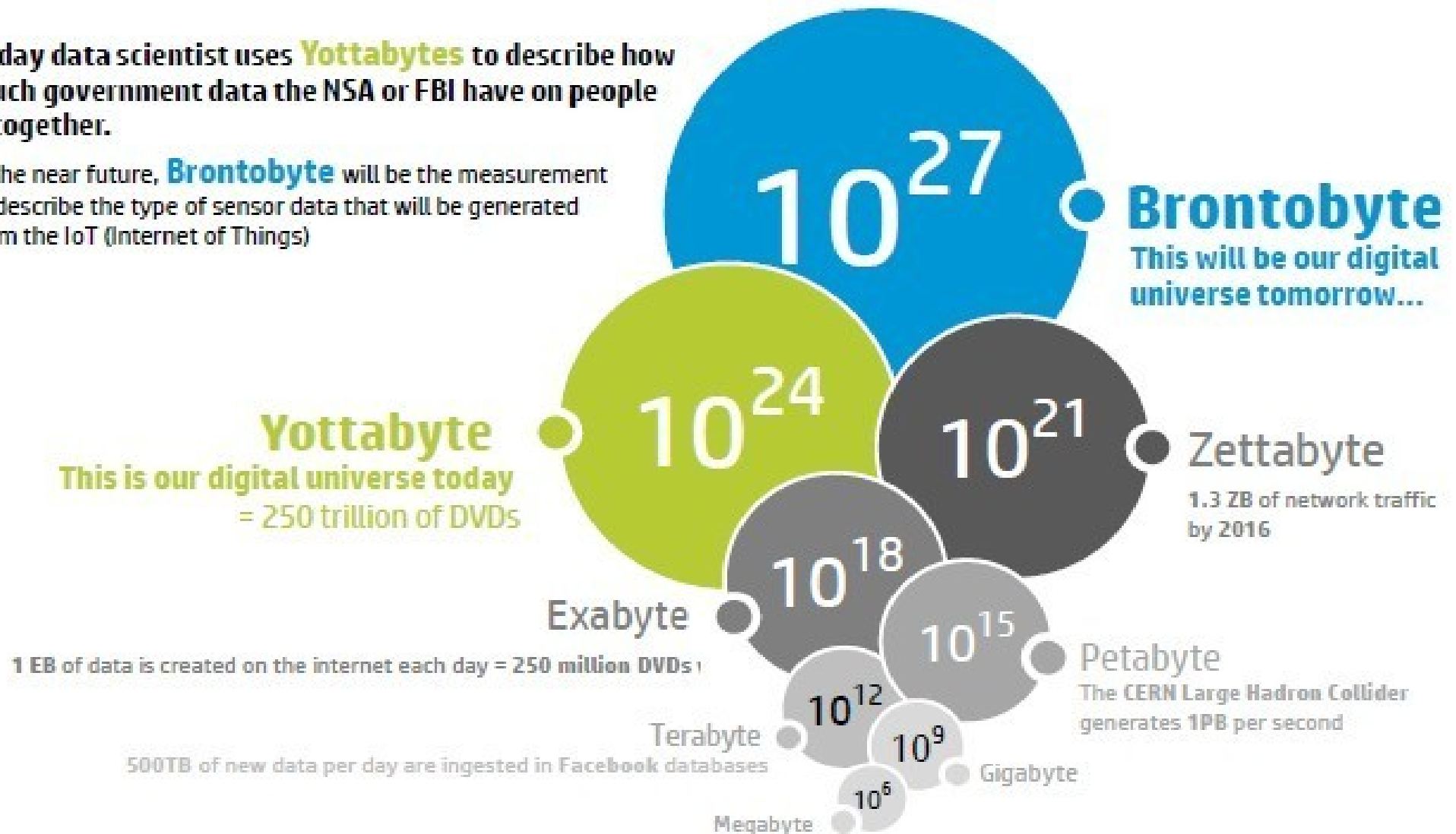
Big Data



Ordres de magnitud

Today data scientist uses **Yottabytes** to describe how much government data the NSA or FBI have on people altogether.

In the near future, **Brontobyte** will be the measurement to describe the type of sensor data that will be generated from the IoT (Internet of Things)



Interès científic

- Recollir
- Mesurar
- Caracteritzar
- Modelitzar
- Predir

Big data per tot arreu

- Munts de dades són recollides i emmagatzemades
- Navegació web, comerç electrònic
- Compres
- Bancs / Targetes de crèdit
- Xarxes socials
- Mobilitat



Qui té les dades?

- Operadors de telefonia
- Buscadors: Google. Fou la que amb més precissió podia determinar l'avenç de la grip A (H1N1)
- Empreses de serveis
- Bancs
- Però nosaltres SOM les dades! (per què FB és gratis?)
- Ho acceptem? Beneficiaris de la seva gestió!

Twitter



Valdis Krebs @ValdisKrebs · May 15

How does information flow in your organization?

- vertically
- horizontally
- diagonally
- all of the above

[thenetworkthinkers.com/2014/05/organizational-x-rays-and-mris.html](http://www.thenetworkthinkers.com/2014/05/organizational-x-rays-and-mris.html)

→ <http://www.thenetworkthinkers.com/2014/05/organizational-x-rays-and-mris.html>

TNT – The Network Thinkers

Practical applications of network analysis... helping you *see* your interconnected world.

TNT

This blog is focused on "exploding" old concepts and thinking about economies, organizations, communities, and groups.

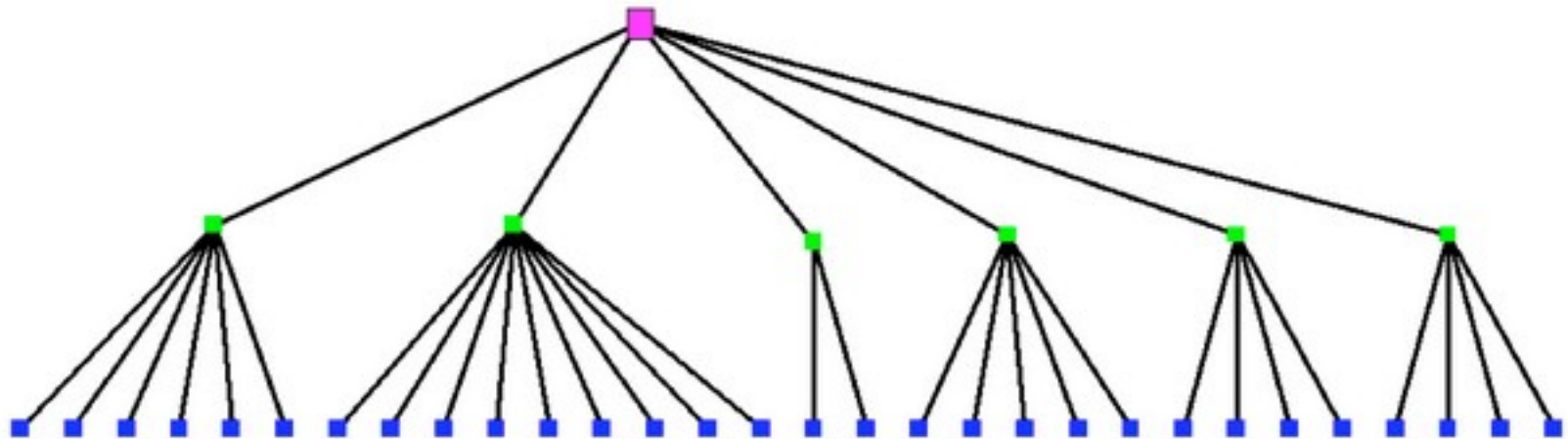
We focus on patterns of connectivity and self-organizing behavior in economic and social networks. We investigate how networked structures lead to resilience, adaptability, agility, transparency, and innovation.

May 10, 2014

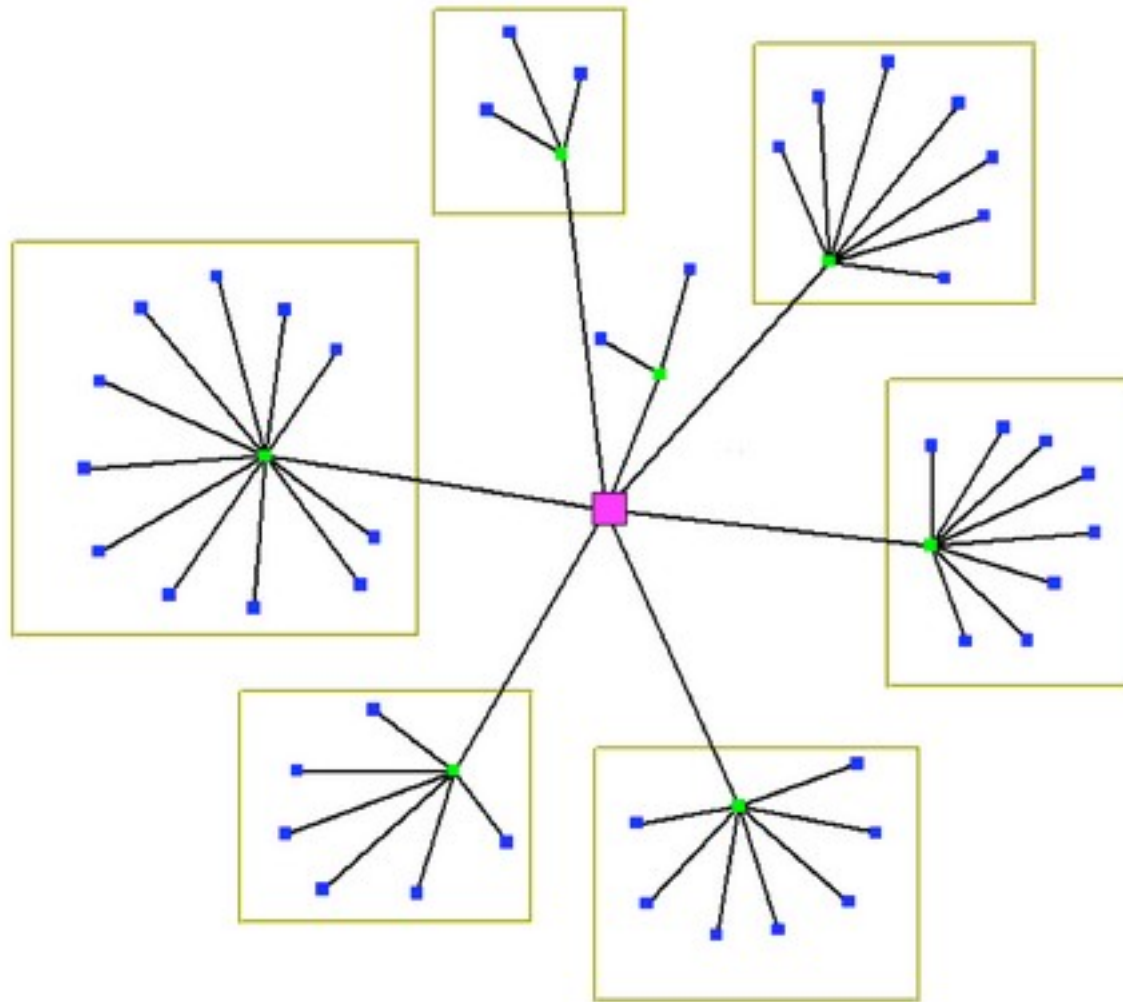
Organizational X-Rays and MRIs

What happens when we x-ray an organization and see how it is structured -- how it really works? Here, the organizational x-ray is performed via [social network analysis \[SNA\]](#), using [InFlow](#) software.

