Technopolitics: the power of connected multitudes. 15m network-system and the new paradigm of distributed politics

Project coordinated by Javier @Toret and held by IN3/UOC

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Research “Tecnopolítica y #15m” (#15M and technopolitics)

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Temporal frame of the study: April 2011 to July 2012

Gestation/ Explosion and Stabilization/ Latency/ Globalization/ Evolution - mutation
Notes on the research method

It is necessary to cope with the complexity of the phenomenon and to elaborate a poliedric modelization of emerging processes and self-organization patterns of the system.

Make use of big data as well as personal narratives. Inside/outside analysis

Nobody can see everything, but we can have a complex view of complexity

Hypothesis construction from inside the movement, and constructing a network @datanalysis15m to study a network #15M

To think from the event: the event has forced us to join pieces, theories, narratives, tools, to pragmatically construct a way(s) of approaching it.

The analysis attends to the tools, but even more to the wisdom of the multitude.

We are a part of 15M system-network and we work to understand it better, act within, and hopefully improve on it.
Scientific value of the research

Inside and outside look: the cycle of knowledge

An experimental research on an emerging movement

Constructing and combining a set of methodologies to study a complex networked phenomenon

The network-system investigating itself

Novelty of the object and the analysis. New objects, methodologies, interdisciplinarity

The outcome wants to become a method (or a set of them), a metamodel, and a system of analysis of phenomena of and for political self-organization in the network society

Redrawing (the links between) action and knowledge.

Hybrid analysis: from quantitative to qualitative. Multimedia, discourse, networks, and emotions analysis.
Political value of research

- Start with hypotheses internal to the process.
- Intervening into activist practices, such as campaign launch or communication and organization practices.
- Getting knowledge from and back into action.
- Understanding critical thresholds for certain processes.
- Improving the sequencing of collective action.
- Producing a narrative and theory that emerges from the movement, allowing it to see and act further.
Hypothesis 1

1. The gestation of 15M results from a set of general economic, socio-technical, and politic-cultural conditions, but has three specific and defining conditions, antecedents and triggers:

1.1 A process of collective politicization online, resulting from the Free Internet and anti-copyright struggles of the period 2007-2011 that disembogued into the gathering of a critical mass.
Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.

We will create a civilization of the Mind in Cyberspace. May it be more humane and fair than the world your governments have made before.

Jonh Perry Barlow
Milestones in the formation of a cultural politics on the web from 2007 to 2011

- hacktivistas
- exgae - x.net
- oxcars -
- fcforum
- molinapirate
- red sostenible
- manifiesto de internet
- isaackhacksimov
- si eres legal comparte.
- n-1.cc
- wikileaks
- anonymous
- nolesvotes
- malestar.org
- democracia real ya
Technopolitical learning pre-15M

Antecedents and learning lab

- People learned how to use FB groups to organize and propagate information massively against internet censorship
- How to use twitter to organize campaigns on twitter and Trending Topics (manifiesto + ley Sinde)
- How to use streamings online for/during actions
- An alternative platform for online and autonomous organization was created: N-1.cc
- Anonymous viral campaigns were created, with important results.
- A corrupt-drome was created
- Practices of digital disobedience were spread.

- A community or critical mass gathers online.
  1 million unique users in the #Nolesvotes (Don’tVoteForThem) wiki

hacking + activism + netstrike =

Hacktivismo
Technological and social critical mass

The most relevant movement in the gestation of 15M (in terms of people, action grammars and participation modes) is the movement for a free internet and free culture originated between 2007 and 2011.

It is a movement originated on the internet, that moves from sharing archives and ideas to sharing ideas and strategies for political action.
The technological and social critical mass takes to the streets

When that critical mass (formed and connected citizenship) coincides with the social unrest resulting from the economic crisis there is a powerful combination.

Will the 200000 people signing the manifesto for a real democracy be able to take to the streets together?

The movement on the internet takes a a challenge to turn that digital mass into a body.

The slogan is clear: #tomalacalle (takethestreet). A limit uncertain for the online movement.
Critical mass and politicization online

**Pablo Soto** Why now?

We´ve got the critical mass, it´s a technological matter.

It´s not Google, nor Twitter, nor smartphones, nor sms, nor whatsapps, nor googlemaps, n-1, it´s all that together.

Anyone can start an event anytime. Technology allows us to structure the protest and take the streets unstoppably for authorities, as an action coming out from thought.

We live the democratization of information production media
Some data underlying the social unrest
Evolution of memes and campaigns
Hashtags migrations connecting movements for a free internet and movements for real democracy

- Migrations between communities
- Flocks of users migrating from Hashtag to hashtag
- How many people moved between hashtags #leysinde #nolesvotes to #15m #acampadasol #spanishrevolution?
- What relations do pre and post15M hashtags have?
In the period between 2007-2011, in a context of increasing unrest connected to the crisis, there were innovation and learning, reappropriation and creation of digital tools and networks for communication, organization, and collective action. A rise of what we call technopolitical practices.
Technopolitics

Definition: Tactical and strategic use of digital tools and online collective identities for organization, communication and collective action.

Capacities of connected multitudes and networked bodies for creating and self-modulating collective actions. Pattern of political self-organization in the network society.
Technopolotics is not

Ciber-activism
Technopolitics uses the internet and its cyberterritories to act inside and outside of them. It is not activism without strategy nor exclusively online organization (Example: Anonymous).

Clicktivism
Weak form of activism based on “liking” facebook items or signing petitions online. Example: Change.org
The century of network consciousness

@isaackhacksimov

“XXth century was the century of class consciousness, XXIst century will be the century of the network consciousness”
Groups and fanpages on Facebook as well as Youtube channels are used by Arab Springs to organize and modulate protests. They are also key on 15M origination.
Collaborative, Pad Revolution. Probably the most used tool on #15m internally.
Some characteristics of technopolitics in #15M

- Reappropriation of digital tools to construct common moods and notions, empowerment, taking to the streets, taking the lead on common issues and facilitating collective behaviors.

- Network capacity for using the internet for constructing political collective identities in continuous interaction and feedback with the environment.

- Construction of dispositifs and events that are first desired and projected digitally (pre-lived) and then spread through multiple layers running from twitter to the streets. Performative dimension of technopolitics.

