Machine learning as a quali-quantitative method:

investigating the composition of the IPCC Bureau

Tommaso Venturini

www.tommasoventurini.it

The mapping of socio-climatic turbulences

Business as Unusual: on the Mapping of Socio-Climatic Turbulences

In 1972, Donella Meadows and other scholars of the Club of Rome published their influential report on "The Limits to Growth." As widely known, the book discussed the future trajectories of various socio-ecological variables, obtained by tweaking the parameters of the World3 model. Among the different scenarios contemplated in the report, the one that best fits the data collected in following forty years is the so-called "standard run" or "business-as-usual" (Turner, 2008, 2012, 2014). This is perhaps not surprising, as social sciences have long shown the tendency of sociotechnical systems to be guided by strong path-dependencies. More remarkable is the fact that this business-as-usual scenario identifies 2030-50s as the decades in which our current development trajectory, if not properly amended, is expected to break down. Now, according to the recent *IPCC Special Report*: "Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate" (SR15 SPM, p.6).

As we approach this momentous deadline, much scholarly and public discussion has risen around the notion of "collapse" (Meadows, 1992) and whether and how such collapse can be averted. In this crucial societal debate, however, *collapse* is too often prefigured as a turning point, a fateful moment in which the curve of growth inverts and modernity shatters under the weight of its contradictions. The downfall of historical societies (among others, Tainter, 1988; Diamond, 2004; Harper, 2017), however, teaches us that societal collapse resembles less to a nosedive, then to phase of *turbulence*, an extended period in which the established sociotechnical equilibria waver, challenged by all sorts of possible reconfigurations. *Turbulence*, however, is not *transition*, a progressive and well-ordered replacement of the old system by a new one. Turbulence resembles more to a "revolution" (in the sense of Kuhn 1962) or a "creative destruction" (in the sense of Schumpeter, 1942), and is neither orderly nor peaceful.

The inevitable turmoil that the approaching climatic turbulence will bring about is the reason why the kind of modelling inaugurated by the Club of Rome and currently embodied by the approach of *Integrated Assessment Modelling* is not enough to deal with the challenges we are facing. To deal with "the business-as-unusual" situation in which we will soon find ourselves, we need tools capable not to anticipate (for turbulence is by definition unpredictable), but at least to map the tensions and conflicts that we are already beginning to experience.

And this is where the approach that I have helped to develop in the last ten years may come in handy. Emerged in the tradition of Science and Technology Studies, *Controversy Mapping* is, first of all, a pedagogical instrument (Venturini, 2010 & 2012). It was introduced by Michel Callon and Bruno Latour at the École de Mines in Paris and used to train engineering students and future citizens to navigate the complexity of sociotechnical disputes. I picked up the Controversy Mapping course when it opened in Sciences Po Paris and worked with Latour and the team of the médialab to update it in three respect.

First, we increase even more the multidisciplinary character of the course. In one of the versions I coordinated, the module was taught to a mix of students from Sciences Po double Bachelor in Natural and Social Sciences and students from the *École Nationale d'Arts Decoratifs* (ENSAD). The collaboration between different disciplines across social and natural sciences is essential to controversy mapping, as sociotechnical debates are, by definition, situations in which the established boundaries are shattered opening spaces for unprecedented assemblages of human and non-human actors come to life (Latour, 1993).

To unfold the unexpected configurations brought about by sociotechnical struggles, controversy mapping relies crucially on qualitative and ethnographic methods, but it does not refuse more quantitative approaches. As societal conflicts, especially those associated with the climate crisis, extend far in time and space, their investigation requires relying on vast and heterogenous datasets. Conveniently, these datasets are increasingly available thanks to the fact that sociotechnical debates are nowadays mediated, and thus traced, by the digital media.

Venturini, T, Jensen P., & Latour B. (2015)

Fill in the Gap: A New Alliance for Social and Natural Sciences

Journal of Artificial Societies and Social Simulation 18(2): 11

At the beginning of the 19th century natural and social scientists developed together a new discipline, "statistics", that helped them to interpret the new data available at that time. Today, the advent of digital data poses a similar challenge and calls for a similar alliance… efforts should be shifted from simulating to mapping and from simple explanations to complex observations.

Latour B., Jensen P., Venturini T., Grauwin S., & Boullier D. (2012)

The Whole is Always Smaller than its Parts

The British Journal of Sociology 63(4): 590–615

Digital traces left by actors inside newly available databases might modify the very position of those classical questions of social order. Our aim is to test an alternative social theory developed by Gabriel Tarde in the early days of sociology, which never had any chance to be developed because of the lack of empirical tools.

From modelling of collective structures

Règles de la méthode sociologique (E. Durkheim, 1884)

The Rules of Sociological Method (1982 translation)

Collective habits are expressed in definite forms such as legal or moral rules, popular sayings, or facts of social structure, etc. As these forms exist permanently and do not change with the various applications which are made of them, they constitute a fixed object, a constant standard which is always to hand for the observer, and which leaves no room for subjective impressions or personal observations (pp. 82-83)

To the mapping of collective dynamics

Monadologie et sociologie (G. Tarde, 1883)

Monadology and Sociology (2012 translation)

The truth is that difference comes about by differing and that change comes about by changing … change and difference attest to their necessary and absolute character (p. 37)

Les lois de l'imitation (G. Tarde, 1890)

The Laws of Imitation (1903 translation)

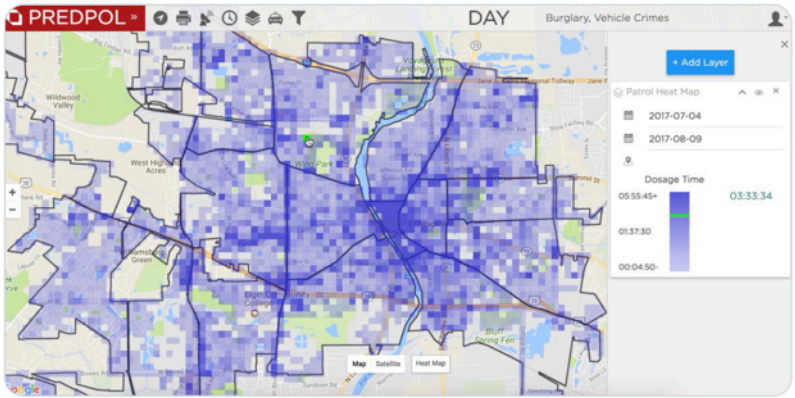
If Statistics continues to progress… a time may come when upon the accomplishment of every social event, a figure will at once be issued… with precise and condensed knowledge of all the peculiarities of social conditions (p. 133)

Home
Explore
Notifications
Messages
Bookmarks
Lists
Profile
More
Tweet

Tweet

PredPol
@PredPol

Heading to #IACP2017? Book ur 1:1 demo w/us now to see our NEW Patrol Heat Map feature or stop by booth #3861 hubs.ly/H08SQhx0



8:01 PM · Oct 14, 2017 · HubSpot

Search Twitter

Relevant people

PredPol
@PredPol
Follow

PredPol uses big data and AI to predict where and when adverse events are likely to occur: crimes, collisions, overdoses - we do it all #PredictivePolicing

Trends for you

#ONPC
7,672 Tweets

#MoiJePrefere
Moi je préfère la Bonne Nouvelle de la rentrée
Promoted by MAAF

Booba
39.8K Tweets

#RIPAnthoine
3,678 Tweets

Chicago
69.5K Tweets

Show more

Benbouzid, Bilel. 2015
From Situational Crime Prevention to Predictive Policing. Sociology of an Ignored Controversy
Champ pénal/Penal field, VII(July): 1–19.

Aradau, Claudia and Tobias Blanke. 2018.
Governing Others: Anomaly and the Algorithmic Subject of Security
European Journal of International Security 3(1): 1–21.

Re-purposing artificial intelligence

from categorization and prediction

to interpretation and close reading

from quantitative methods

to quali-quantitative methods

“If we abandon the idea that computational techniques can infallibly seize the richness of social phenomena and predict collective outcomes, their failures can be used to highlight dynamics that are interesting precisely because of their recalcitrance to quantification”

Becoming an IPCC Bureau Member

with Kari De Pryck and Tobias Blanke

Why the IPCC Bureau?

Intergovernmental Panel on Climate Change

- plays a crucial role in the climate regime, assessing the literature on climate change and providing the bases for the work of the UNFCCC
- through the cohabitation of scientists and diplomats the IPCC has provided a valuable interface between climate science and politics (but it also has been regularly criticised)
- has become a model for other international expert organisations (e.g. IPBES, IPAI)

IPCC Bureau

- The Bureau is composed of about 34 members (the chair and vice-chairs of the IPCC and of its Working Groups and Task Force) elected by the IPCC plenary at the beginning of each assessment cycle
- Bureau membership comes with substantial influence on the work of the IPCC and its bodies (and with considerable prestige for both scientific and diplomatic careers)

The selection of organisational elites

Procedures for the election of the IPCC Bureau

Adopted by the Panel at the Twenty-Fifth Session (Mauritius, 26-28 April 2006),
amended at the Thirty-Fifth Session (Geneva, 6-9 June 2012), Forty-First Session (Nairobi, 24-27 February 2015)

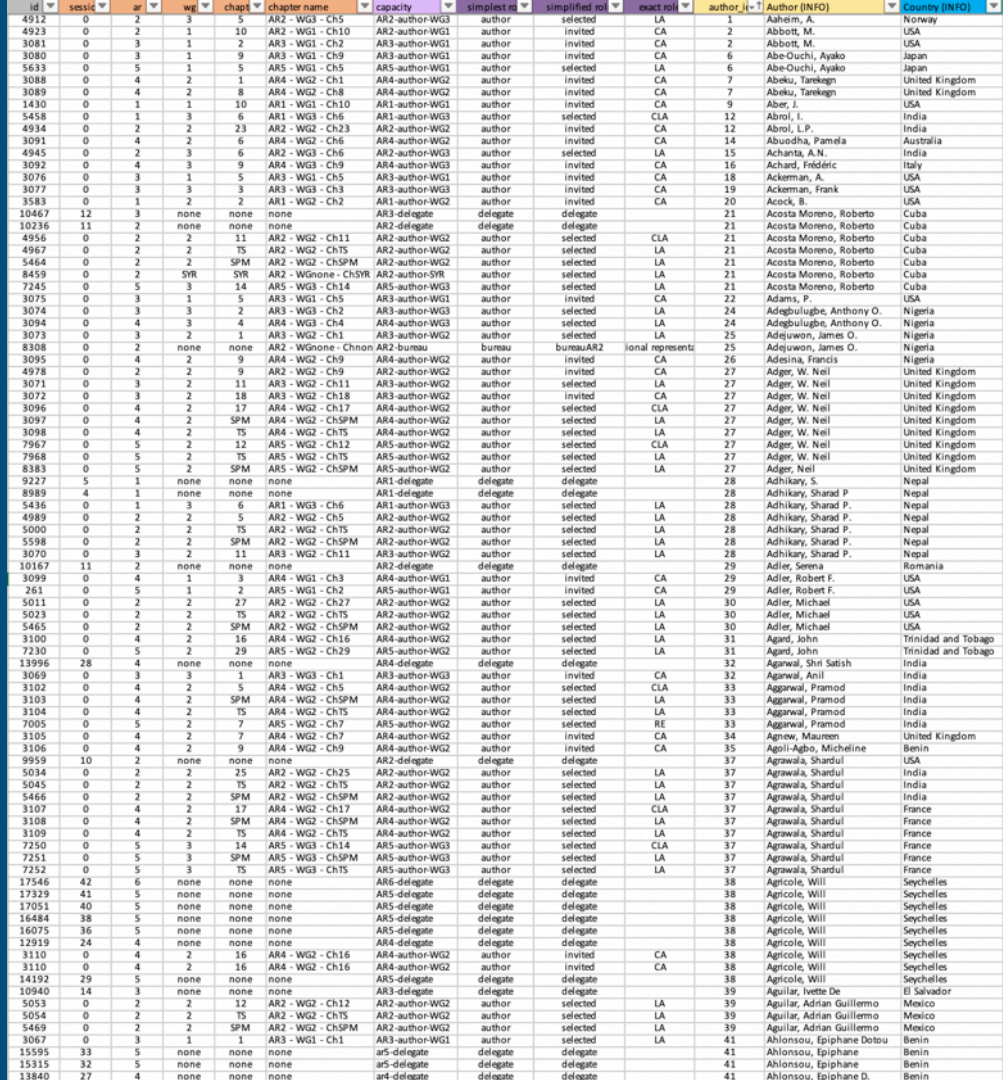
… the overall composition of the IPCC Bureau … shall reflect balanced geographical representation with due consideration for scientific and technical requirements (rule 7)