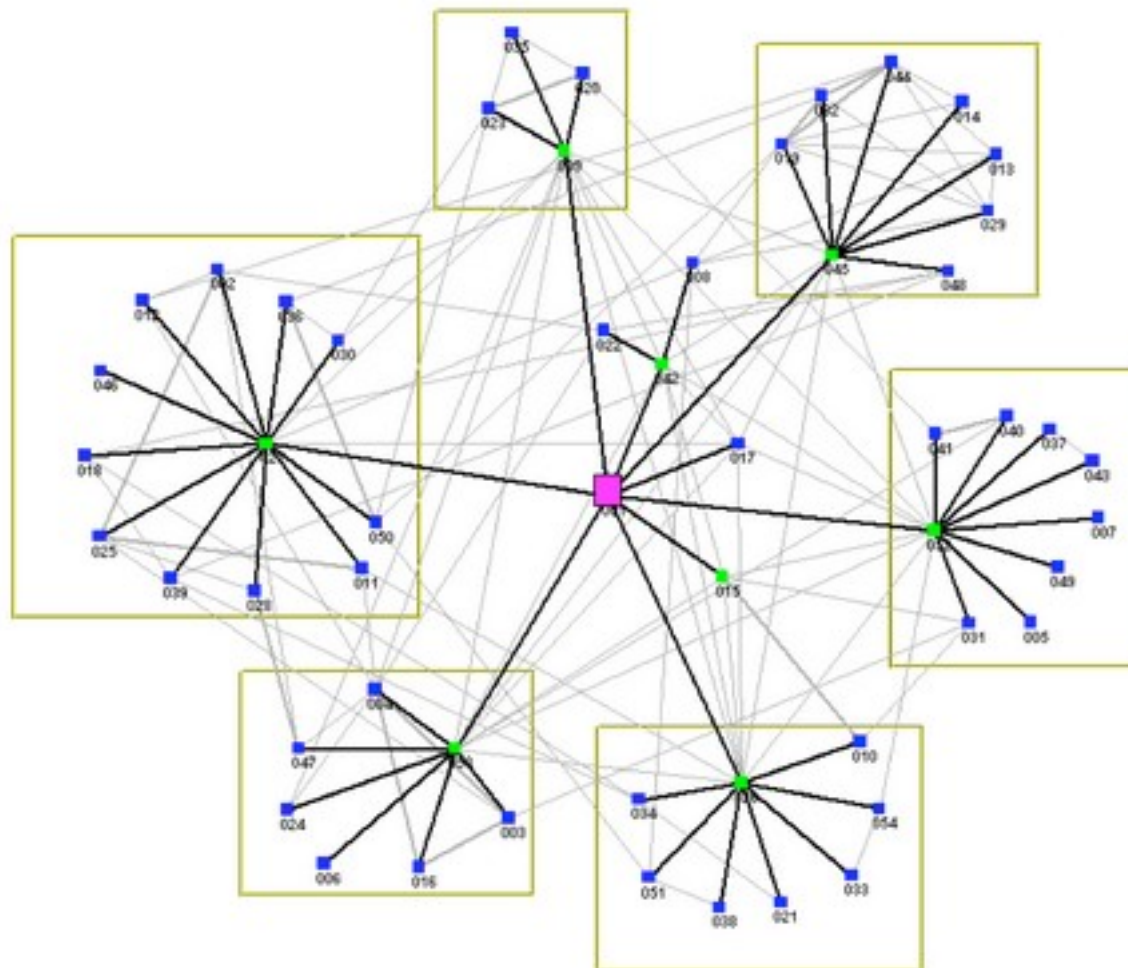
We normally view our organizations as hierarchies, or pyramids, with the top executive at the top of the structure. Figure 1 below is a hierarchical view of the top 3 layers in an I/T department in California.



Estructura de xarxa



Estructura + “work flow”



Correu-e a les organitzacions

- Empresa que havia fet una reforma estructural
- Passar de 7 a 4 nivells d'organització
- Promoure estructura interna de grups (empowerment)
- Qüestionaris
 - Cars
 - Temps
 - Esbiaixats

Proposta: log-files

```
Sep 25 13:17:31 aarenas sendmail[9793]: f8PBHV009793: from=<aarenas@etse.urv.es>, size=972,  
class=0, nrcpts=2,msgid=<Pine.LNX.4.33.0109251315110.9149-  
100000@aarenas.etse.urv.es>,bodytype=8BITMIME, proto=ESMTP, relay=aarenas@localhost  
Sep 25 13:17:35 aarenas sendmail[9795]: f8PBHV009793: to=<rguimera@etseq.urv.es>,  
delay=00:00:04, xdelay=00:00:04, mailer=esmtplib, pri=60972, relay=mailgate.urv.es. [161.116.1.24],  
dsn=2.0.0, stat=Sent (OKid=15lptR-0003GI-00)
```

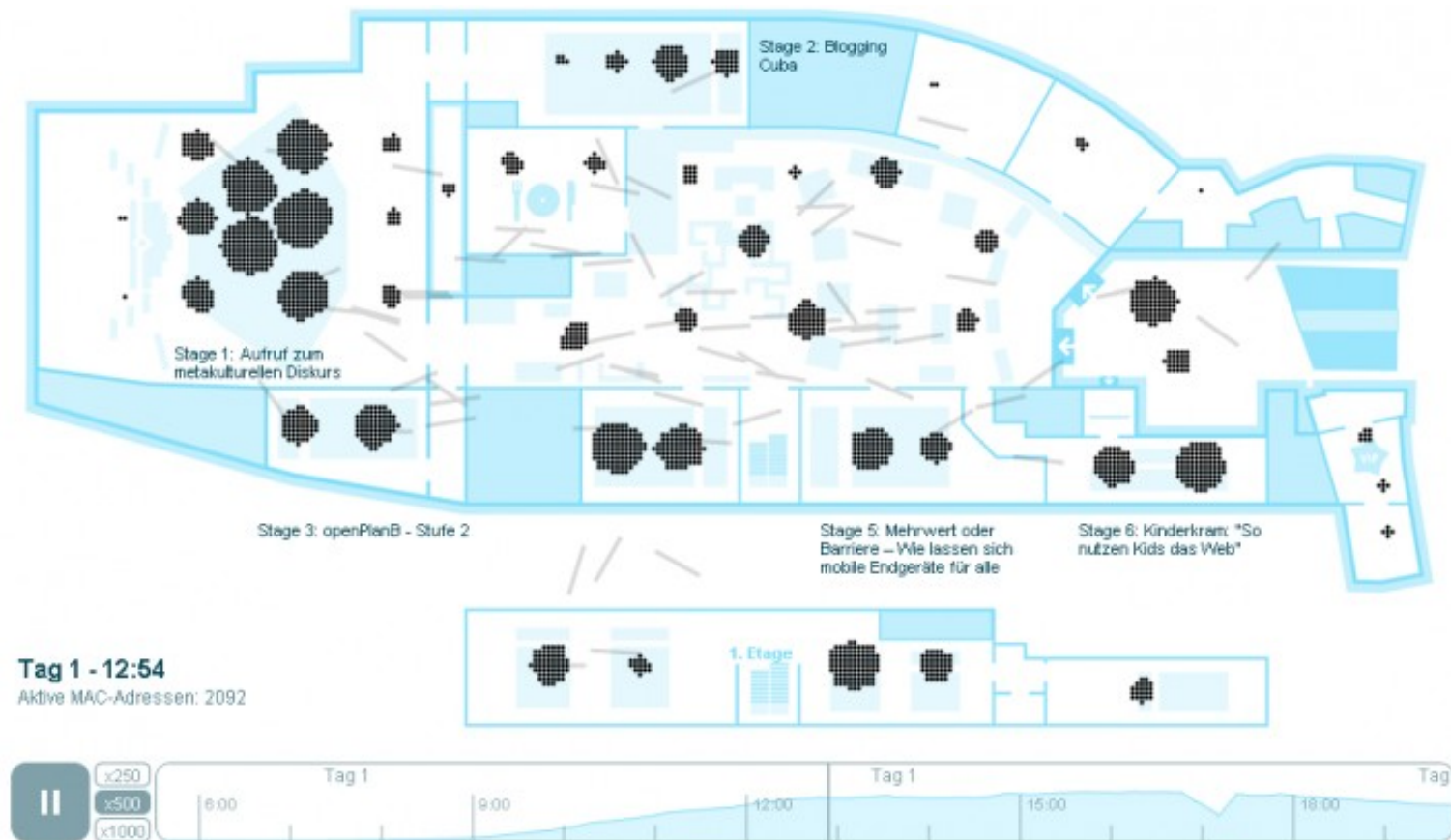
→ Xarxa:

- Node: adreça de correu
- Enllaç: comunicació bidireccional
- Eliminem spam

Alternatives

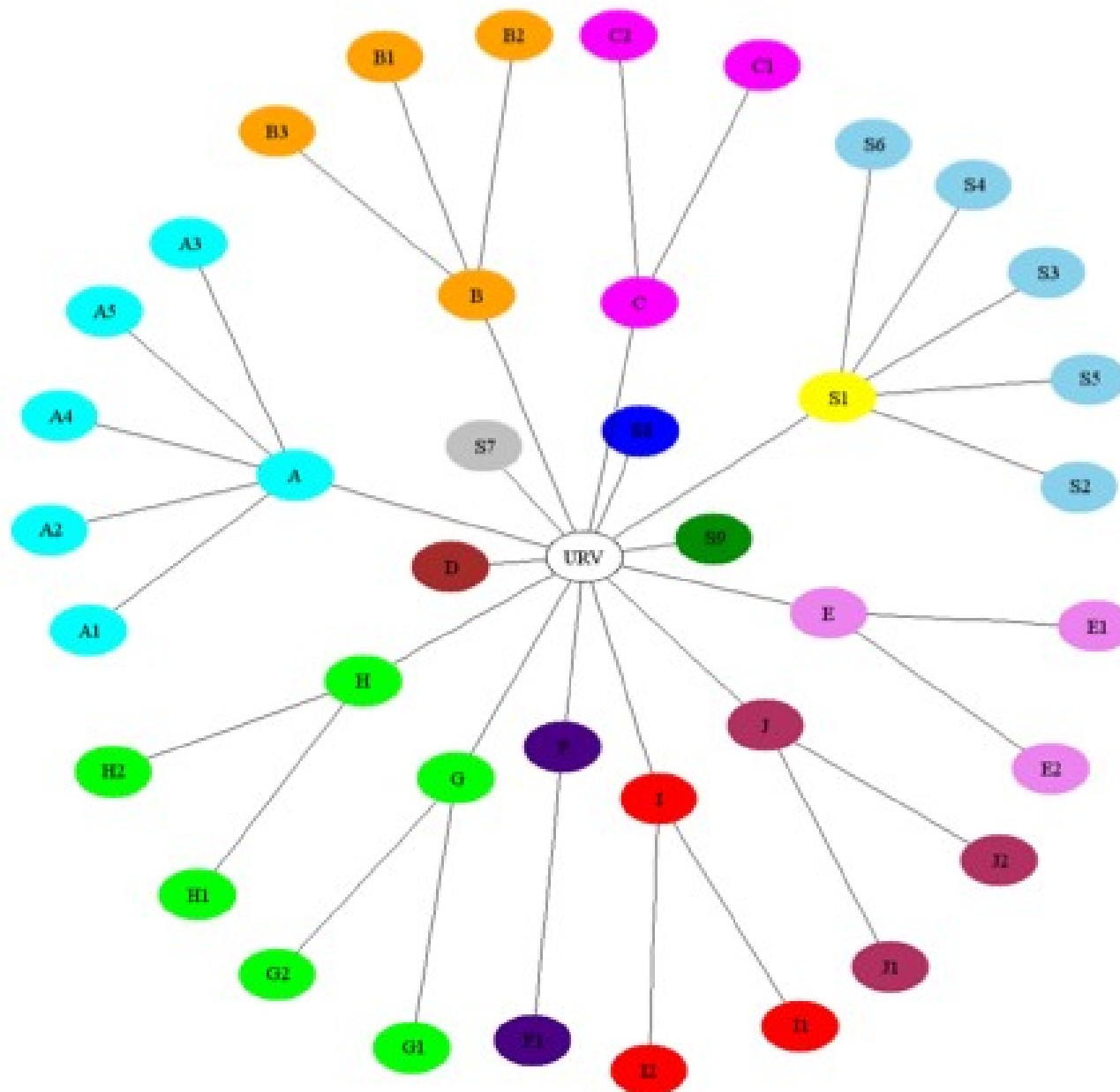
- Trucades internes, mòbils empresa,
- Reports interns
- Màquina cafè: xips de RF

