

Dominique Boullier

Propagations

Sciences Po

Centre d'Etudes Européennes et
de Politique Comparée

CCIC

Colloque de Cerisy

Juillet 2025

**UN CADRE THÉORIQUE HISTORIQUE
ISSU DES STS ET À VALIDER**

Une histoire moderne des dispositifs de quantification du social

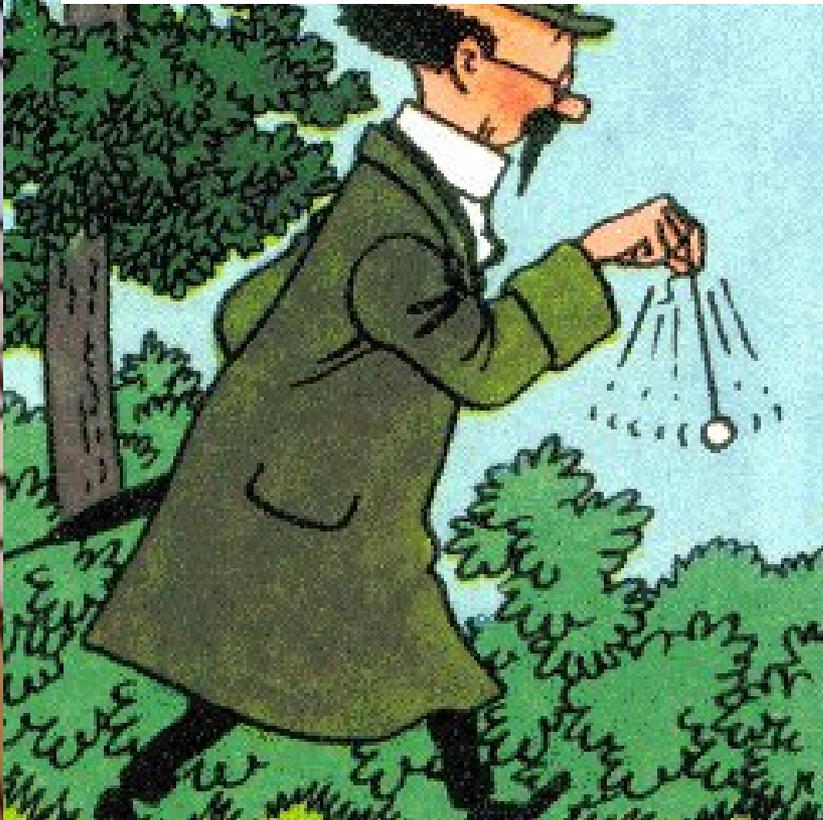
	1ere génération	2 nd e génération	3eme génération
Concept du social	Société(s)	Opinion(s)	Propagation(s)
Dispositifs de collecte	Recensement	Sondage (échantillonnage)	Traces (Big Data)
Principe de validation	Exhaustivité	Représentativité	Traçabilité
Co-construction institutions/ recherche	Registre/ enquête	Audience/ sondage	Suivi des traces/ analyse des réplifications
Acteurs majeurs de référence (et financeurs)	Etats	Mass media	Marques
Acteurs opérationnels	Instituts nationaux	Instituts de sondage	Plates-formes du web (GAFAMT')

Auteurs fondateurs et questions clés

Auteurs fondateurs	Durkheim	Gallup Lazarsfeld	Callon Latour Law
Problèmes clés des approches scientifiques initiales	Division du travail et état providence	Propagande et influence des médias (mesures d'audience)	Science et technologie (scientométrie)
Modalités de surveillance	Identifier les corps (Galton et Bertillon)	Influencer les esprits (Goebbels)	Corréler les traces (NSA)
Dispositifs techniques contemporains	Machine de Hollerith 1890 (IBM)	Radio (1926) et téléphone	Internet, Web et Big Data

Points de vue (Standpoints)	Structure	Préférences individuelles	Propagations
Généalogie	Société Exhaustivité	Opinion Représentativité	Imitation Traçabilité
Concepts clés	Système, reproduction, cause finale, patterns	Préférences, choix rationnel, decision-making, théorie des jeux	Événement, incertitude, propagation, chaos, crise
Distribution de l'agency (du pouvoir d'agir)	Collectifs, agrégats, communautés, réseaux, classes, géoclasses	Individus, acteurs stratégiques, influenceurs	Entités circulantes, idées, ondes, mèmes
Sources des croyances et désirs	Héritage	Arbitrage	Voisinage
Longueur d'onde	Longue durée	Cycles	Ondes à haute fréquence
<i>Statut des acteurs humains</i>	Héritiers Sujets déterminés	Acteur-stratège décideurs, agents rationnels	Véhicules pour la propagation des mèmes

**Nous avons les sciences de nos outils:
les méthodes adoptées
attribuent toujours une agentivité qui
finit par se traduire dans le sens
commun: la société, l'opinion, ?**



**2022, DATE CLÉ
DEUX CHANGEMENTS
MÉDIOLOGIQUES
MAJEURS ET IMPRÉVUS**

**ELON MUSK RACHÈTE TWITTER,
TOTALEMENT ALTÉRÉ ET INACCESSIBLE**

**OPEN AI LANCE CHATGPT ET TOUTE LA
PROPAGATION DE L'IA GÉNÉRATIVE**

Une méthode expérimentale in vivo

- Mais Twitter/X peut être supplanté par tout autre réseau social fait pour la propagation ex: 4chan ou Reddit
- L'impératif politique de l'accès aux traces devient une exigence de souveraineté
- Le modèle est fractal: même les terrains favoris des propagations peuvent être étudiés selon trois points de vue

Voisinage

**non réductible aux héritages
non réductible aux arbitrages
Toujours localisés**

Parfois stabilisés mais vecteurs de changement avant tout

Proxémie

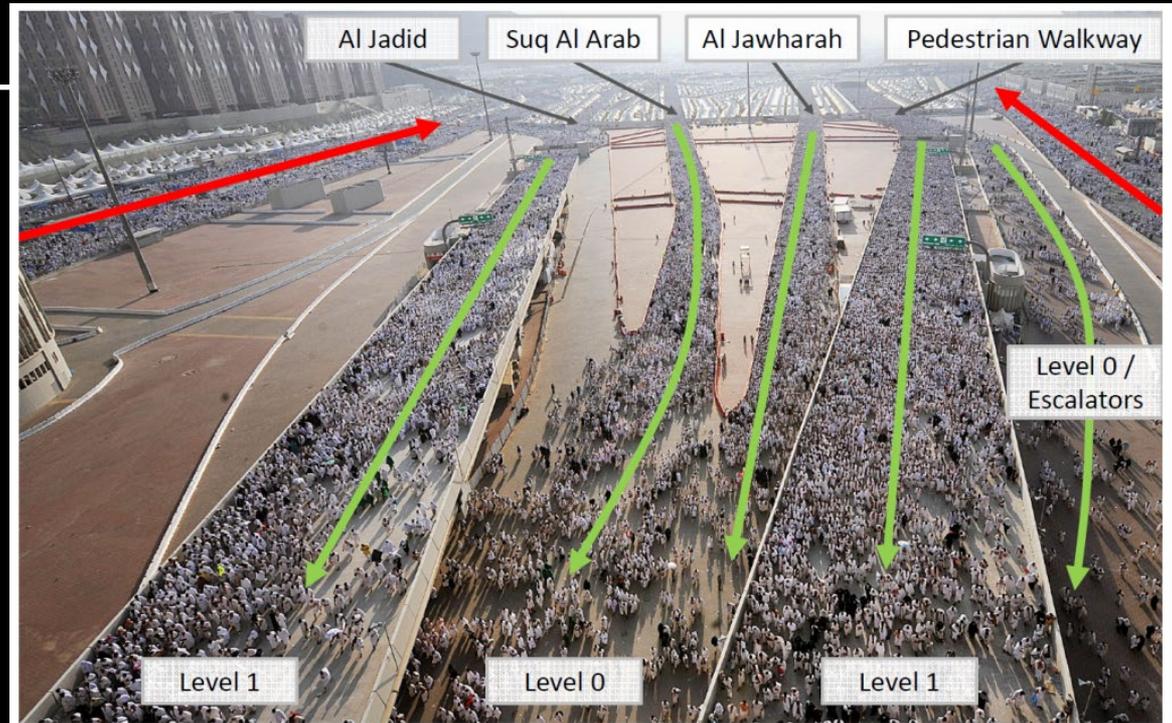
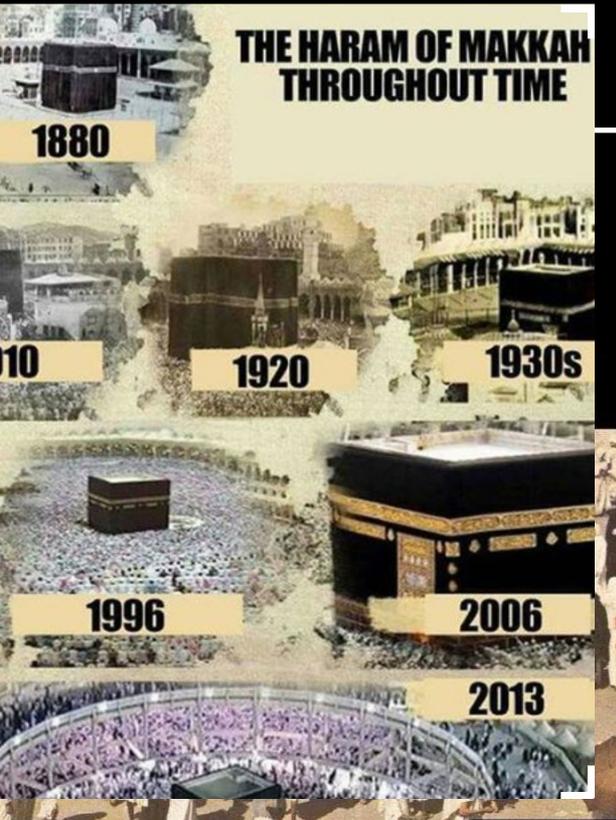
Imitation (le fait social élémentaire?)

Pragmatisme Régime du proche vs justification et plan

Chaque atome joue son rôle
pour générer les olas
Effets de contagion = de proximité



Moussaïd: Fouloscopie



← Access ← Egress

Note. Access to the Hajj Terminal from the Mina valley. Derivative of the MOMRA, 2014.