- It is not a facebook or twitter revolution. The centrality lies on the knowledge and action of connected multitudes, as well as on the creation (of new uses) of online platforms.
Collective Identities
Data from the main Youtube Channels

Channels on topics and key profiles within 15m

Democracia real ya 439.439

Audiovisol 1.336.436

15mbcntv 940.086
Orienting the flux of collective action #SolSeMueve (#SolMoves)

- Trust on collective profiles according to their production (meritocracy)
- Communication and interaction in real time helps group self-organization
Streaming: Revolution live

Streams have allowed viewers to become involved in events taking place elsewhere. It has been a key weapon to protect demonstrators from police abuse, widespread surveillance, and to generate an inside, collective narrative of events.

58 stream channels on/from 15m. A stream culture, independent of mass media has been created. The figure of the streamer has risen, tied to the diffusion of messages from the movement.
New tools and platforms for citizen action

- Tension between reappropriation of proprietary tools and platforms and the construction and use of free tools and platforms
Toma la plaza (Take the Square) self-managed servers

- >>> 34603008 / 20
- 1.730.150
- 33 G.
- root@vemail:/# list_lists |wc -l
- 224 mailing lists supported
Exponential growth of N-1.cc after #15m

It goes from 4000 to 30000 profiles in a month after 15m. A relevant part of the camps created their own profiles, with commissions and assemblies of neighborhoods and towns. Around 15m more than 400 groups were created, out of those, 200+ groups had more than 45 members.
1-How did people know about the events and protests?, 2-were they members of some social network?

<table>
<thead>
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<th>¿Es miembro de alguna red social en internet?</th>
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<td>0,00% 25,00% 50,00% 75,00% 100,00%</td>
</tr>
<tr>
<td>REDES SOCIALES</td>
<td>Facebook</td>
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<tr>
<td>AMIGOS Y CONOCIDOS</td>
<td>Twitter</td>
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<td>TV</td>
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<tr>
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<td>10,76%</td>
<td></td>
</tr>
<tr>
<td>6,33%</td>
<td></td>
</tr>
</tbody>
</table>

Gather Estudios SL - Encuesta sobre el movimiento 15 M - 2011
Forms of participation in #15m

- Online and offline participation are combined
What influence did social networks had on 15M?

- Centrality of social networks for sense of belonging, information, and organization

¿Qué influencia cree que han tenido "PARA USTED" las redes sociales de internet en...?

1-Poca importancia 5-Mucha importancia

- La percepción de que hay más personas que piensan como usted: 4,06
- El conocimiento de los valores de la manifestación: 4,04
- La percepción de que existe un apoyo de la sociedad a sus reivindicaciones: 4,01
- La decisión de salir a protestar a la calle: 3,50
1.3 The Arab Springs were a referent of technopolitical learning for many 15M members.

It provoked an empowerment effect, affectively activating part of what later would be the system-network 15M.

The memory of Tahrir was key for the decision to camp in Puerta del Sol.
The idea of what happened in Egypt, that people had taken to the streets and squares, that it would spread to other squares massively, that is something we though (on the night of May 15th). It seemed to us it may happen. Obviously, we didn’t believe that it would occur at that level, that everything would cascade. It was rather a bit fanciful idea, but that it may work. Even though it was out of normal causes, it may work. One would see that it was realizable, that it may work. Of some ideas the future can be seen.

Miguel Arana
In Madrid like in Egypt?

-------- Original message--------
Asunto: En Madrid como en Egipto?
Fecha: Mon, 16 May 2011 03:20:35
De: iokese <iokese@sindominio.net>

I just left Sol, there are a bunch of people staying overnight and others arriving. They are calling to go to the square and stay indefinitely, the #15M demo has had a lot of strenght and it seems a small avalanche may follow :)
Embajadores is not so far from Sol, if you can bring sheets, sleeping bags, or things to eat and drink that would be great. In the morning more people will arrive, see you there.
IT would be good if, from your personal mails, twitter, facebook, etc. you give attention and diffuse what is happening... a bit of “Tabacalera” solidarity.
More declarations by the first campers with Tahrir on their heads

I had the certainty, I don’t know how. That night we were 50 or 60, the night after there would be 10 times more and for the election day (May 22nd) the square would be like Tahrir. Somehow I was convinced that would happen. The only thing to do was to spread it the day later so that more people would come”

Pablo Soto
Analysis of flocks and migration of @users

Analysis of user migration between #hashtags:

- Political relation between Hashtags
- Acceptation of hashtags between different communities
- Communities pushing forward a new hashtag
Methodology:

1. Tweet tracking within several #hashtags
   - real time (exhaustive)
   - offline or a posteriori (tweet recovery via Topsy)

2. Tweet processing.
   - association of users to hashtags where they participated

3. Flock and migration detection
   - Percentage of users of #hashtag “A” that participate also in #hashtag “B”

4. Visualization:
   - Gephi software
Examples of migration visualizations

First two weeks of 2012
Size of edge: percentage of migration
Size of node: PageRank
Migration analysis

Hypothesis:

15M mobilizations are connected to previous online mobilizations (#leysinde, #nolesvotes...)

… and Arab Spring (#arabspring, #25jan,... )

Analysis:

To what extent #15M, #spanishrevolution nurture from #leysinde, #nolesvotes...

… and #arabspring, #25jan...?
Datasets

- Tweet recovery using Topsy (sample of more popular tweets)

**15M**: #spanishrevolution #15m #acampadasol #democraciarealya #dry

  - Dates: 15M and afterwards

**previous**:
#leysinde, #nolesvotes... y #arabspring, #25jan...

  Dates: from 15M explosion up to 30 days later (aprox)
Influence of #nolesvotes on #spanishrevolution

31% of users of #spanishrevolution migrated from #nolesvotes
Influence of #arabspring on #spanishrevolution

1% of users of #spanishrevolution migrated from #jan25
Conclusions and future work on flock migration

The net as a tool for migration analysis and influence indicator

Intuitive results, yet not conclusive

**Topsy** provides a biased sample

Ideal: all the tweets within HashTags #15m, #jan25... (full sample)

Open question: How intense should the migration be to say that a first mobilization has generated/influenced a later one?