Alternatives

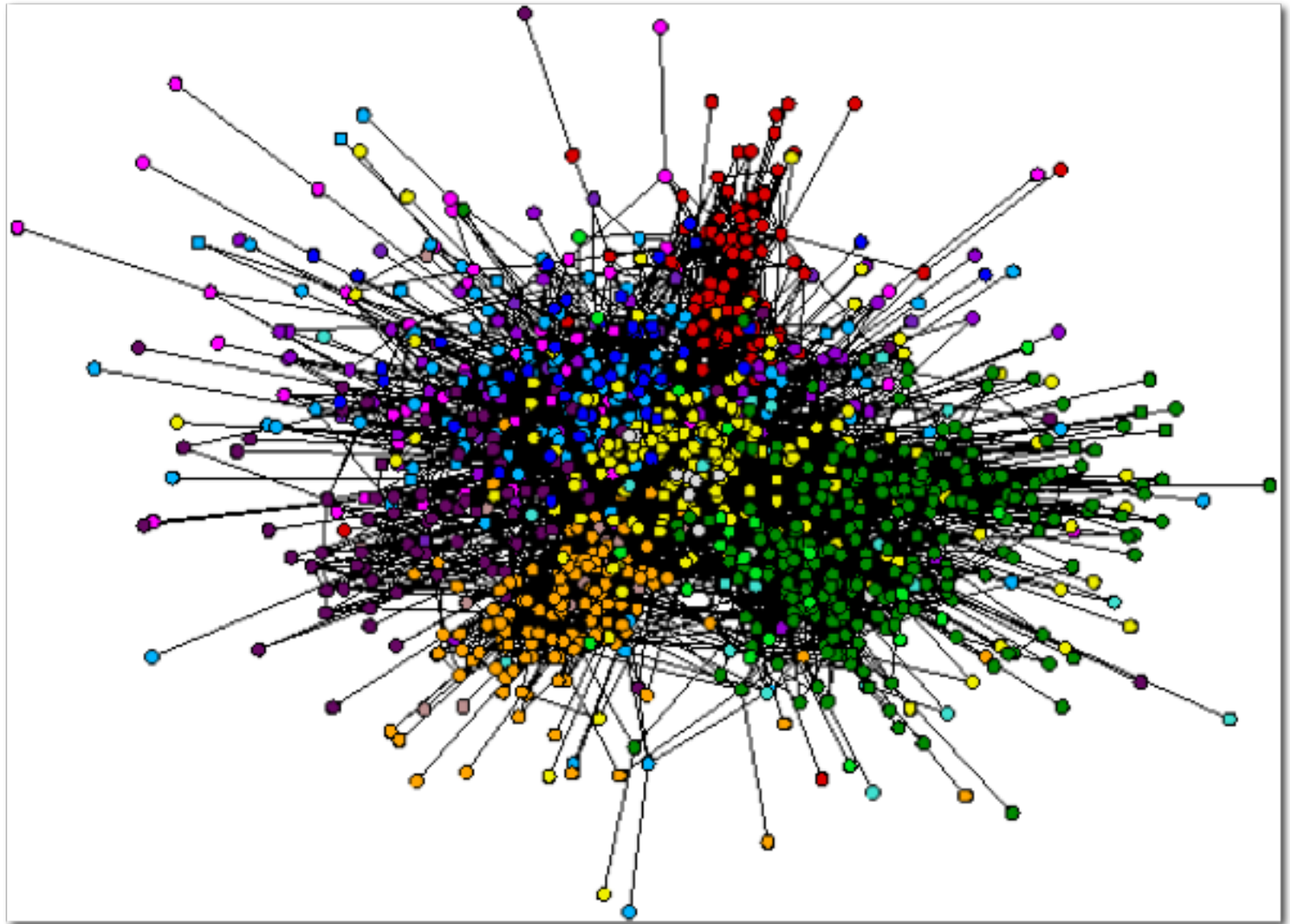


→ <http://apps.opendatacity.de/relog/>

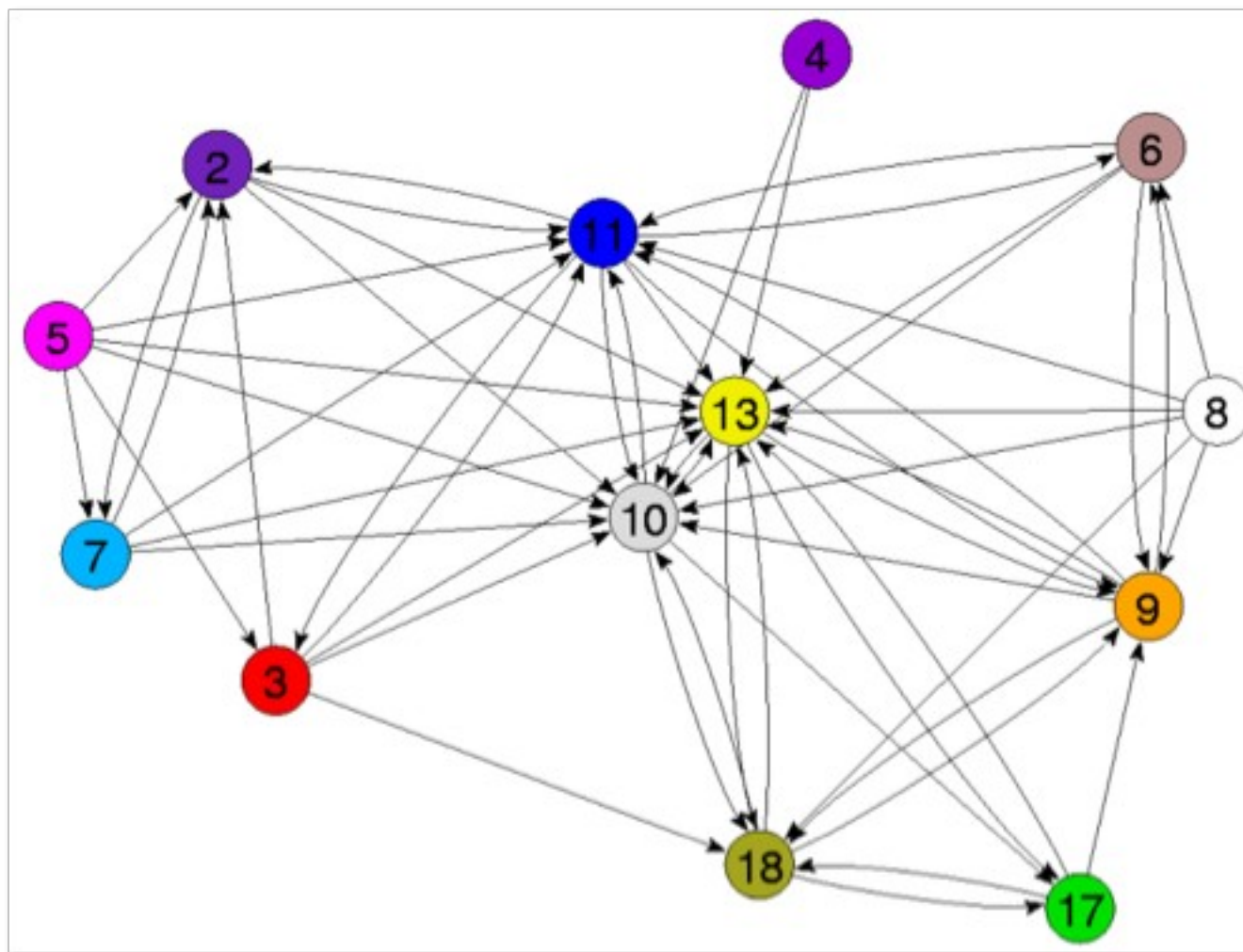
Què esperem?



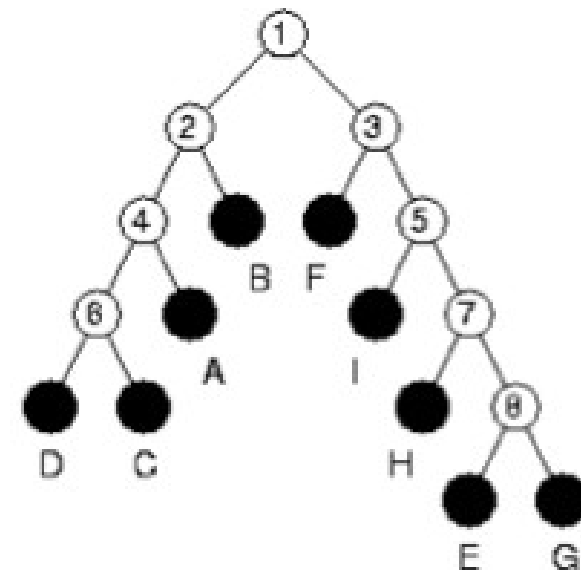
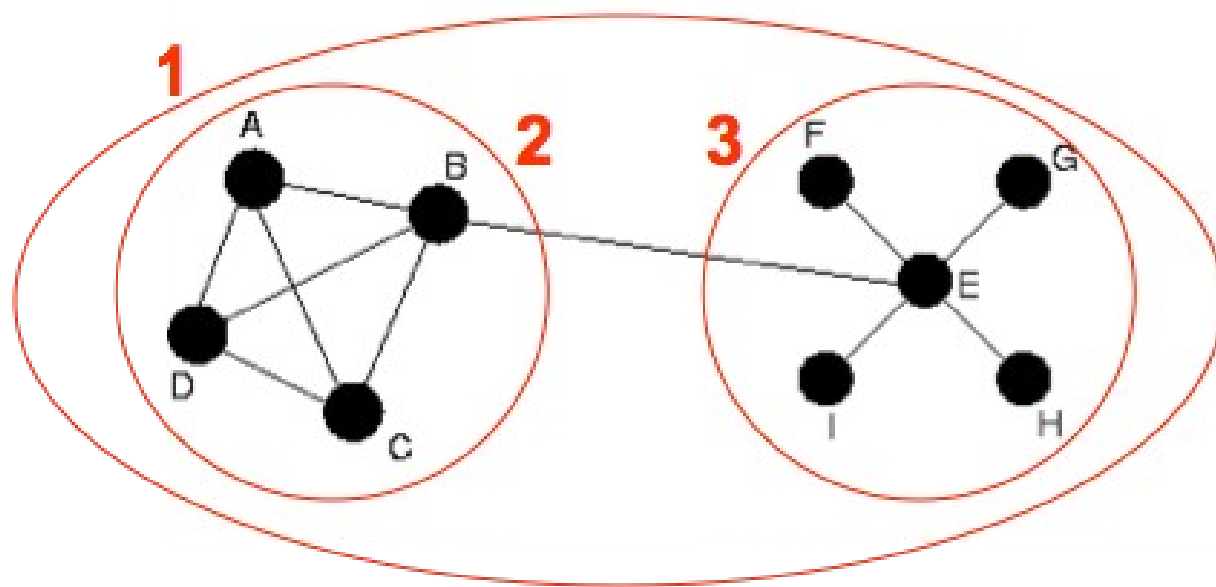
I què tenim?