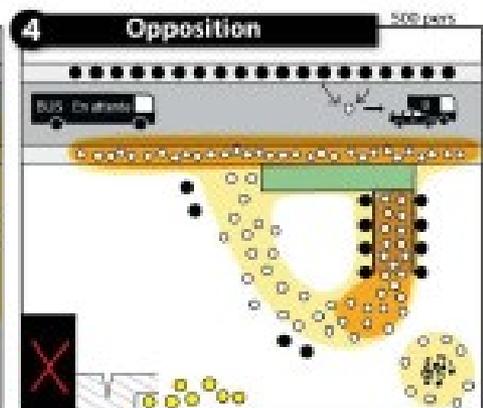
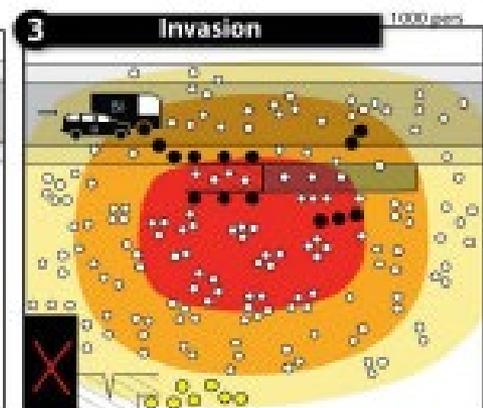
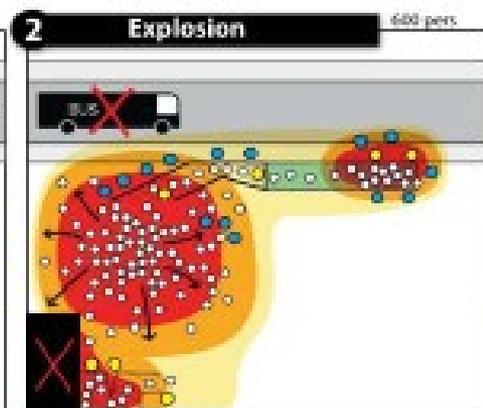
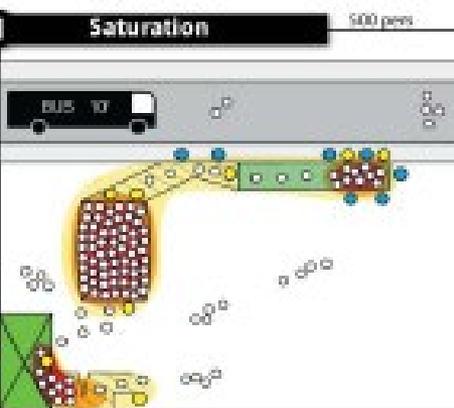
ional road usage. The Hajj Terminal is designed to handle a large volume of pilgrims in a safe and efficient manner. The design is based on the MOMRA, 2014.

CHRONIQUES EUROPEENNES
3 4 5 6 DEC 2008
30 èmes Rencontres
TRANS MUSICALES
de RENNES

www.lestrans.com



Echec/débordement au point d'articulation entre professionnels



2019:
l'année des
mouvements
sociaux dans
le monde

.....

2020:
Le Covid-19



**LE MONDE ENTIER VEUT
LA CHUTE DU RÉGIME**



CATALOGNE

LIBAN

HONG KONG

CHILI

ÉQUATEUR



HAÏTI

FRANCE

PAPOUASIE

SOUDAN

ALGÉRIE

IRAK

ÉGYPTE

GRÈCE...

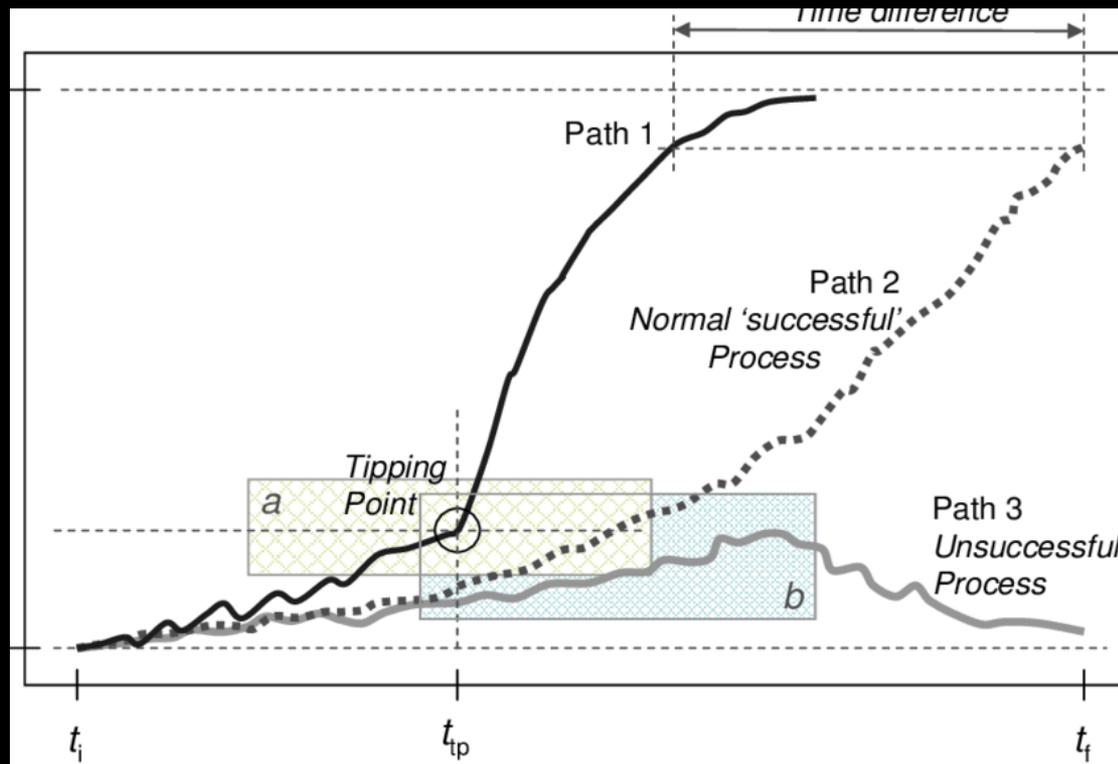


Moments de bascule (tipping points)

The Law of the Few

The Stickiness Factor

The Power of Context



Murmurations des étourneaux



Le pouvoir d'agir

1/ Distribuer le pouvoir d'agir : une métaphysique incontournable de tout énoncé scientifique

2/ Est-il bien nécessaire d'attribuer un pouvoir d'agir (une agentivité) aux entités qui circulent? Un autre acquis de l'ANT

PERSPECTIVISME

Viveiros de Castro

L'impasse de l'ontologie moderniste

1. Superspreader en épidémiologie (Hong Kong SARS 2003)

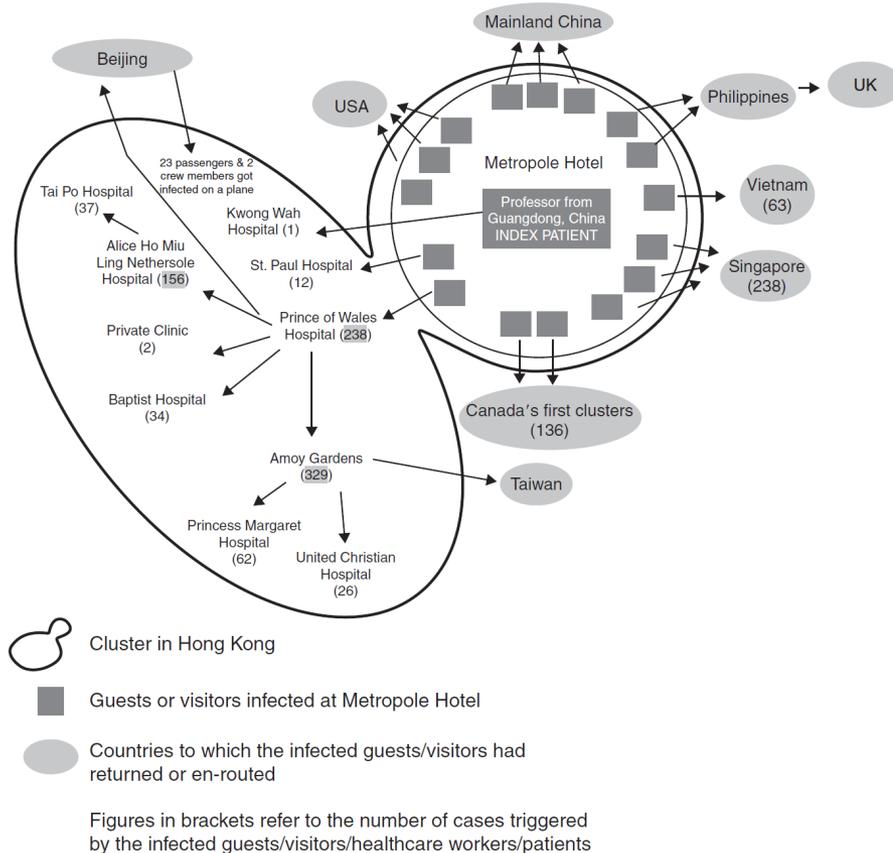


Figure 4.2 The SARS epidemic: the global and local impacts of the index patient in the Metropole Hotel

Source: Modified and synthesized from SARS Expert Committee (2003, pp. 35–52) and various newspaper reports.

Mee Kam Ng in "Networked Disease: Emerging Infections in the Global City". Edited by S. Harris Ali and Roger Keil, 2008, Blackwell Publishing Ltd.