Nominations for positions on the IPCC Bureau and any Task Force Bureau are to be made by the government of a Member of the IPCC. Governments of Members of the IPCC should refrain from nominating non-nationals without the consent of the nominee's national government (rule 19)

The IPCC Dataset

The database

- Developed in two collaboratives projects which I've coordinated (EMAPS and MEDEA)
- contains the names of all the 5.676 individuals who contributed as author or delegates to the first five IPCC assessment cycles
- Separates the different roles held by the same individual, thus containing about 17.774 rows, corresponding to the contribution by a given individual in a given capacity



id	sessic	ar	wg	chapt	chapter name	capacity	simplest ro	simplified rol	exact rol	author_i	Author (INFO)	Country (INFO)
4912	0	2	3	5	AR2 - WG3 - Ch5	AR2-author-WG3	author	selected	LA	1	Aaheim, A.	Norway
4923	0	2	1	10	AR2 - WG1 - Ch10	AR2-author-WG1	author	invited	CA	2	Abbott, M.	USA
3081	0	3	1	2	AR3 - WG1 - Ch2	AR3-author-WG1	author	invited	CA	2	Abbott, M.	USA
3080	0	3	1	9	AR3 - WG1 - Ch9	AR3-author-WG1	author	invited	CA	6	Abe-Ouchi, Ayako	Japan
5633	0	5	1	5	AR5 - WG1 - Ch5	AR5-author-WG1	author	selected	LA	6	Abe-Ouchi, Ayako	Japan
3088	0	4	2	1	AR4 - WG2 - Ch1	AR4-author-WG2	author	invited	CA	7	Abeku, Tarekegn	United Kingdom
3089	0	4	2	8	AR4 - WG2 - Ch8	AR4-author-WG2	author	invited	CA	7	Abeku, Tarekegn	United Kingdom
1430	0	1	1	10	AR1 - WG1 - Ch10	AR1-author-WG1	author	invited	CA	9	Aber, J.	USA
5458	0	1	3	6	AR1 - WG3 - Ch6	AR1-author-WG3	author	selected	CLA	12	Abrol, I.	India
4934	0	2	2	23	AR2 - WG2 - Ch23	AR2-author-WG2	author	invited	CA	12	Abrol, L.P.	India
3091	0	4	2	6	AR4 - WG2 - Ch6	AR4-author-WG2	author	invited	CA	14	Abuodha, Pamela	Australia
4945	0	2	3	6	AR2 - WG3 - Ch6	AR2-author-WG3	author	selected	LA	15	Achanta, A.N.	India
3092	0	4	3	9	AR4 - WG3 - Ch9	AR4-author-WG3	author	invited	CA	16	Achard, Frédéric	Italy
3076	0	3	1	5	AR3 - WG1 - Ch5	AR3-author-WG1	author	invited	CA	18	Ackerman, A.	USA
3077	0	3	3	3	AR3 - WG3 - Ch3	AR3-author-WG3	author	invited	CA	19	Ackerman, Frank	USA
3583	0	1	2	2	AR1 - WG2 - Ch2	AR1-author-WG2	author	invited	CA	20	Acock, B.	USA
10467	12	3	none	none	none	AR3-delegate	delegate	delegate		21	Acosta Moreno, Roberto	Cuba
10236	11	2	none	none	none	AR2-delegate	delegate	delegate		21	Acosta Moreno, Roberto	Cuba
4956	0	2	2	11	AR2 - WG2 - Ch11	AR2-author-WG2	author	selected	CLA	21	Acosta Moreno, Roberto	Cuba
4967	0	2	2	TS	AR2 - WG2 - ChTS	AR2-author-WG2	author	selected	LA	21	Acosta Moreno, Roberto	Cuba
5464	0	2	2	SPM	AR2 - WG2 - ChSPM	AR2-author-WG2	author	selected	LA	21	Acosta Moreno, Roberto	Cuba
8459	0	2	SYR	SYR	AR2 - WGnone - ChSYR	AR2-author-SYR	author	selected	LA	21	Acosta Moreno, Roberto	Cuba
7245	0	5	3	14	AR5 - WG3 - Ch14	AR5-author-WG3	author	selected	LA	21	Acosta Moreno, Roberto	Cuba
3075	0	3	1	5	AR3 - WG1 - Ch5	AR3-author-WG1	author	invited	CA	22	Adams, P.	USA
3074	0	3	3	2	AR3 - WG3 - Ch2	AR3-author-WG3	author	selected	LA	24	Adegbulugbe, Anthony O.	Nigeria
3094	0	4	3	4	AR4 - WG3 - Ch4	AR4-author-WG3	author	selected	LA	24	Adegbulugbe, Anthony O.	Nigeria
3073	0	3	2	1	AR3 - WG2 - Ch1	AR3-author-WG2	author	selected	LA	25	Adejuwon, James O.	Nigeria
8308	0	2	none	none	AR2 - WGnone - Chnon	AR2-bureau	bureau	bureauAR2	ional represent	25	Adejuwon, James O.	Nigeria
3095	0	4	2	9	AR4 - WG2 - Ch9	AR4-author-WG2	author	invited	CA	26	Adesina, Francis	Nigeria
4978	0	2	2	9	AR2 - WG2 - Ch9	AR2-author-WG2	author	invited	CA	27	Adger, W. Neil	United Kingdom
3071	0	3	2	11	AR3 - WG2 - Ch11	AR3-author-WG2	author	selected	LA	27	Adger, W. Neil	United Kingdom
3072	0	3	2	18	AR3 - WG2 - Ch18	AR3-author-WG2	author	invited	CA	27	Adger, W. Neil	United Kingdom
3096	0	4	2	17	AR4 - WG2 - Ch17	AR4-author-WG2	author	selected	CLA	27	Adger, W. Neil	United Kingdom
3097	0	4	2	SPM	AR4 - WG2 - ChSPM	AR4-author-WG2	author	selected	LA	27	Adger, W. Neil	United Kingdom
3098	0	4	2	TS	AR4 - WG2 - ChTS	AR4-author-WG2	author	selected	LA	27	Adger, W. Neil	United Kingdom
7967	0	5	2	12	AR5 - WG2 - Ch12	AR5-author-WG2	author	selected	CLA	27	Adger, W. Neil	United Kingdom
7968	0	5	2	TS	AR5 - WG2 - ChTS	AR5-author-WG2	author	selected	LA	27	Adger, W. Neil	United Kingdom
8383	0	5	2	SPM	AR5 - WG2 - ChSPM	AR5-author-WG2	author	selected	LA	27	Adger, Neil	United Kingdom
9227	5	1	none	none	none	AR1-delegate	delegate	delegate		28	Adhikary, S.	Nepal
8989	4	1	none	none	none	AR1-delegate	delegate	delegate		28	Adhikary, Sharad P	Nepal
5436	0	1	3	6	AR1 - WG3 - Ch6	AR1-author-WG3	author	selected	LA	28	Adhikary, Sharad P.	Nepal
4989	0	2	2	5	AR2 - WG2 - Ch5	AR2-author-WG2	author	selected	LA	28	Adhikary, Sharad P.	Nepal
5000	0	2	2	TS	AR2 - WG2 - ChTS	AR2-author-WG2	author	selected	LA	28	Adhikary, Sharad P.	Nepal
5598	0	2	2	SPM	AR2 - WG2 - ChSPM	AR2-author-WG2	author	selected	LA	28	Adhikary, Sharad P.	Nepal
3070	0	3	2	11	AR3 - WG2 - Ch11	AR3-author-WG2	author	selected	LA	28	Adhikary, Sharad P.	Nepal
10167	11	2	none	none	none	AR2-delegate	delegate	delegate		29	Adler, Serena	Romania
3099	0	4	1	3	AR4 - WG1 - Ch3	AR4-author-WG1	author	invited	CA	29	Adler, Robert F.	USA
261	0	5	1	2	AR5 - WG1 - Ch2	AR5-author-WG1	author	invited	CA	29	Adler, Robert F.	USA
5011	0	2	2	27	AR2 - WG2 - Ch27	AR2-author-WG2	author	selected	LA	30	Adler, Michael	USA
5023	0	2	2	TS	AR2 - WG2 - ChTS	AR2-author-WG2	author	selected	LA	30	Adler, Michael	USA
5465	0	2	2	SPM	AR2 - WG2 - ChSPM	AR2-author-WG2	author	selected	LA	30	Adler, Michael	USA
3100	0	4	2	16	AR4 - WG2 - Ch16	AR4-author-WG2	author	selected	LA	31	Agard, John	Trinidad and Tobago
7230	0	5	2	29	AR5 - WG2 - Ch29	AR5-author-WG2	author	selected	LA	31	Agard, John	Trinidad and Tobago
13996	28	4	none	none	none	AR4-delegate	delegate	delegate		32	Agarwal, Shri Satish	India
3069	0	3	1	1	AR3 - WG3 - Ch1	AR3-author-WG3	author	invited	CA	32	Agarwal, Anil	India
3102	0	4	2	5	AR4 - WG2 - Ch5	AR4-author-WG2	author	selected	CLA	33	Aggarwal, Pramod	India
3103	0	4	2	SPM	AR4 - WG2 - ChSPM	AR4-author-WG2	author	selected	LA	33	Aggarwal, Pramod	India
3104	0	4	2	TS	AR4 - WG2 - ChTS	AR4-author-WG2	author	selected	LA	33	Aggarwal, Pramod	India
7005	0	5	2	7	AR5 - WG2 - Ch7	AR5-author-WG2	author	selected	RE	33	Aggarwal, Pramod	India
3105	0	4	2	7	AR4 - WG2 - Ch7	AR4-author-WG2	author	invited	CA	34	Agnew, Maureen	United Kingdom
3106	0	4	2	9	AR4 - WG2 - Ch9	AR4-author-WG2	author	invited	CA	35	Agoli-Agbo, Micheline	Benin
9959	10	2	none	none	none	AR2-delegate	delegate	delegate		37	Agrawala, Shardul	USA
5034	0	2	2	25	AR2 - WG2 - Ch25	AR2-author-WG2	author	selected	LA	37	Agrawala, Shardul	India
5045	0	2	2	TS	AR2 - WG2 - ChTS	AR2-author-WG2	author	selected	LA	37	Agrawala, Shardul	India
5466	0	2	2	SPM	AR2 - WG2 - ChSPM	AR2-author-WG2	author	selected	LA	37	Agrawala, Shardul	India
3107	0	4	2	17	AR4 - WG2 - Ch17	AR4-author-WG2	author	selected	CLA	37	Agrawala, Shardul	France
3108	0	4	2	SPM	AR4 - WG2 - ChSPM	AR4-author-WG2	author	selected	LA	37	Agrawala, Shardul	France
3109	0	4	2	TS	AR4 - WG2 - ChTS	AR4-author-WG2	author	selected	LA	37	Agrawala, Shardul	France
7250	0	5	3	14	AR5 - WG3 - Ch14	AR5-author-WG3	author	selected	CLA	37	Agrawala, Shardul	France
7251	0	5	3	SPM	AR5 - WG3 - ChSPM	AR5-author-WG3	author	selected	LA	37	Agrawala, Shardul	France
7252	0	5	3	TS	AR5 - WG3 - ChTS	AR5-author-WG3	author	selected	LA	37	Agrawala, Shardul	France
17546	42	6	none	none	none	AR6-delegate	delegate	delegate		38	Agricole, Will	Seychelles
17329	41	5	none	none	none	AR5-delegate	delegate	delegate		38	Agricole, Will	Seychelles
17051	40	5	none	none	none	AR5-delegate	delegate	delegate		38	Agricole, Will	Seychelles
16484	38	5	none	none	none	AR5-delegate	delegate	delegate		38	Agricole, Will	Seychelles
16075	36	5	none	none	none	AR5-delegate	delegate	delegate		38	Agricole, Will	Seychelles
12919	24	4	none	none	none	AR4-delegate	delegate	delegate		38	Agricole, Will	Seychelles
3110	0	4	2	16	AR4 - WG2 - Ch16	AR4-author-WG2	author	invited	CA	38	Agricole, Will	Seychelles
3110	0	4	2	16	AR4 - WG2 - Ch16	AR4-author-WG2	author	invited	CA	38	Agricole, Will	Seychelles
14192	29	5	none	none	none	AR5-delegate	delegate	delegate		38	Agricole, Will	Seychelles
10940	14	3	none	none	none	AR3-delegate	delegate	delegate		39	Aguilar, Ivette De	El Salvador
5053	0	2	2	12	AR2 - WG2 - Ch12	AR2-author-WG2	author	selected	LA	39	Aguilar, Adrian Guillermo	Mexico
5054	0	2	2	TS	AR2 - WG2 - ChTS	AR2-author-WG2	author	selected	LA	39	Aguilar, Adrian Guillermo	Mexico
5469	0	2	2	SPM	AR2 - WG2 - ChSPM	AR2-author-WG2	author	selected	LA	39	Aguilar, Adrian Guillermo	Mexico
3067	0	3	1	1	AR3 - WG1 - Ch1	AR3-author-WG1	author	selected	LA	41	Ahlonsou, Epiphane Dotou	Benin
15595	33	5	none	none	none	ar5-delegate	delegate	delegate		41	Ahlonsou, Epiphane	Benin
15315	32	5	none	none	none	ar5-delegate	delegate	delegate		41	Ahlonsou, Epiphane	Benin
13840	27	4	none	none	none	ar4-delegate	delegate	delegate		41	Ahlonsou, Epiphane D.	Benin