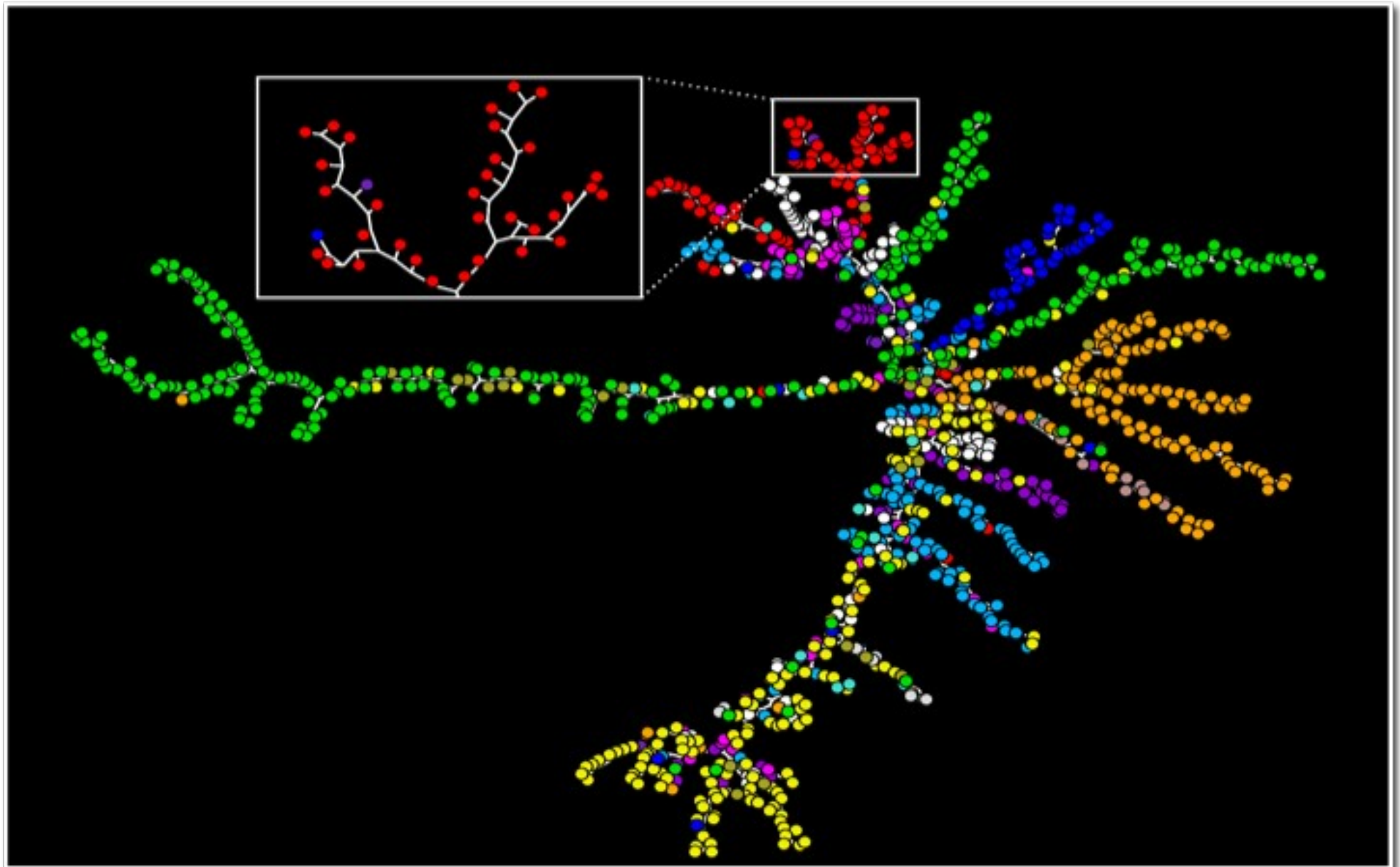
Distància entre centres



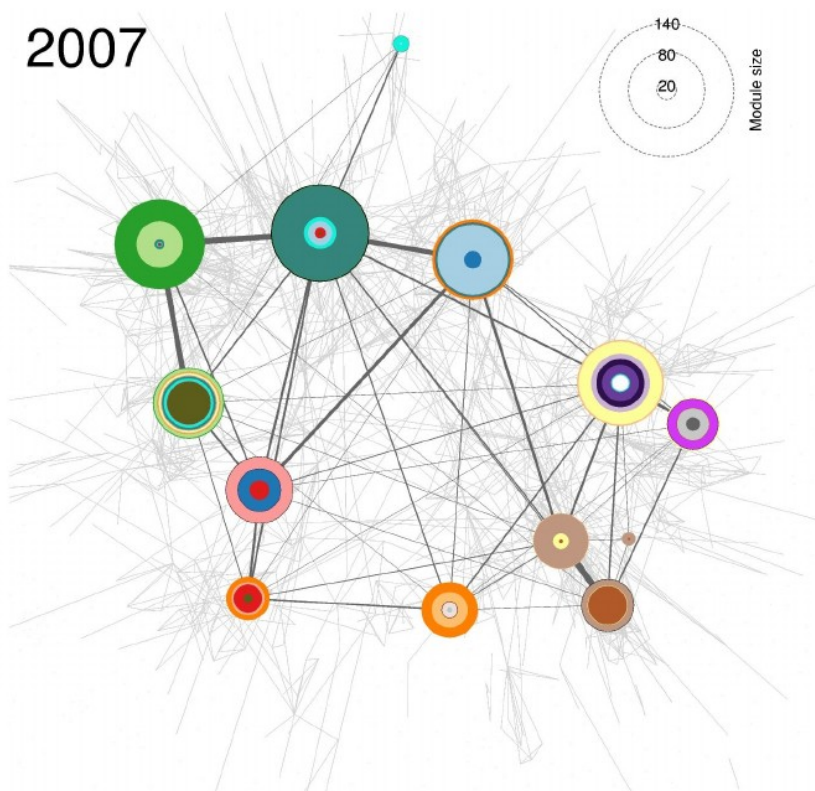
Comunitats



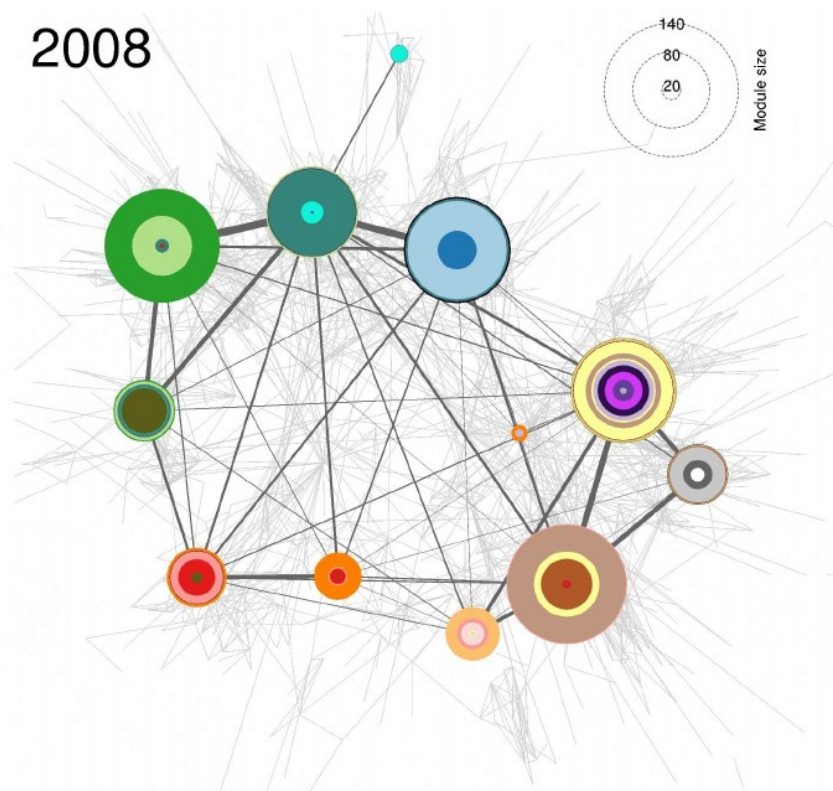
Comunitats a la URV



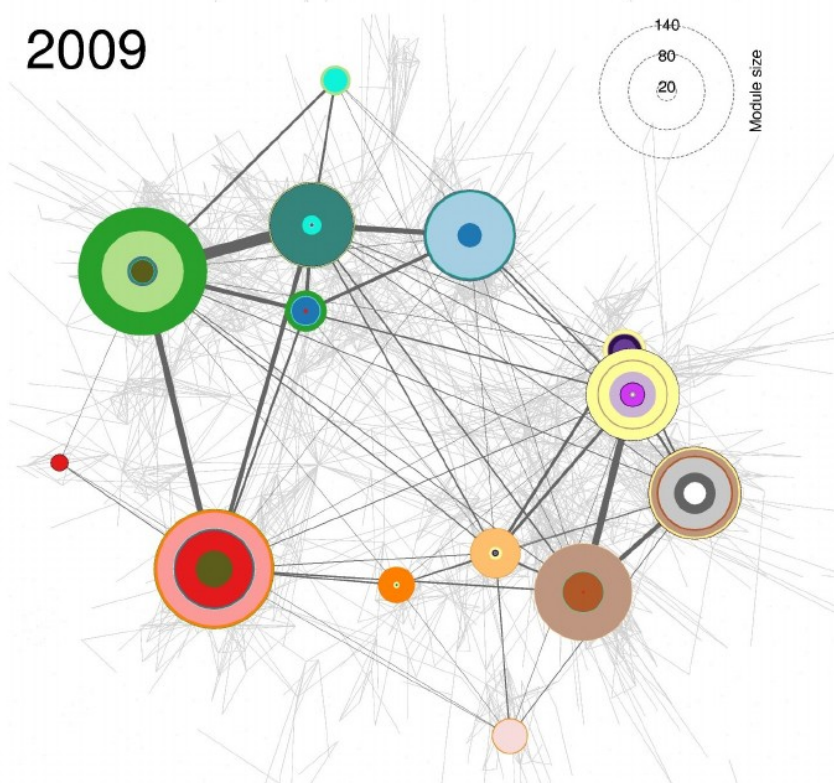
2007



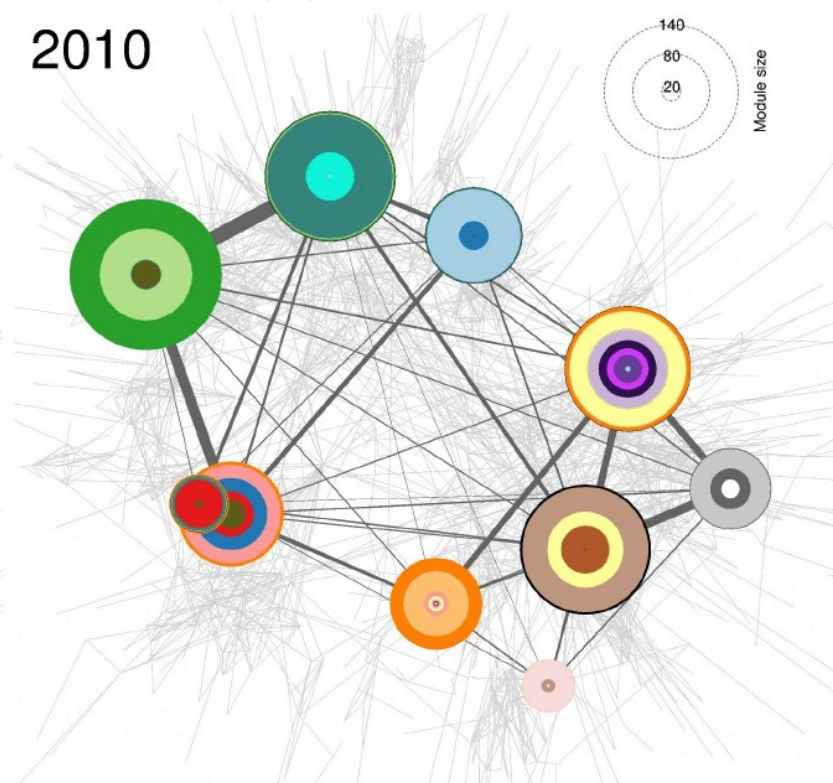
2008



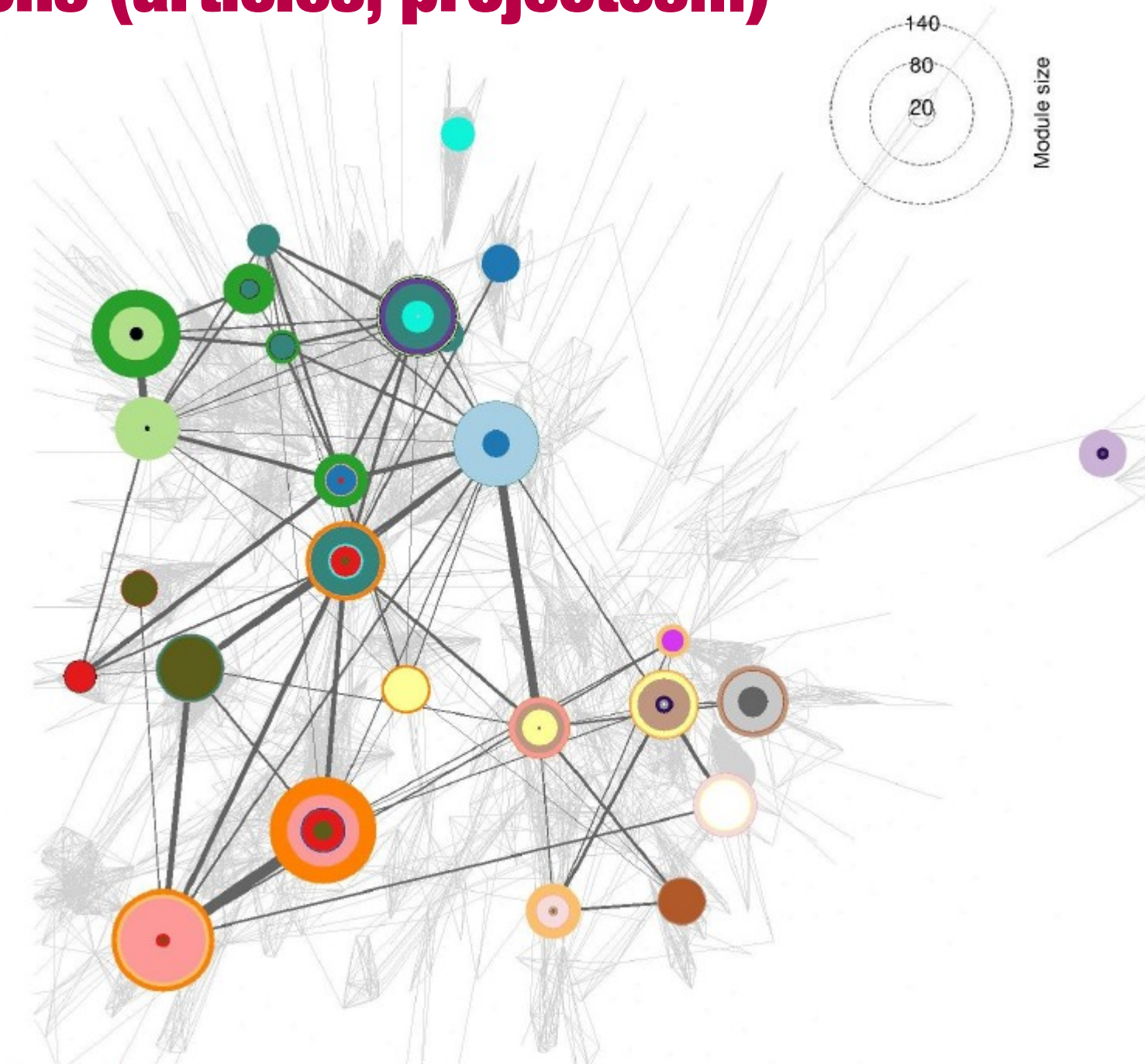
2009



2010