2. Traçabilité géographique des routes du virus Ebola



Dataset

ebola

Date Range

2014-02-03

2015-10-28

Color By

Division

Tree Options

Layout

RECTANGULAR

RADIAL

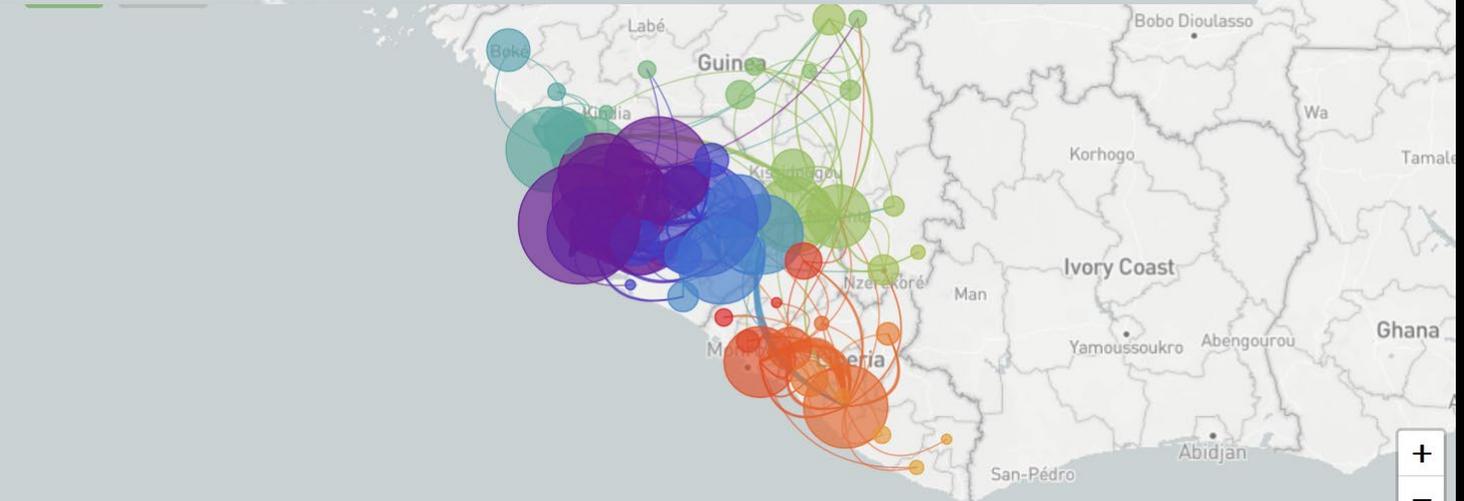
UNROOTED

CLOCK

RESET ZOOM

Division

Burkina Faso



mapbox

Leaflet | © Mapbox © OpenStreetMap Improve this map

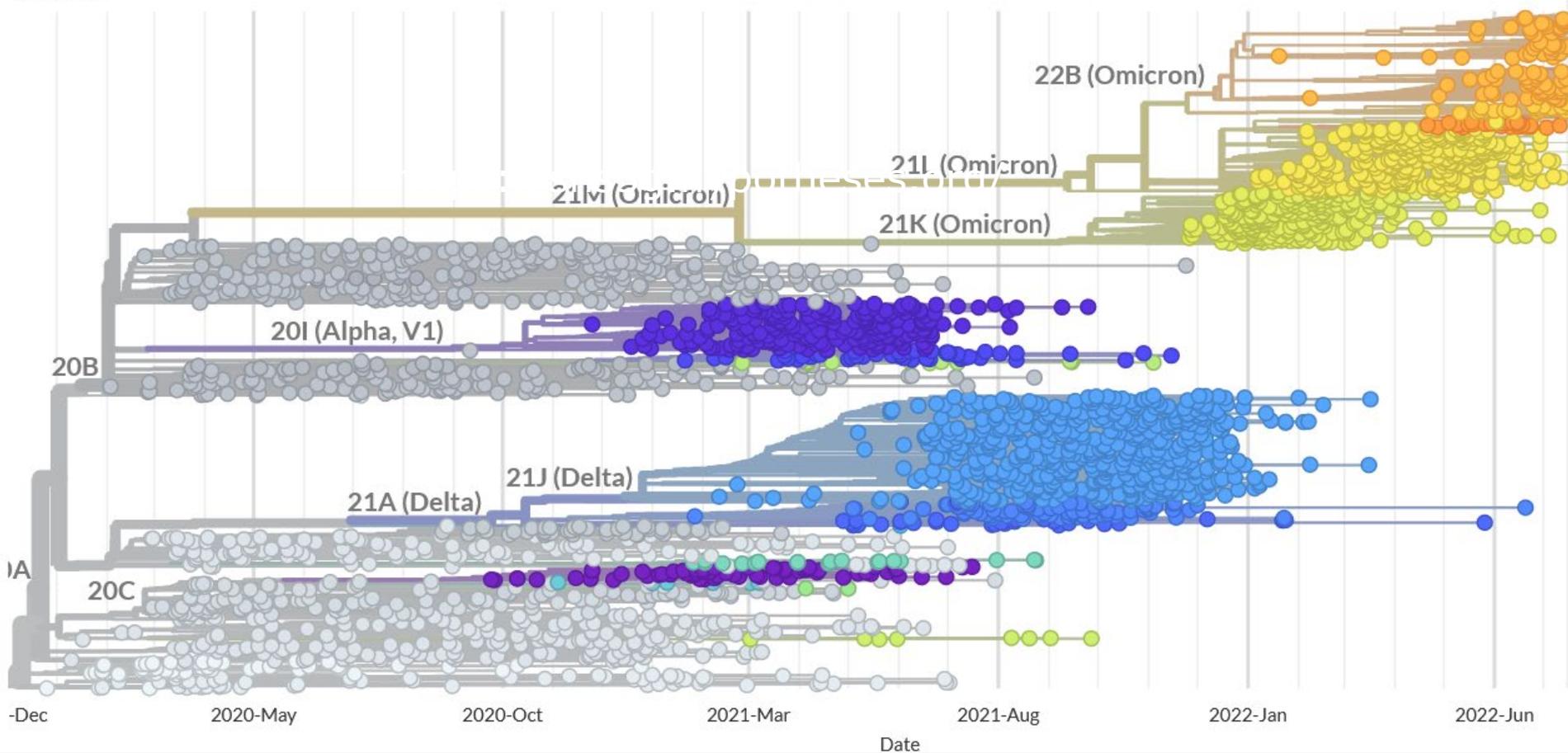
3. La phylodynamique en épidémiologie: suivre les variants

Showing 2792 of 3214 genomes sampled between Dec 2019 and Jul 2022.
Built with [nextstrain/ncov](#)

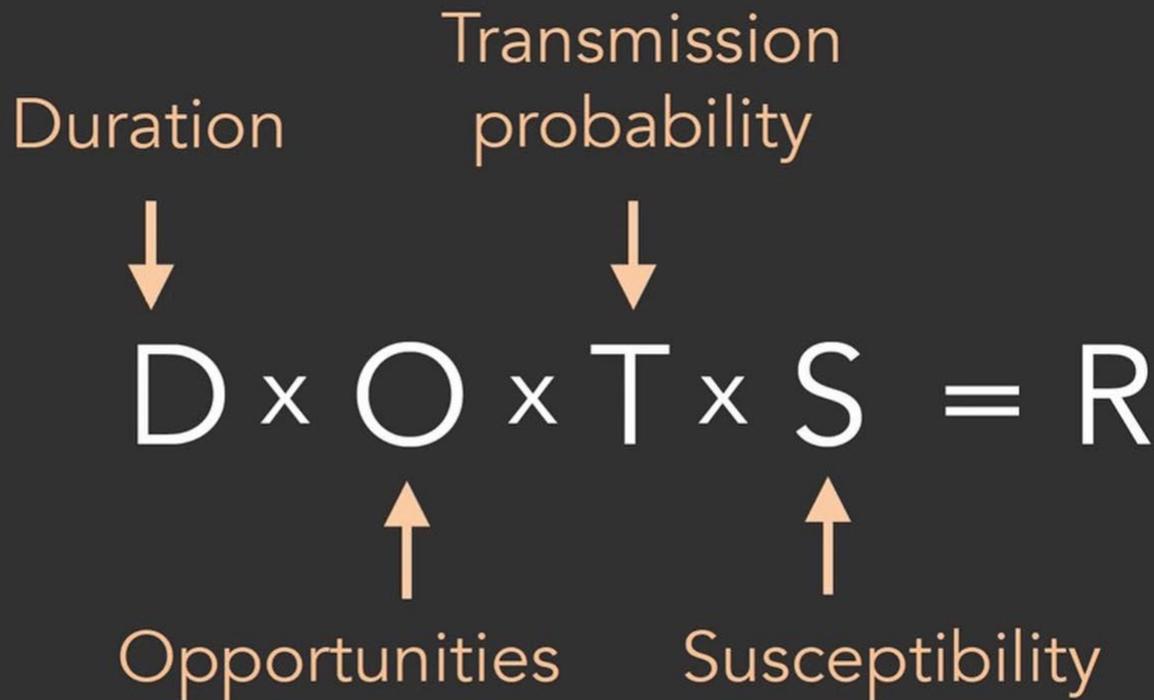
Phylogeny

🔍 ZOOM TO SELECT

Clade ▼



Kucharski Les lois de la contagion



**Le pouvoir d'agir
des particules élémentaires
qui circulent
(les mots, les rumeurs,
les hashtags)**



D'une époque...

THE SATURDAY EVENING
POST
MARCH 6, 1948 15¢

A NEW HORNBLOWER
NOVELETTE

By C. S. FORESTER

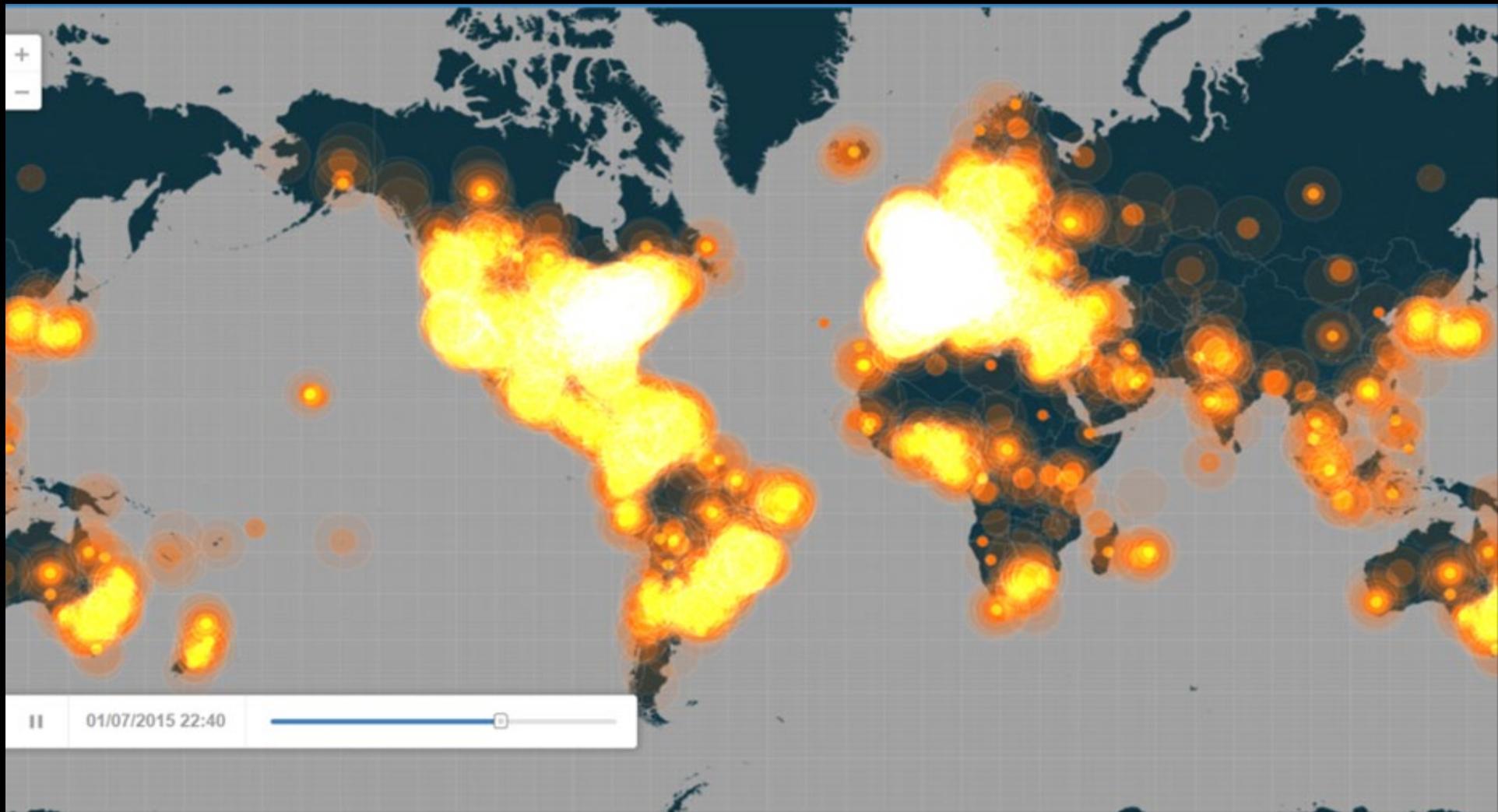
A Faint Blueprint for Peace

By MARTIN SOMMERS



... à l'autre

Les plateformes numériques excitent la vibration du monde
(un rythme) #JeSuisCharlie



#JeSuisCharlie

L'enjeu scientifique: Capter les traces et détecter les patterns Variations et sélection

**Twitter et les mèmes :
nos drosophiles du point de vue des propagations**

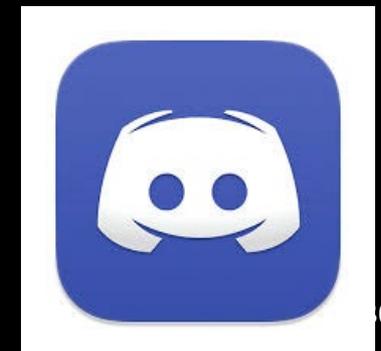
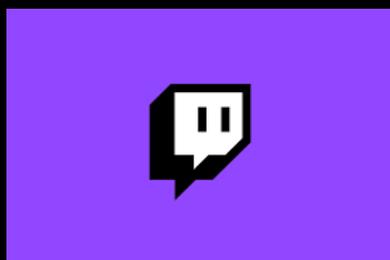
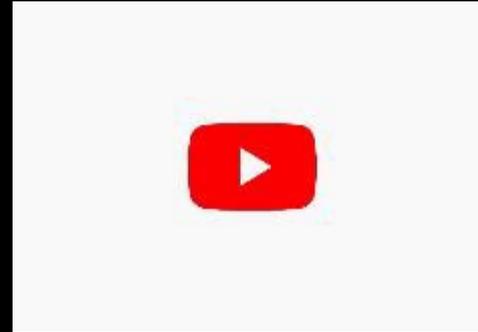