Featurisation

Individual trajectory features

Directly from the database

1. Last AR where active
2. Number of plenary sessions
3. Number of chapter signed
4. Has been CLA, SPM, SYR, or Bureau

Bipartite bridgeness

5. Degree
6. Temporal bridgeness
7. Thematic bridgeness
8. Functional bridgeness
9. Total bridgeness

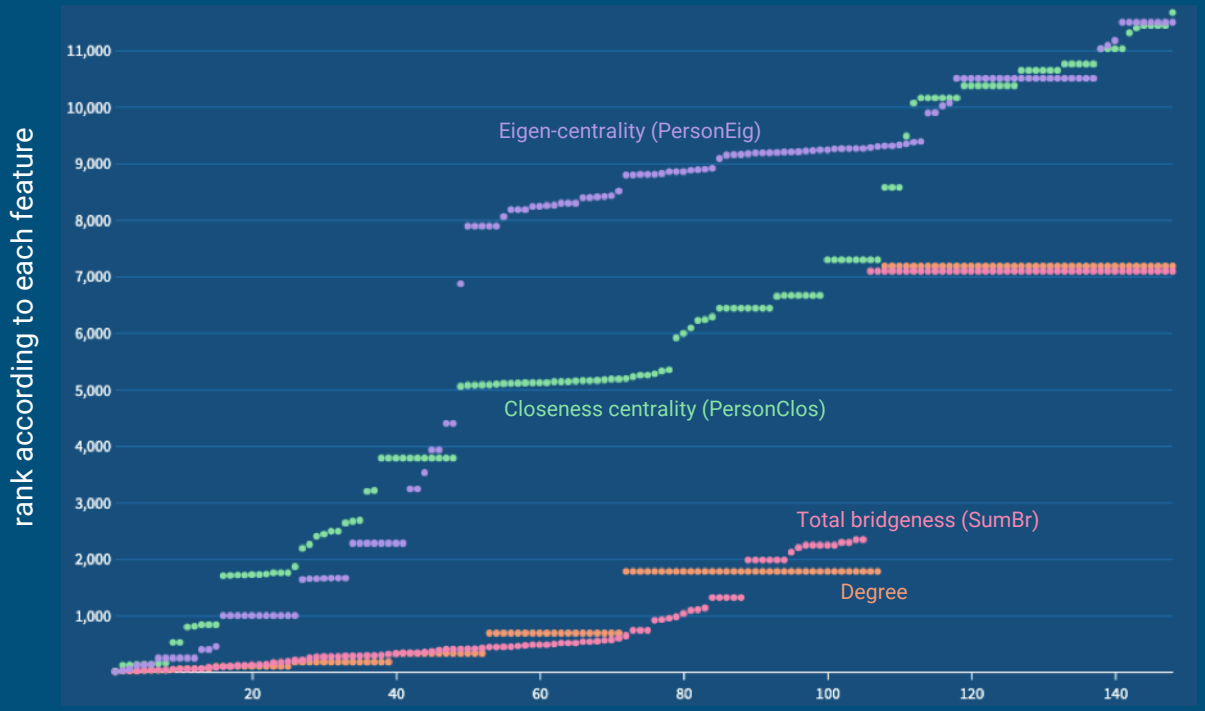
Monopartite centrality

10. Betweeness centrality
11. Closeness centrality
12. Eigen-centrality

National affiliation features

13. Number of authors by the country
14. Number of delegates by the country
15. Financial contribution to the IPCC
16. GDP per Capita
17. % of GDP dedicated to R&D
18. Scientific and technical articles
19. CO2 equivalent emissions

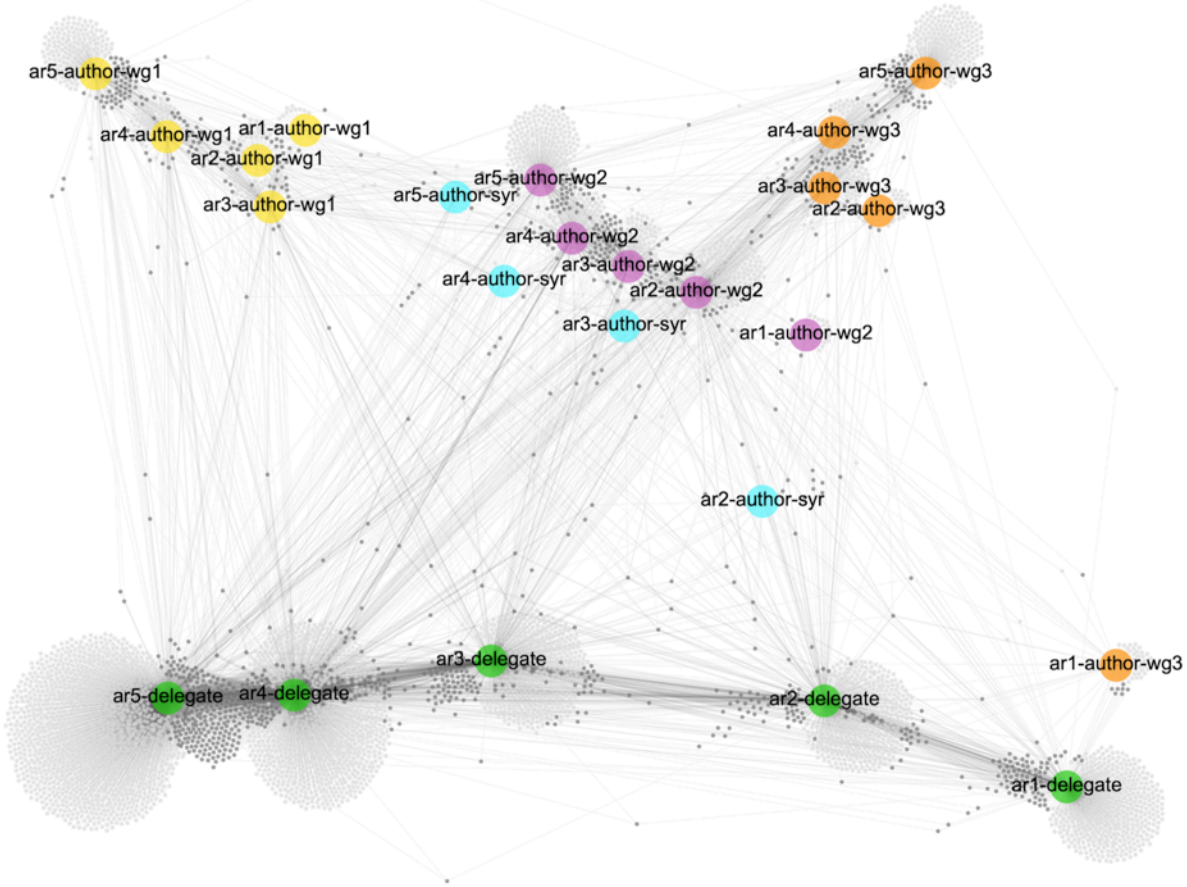
Features comparison



148 individuals nominated for the IPCC Bureau

Feature	difference	non-bureau mean rank	bureau mean rank
Bridgeness	3362	5914	2552
Degree	3355	5914	2559
LastActive	2766	5906	3140
CountSignatures	2652	5905	3253
SpmSyrBureauCla	2605	5904	3300
PersonBet	2595	5904	3309
FunctionalBr	2550	5904	3354
TemporalBr	2310	5901	3591
CountSessions	2096	5898	3802
ThematicBr	890	5883	4993
CountryAuthors	*-40*	*5870*	*5910*
PersonClos	-44	5871	5915
CountryDelegates	*-326*	*5866*	*6193*
Emissions	*-360*	*5800*	*6160*
Articles	*-489*	*5818*	*6307*
GDPCapita	*-581*	*5766*	*6348*
GDP_R&D	*-588*	*5350*	*5938*
Contribution	*-614*	*5864*	*6478*
PersonEig	-976	5859	6835