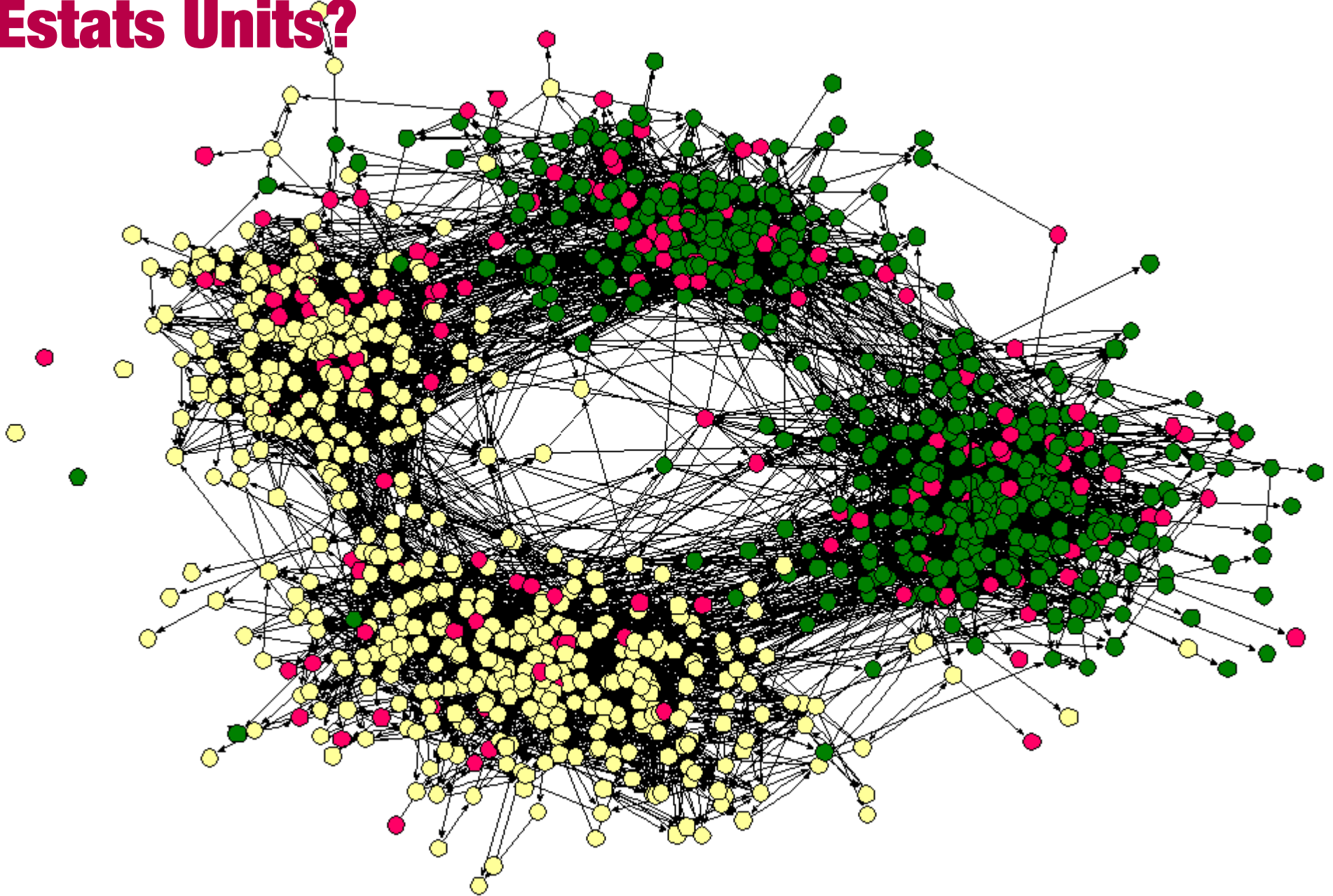
Col·laboracions (articles, projectes...)



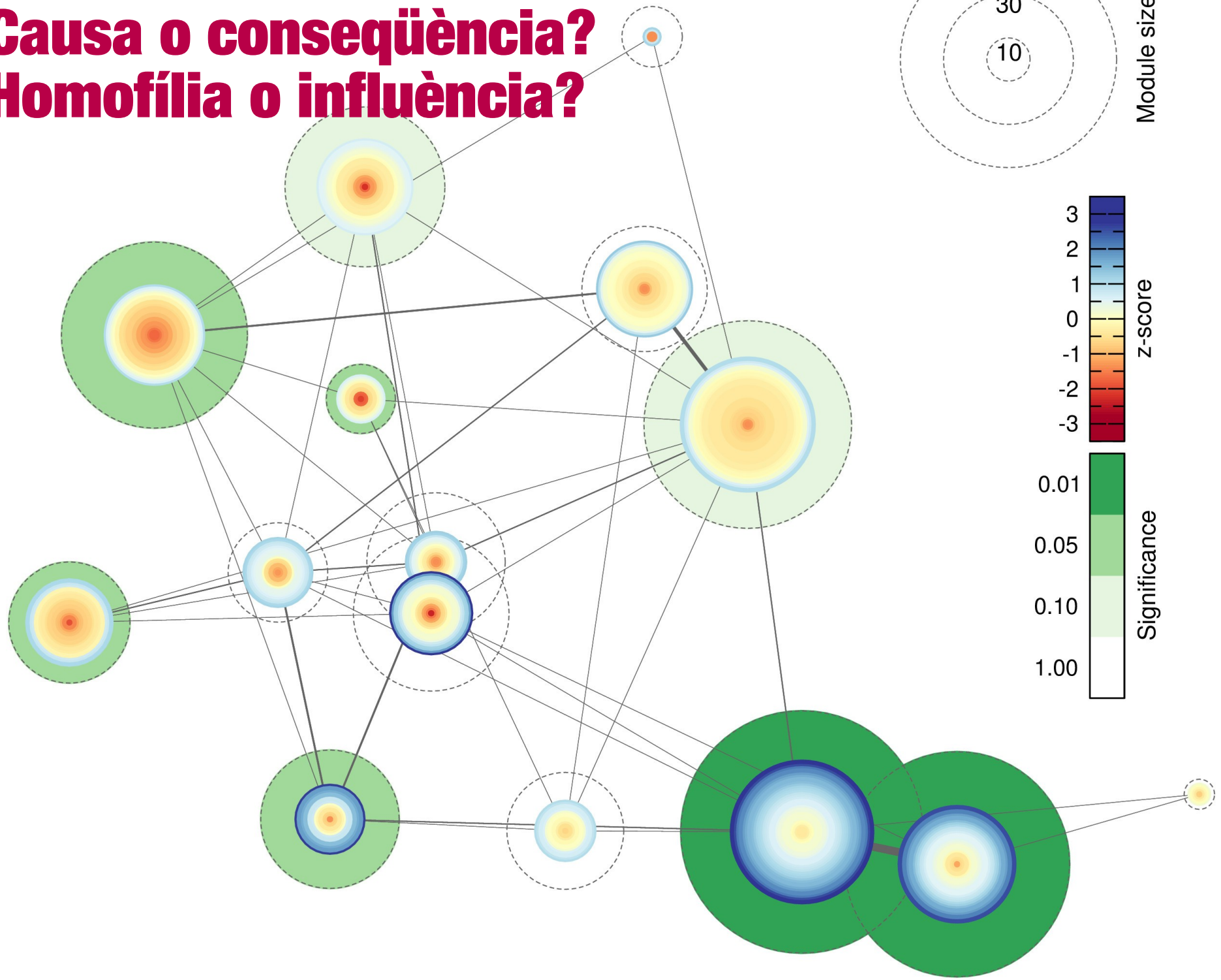
**Què hi ha darrere de
l'estructura informal de comunitats?
D'on surt?
I quines implicacions funcionals té?**

De “Big Data” a “Data Sciece”

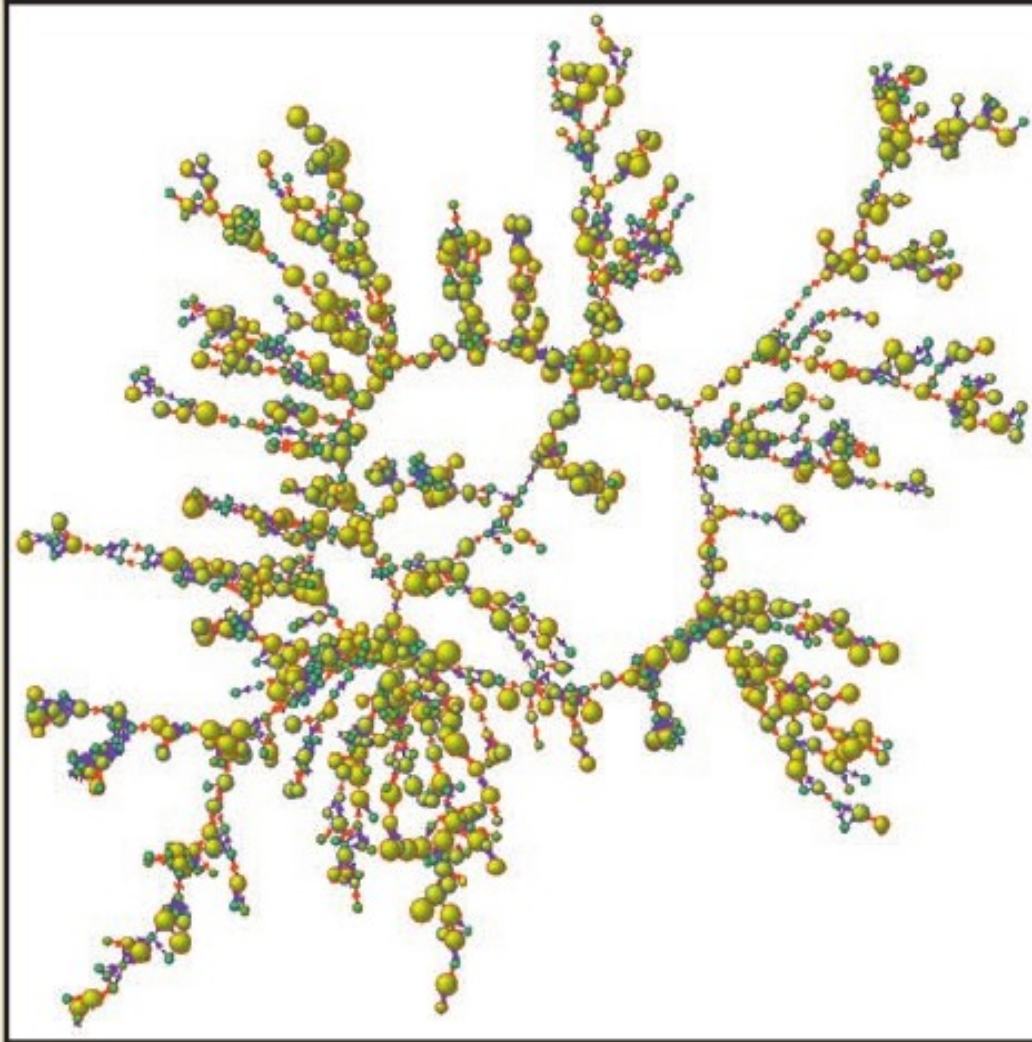
La xarxa social d'un institut de secundària als Estats Units?