**La machine virale
numérique
est devenue
un milieu
auto-répliquant**

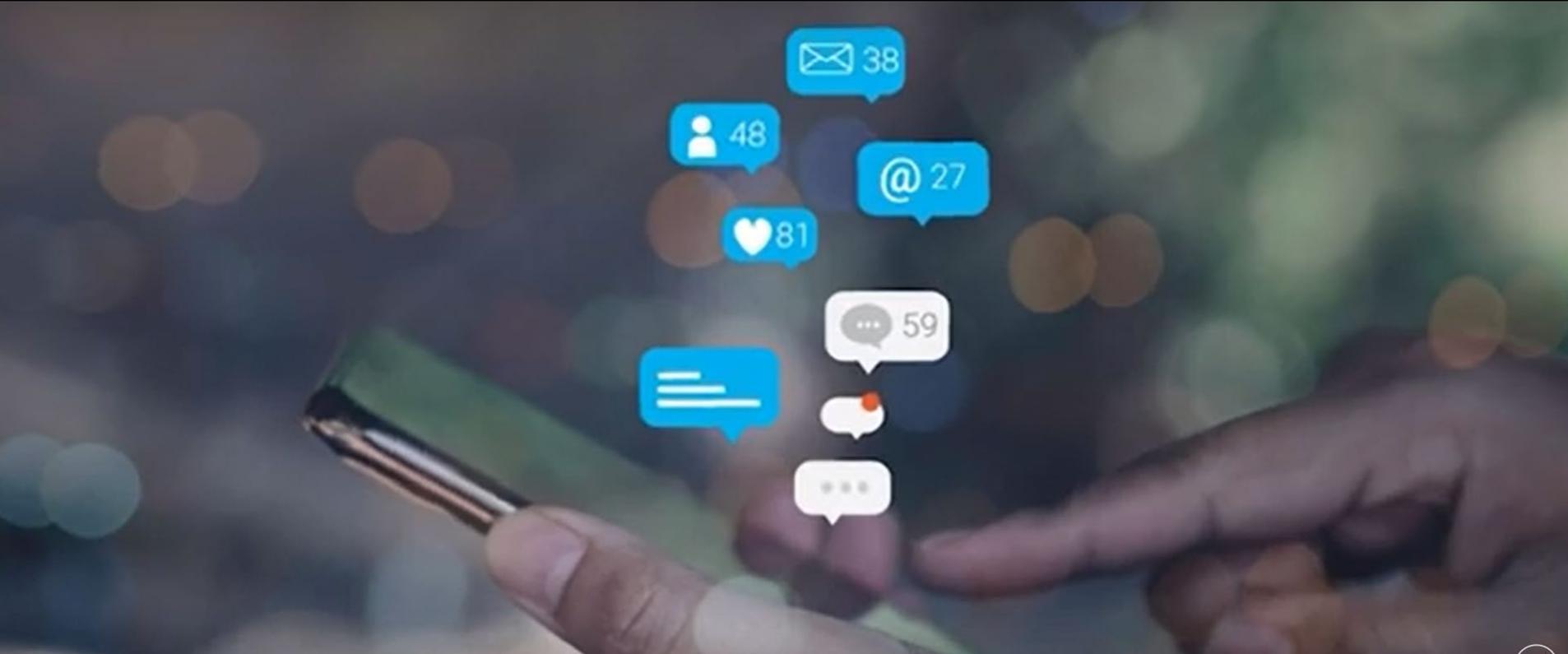
Le numérique en réseaux

La traçabilité inédite

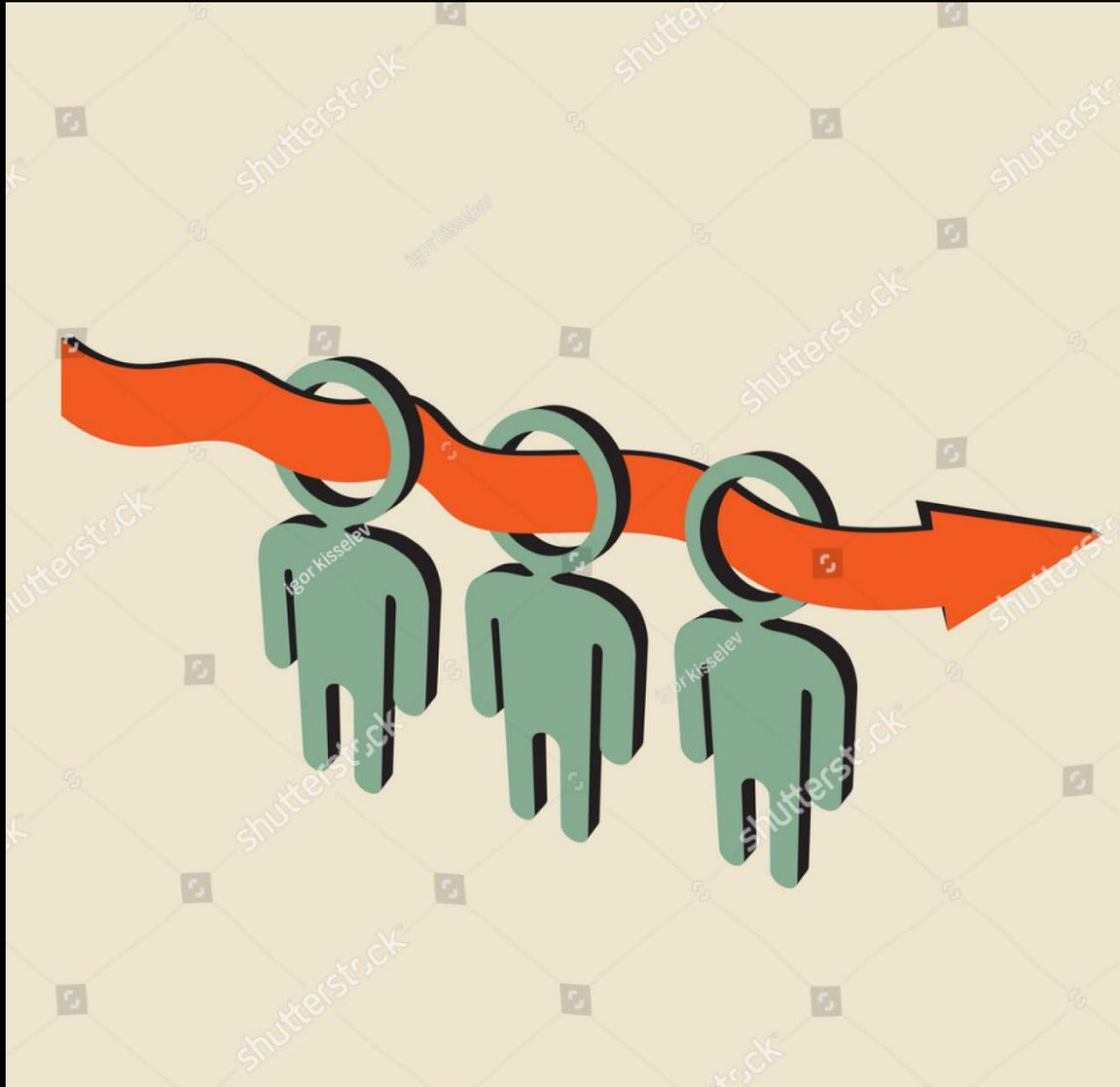
La foire à l'expression...(ex-pulsion) à la réactivité et à la viralité



Nous sommes les véhicules des virus de la pensée



Signaux



Les propriétés des fake news jouent un rôle dans leur propagation: « novelty score » (Vosoughi et al. Science, 2018)

INSIGHTS



POLICY FORUM

SOCIAL SCIENCE

The science of fake news

gated about topics such as vaccination, nutrition, and stock values. It is particularly pernicious in that it is parasitic on standard news outlets, simultaneously benefiting from and undermining their credibility

RESEARCH

SOCIAL SCIENCE

The spread of true and false news online

Soroush Vosoughi,¹ Deb Roy,¹ Sinan Aral^{2*}

We investigated the differential diffusion of all of the verified true and false news stories distributed on Twitter from 2006 to 2017. The data comprise ~126,000 stories tweeted by ~3 million people more than 4.5 million times. We classified news as true or false using information from six independent fact-checking organizations that exhibited 95 to 98% agreement on the classifications. Falsehood diffused significantly farther, faster, deeper, and more broadly than the truth in all categories of information, and the effects were more pronounced for false political news than for false news about terrorism, natural disasters, science, urban legends, or financial information. We found that false news was more novel than true news, which suggests that people were more likely to share novel information. Whereas false stories inspired fear, disgust, and surprise in replies, true stories inspired anticipation, sadness, joy, and trust. Contrary to conventional wisdom, robots accelerated the spread of true and false news at the same rate, implying that false news spreads more than the truth because humans, not robots, are more likely to spread it.

Foundational theories of decision-making (1-3), cooperation (4), communication (5), and markets (6) all view some conceptualization of truth or accuracy as central to the functioning of nearly every human endeavor. Yet, both true and false information spreads rapidly through online media. Defining what is true and false has become a common political strategy, replacing debates based on a mutually agreed on set of facts. Our economies are not immune to the spread of falsity either. False rumors have affected stock prices and the

Current work analyzes the spread of single rumors, like the discovery of the Higgs boson (13) or the Haitian earthquake of 2010 (14), and multiple rumors from a single disaster event, like the Boston Marathon bombing of 2013 (10), or it develops theoretical models of rumor diffusion (15), methods for rumor detection (16), credibility evaluation (17, 18), or interventions to curtail the spread of rumors (19). But almost no studies comprehensively evaluate differences in the spread of truth and falsity across topics or examine why false news may spread differently than the

support their positions as unreliable or fake news, whereas sources that support their positions are labeled reliable or not fake, the term has lost all connection to the actual veracity of the information presented, rendering it meaningless for use in academic classification. We have therefore explicitly avoided the term fake news throughout this paper and instead use the more objectively verifiable terms “true” or “false” news. Although the terms fake news and misinformation also imply a willful distortion of the truth, we do not make any claims about the intent of the purveyors of the information in our analyses. We instead focus our attention on veracity and stories that have been verified as true or false.

We also purposefully adopt a broad definition of the term news. Rather than defining what constitutes news on the basis of the institutional source of the assertions in a story, we refer to any asserted claim made on Twitter as news (we defend this decision in the supplementary materials section on “reliable sources,” section SI2). We define news as any story or claim with an assertion in it and a rumor as the social phenomena of a news story or claim spreading or diffusing through the Twitter network. That is, rumors are inherently social and involve the sharing of claims between people. News, on the other hand, is an assertion with claims, whether it is shared or not.

A rumor cascade begins on Twitter when a user makes an assertion about a topic in a tweet, which could include written text, photos, or links to articles online. Others then propagate the rumor by retweeting it. A rumor’s diffusion process can be characterized as having one or more cascades, which we define as instances of a rumor-

**Le rythme,
question clé
ignorée des
débat de
régulation et
des enjeux
cognitifs**

<https://www.boullier.bzh/>

DOMINIQUE BOULLIER

**Comment sortir
de l'emprise
des réseaux sociaux**



**L'ère du
réchauffement
médiatique**

LE PASSEUR

ÉDITIONS

Le pouvoir d'un hashtag ou des influenceuses?



Alyssa Milano 

@Alyssa_Milano

Follow



If you've been sexually harassed or assaulted write 'me too' as a reply to this tweet.

Me too.

Suggested by a friend: "If all the women who have been sexually harassed or assaulted wrote 'Me too.' as a status, we might give people a sense of the magnitude of the problem."