**Future work:**

Detection and tracking of catalyzing users through different HTs

Analytic software liberation
May 15 / Real Democracy Now / Take the Streets

Viral campaign, inclusive, anonymous, and multichannel. Crossing, activating and unleashing the network.
15m gestation on Twitter (key collective and personal profiles)

Salimos en prensa. http://tinyurl.com/627zeml
La calle (y la red) es nuestra, #15mayo #democraciarealya toma la calle, solo es el principio

España, la revolución anunciada
http://m.menea.me/q0jy (@meneame_net)
#democraciarealya #15m #nlv #28m #nolesvotes

¿Por qué los jóvenes españoles no se indignan?
http://m.menea.me/pqe3 (@meneame_net)
#15mayo #democraciarealya #nolesvotes #malestar

La juventud #sимвiedo se rebela contra los recortes http://tinyurl.com/64jrr78 en
@publico_es . 'Es solo el principio' nos vemos el #15m

Internet contraataca, del mundo virtual al mundo real http://m.menea.me/q2d6 #democraciarealya #15m #nolesvotes
15M Facebook event and activity peaks on Real Democracy Now web activity
Number of participants by city and comparatives with Facebook local events

Spain:
- Participation: 130,000 people
- Facebook event (national site): 43,500 (~33%)

Barcelona:
- Participation: 15,000 - 20,000
- FB event: 6,750 (~50%)

Madrid:
- Participation: 20,000 - 30,000
- FB event: 6,000 (~30%)
#15m on 59 cities (59 motor groups)
130.000 people take to the streets
Hypothesis 2

2. #15m explosion, resulting from the transformation of a big mobilization organized online into a massive network of camps was tied to two events:

1º The commotion of a connected body, tied to distributed and self-organized actions. This took the form of a technologically structured contagion, which in turn fueled the extension of the #15M network-system.

2º A self-organized and intelligent system-network emerged.
The first 40 in Sol. The birth of #acampadasol. Night of May 15

Acabamos de acampar en la Puerta del Sol de Madrid, no nos vamos hasta que lleguemos a un acuerdo. #acampadasol

Estas en el paro?, si no tienes nada mejor que hacer, ven a luchar por tus derechos, #acampadasol puede ser el inicio... #nolesvotes #15m

ánimo para #acampadasol, esos 50 ingenuos que mañana serán cientos: http://www.mimesacojear.com/2011/05/ingenuos.html

#acampadasol tiene que ser TT mañana, por que no solo tomamos la red, ahora también tomamos las plazas. #nolesvotes #15M

Al estilo de la plaza Tahrir en Egipto, más de 100 personas se encuentran acampadas en Sol en Madrid. #acampadasol #15mani #nolesvotes
What happened after the demonstration on May 15th for the movement to explode in this way?
Millions of people lived the augmented event

- 10 million visits on the web-streaming of acampada Sol between May 16th and 19th
Technologically Structured Contagion

The contagion follows the sintaxis and structures of technology. The growth of digital profiles follows a pattern of self-organization.
The transition in the protest form has a similar syntaxis. Sequence of actions and events.

The action of @acampadasol “routes” the energy and gives life to what #15Mani (15M demo) had liberated, projecting and multiplying it, creating a simple pattern that replicates at the state level and later globably creating a complex phenomenon.
Phase transition. Explosion of communication and emotions

An exponential increase in activity and emotionality of the system

During the transition it is key the canalization of the energy and the desire of continuation of the protest by other means: the camp. It is the state and medium (from the online-demo to the square) from the digital to the urban

This transition in form implies a change in organization modes

People who stayed overnight played the role of transmissors of a high voltage of social energy
Increase of system activity (15M users interactions) video

http://www.youtube.com/watch?v=H5w4amBIHj4
Webs: Real democracy now and take the square

- The webs DRY and toma la plaza reached peaks of visits between 500000 and 1000000 between May 15 and 22.
Hundreds of thousands of people looking for “democracy” in May =)
Guillermo Zapata

'#15m is an Event. Events are moments without way back. It is a collective event, almost as strong as 11S but of opposite sign. It has an irreversible character. A step forward and a strong turn from which there is no return.

Many myths of this country come to a close, they stop working for the majority of population and new things begin, other images circulate, other ways of living and thinking
The most important thing that happened was an update of the political dimension of life. Like an update, like in a software you move to a superior version.

It is like adding a new colour with which you can paint. It updates politics, not completely, it is not a completely designed solution. It is an event that changes the situation. What follows continues equal but different.
To think the event in the network society as augmented event, as hyperlinked event

Augmented event as an extended form, as an intensification of collective experience with regard to belief or confidence on connecting with the world, with our capacity for affecting the world and be affected by it.

The event is physical and (post)media. Feedback between the urban phenomenon and the digital one.
15 – 17 May
On the first three days of demonstrations, the following numbers were reached:
114,728 tweets analyzed
2,390 tweets per hour on average
44,511,488 users received tweets referring to 15M
On average, 927,322 users received tweets about the protests each hour

May 18th
This was the network behavior in numbers during the demonstrations:
279,876 tweets analyzed
11,660 tweets per hour on average
109,842,295 users received tweets referring to 15M
On average, 4,576,762 users received tweets about the protests each hour
On Wednesday, the number of tweets analyzed—that is, containing some of the keywords—doubled the number of those in the three days before. Tweets per minute multiplied per five; the quantity of users that employed the key terms tripled. The number of profiles speaking about this topic moved from 44.5 to almost 110 million, and 15M moved from reaching a million users per hour to reaching 4.5 millions per hour after 4 days.

May 19th
202,211 analyzed tweets
New twitter users in different hashtags of 15M and 2011

Data from M. Luz Congosto
Between May 16, 17 and 28 data traffic increased in 20% relative to the same days of the previous year, although the increase in the number of petitions was even bigger.

Many of those petitions weren’t satisfied because, in the case of network overload, priority is given to voice communications, which are more expensive.

Time online rises in Spain a 17% in May from April.
Spaniards spent online 632,5 million hours during May 2011. 27.4 hours per week and almost 4 hours per day on average.
Change in cognitive diets

15M makes the use of text messaging, social networks, internet and e-mail to skyrocket.

The biggest increase took place on Twitter, Facebook and Windows life profile.

Online services whose traffic increases are those that help citizens to organize

Social networks, instant messaging, email.
How do brains and networks connect? How to understand the mood of a network?
How are emotions contagiated online and offline?

- Tools used for analyzing basic brand perception on social networks are transformed to analyzed collective moods
What feelings, emotions and moods has 15M created? (question and answers on twitter)
Socio-affective paralysis. From fear to potency

We live under the despotism of dispersive acceleration (in the historic and the personal time). A socio-emotional paralysis, a reclusion of emotions to the personal or the scripted.