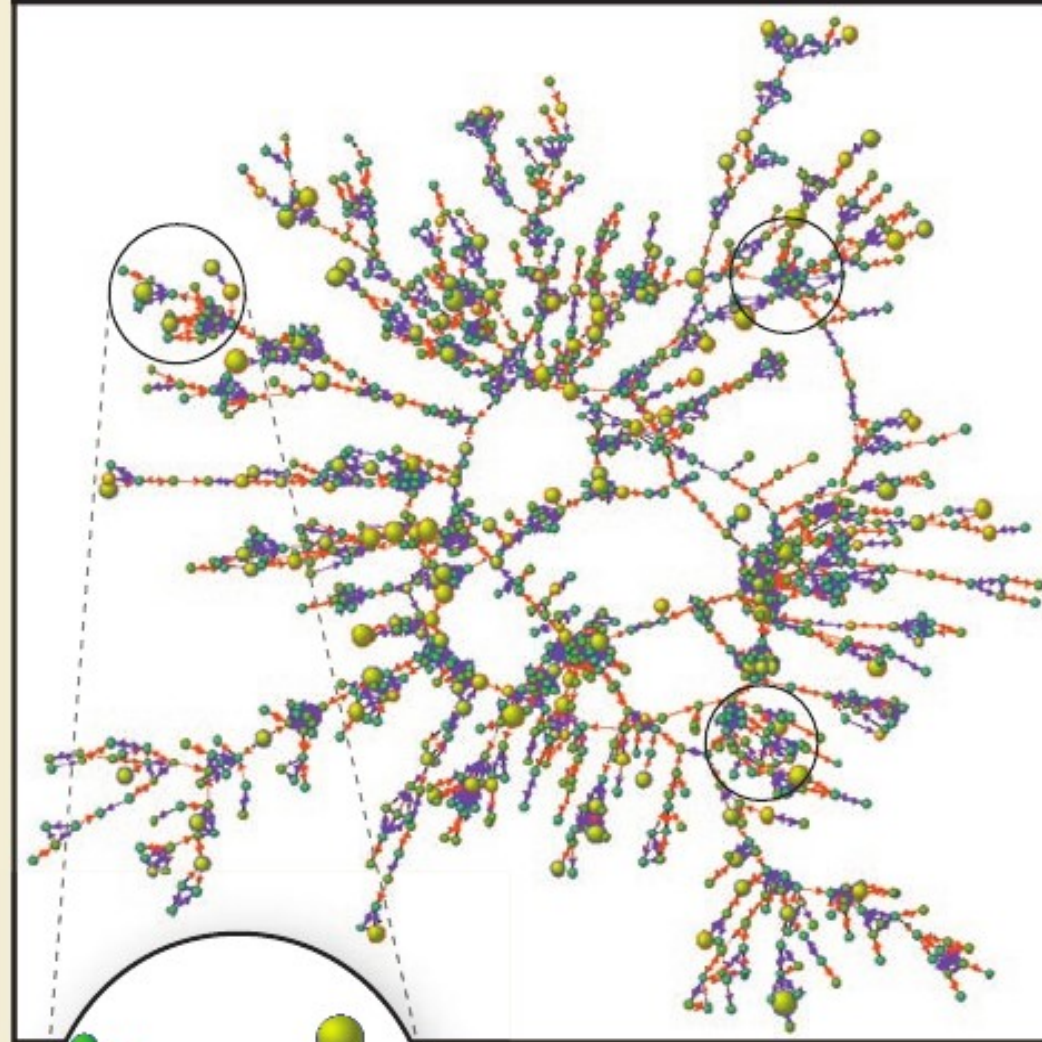
Causa o consequência? Homofília o influência?



1971



2000



L'existència de comunitats ofereix oportunitats a aquells que són capaços d'omplir els "forats estructurals"

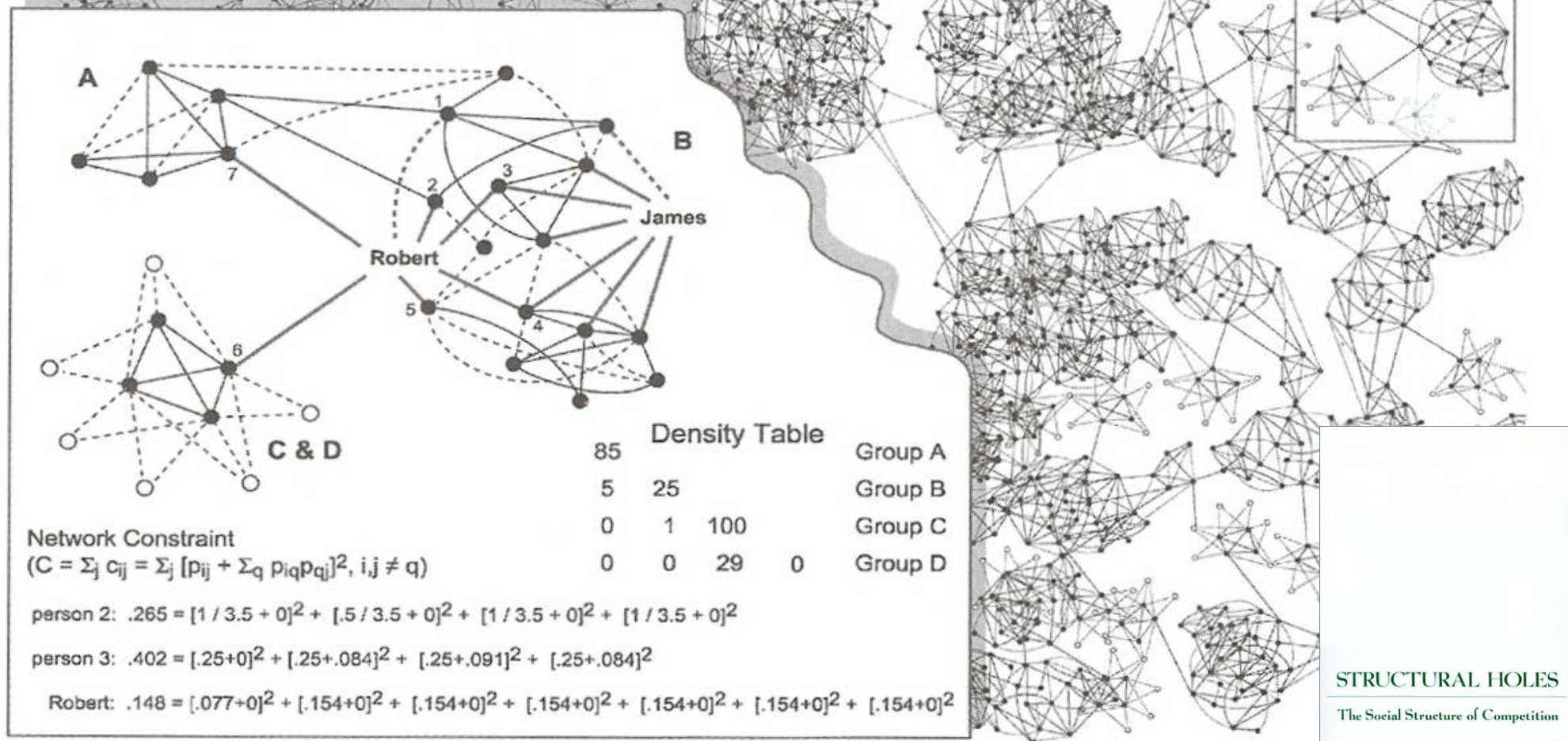


Fig. 1.1: The small world of organizations and markets

L'existència de comunitats ofereix oportunitats a aquells que són capaços d'omplir els "forats estructurals"