1:21 PM - 15 Oct 2017

18,127 Retweets 36,562 Likes



 50K  18K  37K 

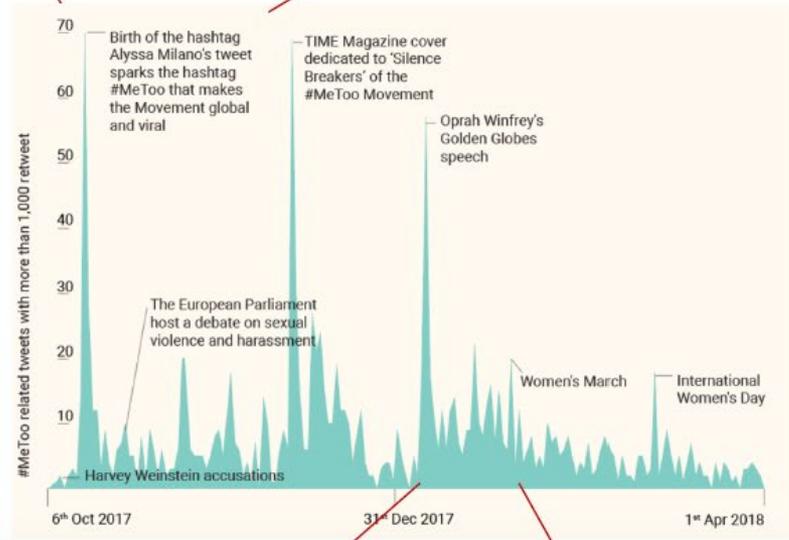
Alyssa Milano
@Alyssa_Milano

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1:21 PM · 15 Oct 2017



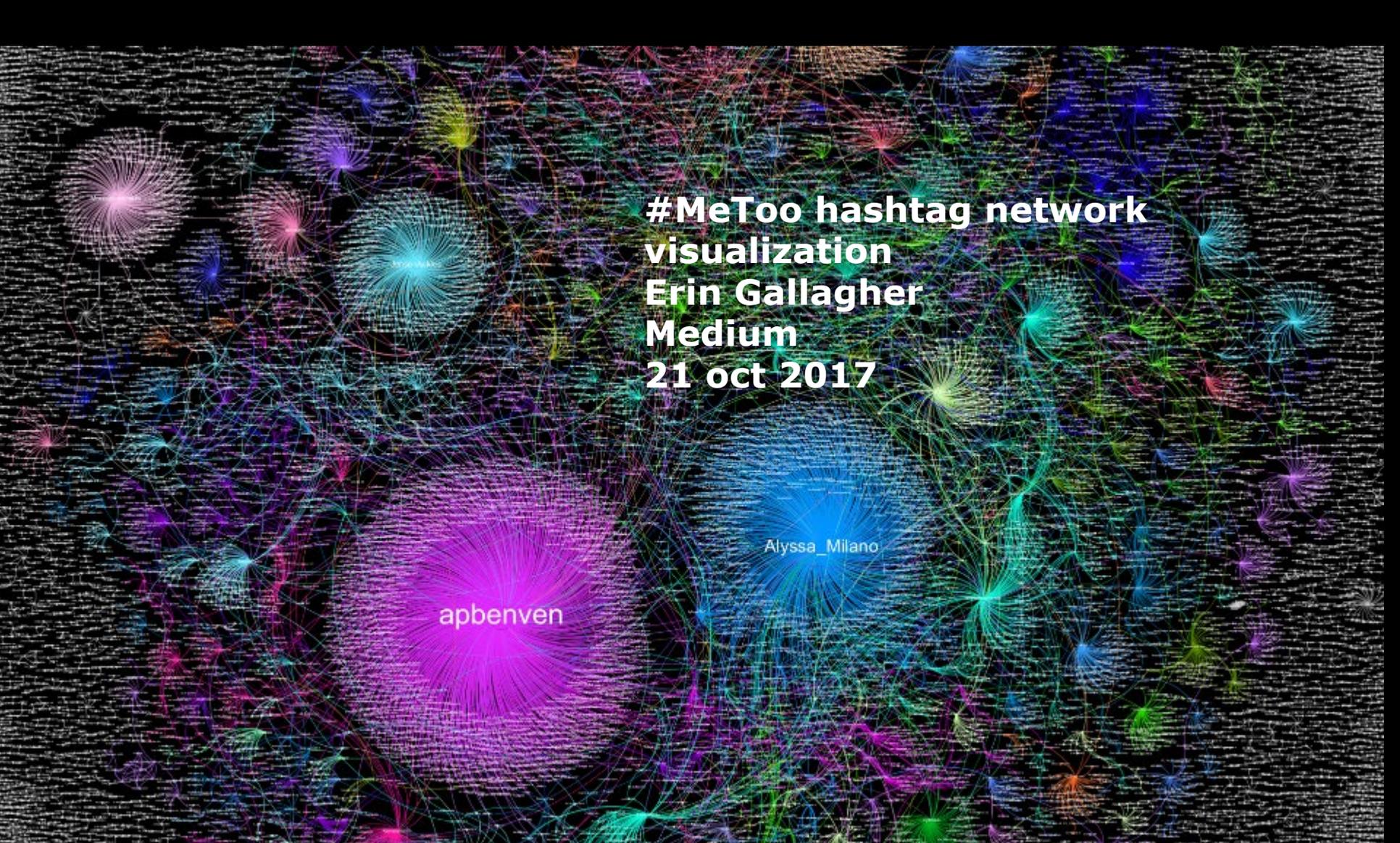
TIME
@TIME

The Silence Breakers are TIME's Person of the Year 2017
#TIMEPOY ti.me/2AX63jC



10:4 PM · Dec 6, 2017 · SocialFlow
86.9K Retweets · 148.5K Likes



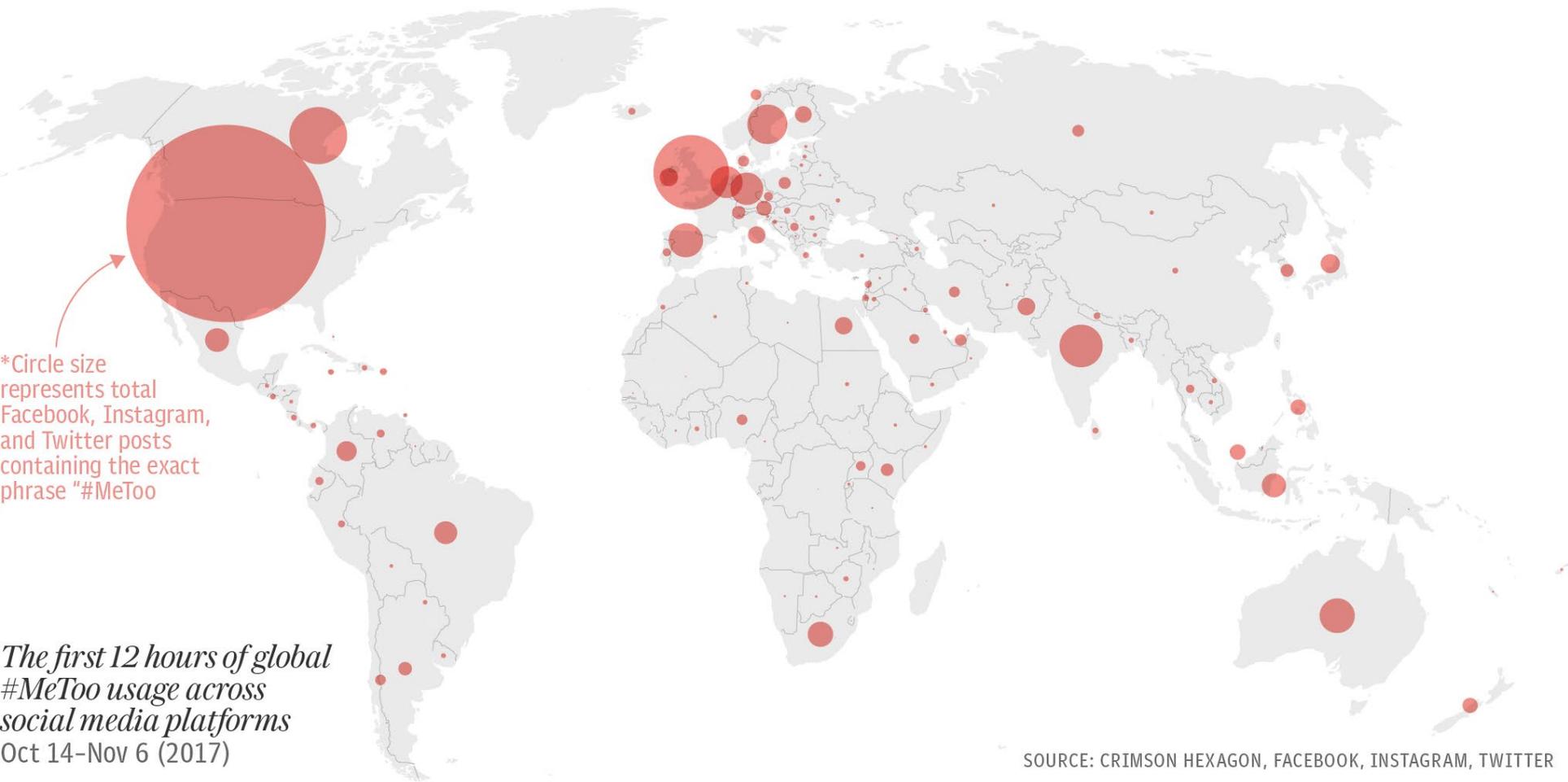


**#MeToo hashtag network
visualization
Erin Gallagher
Medium
21 oct 2017**

apbenven

Alyssa_Milano

Et non #MyHarveyWeinstein
Ni #balancetonporc



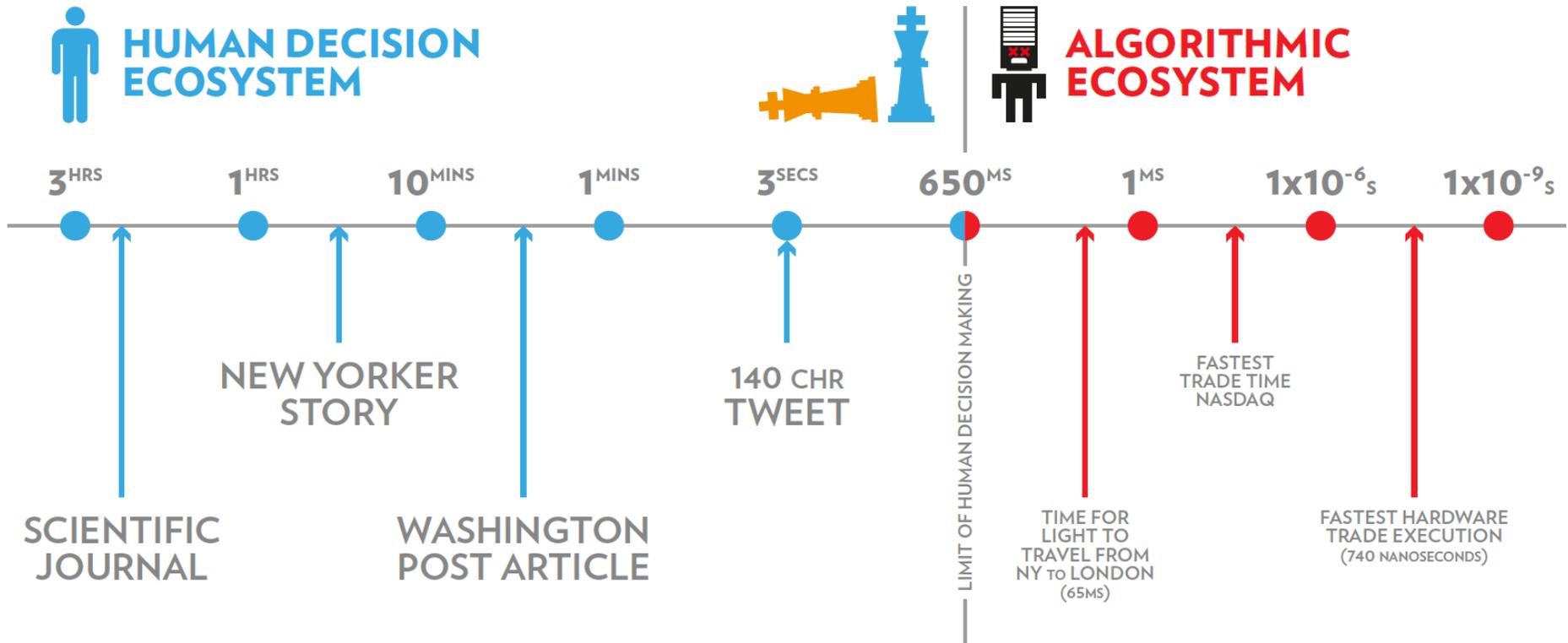
Le capitalisme financier, pionnier de la viralité