Emotional paralysis, or closure of our connection with the world, our capacity to affect and be affected by the world

Deleuze ‘They have stolen the world from us'

Strata of social inhibition (pathologies: dictatorship, metropolitan life, economic crisis) that 15M social catarsis has cut through

Producing a de-territorialization of mainstream memes, of the limits of the thinkable and the enunciation regime after the dictatorship. A sudden modification of the tolerable and desirable in society

15M has been a machine of constructing connected moods through technological dispositifs and action strategies net-street, Recovering the belief in the world, the conviction that we can affect it
Emotional analysis of tweets

We depart from the hypothesis that there is a transformation of the collective moods. From a “miedo ambiente” (enviro-fear): impotence, isolation, resignation, solitude, towards a “potencia ambiente” (enviro-potency) generated by the 15M capacity to self-construct a collective mood through communication and social networks.

We want to transform previous tools to construct an emotional meter for tweets.
Emo-analysis

- How do emotions move through networks? Is there a relation between emotivity and virality? What paths do communicated emotional states generate in networks?
Trying to refine the analysis of collective moods

We are refining the ontologies to cope with a collective dimension of emotion that appears in connected multitudes. We want to see how collective empowerment is constructed, how the enviro-fear is overcome and how are emotions correlated with collective Behaviors mediated by network.
First approach: emotions in #15m

- Emotional charge of tweets pre and post 15M.
- Indignation is the driving emotion
- Can we try to measure empowerment?
Metodología

Aplicar métricas de análisis de redes sociales para caracterizar la topología y los actores principales de las redes:

Imagen cedida por Y. Volkovich
What are the emotions in 15M?
What are the predominating emotions in 15M?
What is the emotional charge in 15m?
Is there a relation between emotional charge and virality?
Emotion analysis: Methodology

- Lists of linguistic expressions are generated to identify each emotion
- A grammar is used to detect negations
- A tagged corpus is produced manually and the analysis is iterated and improved
Emotion Analysis: Results (I)

Moving visualization here: http://assets.outliers.es/15memociones
Emotion analysis. Results (II): emotional charge in time
Emotional analysis. Results (III): empowerment
Emotion analysis. Results (IV): indignation
Emotion analysis: conclusions

“Empowerment” and “indignation” are the driving emotions.

Emotional virality is more powerful than non-emotional virality in key moments (around 15M).

#15m is a movement with high emotional charge [Peaks around 20% of tweets emotionally charged, average is around 13%]
Vocabulary analysis: Questions

What happens with 15M vocabulary?

Can vocabulary emergence be registered?

What is the relation between vocabulary distribution and virality?

Is a common language generated?
Vocabulary analysis: Methodology

Term extraction

From Wikipedia 'artículos'

Filtered by number of 'in-links' to discard noise

The temperature of a term

Difference in frequency in a certain time interval relative to the previous one

Vocabulary cohesion

Metrics of global co-occurrence of the vocabulary
Vocabulary analysis. Results: vocabulary transformations and links

De #nolesvotes a #15m

Tweets

Total de tweets para sol: 1824

@JulioAlonso 49820 followers
Llegando a Sol #nolesvotes #acampadasol

@JulioAlonso 40904 followers
Camino de Sol, no sé si voy a llegar para entrar #nolesvotes #acampadasol

@Juan_diaz_diaz 30922 followers
RT @povedano: la junta electoral me acaba de convencer para ir a Sol esta tarde #acampadasol #nolesvotes

@lularull 25129 followers
RT @outofalojado: Si la policía cierra Sol, tendremos que pedir la nulidad del proceso electoral #nolesvotes #yoeswecamp

@expansioncom 18702 followers
RT @Rago_Giez: Discusión en Puerta Sol, señoritas vs. manifestante: "No, si ahora Aznar va a ser hasta el que mató a Manolito". #democraci ...

Visualization

here:http://assets.outliers.es/15mvocabulario/
Vocabulary analysis. Results: language temperature
Vocabulary analysis. Results: language cohesion

Cohesión del lenguaje
Vocabulary analysis. Results: terms’ peak use
Vocabulary analysis. Results: terms’ temperature
Vocabulary analysis: conclusions

Clear lexicon emergences and a common vocabulary is found around May 15th

Language cohesion and temperature seem associated

Language was emergent and much more cohesitionated around May 15th

It can be concluded that a big synchronization of the message was reached around May 15th
Hypothesis 3.1

3 #15m as a living system is in constant mutation in relation with its environment

3.1 At first, #15m begun as a beehive, moving between physical and digital space and becoming later on a policentric network-system, composed of autonomous subsystems of catalytic character.
System network

Set of nodes with high index of connectivity, strength and reciprocity. They form (and are part of) an ecosystem. The network-system has an open structure, marked by cooperation between nodes.
15m has produced an immense digital multi-layer structure, an online workspace, a digital organizational structure (here we see the different digital platforms-horizontal axis- each group-vertical axis-is on)

The physical layer is composed by neighborhood assemblies, commissions, platforms and working groups, a physical organizational structure

Digital and physical layers are related although they have different properties

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<td>Facebook</td>
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<td>Si</td>
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<td>34,261</td>
<td>1,880</td>
<td>?</td>
<td>Si</td>
</tr>
<tr>
<td>Acampada Barcelona</td>
<td>Si</td>
<td>46,105</td>
<td>75,636</td>
<td>343</td>
<td>?</td>
<td>Si</td>
</tr>
<tr>
<td>Spanishrevolution</td>
<td>Si</td>
<td>0</td>
<td>217,282</td>
<td>290</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Juventud sin futuro</td>
<td>Si</td>
<td>28,530</td>
<td>78,638</td>
<td>no</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>La Pah</td>
<td>Si</td>
<td>8,811</td>
<td>4,551</td>
<td>no</td>
<td>si</td>
<td>si</td>
</tr>
<tr>
<td>Democracia real ja Barcelona</td>
<td>Si</td>
<td>16,292</td>
<td>18,476</td>
<td>si</td>
<td>si</td>
<td>si</td>
</tr>
<tr>
<td>Takhedtsequare</td>
<td>Si</td>
<td>13,603</td>
<td>78,666</td>
<td>si</td>
<td>si</td>
<td>si</td>
</tr>
<tr>
<td>Madrillonia</td>
<td>Si</td>
<td>10,454</td>
<td>1,604</td>
<td>no</td>
<td>si</td>
<td>si</td>
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<tr>
<td>Laylaflautas</td>
<td>Si</td>
<td>16,294</td>
<td>8,756</td>
<td>no</td>
<td>si</td>
<td>si</td>
</tr>
<tr>
<td>5mParato</td>
<td>Si</td>
<td>12,291</td>
<td>5,692</td>
<td>no</td>
<td>si</td>
<td>si</td>
</tr>
<tr>
<td>ESTOS DATOS 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agosto</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An augmented event originates the #15m system network