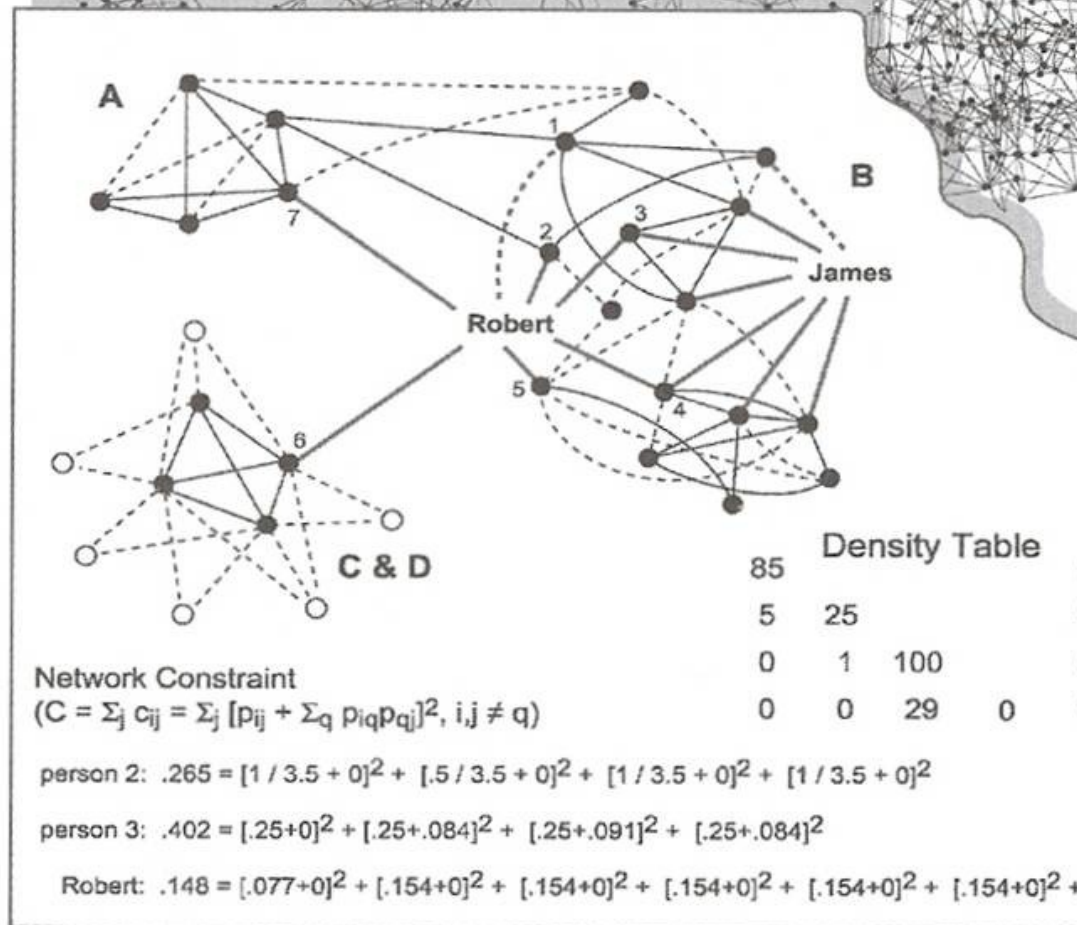
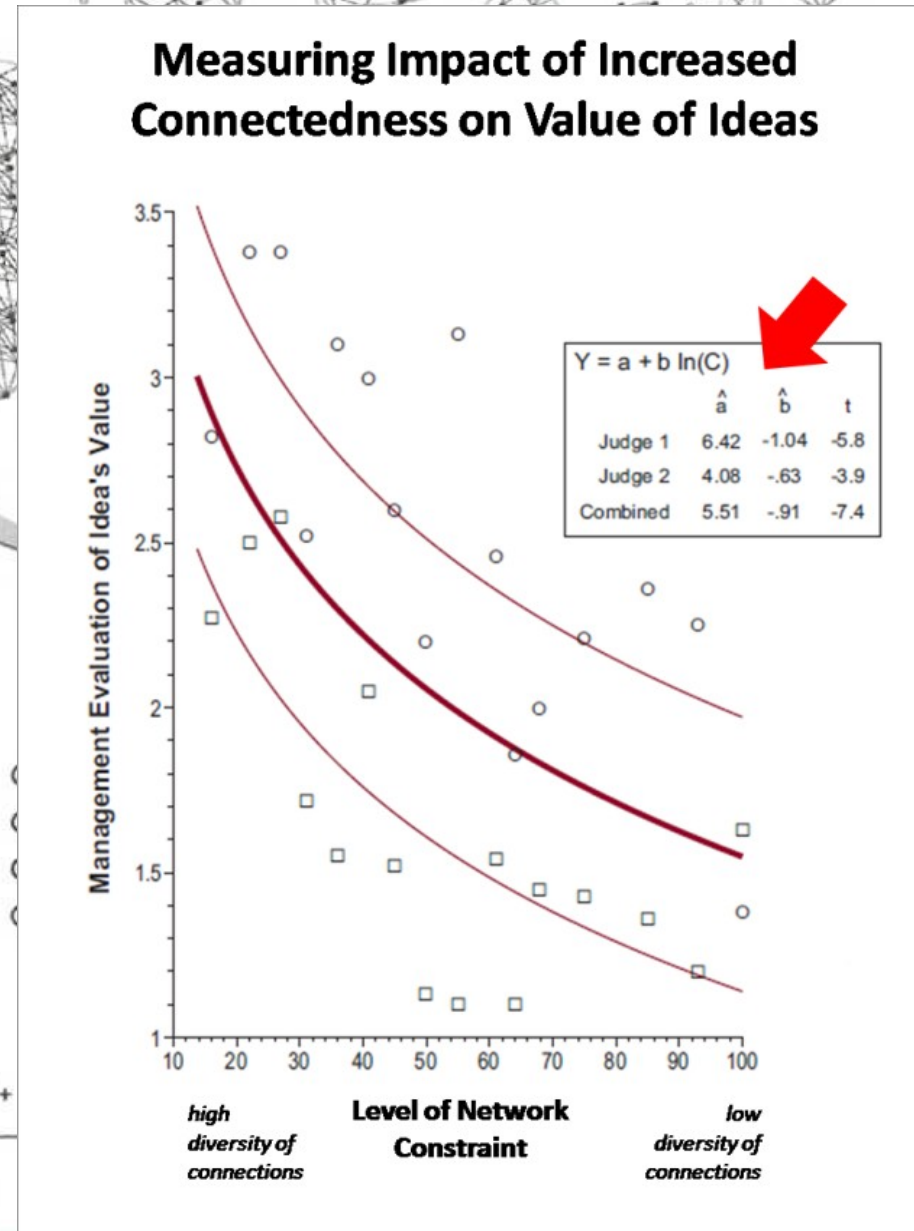
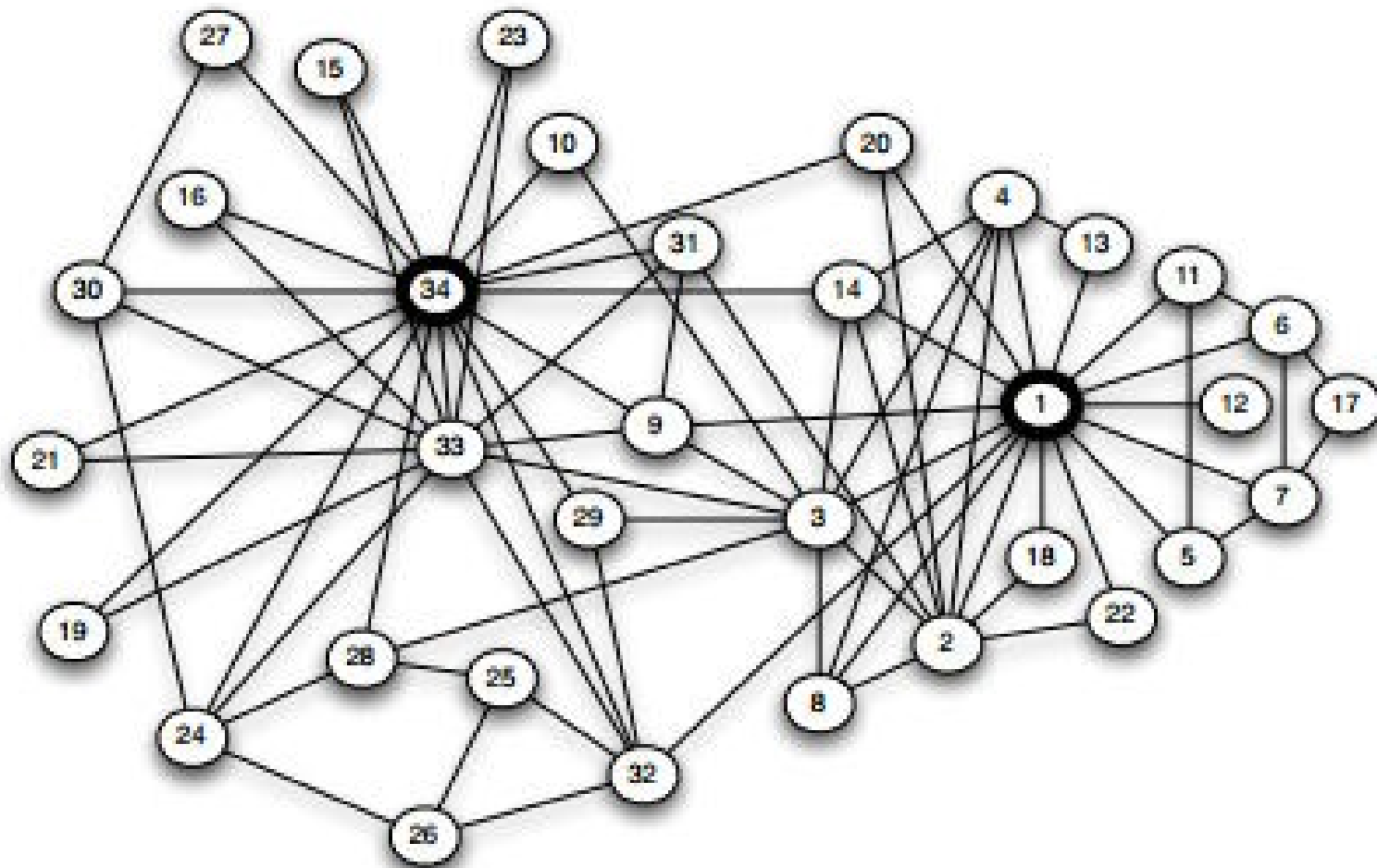


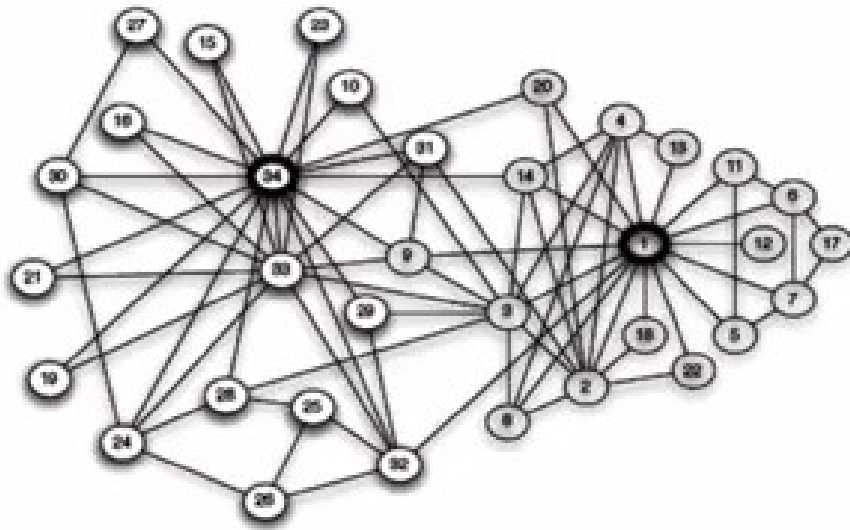
Fig. 1.1: The small world of organizations and markets



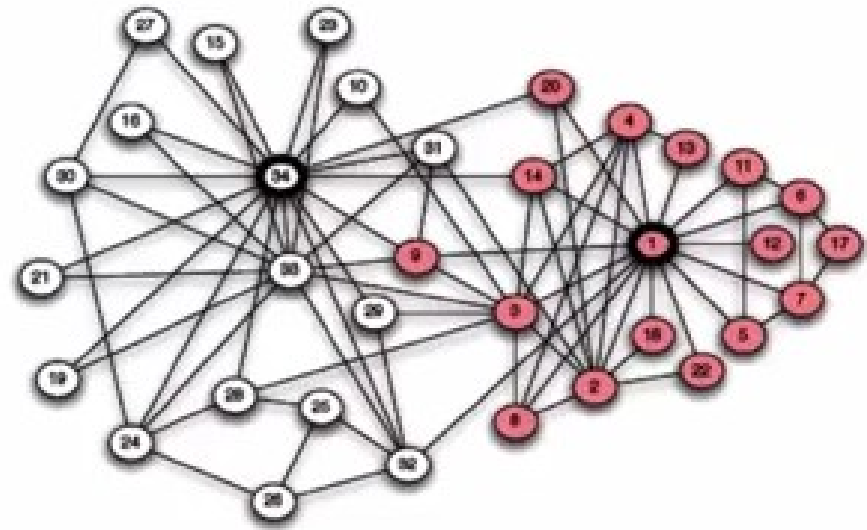
Però els forats estructurals també són les “falles” per on es produeixen trencaments organitzacionals



Però els forats estructurals també són les “falles” per on es produeixen trencaments organitzacionals