« économie d'opinion » (A. Orléan)
En quête d'investisseurs (M. Feher)
(surtout signaux et patterns de propagation)



Réaction n'est pas décision

Les transactions sans friction



 **Add to Cart**

or 1-Click Checkout

 **Buy now with 1-Click®**

The Thirty-Millisecond Advantage

In high-frequency trading, computers buy and sell stocks lightning fast. Some marketplaces, like Nasdaq, often offer such traders a peek at orders for 30 milliseconds — 0.03 seconds — before they are shown to everyone else. This allows traders to profit by very quickly trading shares they know will soon be in high demand. Each trade earns pennies, sometimes millions of times a day.

9:31:00.00 A.M.

INVESTOR SUBMITS ORDER

A slow-moving mutual fund submits an order to purchase 5,000 shares of company XYZ.

9:31:00.01 – 9:31:00.03 A.M.

FAST TRADERS GET TO PREVIEW ORDERS

Before that order is sent to the broad marketplace, it is routed to high-frequency traders for 30 milliseconds.

9:31:00.30 A.M.

MUTUAL FUND ORDER EXECUTED

The mutual fund order hits the marketplace, and the high-frequency traders sell their shares at \$21.01, pocketing the 1-cent profit — for a total of \$50 in this case.

SHARE PRICE

\$21.02

9:31:00.05 A.M.

TRADERS BUY

The high-frequency traders, knowing that an order is coming, flood the market with buy orders, scooping up all available shares of XYZ at \$21.00.

\$21.01

Impératif qui modifie l'architecture des réseaux: être au plus près des IXP

\$21.00

ELAPSED TIME

0.0

0.1

0.2

0.3

0.4

0.5

SECONDS

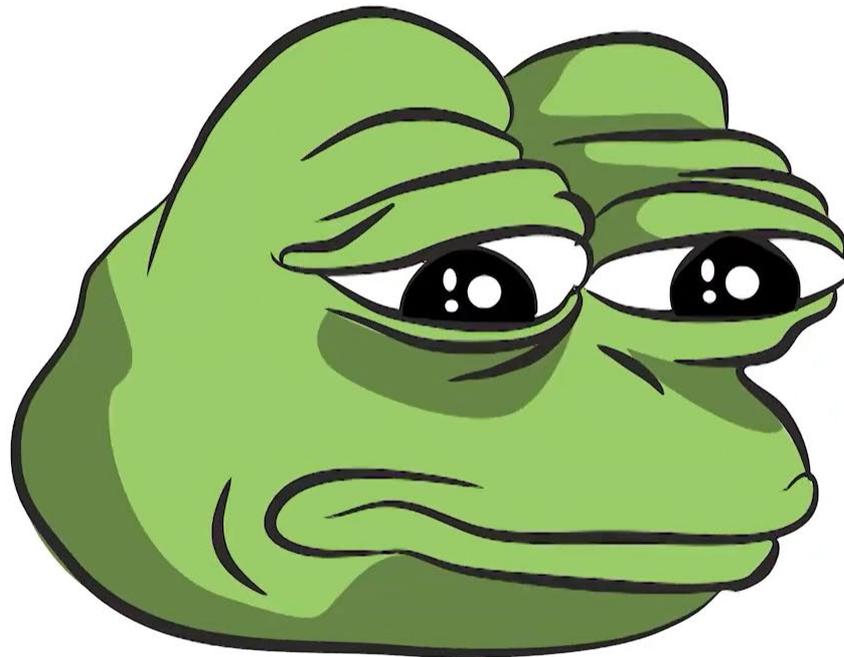
SECONDS

Elémentarisme méthodologique

**PARTICULES FINES
ET PETITES DIFFÉRENCES**

« La valeur d'un élément est d'être ce que les autres ne sont pas » Saussure

La vie des mèmes qui produisent des variants



Pepe The Frog: Meme, Menace, Messiah

How an innocent cartoon became embroiled in two distinct political movements in the last five years, and what it means for the use of memes in public discourse

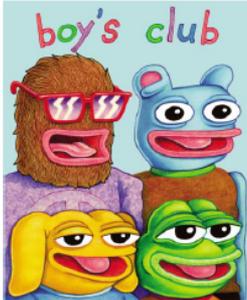
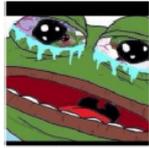
Nov 26, 2019

Aditya BHATTACHARYA

Ryan PHILLIPS



Independent Replications, Different Contexts

Apolitical Cartoon	Non-political mimesis		Political Mimesis	Physical Mimesis	Platforms
<p>2006: Comic first published by SF Artist, Matt Furie</p> 	<p>2008: 4Chan /b/</p> 	<p>8 Nov 2014: Katy Perry Tweets</p> 	<p>13 Oct 2015: Trump Tweets</p> 	<p>2017: Trump Rally</p> 	<ul style="list-style-type: none"> • Myspace • 4Chan • Facebook • Twitter
	<p>2014: Shangxin qingwa [sad frog] appears on Chinese social Media¹</p> 		<p>2019: HK Themed Whatsapp Stickers</p> 	<p>2019: Pepe amongst the protestors</p> 	<ul style="list-style-type: none"> • QQ • Sina Weibo • Baidu Tieba • Whatsapp • Real Life

(1) Documented by Gabriel De Seta, a post-doctoral fellow at Academia Sinica in Taipei

Mémétique

- La mémétique à la recherche de l'élément de base (cf critique de Durkheim contre Tarde)
- Les limites de l'analogie : fidélité, fécondité, longévité
- Dennett : en mémétique (culturelle), variabilité extrême et mutations et non fidélité mais « compétence sans compréhension » comme chez Darwin

Détecter les patterns de propagation des mèmes



Figure 1: An example of a image meme that has recurred, or resurfaced in popularity multiple times, sometimes as a continuation of the same copy, and sometimes as a new copy of the same meme (example copies are shown as thumbnails). This recurrence appears as multiple peaks in the plot of reshares as a function of time.

Do Cascades Recur?

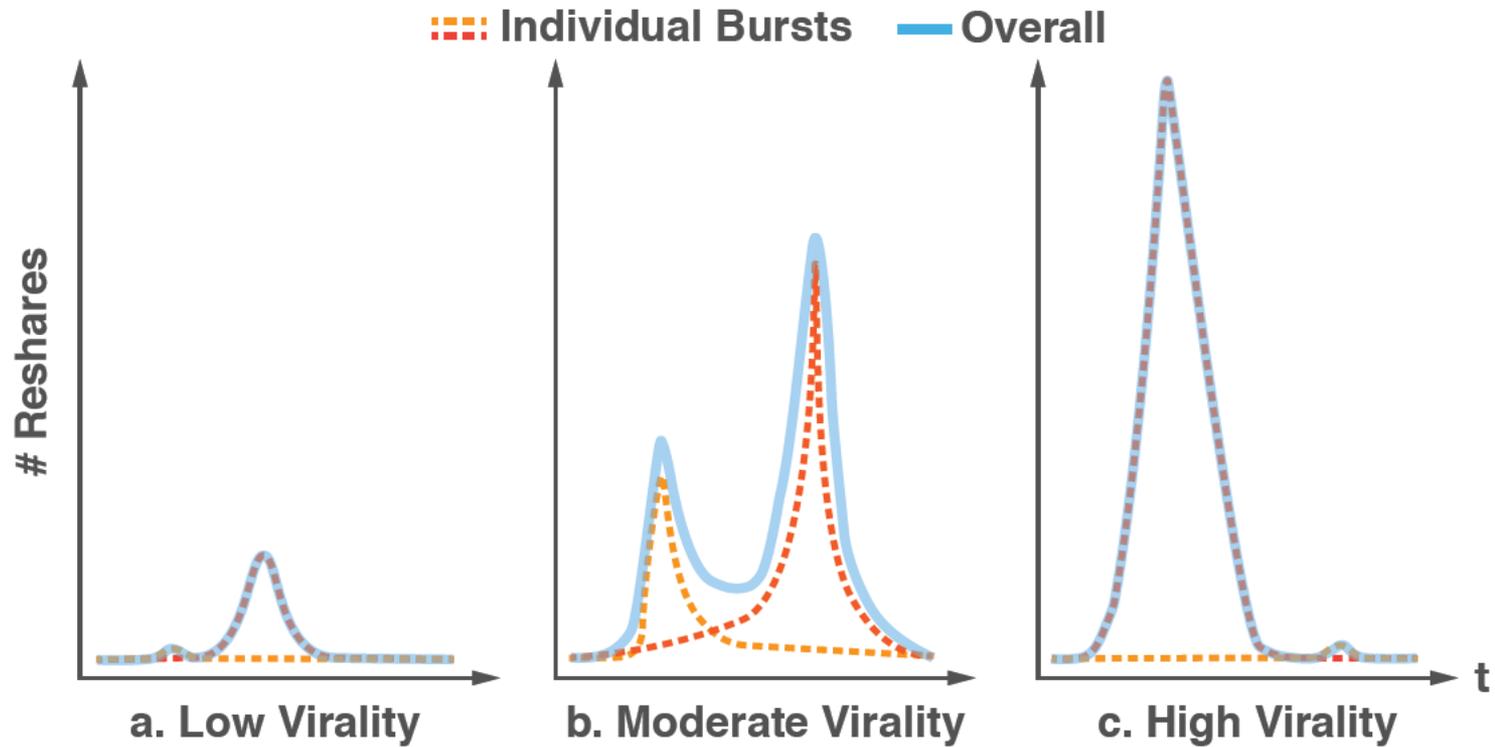
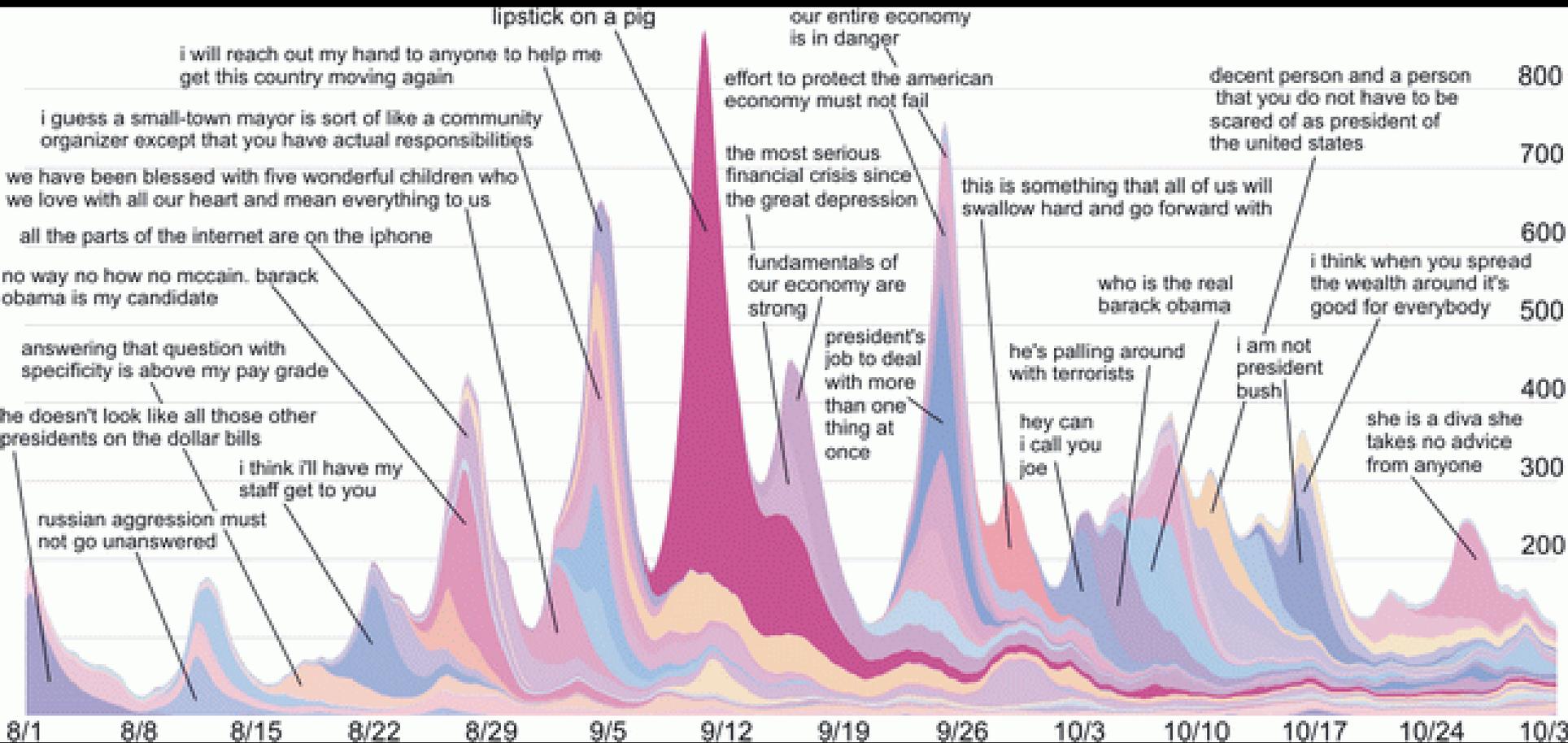