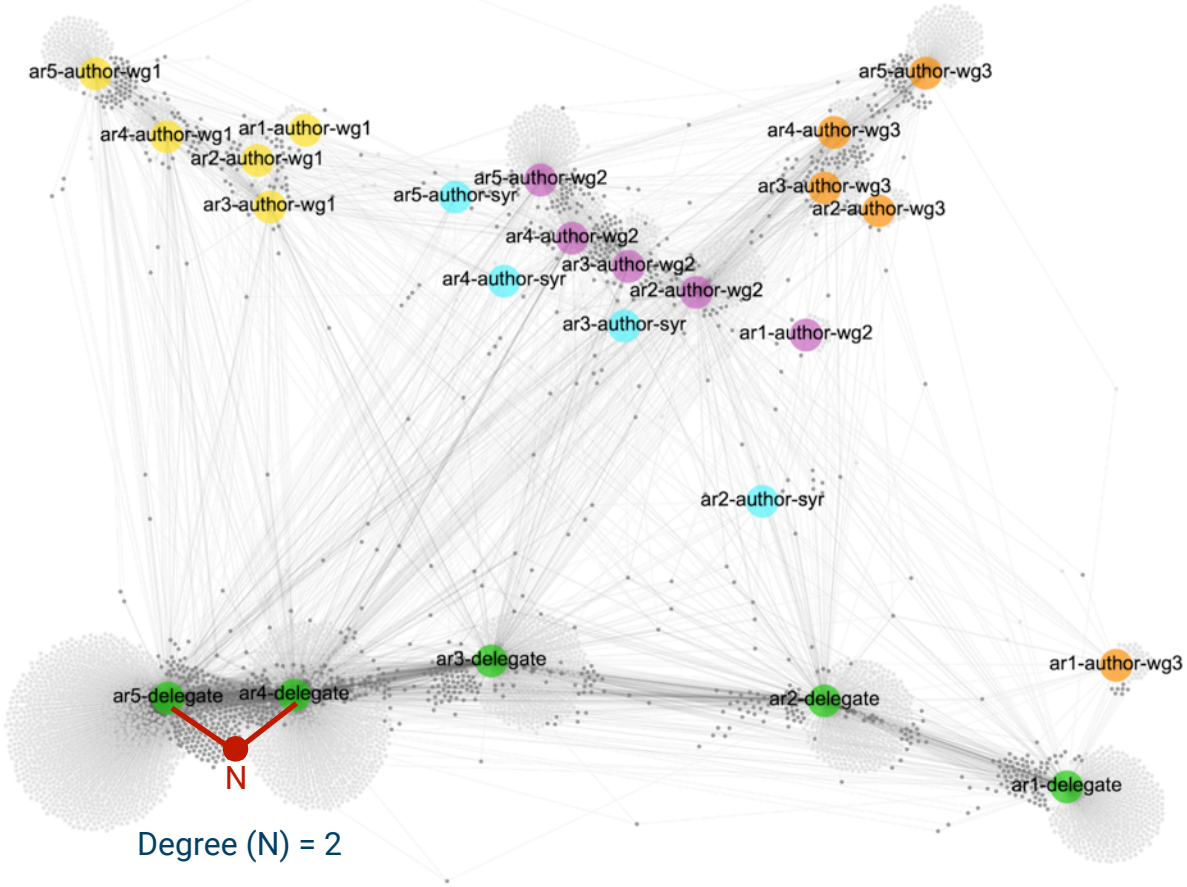
Bipartite network of capacity & contributors



Bridge contributors
Other contributors

WG1
WG2
WG3
SYR
Delegations

Degree example



Degree (N) = 2

Bridge contributors

Other contributors

WG1

WG2

WG3

SYR

Delegations

Bipartite Bridgeness

"bipartite-bridgeness" is defined as the summation of the number of connections created by a node, each weighted by its importance and by its rarity

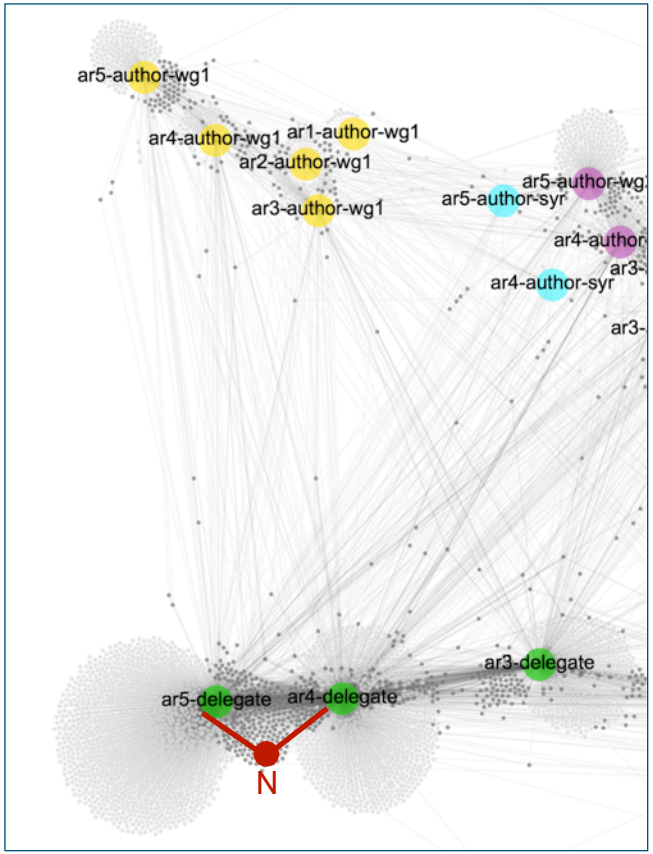
$$BB(n) = \sum_{i,j} \frac{neighbors(i) \cup neighbors(j)}{neighbors(i) \cap neighbors(j)}$$

$$BB(n) = \sum_{ij} \frac{union\ of the\ neighbourhoods\ of\ i\&j}{intersection\ of the\ neighbourhoods\ of\ i\&j}$$

importance

rarity

Bipartite bridgeness example



$$BB(n) = \sum_{ij} \frac{union\ of\ the\ neighbourhoods\ of\ i\&j}{intersection\ of\ the\ neighbourhoods\ of\ i\&j}$$

$$BB(\boldsymbol{N}) = \frac{\text{ar5-delegate ar4-delegate}}{\text{ar5-delegate ar4-delegate}}$$

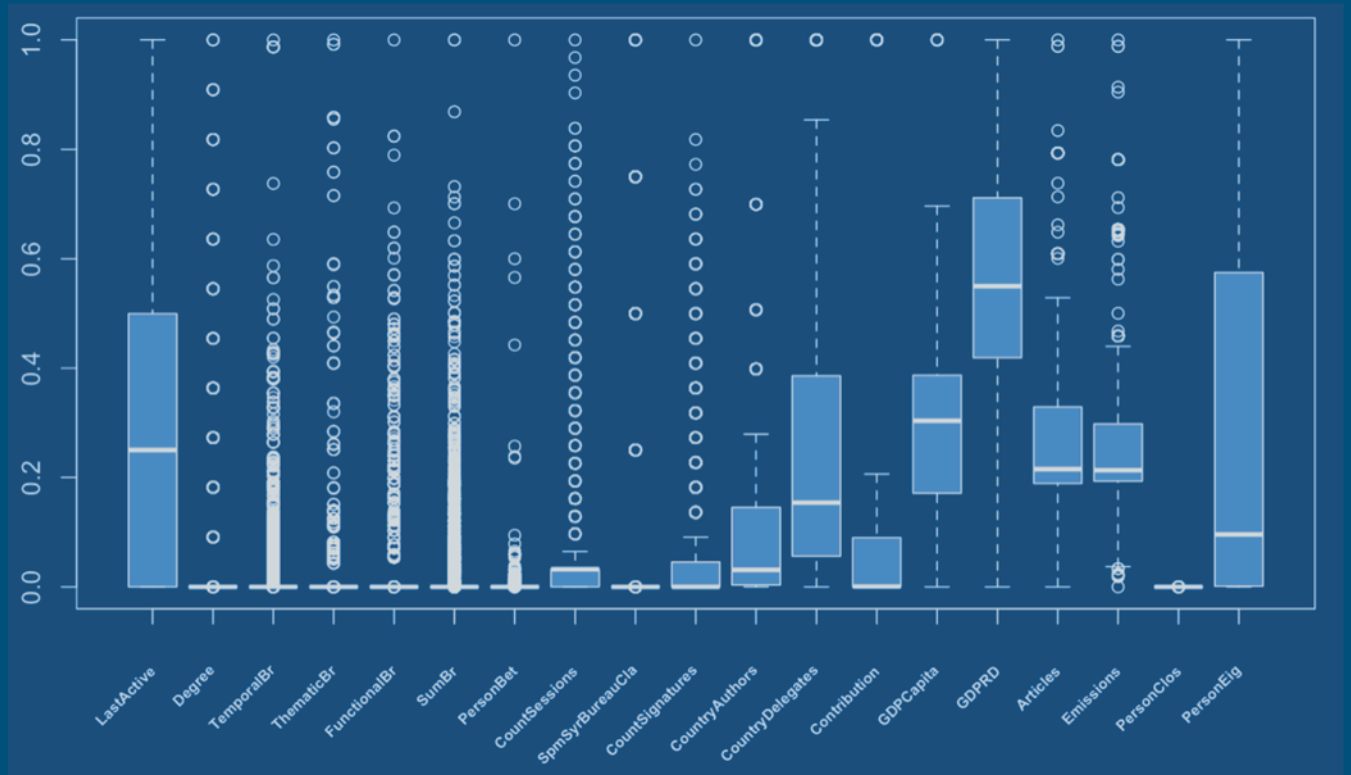
Top 20 contributors (by Bipartite Bridgeness)

Full Name	AR	Bipartite Bridgeness	Candidate	Elected
Watson, Robert Tony	AR5	7890		
Watson, Robert Tony	AR6	7890		
Watson, Robert Tony	AR4	6854	TRUE	
Qin, Dahe	AR6	5776		
Zillman, John William	AR6	5625		
Bolin, Bert R.	AR6	5530		
Bolin, Bert R.	AR5	5530		
Pachauri, Rajendra Kumar	AR6	5254		
Parry, Martin	AR5	4996		
Parry, Martin	AR6	4996		
Vellinga, Pier	AR6	4728		
Vellinga, Pier	AR5	4728		
Vellinga, Pier	AR4	4728		
Grubb, Michael Tohn	AR6	4628		
Grubb, Michael Tohn	AR5	4628		
Bolin, Bert R.	AR4	4494		
Davidson, Ogunlade R.	AR6	4357	TRUE	
Davidson, Ogunlade R.	AR5	4357	TRUE	
Mearns, Linda O.	AR6	4206		
Houghton, Sir John T.	AR6	4127		