- Out of the 499 top 15M accounts according to Manuela Lucas’ work, 1/3 are collective identities originated after the #15M explosion (in orange)
Data for analysing interactions between layers on #15m

Physical layer/streets:
- Number of demonstrators on 15m and 19J
- Mainstream media physical layer
- Space on mainstream newspapers
- Recorded interviews, pictures, videos, etc.
- Previous studies on camps

Digital Layers
- 125 HT (trending topics)
- Menéame covers (user-generated news site online)
- Web DRY and acampada sol
- Events on FB by cities on 15M
- Activity on FB from 15m to 19j
- New Twitter profiles
- Increase of activity on the internet
- Increase of data traffic
- 15M Youtube channels
List of 125 HT with more tweets
Analysis and data-mining of Menéame on 15m

Resultados: Histograma 15M

<table>
<thead>
<tr>
<th>fecha</th>
<th>portadas</th>
<th>clics</th>
<th>comentarios</th>
<th>meneos</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-05-18</td>
<td>88</td>
<td>508695</td>
<td>5501</td>
<td>93244</td>
</tr>
<tr>
<td>2011-05-17</td>
<td>77</td>
<td>418135</td>
<td>4730</td>
<td>86982</td>
</tr>
<tr>
<td>2011-05-19</td>
<td>77</td>
<td>575241</td>
<td>5506</td>
<td>87806</td>
</tr>
<tr>
<td>2011-05-27</td>
<td>73</td>
<td>524414</td>
<td>4626</td>
<td>87177</td>
</tr>
</tbody>
</table>

Estos días corresponden a los 4 días tras el desalojo policial de la Acampada Sol (17, 18, 19 y 20 de mayo) y el día en el que se desalojó la Acampada Barcelona (27 de mayo).
Number of Menéame Online Covers (in yellow)

<table>
<thead>
<tr>
<th>Pre 11M-13M</th>
<th>15M-18M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Image of a table and graph representing the number of Menéame Online Covers]
How are beehives generated? Parameters of inter-layer synchronization of the connected multitude and network consciousness

- The art of synchronizing the beehive is not easy, but neither impossible. The weird science of network organization…
Social hives, synchronization dynamics and collective action

Daniel Vazquez

15m is a network, a multi-hive, a network of connected hives, of different groupings and people with the capacity to interact, get together and do and undertaking a common action, in which they concentrate their common energy on that action in that moment.
Methodology: multilayer analysis of collective behavior in augmented events

- A goal is to understand the thresholds in which self-organization translates affections into extended collective behavior. What are the thresholds of activation and/or affecting nodes for crossing scales, either temporal or spatial
Timing of the study: April 2011 to July 2012

Gestation / Explosion and Establization / Latency / Globalization/ Evolution-Mutation

Fases del 15M
Periodo: 1 de abril 2011 - 1 de julio 2012
Fuente: Topsy.com
via @loef @juanl83 @valerio124 cc
Multilayer analysis and camp physical and digital networks
Morpho-ogenesis / Socio-ogenesis
(start of the camp-form)
The camp-form
Multilayer analysis of the augmented event on 27m #BcnSinMiedo (attempt at evicting the camp in Barcelona’s Plaza Catalunya)

- On the square
- People and city
- Phones, sms, whatsapp, apps, Internet
- Twitter, Meneame
- Massmedia
- Synchronization
27M tweets #BcnSinMiedo (BcnFearless)

No venían a desalojar, pero traen pistolas de pelotas de goma, y las usan. #acampadabcn #bcnsinmiedo #bcnsigue

Gritos preguntando "Dónde está tu número de placa?” #bcnsinmiedo #acampadabcn #bcnsigue
NINGUNO LO LLEVA!

La gente ha resistido increíblemente con inteligencia y fuerza. #bcnsinmiedo. No han conseguido desalojar la plaza. Tod@s a Cataluña

Cada vez más gente #bcnsinmiedo, vuelven a cargar, le han pegao hasta al cámara de A3: http://www.antena3.com/directo/ #confloresalas7

Hoy en diferentes ciudades habrá concentraciones contra la violencia ante la resistencia pasiva #confloresalas7 de la tarde por #bcnsinmiedo
From 27M to 29M  #BcnSinMiedo covers in Menéame

- 27m fills 2 days of covers on Menéame.
Twitter is 27M Barcelona #BcnSinMiedo

- #BcnSinMiedo, Top No 1 Global Trending Topic on Twitter
- Across platforms, news are connected with the situation at Plaza de Cataluña. HTs: #bcnsinmiedo, Manel Prat, #confloresalas7, #mossos, Espejo Público, Susana Griso, David Miquel, Plaza Cataluña, Felip Puig y BTV.
27m chronology at plaza Cataluña
#BcnSinMiedo

6.30 police operation starts: mossos
(Catalan police forces) arrive

6.35 First tweets after phone calls

Around 100 people on the square at 6.30

Around 7.30 aprox. The HashTag #BcnSinMiedo is pushed up and more people gather on the square

The attempt at eviction is stopped by the bodies that stop the cleaning trucks

At 11.30 massmedia get involved following what is told on social networks and on the square

12.00 Tension and people hit (broadcasted live)

13.30 the square is retaken

19 an assembly is organized, and solidarity acts across the country under the HT #confloresalas19h

The connected multitude is activated through multiple channels, to go to the square and resist peacefully

Intelligente collective behavior

Extension of the augmented event and global resonance with a global Trending Topic. International solidarity and commotion

On the following days images and videos round the world. The official version and the augmented-distributed narration of the agumented event dispute the meaning of what happened
27M (May 27th) Barcelona #BcnSinMiedo
The demonstration is against the euro-pact

Camps have already been dissolved and the movement has moved to the neighborhoods.