Figure 8: When virality is low, only a small number of attempts at infection succeed. When virality is moderate, more attempts succeed, which aggregate into observable recurrence. When virality is high, rather than a large number of bursts aggregating to form a single large peak, the first successful burst infects a large portion of the network, making it difficult for other copies to spread.

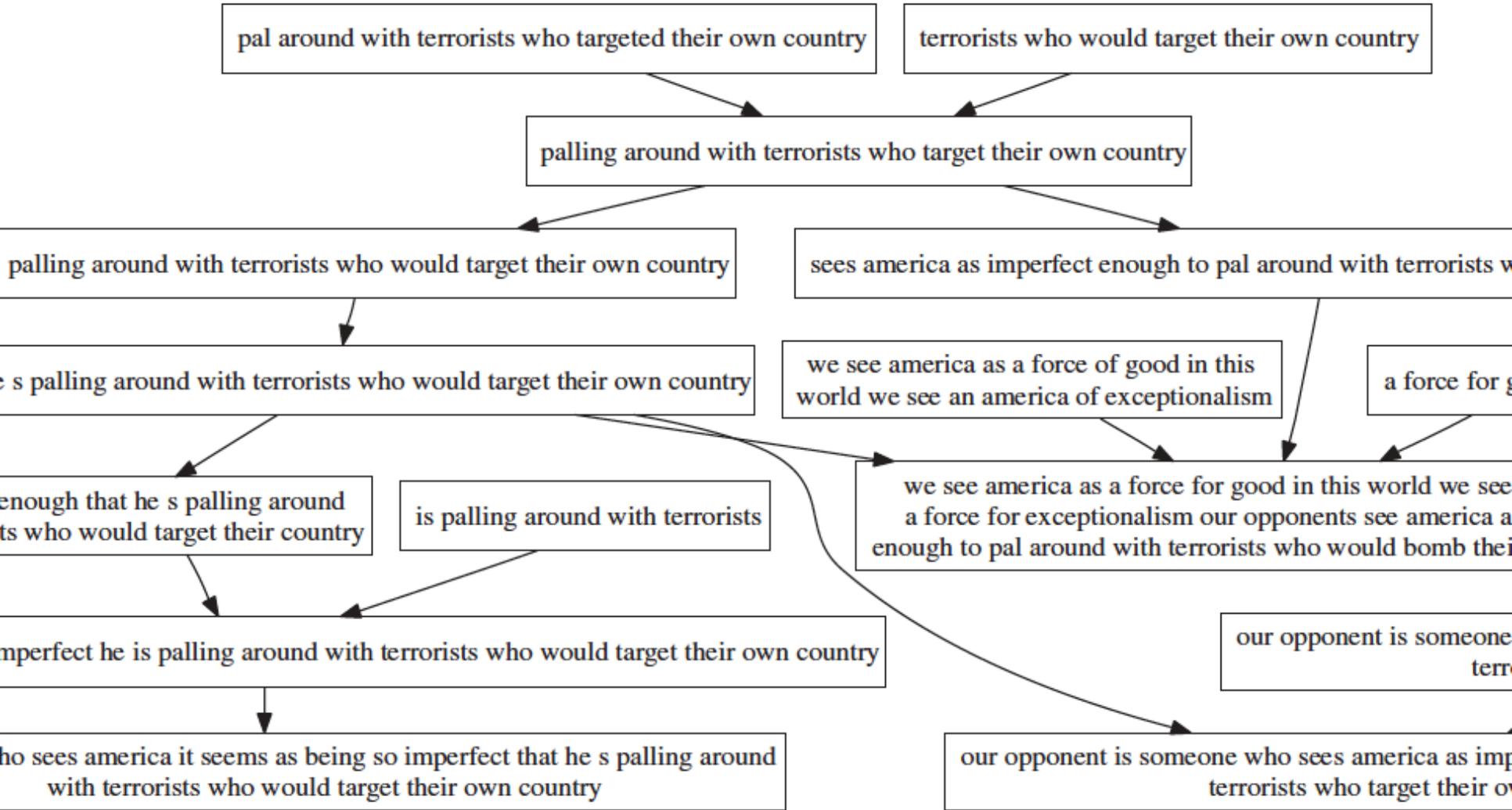
Construire les dispositifs expérimentaux de traçabilité

Meme tracker

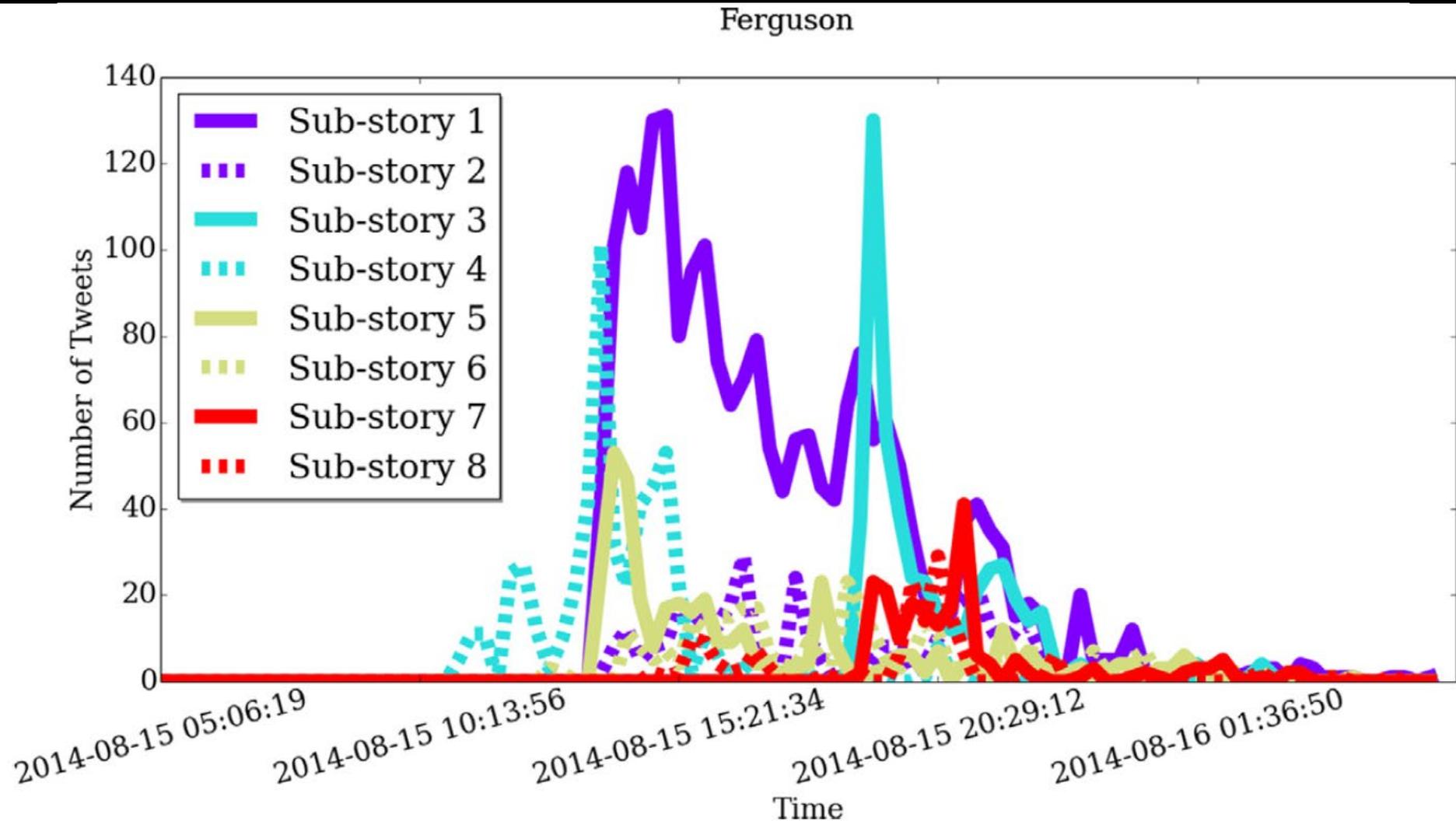
Leskovec et Kleinberg, 2009



Traçabilité des répliques avec leurs dérivations (mémétique)



Emeutes de Ferguson 2014: 24h de compétition des histoires et des cadrages Variations et sélection

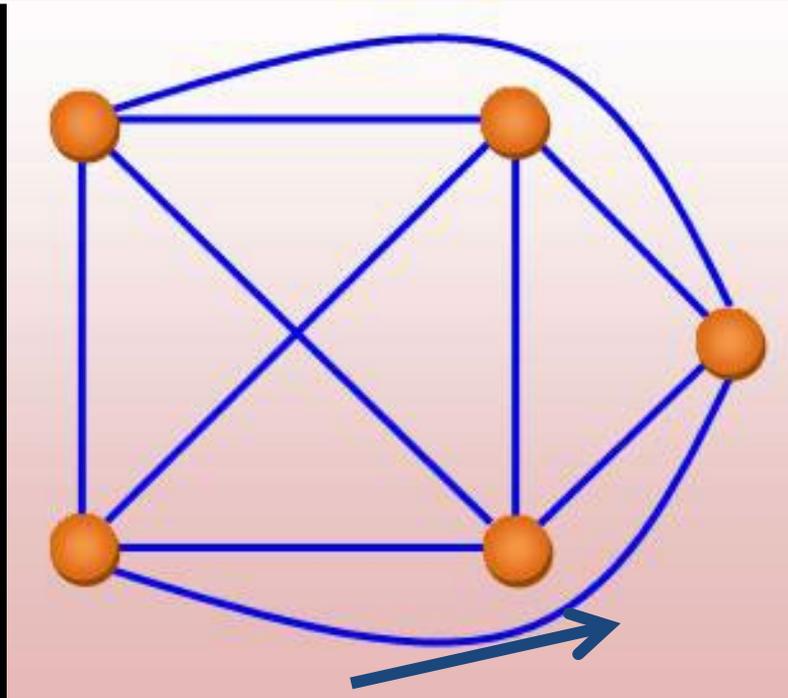


Quel élémentarisme

dans l'évolutionnisme culturel et les innovations?