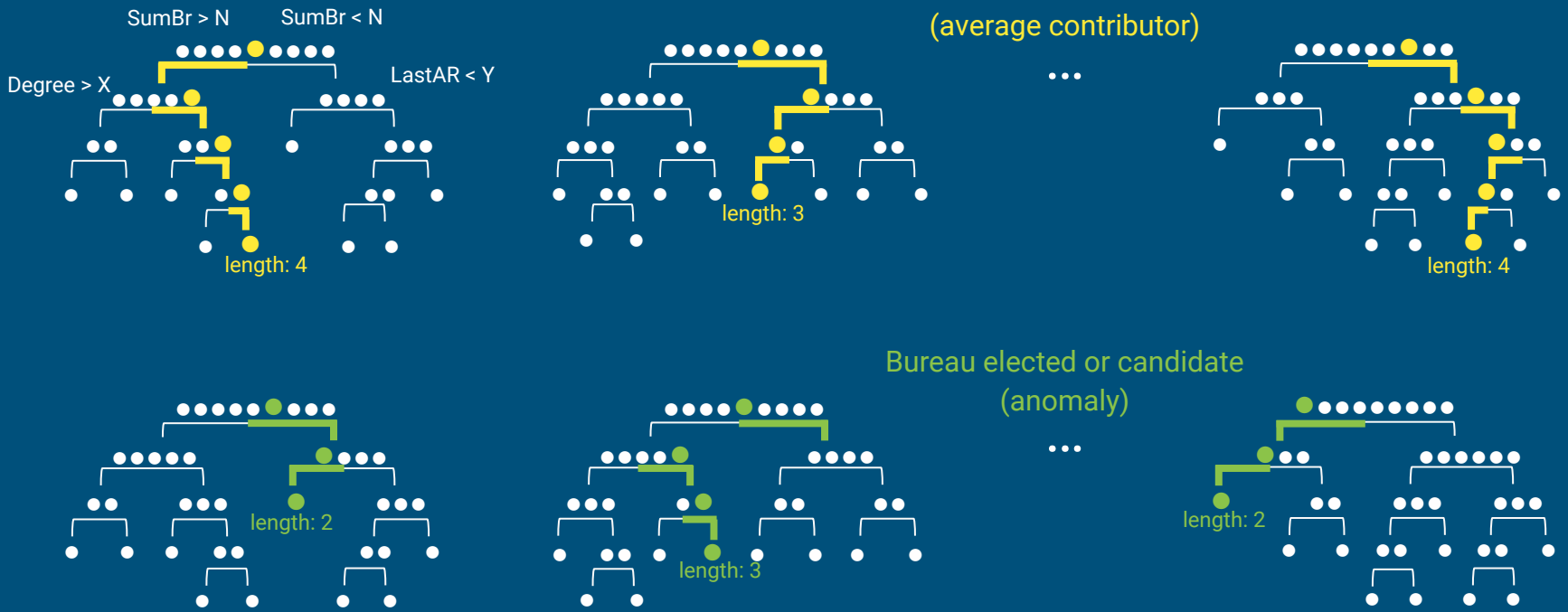
Escaping the “accuracy paradox”

Out of a total of	11.742	rows in our sub-set of training data
only	148 or 1.3%	rows correspond to candidate or elected Bureau
A model predicting	0	candidate or elected Bureau
Would be	98.7%	accurate

Anomalies detection



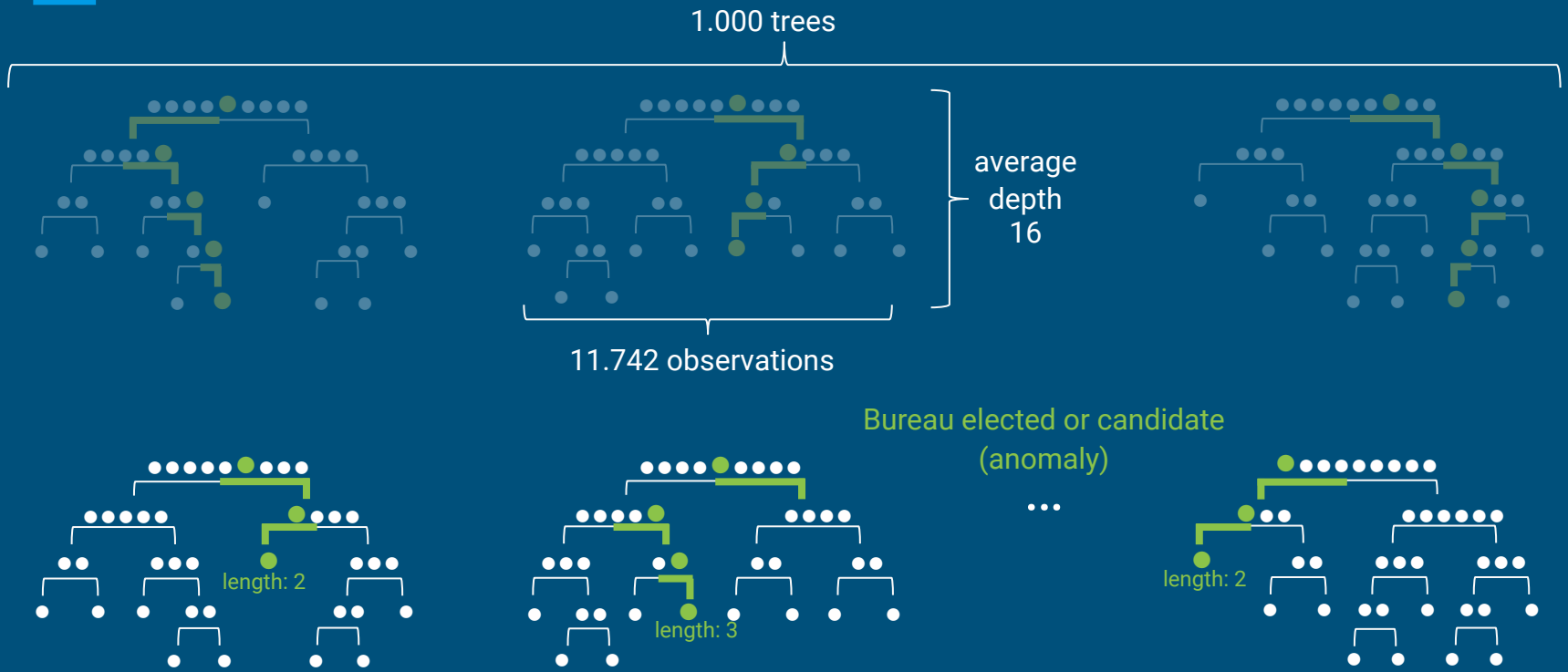
Isolation Forest (mean distance from root)



Liu, Fei Tony, Kai Ming Ting, and Zhi-Hua Zhou. 2008. “Isolation Forest.” In 2008 ***Eighth IEEE International Conference on Data Min***ing, IEEE, 413–22.

http://docs.h2o.ai/h2o/latest-stable/h2o-docs/data-science/if.html?highlight=isolation%20forest

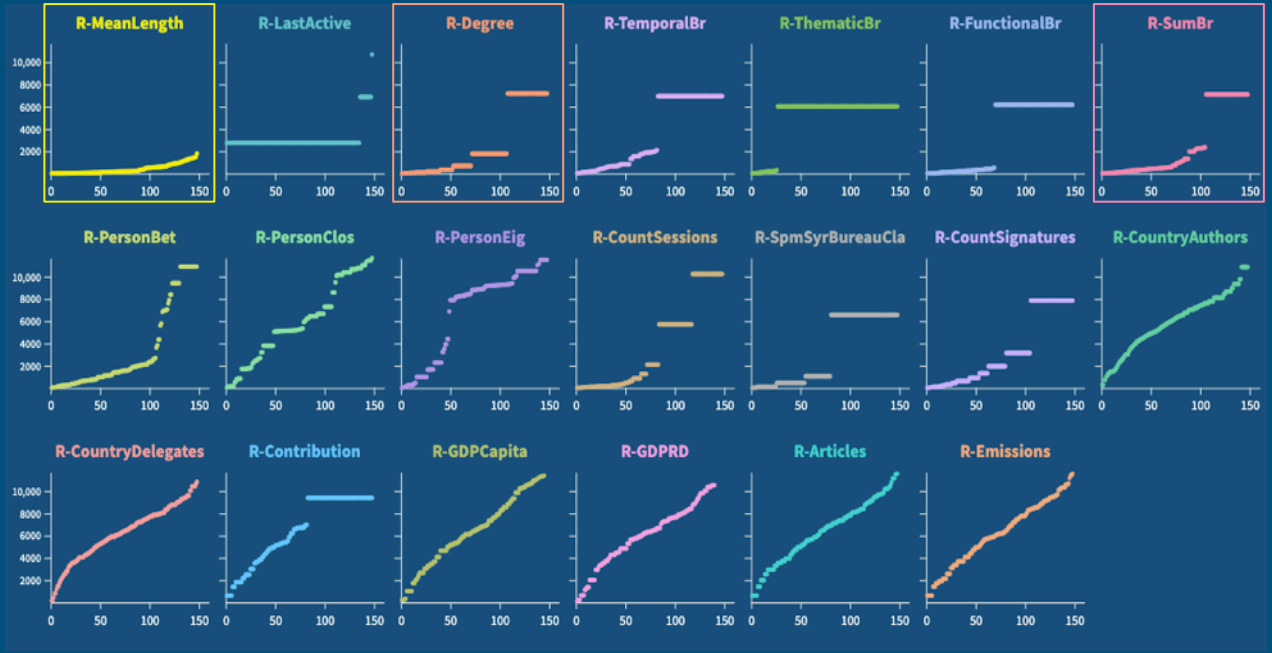
Isolation Forest (mean distance from root)



Liu, Fei Tony, Kai Ming Ting, and Zhi-Hua Zhou. 2008. “Isolation Forest.” In 2008 ***Eighth IEEE International Conference on Data Min***ing, IEEE, 413–22.