“Revolution is where we are”
October 15th #15O The globalization of the movement (connection with Occupy)
The valencian spring represents a change in the form of constitution of the hive. It starts from the physical territory, from a geographical point in the country, and extends to the rest of it, without a previous critical mass. It activates 15M as well as other actors. Extension of 15M practices to other social actors, and 15M remains an amplifying network that is reactivated by thresholds of affectation.
#PrimaveraValenciana (valencian spring)

- Relevance of videos and pictures taken. Relevance of the 15m network for spreading them.
Menéame covers (lists of headings)
#PrimaveraValenciana

January 15 to 18

January 19 to 22
#PrimaveraValenciana (activity on twitter and press covers)
#12m15m 2012. A year later the movement is again on the streets, massively, but it does not camp

The movement changes some tactics but does not surprise as before. It continues having a big social support. It is very clear the thematic maturation of the 15M networks, with more depth and more presence of collectives with clear goals. The movement finds limits in the face of the need of adequating its organizative structures to the new situation.
Participation in and support for 15M from 2011 to 2012

Data July 2011
- 1.5 Million very active
- 8.5 M participated
- 34 M supported
- 47 M total population of Spain
- 30 M support 15M in 2012

Source: CIS (Center of Sociological Investigations)
Catalyzers

- Simona Levi: New tactics
- Catalyzer: an agent or device that accelerates a specific process. In chemistry, catalyzers are sets of molecules that alter the speed of a reaction. With catalyzers less energy is needed for a certain process. Catalyzers amplify and direct potency. They are small and agile groups that channel the “joined attention”.
- In this moment of 15M there is a need of accelerating processes by working as a multitude of nodes, small, independent, and sovereign in their decisions, that know what they have have to do and that, when necessary, support each other, knowing the results of their work and basing on this their mutual trust.
15mPaRato (15MforRato) active community. Crowdsourcing campaign for financing a lawsuit against Rodrigo Rato
Each action against Rato for his involvement in Bankia fraud to customers counts with a HT and the complicity of a community that expands around @15mParato

There are sequenced and defined actions following each other in time
15M network topology analysis
Hypothesis

- 15m responds to a new modality or prototype of revolt of a distributed and emergent type: the paradigm of a network society.

- Paradigm of distributed politics, without leaders or known representatives.

- It is based on the strategic use of digital tools for the action, communication, and use of the urban space in a nomadic way.
Internet and the network society

Extracts from Manuel Castells (2001):

- “Internet already is and will be even more the communication mean and essential relation on which a new form of society (where we already live) is based on”.

- “Internet is not simply a technology; it is the communication medium that constitutes the organizative form of our societies, it is equivalent to what the factory or the big corporation meant to the industrial era”.
Methodology

Modelling 15M dynamics of diffusion as a graph of nodes connected through content propagation (retweets) within the network (twitter).
Methodology

Applying metrics of social network analysis to characterize the topology and main characters of networks

- Relevant Users detection using PageRank

Imagen cedida por Y. Volkovich
Methodology

Applying metrics from social network analysis to characterize the topology and the main actors of networks:

- Average distance among nodes
Gestation

- Advertisement of May 15th demonstration takes place mostly on the Internet (Twitter, Facebook…)

- This phase underlines the relevance of collective identities (Real Democracy Now!) that assimilate technopolitical practices from the Arab Spring

- Actors coming from the struggle for rights on the Internet intervene (driving users from #Don´tVoteForThem)

- Other key actors sympathising with the proposals have a previously relevant position on twitter (@eljueves, @berto_romero)
Gestation topology
Explosion

• After the demonstration on May 15th and the settling of the first camps, an explosion occurs that transforms the leadership in processes of content spreading within the network

• A rise of collective accounts:
  – Coming from the gestation phase: Real Democracy Now
  – Identities that grow out of the physical layer: camps

• The 15M explosion produces a revolution in the narration of events gathered by some media channels and individual informants

• Actors in the struggle for rights on the Internet also actively participated in the dynamics of content diffusion
Explosion topology
Globalization

• In the globalization stage collective identities take the leading role in the network behavior.
• The demonstration on October 15th represents the globalization of the 15M network with the connection to Occupy Wall Street then in its explosion stage.
• The relevance of mass media in content spreading decreases notably.
Globalization topology
Collective accounts remain as predominant elements in information spreading dynamics.

The accounts that had a key role during the first year maintain their relevance (Real democracy now!, camps, Occupy Wall Street).

New collective accounts are incorporated, such as iaioflautas (catalan 15M direct action group composed of retired people).

New individual users appear that, because of their reputation within the network-system, play a relevant role in information spreading (meritocratic model).
12m15m topology
Temporally distributed leadership

- There is a network or relay race among a constellation of collective identities without permanent leadership or personalities
Bipartisanship loses more than 30 points in voting intention since the beginning of 15m
Analyzing the collective mind of the 15M network

*Miguel Aguilera*
academic@maguilera.net
Motivation

- Since the emergence of the 15M movement, we can identify events where the intensity and quality of network connectivity activate a connected crowd with an enormous collective intelligence.
- The global collective mind is created by the interaction of brains and bodies whose flexibility and creativity overwhelms the ruling power.
Motivation

- Old mechanicist metaphores are not useful anymore to describe social movements
- We can observe how activists are already looking for new dynamicist and organicist metaphors
- Flows, cycles, dynamics...
Reductionism: 'complicated systems'

“The whole is the sum of the parts”
Complex Systems

Complex process

Nonlinear interactions between coupled components

channels

constitute
Complex Systems

Non-linear interactions between coupled components

connected proto-self

constitute

channels

channels

Non-linear interactions between coupled components
Hypothesis

- We consider a system that (among many other things) produces tweets grouped in different hashtags.
- The objective is to characterize collective cognitive processes behind each hashtag through complex system analysis.
1/f noise: Characterization of the interactions between the temporal scales of a system

Multifractality: Quantify the intensity of a connected protoself
1/f noise

***

SWARMS, HERDS AND CATALYSTS
$1/f^\beta$ noise

- $1/f^\beta$ processes describe correlation in the activity of the systems among different temporal scales of a self-organized system.
Temporal scales

- The system emerges when its different temporal scales are coordinated
- Short, medium, long waves (seconds, hours, days, months...)

![Graph showing temporal scales with days of the week and percentage changes.](image)
The system emerges when its different temporal scales are coordinated

- Short, medium, long waves (seconds, hours, days, months...)

**Temporal scales**
The system emerges when its different temporal scales are coordinated.

- Short, medium, long waves (seconds, hours, days, months...)