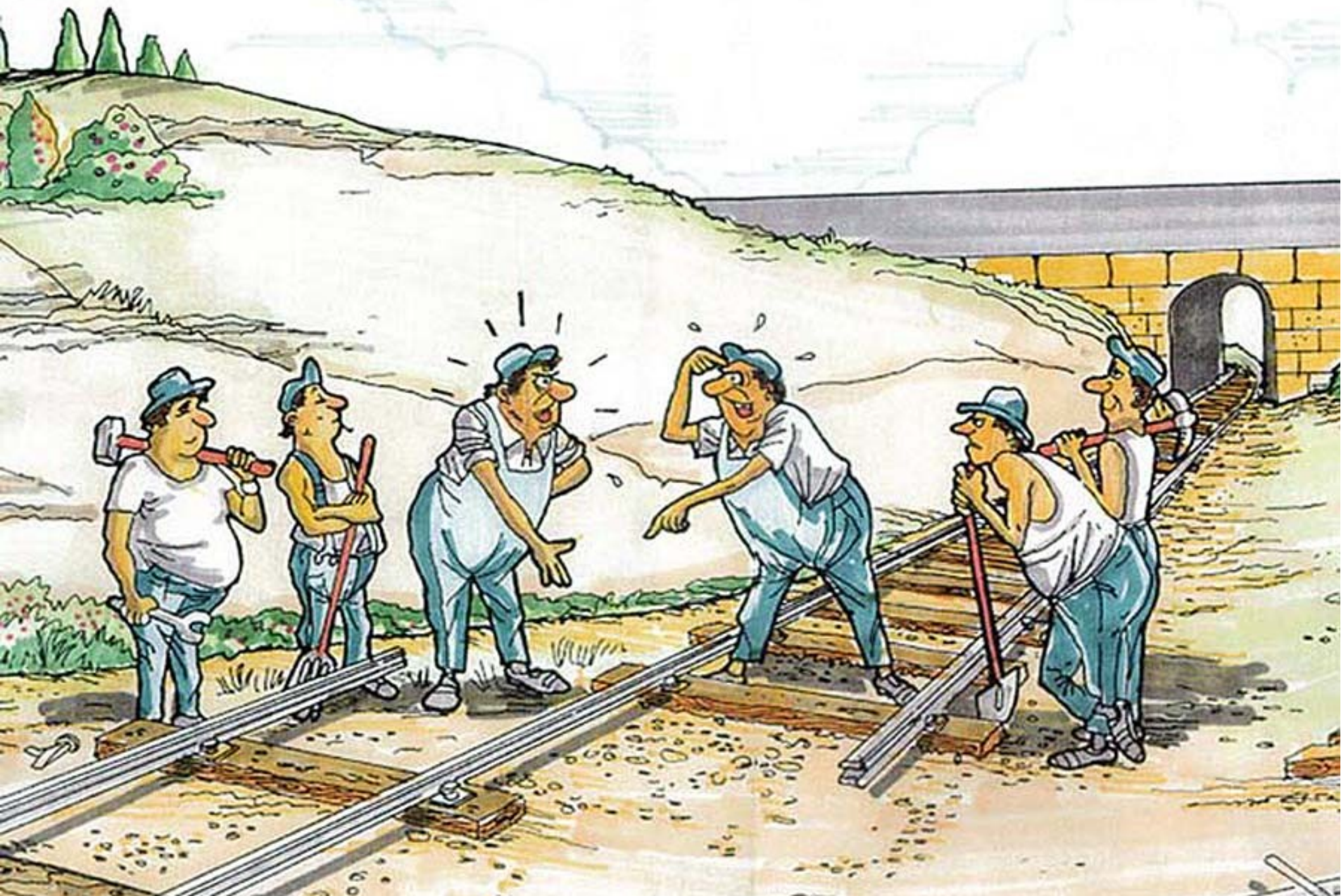


(a) *Karate club network*

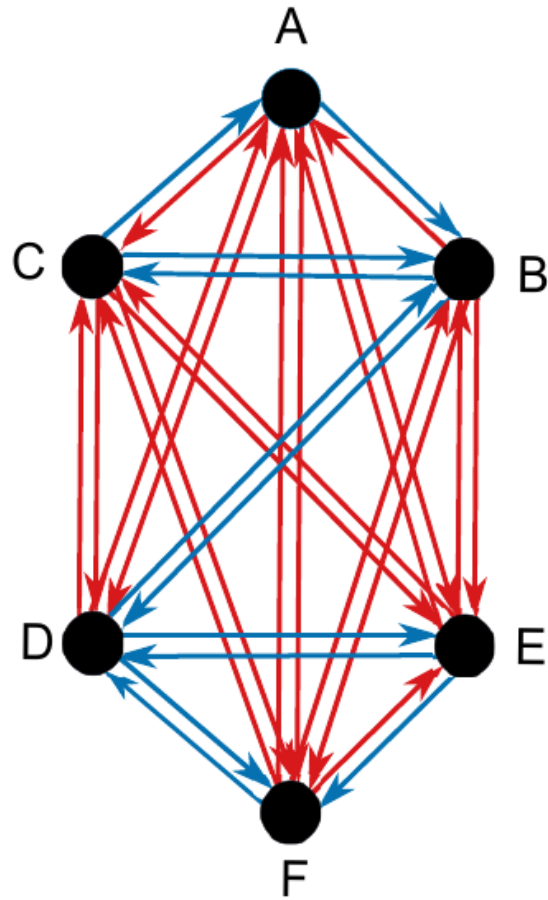


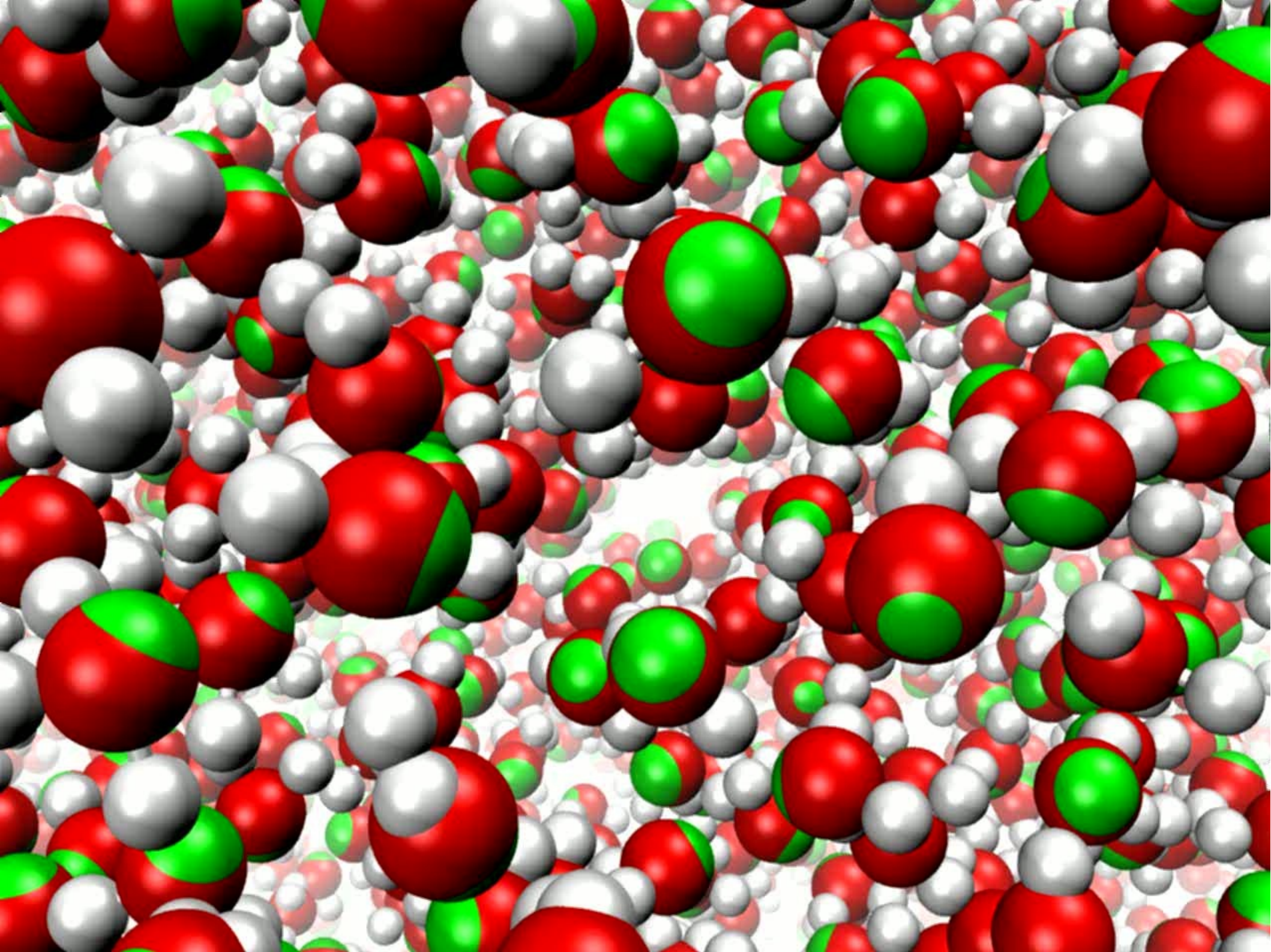
(b) *After a split into two clubs*

Team Work

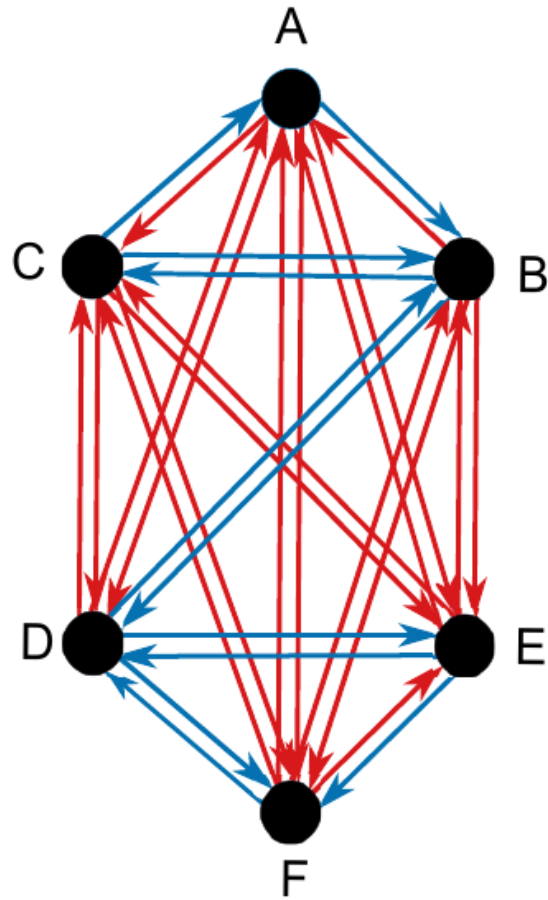


Podem predir on apareixeran conflictes?

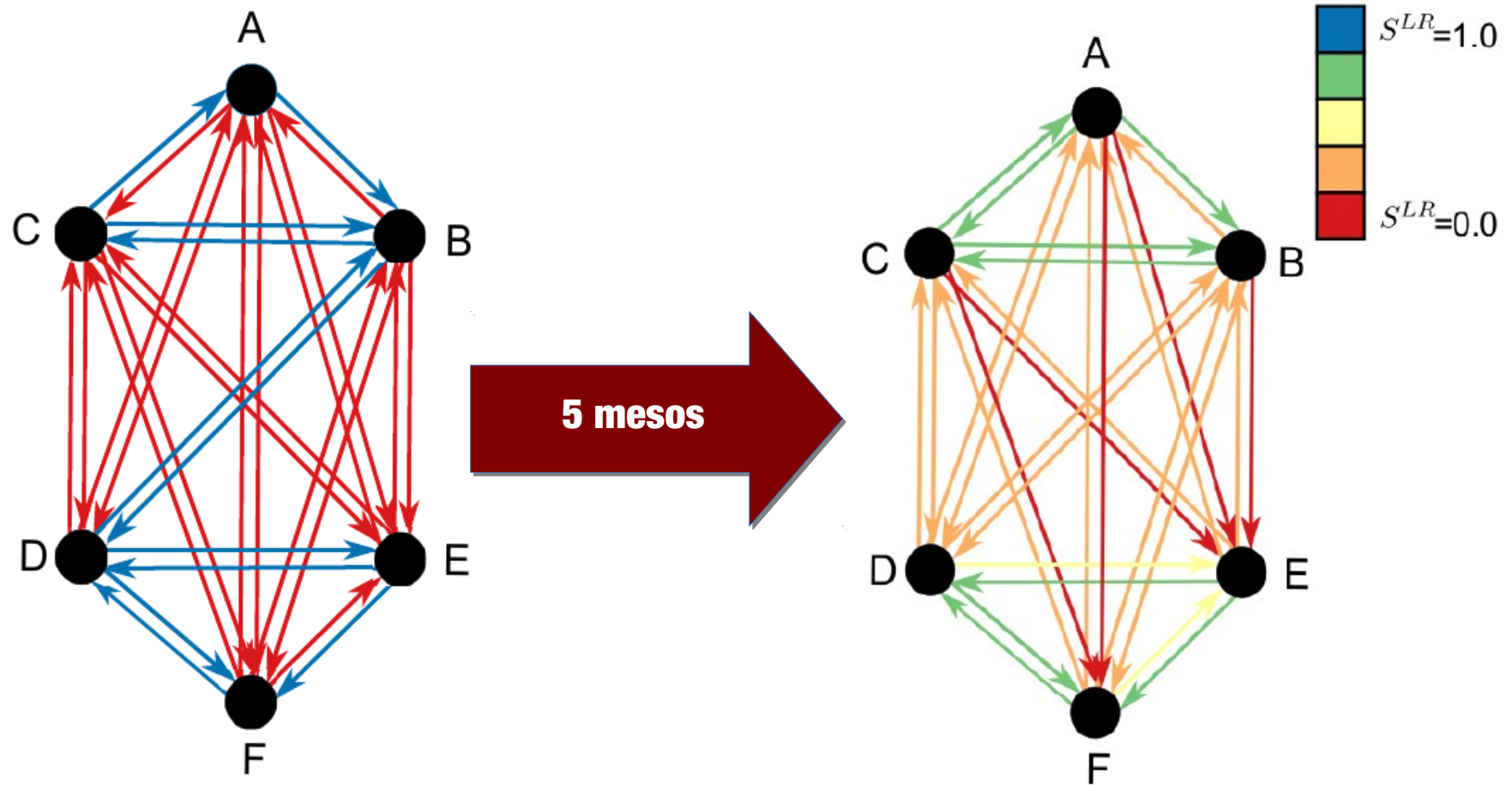




Podem predir on apareixeran conflictes?



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