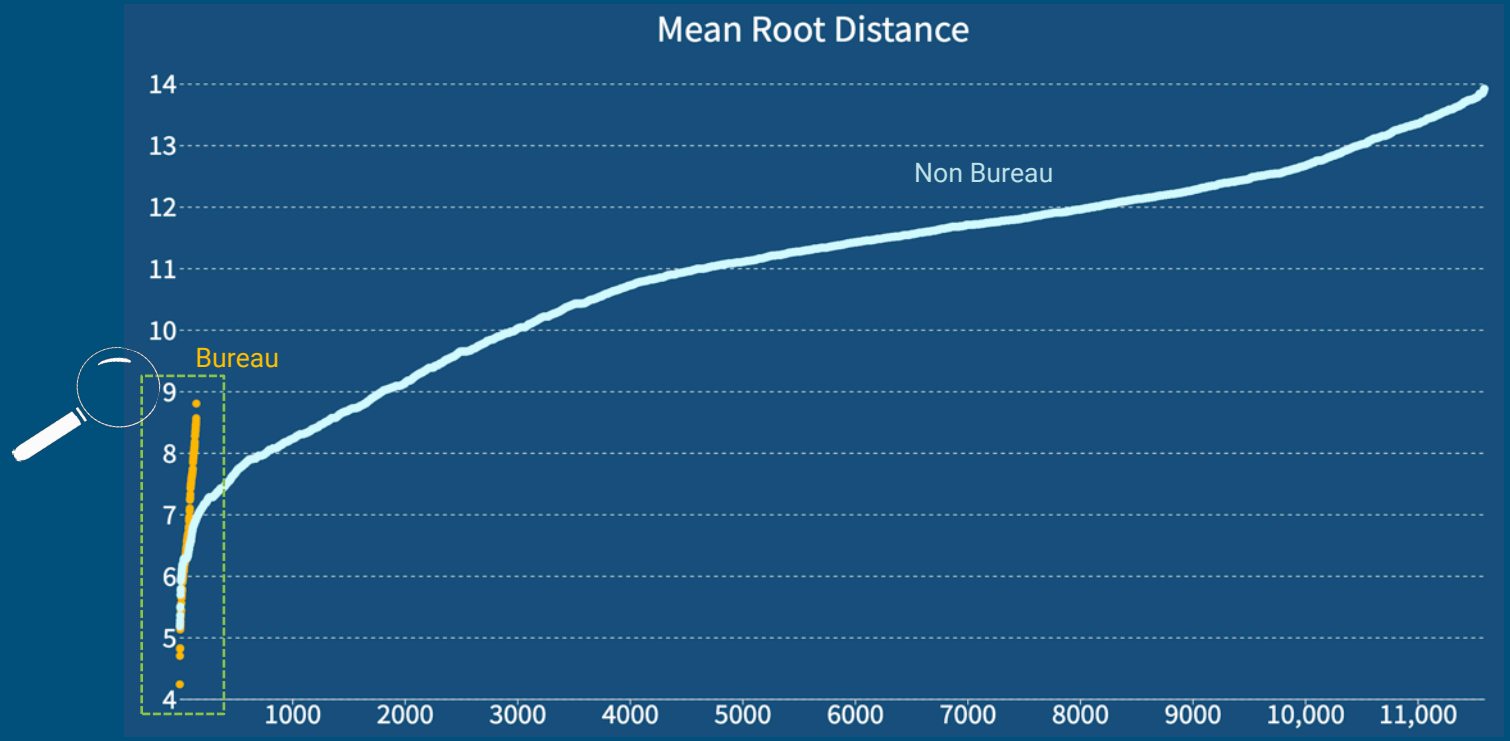
http://docs.h2o.ai/h2o/latest-stable/h2o-docs/data-science/if.html?highlight=isolation%20forest

Features comparison

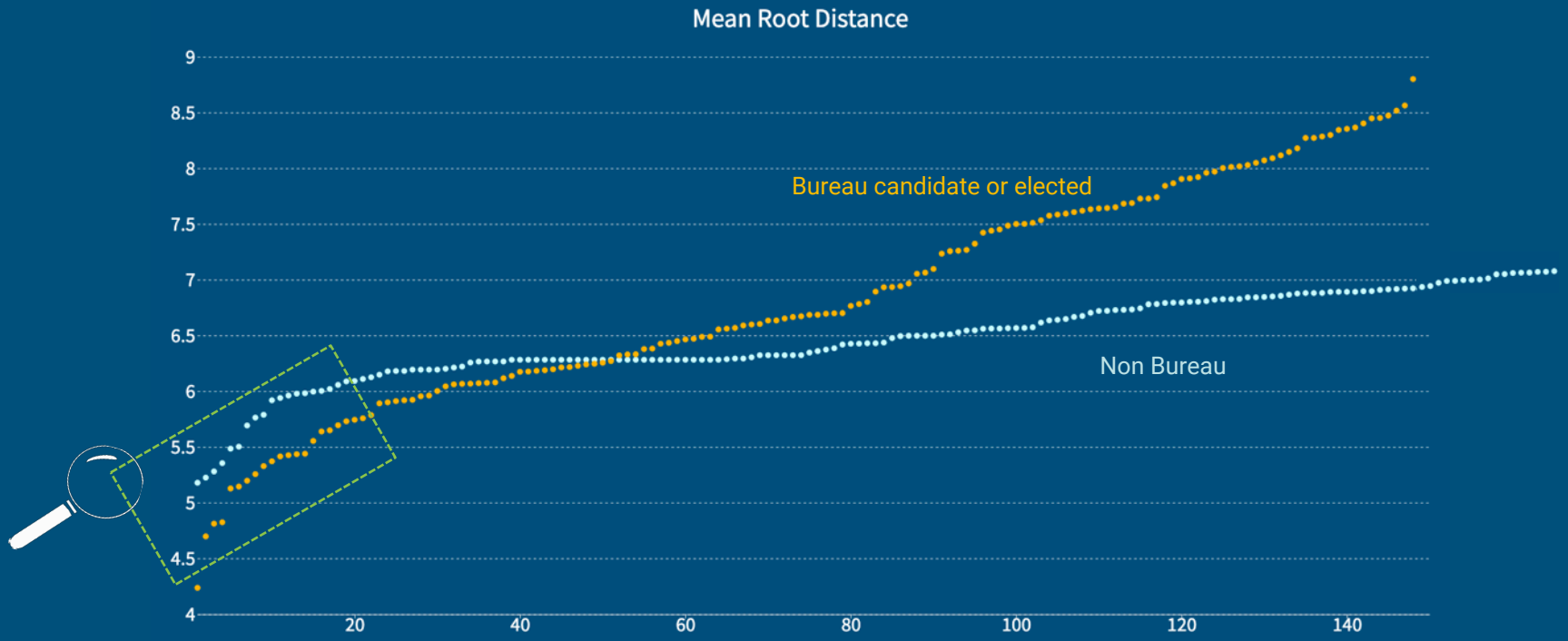


Feature	difference	non-bureau mean rank	bureau mean rank
MeanLength	5.554	5942	387
Bridgeness	3.362	5914	2552
Degree	3.355	5914	2559
LastActive	2.766	5906	3140
CountSignatures	2.652	5905	3253
SpmSyrBureauCla	2.605	5904	3300
PersonBet	2.595	5904	3309
FunctionalBr	2.550	5904	3354
TemporalBr	2.310	5901	3591
CountSessions	2.096	5898	3802
ThematicBr	890	5883	4993
CountryAuthors	*-40*	*5870*	*5910*
PersonClos	-44	5871	5915
CountryDelegates	*-326*	*5866*	*6193*
Emissions	*-360*	*5800*	*6160*
Articles	*-489*	*5818*	*6307*
GDPCapita	*-581*	*5766*	*6348*
GDP_R&D	*-588*	*5350*	*5938*
Contribution	*-614*	*5864*	*6478*
PersonEig	-976	5859	6835

Bureau / non Bureau comparison



Interesting “errors”

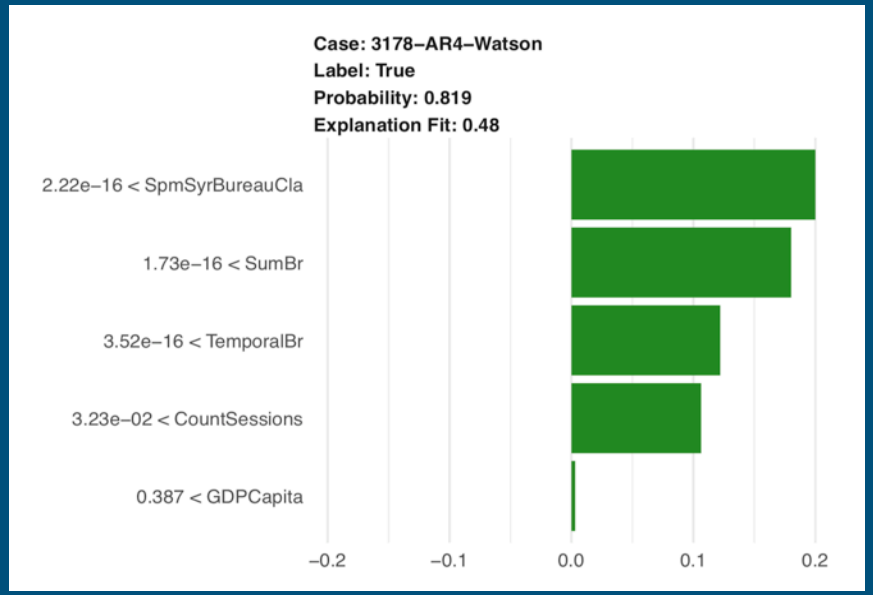


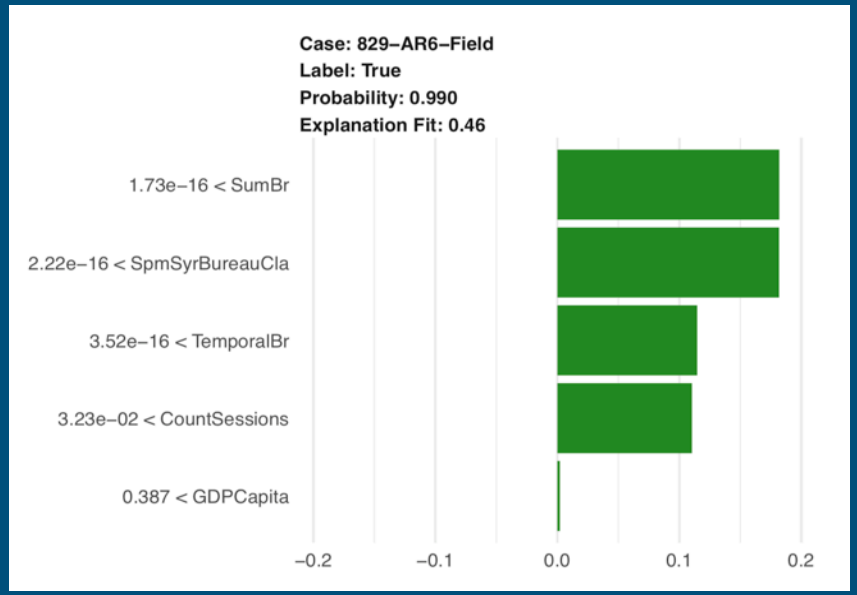
Top 20 anomalies (by average distance from root)

Pachauri, Rajendra ←
Lee, Hoesung ←

Full Name	AR	MeanLength	Candidate	Elected
Watson, Robert Tony	AR4	4,2367	TRUE	
Field, Christopher B.	AR6	4,6984	TRUE	
Markovska, Natasha	AR6	4,8124	TRUE	
Sugiyama, Taishi	AR6	4,8244	TRUE	
Zatari, Taha M.	AR6	5,1281	TRUE	TRUE
Izrael, Yuri	AR4	5,1454	TRUE	TRUE
Watson, Robert Tony	AR5	5,1794		
Zhakata, Washington	AR6	5,1974	TRUE	
Bolin, Bert R.	AR6	5,2252		
Stocker, Thomas F.	AR5	5,2566	TRUE	TRUE
Bolin, Bert R.	AR5	5,2808		
Raholijao, Nirivololona	AR6	5,3286	TRUE	
Watson, Robert Tony	AR6	5,3558		
Lee, Hoesung	AR6	5,3718	TRUE	TRUE
Mitchell, John F. B.	AR5	5,4157	TRUE	
Semenov, Serguei M.	AR6	5,4264	TRUE	TRUE
Oki, Taikan	AR6	5,4358	TRUE	TRUE
Pörtner, Hans-Otto	AR6	5,4398	TRUE	TRUE
Ahlonsou, Epiphane Dotou	AR6	5,4848		
Diarra, Birama	AR6	5,5029		