Temporal scales
The system emerges when its different temporal scales are coordinated

- Short, medium, long waves (seconds, hours, days, months...)
White Noise ($\beta = 0$)

- Uncorrelated and random processes with no memory
- Strong dependencies with fast temporal scales
Compontent-dominant dynamics

Nonlinear interactions between coupled components

channels

white noise

constitute

channels

Nonlinear interactions between coupled components
Brown noise \((\beta = 2)\)

- Strongly correlated and predictable processes
- Slow temporal scales rule over the fast ones
System-dominant dynamics

Nonlinear interactions between coupled components

brown noise

channels

constitute

channels

Nonlinear interactions between coupled components
Ruido Rosa ($\beta = 1$)

- Perfect equilibrium between white noise's spontaneity and brown noise's predictability
- Every temporal scale has the same contribution to the system's activity
Interaction-dominant dynamics

Nonlinear interactions between coupled components

constitute

channels

pink noise

channels

channels

Nonlinear interactions between coupled components
Self-organized processes

coherence

spontaneity

Brown noise
Random walks
Pink noise
Noises
White noise

H = 1.5
H = 1.4
H = 1.3
H = 1.2
H = 1.1
H = 1.0
H = 0.9
H = 0.8
H = 0.7
H = 0.6
H = 0.5

0 1000 2000 3000 4000 5000 6000 7000 8000
time (sample number)
Examples

Dyslexia in children

- White noise
- Pink noise

Brain synchronization

- Excessive: epileptic attack
- Reduced: cognitive dysfunction
#15MpaRato and network catalysts

- Activists involved in the campaign #15MpaRato reflected critically about forms of self-organization in the Internet
- Herds: ensemble of aggregated individuals. They capture the collective attention for a while, but dissolve themselves after a while
- Catalysts: small coordinated groups that act for accelerate or modulate collective processes
Interaction-dominant dynamics

Nonlinear interactions between coupled components constitute channels.
#15MpaRato and catalysts

- Acting as a catalyst with a small group of well positioned actors, the campaign is a greatly successful, collecting €15,000 in less than 24h, and contacting with stockholders and internal witnesses from Bankia for the trial.
Detrended Fluctuation Analysis

- Algorithm for computing relationships between temporal scales and 1/f processes
- Linear zone: 1/f correlation between scales
- Nonlinear zone: 1/f correlation breaks
Types of collective processes

$\beta$

Type of correlation

$\beta = 1.30$

pink-brown noise

Length of the correlation

33 mins

$F(L)$

$\log_{10} F(L)$ vs $\log_{10} L$

#22m
Study cases

- Spontaneous-reactive processes: #desalojosol, #larimaia, #nurembergfinanciero, #prima500 #15MSectorRadical, #alabolsa, #16M, #occupymordor, #bankiaesnuestra, #cierrabankia

- Planned processes: #19f, #22m, #huelgadeclass, #12m15m,

- Catalysts strategy: #15MpaRato
<table>
<thead>
<tr>
<th>Hashtag</th>
<th>Mensajes analizados</th>
<th>$\beta$</th>
<th>Correlación (horas)</th>
<th>Descripción</th>
</tr>
</thead>
<tbody>
<tr>
<td>#alabolsa</td>
<td>1426</td>
<td>0,41</td>
<td>0,35</td>
<td>Miles de personas acuden a la bolsa de Madrid la madrugada del 15M de 2012</td>
</tr>
<tr>
<td>#nurembergfinanciero</td>
<td>2868</td>
<td>0,45</td>
<td>0,88</td>
<td>Hashtag pidiendo juzgar a los responsables de la crisis</td>
</tr>
<tr>
<td>#desalojosol</td>
<td>6137</td>
<td>0,46</td>
<td>0,35</td>
<td>Reacción al desalojo de la acampada de Sol la noche de la manifestación del 12 mayo</td>
</tr>
<tr>
<td>#15MSectorRadical</td>
<td>1730</td>
<td>0,48</td>
<td>0,35</td>
<td>Sectores más ideologizados del 15M se manifiestan bajo este hashtag</td>
</tr>
<tr>
<td>#larimaia</td>
<td>5736</td>
<td>0,53</td>
<td>0,55</td>
<td>Desalojo del centro social la Rimaia antes del 12M15M</td>
</tr>
<tr>
<td>#bankiaesnuestra</td>
<td>6338</td>
<td>0,59</td>
<td>2,78</td>
<td>Respuesta al rescate de Bankia</td>
</tr>
<tr>
<td>#planderescateciudadano</td>
<td>9275</td>
<td>0,72</td>
<td>5,54</td>
<td>Rescatemos a las personas, no a los bancos</td>
</tr>
<tr>
<td>#16m</td>
<td>20528</td>
<td>0,79</td>
<td>8,78</td>
<td>Movilizaciones al finalizar el 12M15M</td>
</tr>
</tbody>
</table>
### Results

<table>
<thead>
<tr>
<th>Ruido Marrón</th>
<th>Mensajes analizados</th>
<th>β</th>
<th>Correlación (horas)</th>
<th>Descripción</th>
</tr>
</thead>
<tbody>
<tr>
<td>#CierraBankia</td>
<td>11.845</td>
<td>1,29</td>
<td>1,11</td>
<td>Movilización contra Bankia en sus oficinas para cerrar cuentas y pedir dación en pago</td>
</tr>
<tr>
<td>#prima500</td>
<td>10.987</td>
<td>1,30</td>
<td>0,82</td>
<td>Reacción a la noticia de que la prima de riesgo alcanzó los 500 puntos por primera vez</td>
</tr>
<tr>
<td>#22m</td>
<td>64663</td>
<td>1,30</td>
<td>0,55</td>
<td>Huelga de educación promovida por diferentes sindicatos</td>
</tr>
<tr>
<td>#huelgadeclace</td>
<td>21775</td>
<td>1,58</td>
<td>0,39</td>
<td>Uno de las etiquetas utilizadas para seguir la huelga de educación</td>
</tr>
<tr>
<td>#19f</td>
<td>77.880</td>
<td>1,59</td>
<td>0,25</td>
<td>Movilización en respuesta a la reforma laboral</td>
</tr>
</tbody>
</table>
### Resultados