Les pouvoirs d'agir dans les analyses de réseau

Structure:
densité, bridges,
centralité etc.

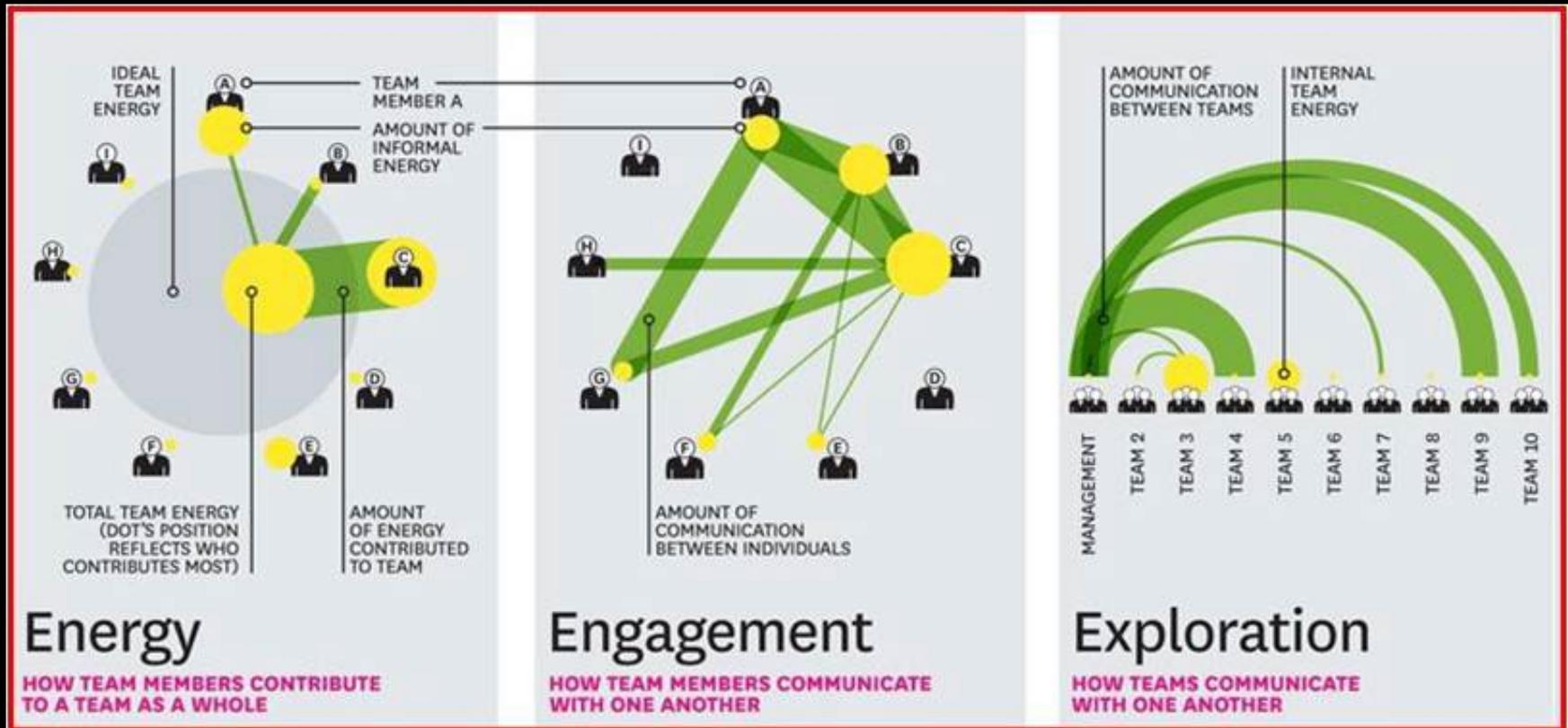


Noeuds

***Les flux* (et non les arêtes)
sont toujours sous-estimés
= les propriétés des entités qui circulent
méritent une approche spécifique**

Pentland: Social Physics Engagement (structure) et exploration (nœuds)

mais rien sur les idées qui circulent!



**Argument de Pentland:
le plus simple et le plus calculable = structure et noeuds**

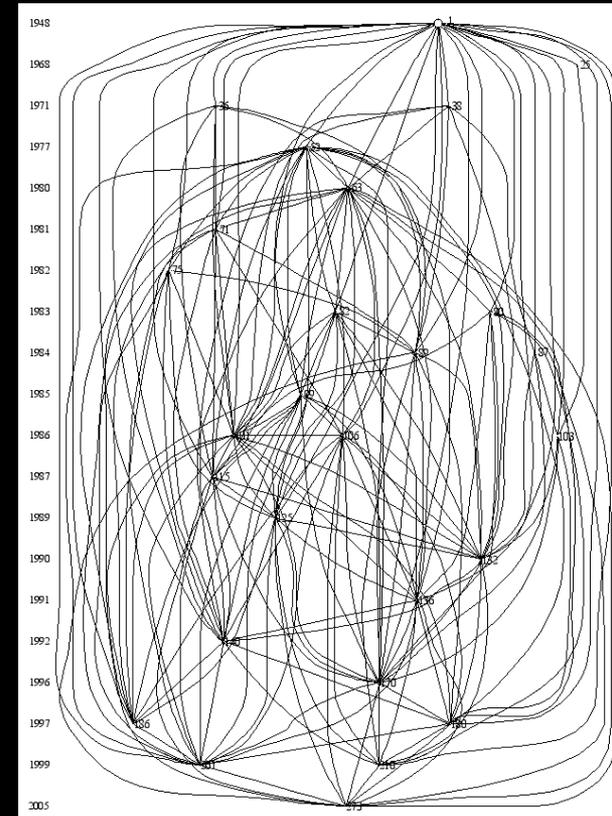
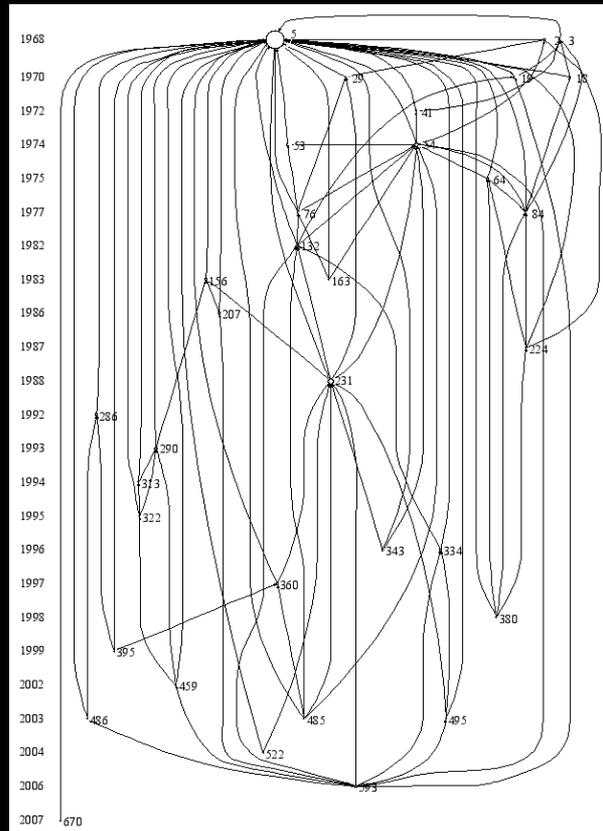
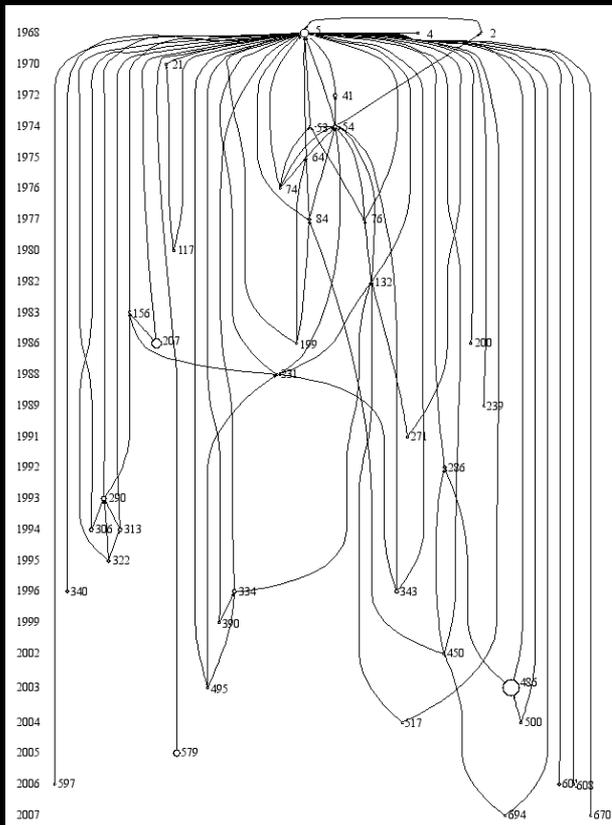
Les graphes de citations scientifiques par Garfield.

Les travaux de Merton

<http://garfield.library.upenn.edu/histcomp/index-merton.html>

The Matthew effect
(reputation goes to reputed ones).
(2 papers)

Self fulfilling
prophecies



Gouverner par temps de propagations

**Un défi conceptuel et politique
en période de « crises »**

**Climat, guerres,
santé, finance,
drogue, migrations,
terrorisme, cyberattaques**

L'enjeu politique: couper les chaines de contagion



Quelques principes

- Tactique et non stratégie: la MRT (méthode de raisonnement tactique)
- La veille : non pas détecter en surplomb mais prendre soin de l'intérieur
- Être à l'intérieur: en finir avec « faire la guerre »
- Couper les chaînes de contagion : les rythmes, les excès de voisinage
- Quelle rentabilité politique?

3 règles

Nous sommes à l'intérieur



UN PARADIGME ET UNE OFFRE DIPLOMATIQUE POUR LES SCIENCES SOCIALES

LE DEUIL DU « TOUT » SOCIAL: TROIS POINTS DE VUE

**DES MÉTHODES ET DES ÉNONCÉS ROBUSTES GRÂCE
AU NUMÉRIQUE : EMPRUNTER À TOUTES LES
DISCIPLINES**

**L'ACCÈS AUX DONNÉES ET AUX TRACES: UN
IMPÉRATIF D'INTÉRÊT GÉNÉRAL**



Trugarez