Close reading of the results

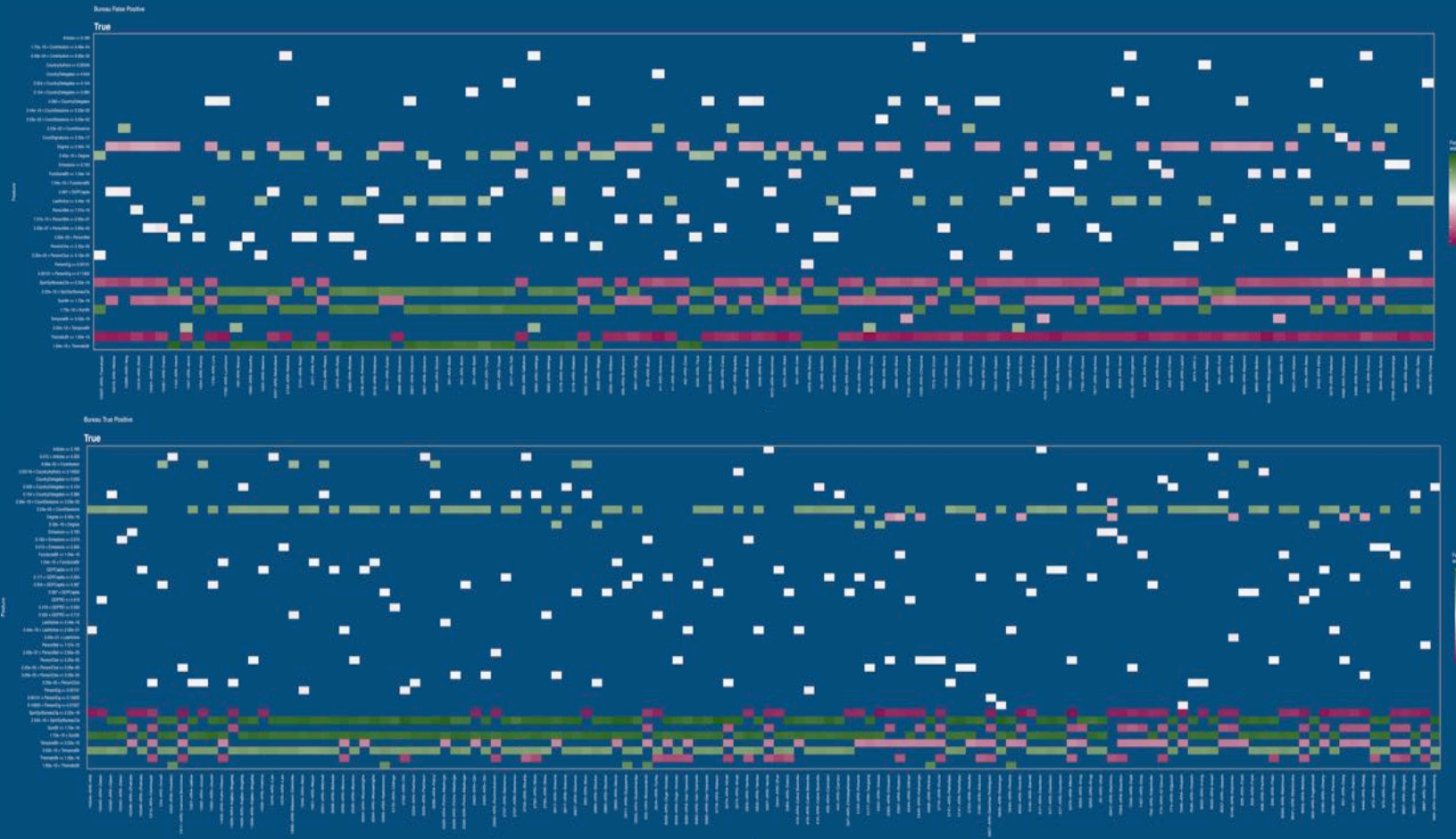




Local Interpretable Model-Agnostic Explanations (LIME)

Ribeiro, M. T., Singh, S., & Guestrin, C. (2016, August). Why should I trust you?: Explaining the predictions of any classifier. In ***Proceedings of the 22nd ACM SIGKDD international conference on knowledge discovery and data mining*** (pp. 1135-1144). ACM.

A quali-quantitative approach



Conclusions

Artificial intelligence and machine learning

- can be used not only to automate human tasks *but also* to kindle sociological imagination
- offer not only ways to handle large datasets *but also* tools for qualitative investigation
- are not infallible *yet* misalignments between model and reality can be sources of insights


FORTH
COM
ING
2015
2013
2012
2011
2010
2009
Dankeschön!
tommasoventurini.it

5 misunderstandings about Digital Social Sciences

Tommaso Venturini
www.tommasoventurini.it

5 misunderstandings about digital social sciences

1. Digital sociology is not the sociology of the digital
2. Tracing collective phenomena hasn’t got any cheaper
3. Size matters, but less than diversity
4. Digital does not mean automatic
5. Data exploration is not a form of distant reading

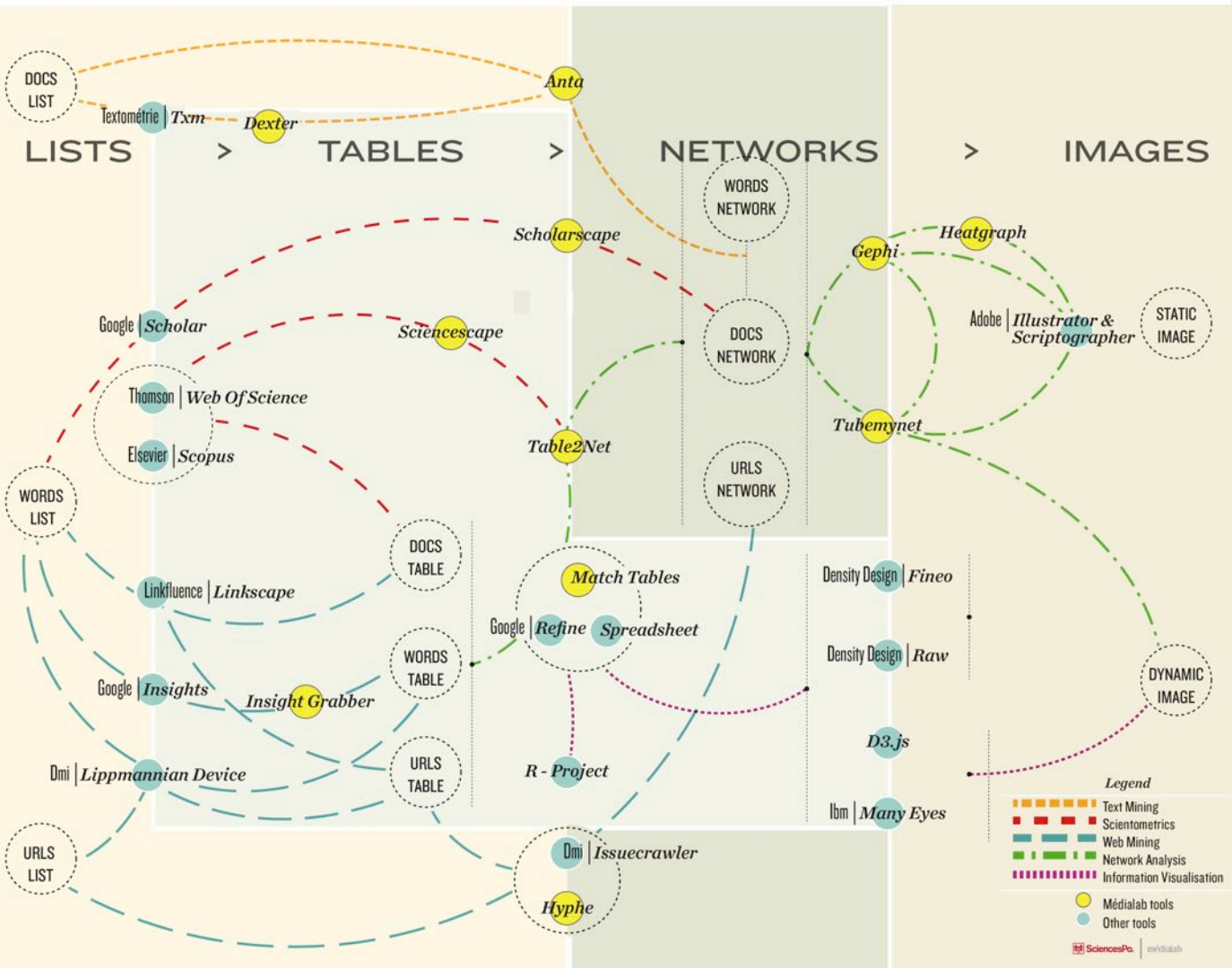
1

Digital sociology is not the sociology of the digital

The digital methods approach

Bruno Latour, argued that the Web is mainly of importance to social science insofar as it makes possible new types of descriptions of social life. According to Latour, the social integration of the Web constitutes an event for social science because the social link becomes traceable in this medium. Thus, social relations are established in a tangible form as a material network connection. We take Latour's claim of the tangibility of the social as a point of departure in our search (p. 342).

Rogers, R., and Marres, N. 2002. "French scandals on the Web, and on the streets: A small experiment in stretching the limits of reported reality."
Asian Journal of Social Science 66: 339-353.


DOCS LIST
Textométrie | Txm
Anta
Dexter
LISTS > TABLES > NETWORKS > IMAGES
WORDS NETWORK
Scholarscape
Heatgraph
Gephi
Google | Scholar
Sciencescape
DOCS NETWORK
Adobe | Illustrator & Scriptographer
STATIC IMAGE
Thomson | Web Of Science
Elsevier | Scopus
Table2Net
Tubemynet
URLS NETWORK
WORDS LIST
DOCS TABLE
Match Tables
Density Design | Fineo
Linkfluence | Linkscape
Google | Refine
Spreadsheet
Density Design | Raw
WORDS TABLE
DYNAMIC IMAGE
Google | Insights
Insight Grabber
D3.js
Dmi | Lippmannian Device
URLS TABLE
R - Project
Ibm | Many Eyes
URLS LIST
Dmi | Issuecrawler
Hyphe
Legend
Text Mining
Scientometrics
Web Mining
Network Analysis
Information Visualisation
Médialab tools
Other tools
SciencesPo. médialab

On Digital Methods

Latour B., Jensen P., Venturini T., Grauwin S., & Boullier D. (2012)
'The Whole Is Always Smaller than Its Parts': A Digital Test of Gabriel Tardes' Monads
The British Journal of Sociology 63(4): 590–615
http://www.ncbi.nlm.nih.gov/pubmed/23240834

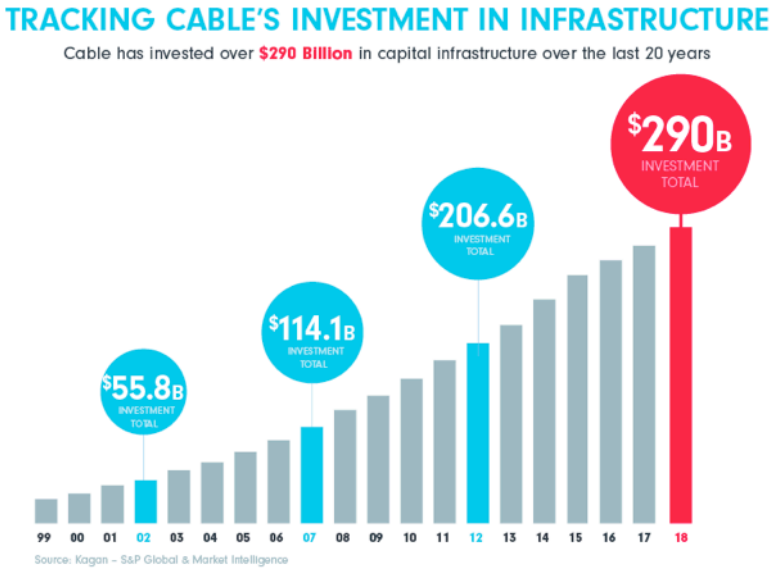
Venturini, Tommaso (2012)
Building on Faults: How to Represent Controversies with Digital Methods
Public Understanding of Science 21(7): 796–812
http://pus.sagepub.com/cgi/doi/10.1177/0963662510387558

Venturini, Tommaso, and Bruno Latour (2010)
The Social Fabric: Digital Traces and Quali-Quantitative Methods
In ***Proceedings of Future En Seine 2009***, Paris: Editions Future en Seine, 87–101.