<table>
<thead>
<tr>
<th>Hashtag</th>
<th>Mensajes analizados</th>
<th>$\beta$</th>
<th>Correlación (horas)</th>
<th>Descripción</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12m15m</td>
<td>11277</td>
<td>0,89</td>
<td>145,78</td>
<td>Movilizaciones del 'aniversario' del 15M</td>
</tr>
<tr>
<td>#15mparato</td>
<td>18984</td>
<td>1,02</td>
<td>121,25</td>
<td>Campaña para denunciar a los responsables de la crisis personalizada en la figura de Rodrigo Rato</td>
</tr>
<tr>
<td>#primaveravenciana</td>
<td>241964</td>
<td>1,10</td>
<td>277,78</td>
<td>Reacción masiva contra las agresiones a estudiantes en Valencia</td>
</tr>
<tr>
<td>#occupymordor</td>
<td>62059</td>
<td>1,12</td>
<td>23,64</td>
<td>Campaña en Barcelona contra la Caixa</td>
</tr>
<tr>
<td>#lacaixaesmordor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#alaplaza12M</td>
<td>20082</td>
<td>1,14</td>
<td>1,24</td>
<td>Llamamiento a tomar las plazas el 12 de mayo</td>
</tr>
<tr>
<td>#Feliz15M</td>
<td>11921</td>
<td>1,17</td>
<td>1,97</td>
<td></td>
</tr>
<tr>
<td>#yovoy12m</td>
<td>22110</td>
<td>1,22</td>
<td>2,80</td>
<td>Llamamiento a la manifestación del 12 de mayo</td>
</tr>
<tr>
<td>#Es15M</td>
<td>12734</td>
<td>1,24</td>
<td>1,75</td>
<td></td>
</tr>
</tbody>
</table>
Results

![Diagram showing correlation length vs. \( \beta \)]
Multifractality

***

CONNECTED PROTO-SELF AND NETWORK CONSCIOUSNESS
Motivation

- Problem of pink noise analysis: it assumes homogeneous relationships among scales in time
- We can only measure the mean relation among scales
- Real-life cognitive system display changes in their levels of activity that emerge from the coordination of their different temporal scales
Multifractality

- Multifractality measures: they let us know the level of coordinated intermittency that exists in the system.
- They measure the ability of the system to modulate its levels of attention and activity as a result of its coordinated activity.
- We can measure the degree in which the network constitutes itself as a connected protoself or a network consciousness.
Examples
Width of the Multifractal Spectrum
#primaveravalenciana
#29m

@tomalahuelga @huelgadel99 @29MSinMiedo huelgahacker.
#12m15m

Expropiación Repsol-YPF
Conclusion

***

CONNECTED PROTO-SELF AND NETWORK CONSCIOUSNESS
Pink noise

- Three types of self-organized processes:
  - **White Noise**: components rule dynamics
  - **Brown Noise**: the process rules dynamics
  - **Pink Noise**: interactions rule dynamics

Nonlinear interactions between coupled components constitute channels.
Pink Noise

- The processes that create and maintain its identity throughout time are the ones that display interaction between temporal scales (pink noise).
- They are not uncoordinated processes (white noise).
- They are not centralized and planned processes (brown noise).
- The participants in the process must be able to reappropriate the process, making it open and collective.
Multifractality

- Multifractality as a better measure of the interaction between the temporal scales of a system
- Processes of coordination in a connected crowd as an indicator of the emergence of a connected protoself or a network consciousness
Activism in the connected crowd

- The role of the activist acquires a new significance in the context of social emergent networks

- Panning and organizing vs. listen and influence processes happening at different scales

“The role of a good strategist it not to model and project first and act later, but to listen, evaluate, follow and develop the potential of a situation. Not act but being acted upon. Not force on, but support. Don't directly pursue an objective, but exploit a tendency. Because the effects are contained in it. Is like surfing a wave: it is not about taming it but going together towards the same place.”

- Amador Fernandez-Sabater, Olas y espuma, otros modos de pensar estratégicamente
Activism in the connected crowd

- The role of the activist acquires a new significance in the context of social emergent networks
- Agitation and propaganda vs. taking care of inclusivity, diversity and openness in collective processes

"its singularity is better developed in the field of care than mere agitation: providing their know-how and singularity in an horizontal way. Bringing to life a diversity that includes every person. Acting from the modesty of who recognizes herself as just one more, whitout losing the boldness of who knows that is living a decisive moment".

- @fati_matta y @davidcuji, Latidos, o del 15m y la revuelta
Patterns of political self-organization in the network society

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Ongoing research

- We still have to carry on measurements such as emo-analysis of 125 top Hashtags from twitter
- We have to look to multi-tool results under the multi-layer model, as well as to the system evolution on augmented events
Provisional conclusions from topology

Differently from political parties who follow a competitive logics, 15M nodes cooperate among themselves.

There are no static or personal leaderships. Influence is carried on by collective identities-masks and anonymous users.

The basic unit in terms of tools is a digital structure (blog, Facebook, twitter, pad. mailing lists, n-1.cc)

Technopological practices recognized as key to collective action.

Relevance of both net and street for political action.

Centrality of multi-layer feedback and factors (emotions, vocabulary, contents).

15M is a network-system that is activated by thresholds of affectation and production (augmented events).

Each node or community has a threshold. Nodes with high connectivity among layers are key for information and action spreading.

The des-individualization provoked by augmented events de-territorializes pre-existing identities, facilitating the creation of the proto-self of the connected multitude.

The power of the multitude increases exponentially when net and street are synchronized.
The growth of the network is clearly abrupt and exponential. An increase can be seen in the number of new individual users and collectives that gain relevance after 15M.

Topology: there is an evolution from a smaller network composed by social movements of free internet and culture, but there is a growing autonomy and distance from them.

The network evolves in a new context and environment after the elections on May 22 2011, stronger cuts and different actors.

A new idea of self-organized political action, not spontaneous only, but also organized and planified, overcomes the fleetingness of the early demonstrations of connected multitudes.

Agumented events, created and planified, depend on a series of factors to get a relevant impact.

We find a capacity or art of organization that is based on tackling the de-configurating dispersion through synchronization dispositives.

There is an important attention to a double dimension of communication: that of language and emotions and their tactic use.
Preliminary conclusions

A new capacity of massive technopolical intervention is being developed with the evolution of the network-system which reduces the costs of collective action.

Centrality of the analysis of feedback between physical-digital-emotional-lingüistic parameters.

We can build analytic models for analyzing complexity as well as interactions between processes.

The most interesting processes are dominated by interaction, feedback and identities that can act across different time-frames.
Open research lines

Walking towards an analytic model that combines analysis of topology, emotions, and pink noise. A goal is to find the different connections among those parameters.

Towards an analytic metamodel of technopolitical movements and revolts in the network society

Integrating qualitative techniques with quantitative ones

Deepening and developing the different methodologies for increasing their precision and versatility

Incorporating a view of the metabolism of the network system

Perfectioning technopolitical practices with simulated models and piecemeal analysis and intervention into activities within 15M
Thanks!

Research coordinated by Javier Toret, with the direct participation of Miguel Aguilera, Pablo Aragón, Antonio Calleja, Alberto Lumbreras y Oscar Marín, all of them members of the group Datanalysis15M.

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