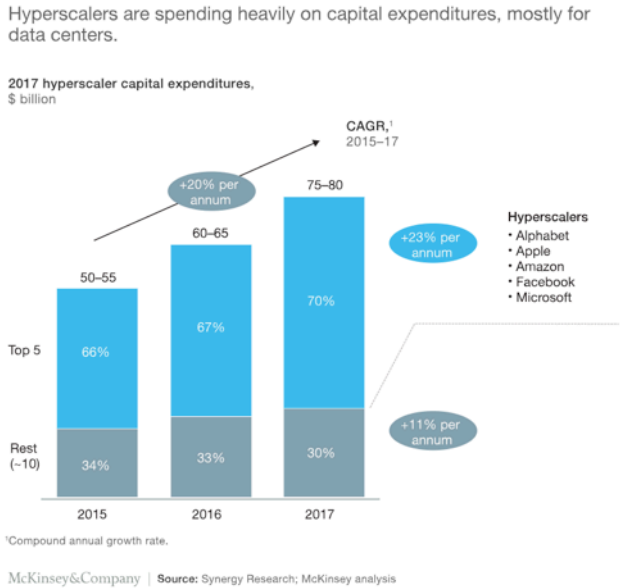
2

Tracing collective phenomena hasn't got any cheaper

… the price is just paid elsewhere

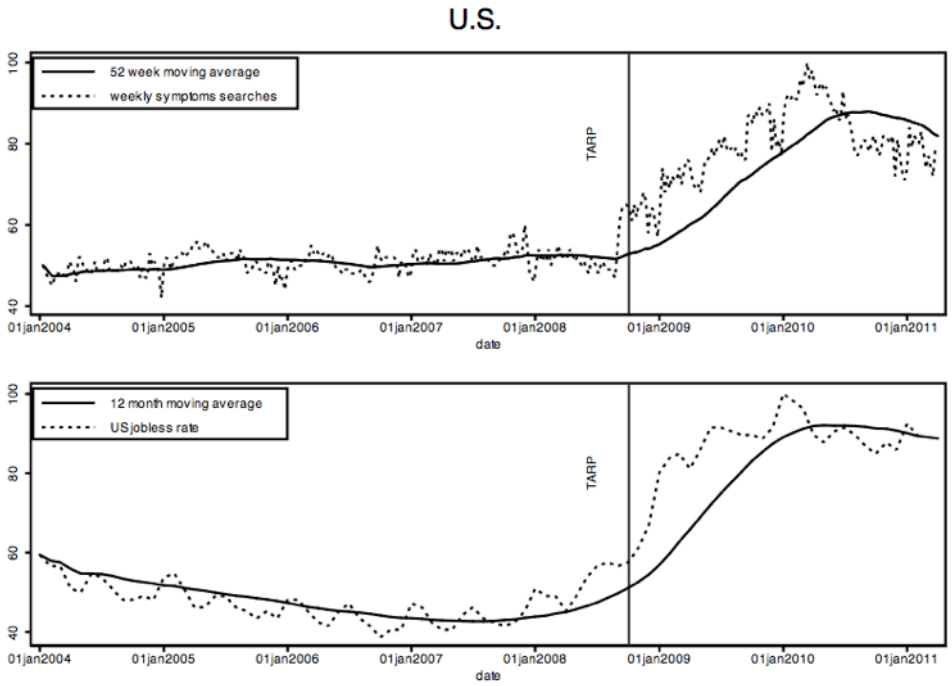


www.ncta.com/broadband-by-the-numbers
(cumulative unadjusted data)



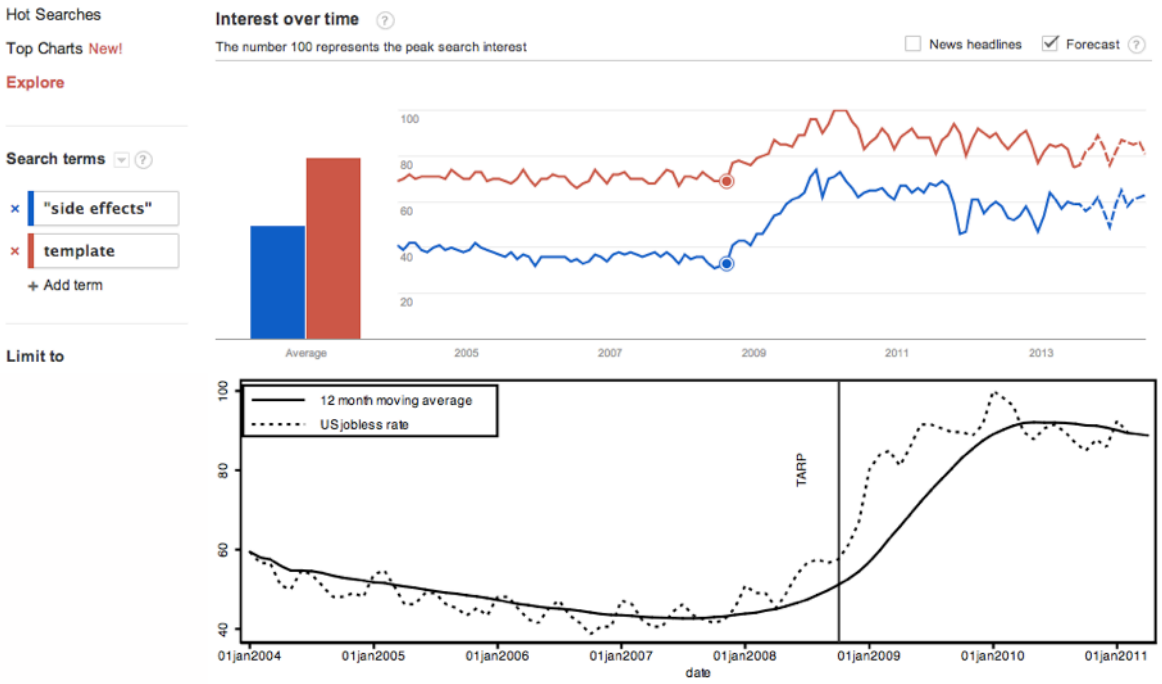
www.mckinsey.com/industries/high-tech/our-insights/how-high-tech-suppliers-are-responding-to-the-hyperscaler-opportunity

Digital records are second-hand data …



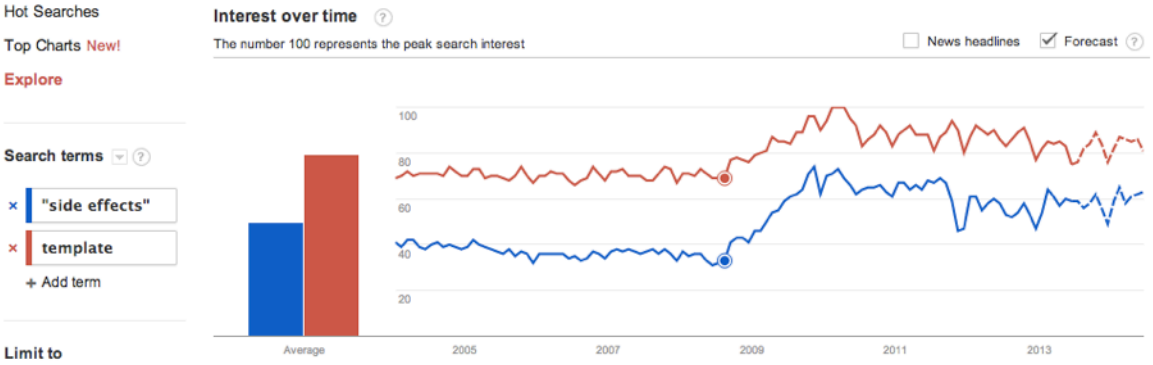
Askitas, Nikolaos, and Klaus Zimmermann. 2011. “Health and Well-Being in the Crisis.” IZA Discussion Paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1801667 (July 2, 2013).

Digital records are second-hand data …



Askitas, Nikolaos, and Klaus Zimmermann. 2011. “Health and Well-Being in the Crisis.” IZA Discussion Paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1801667 (July 2, 2013).

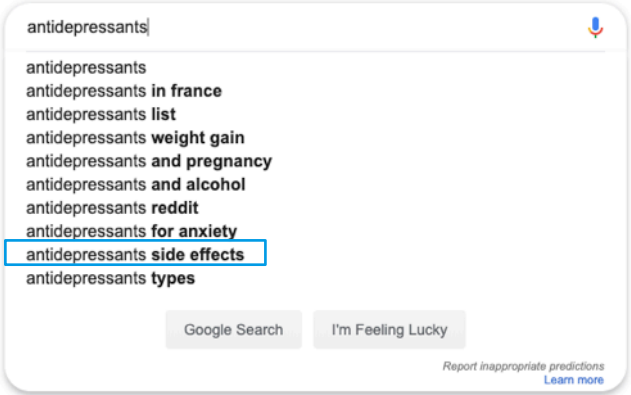
… and come with bias



August 25, 2008

Google Suggest, Enabled by Default

As anticipated, Google Suggest will be finally available at google.com. "Today we're excited because Google Suggest will be graduating from Labs and available by default on the Google.com homepage. Over the next week, we'll be rolling this out so that more and more of you will start seeing a list of query suggestions when you start typing into the search box," says Jennifer Liu from Google.



Don’t confuse the mediation with what it mediates

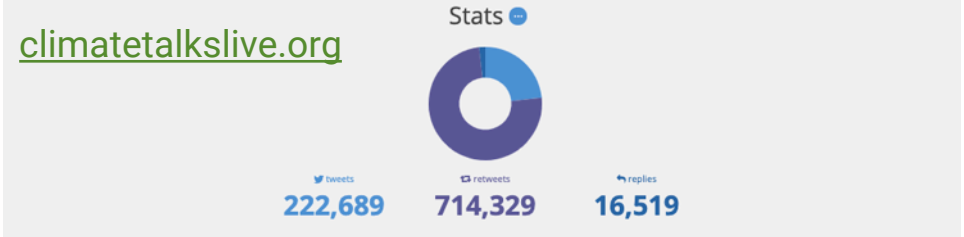
Venturini, Tommaso, Liliana Bounegru, Jonathan Gray, and Richard Rogers (2018)
A Reality Check(List) for Digital Methods
New Media & Society 20(11): 4195–4217
https://doi.org/10.1177/1461444818769236

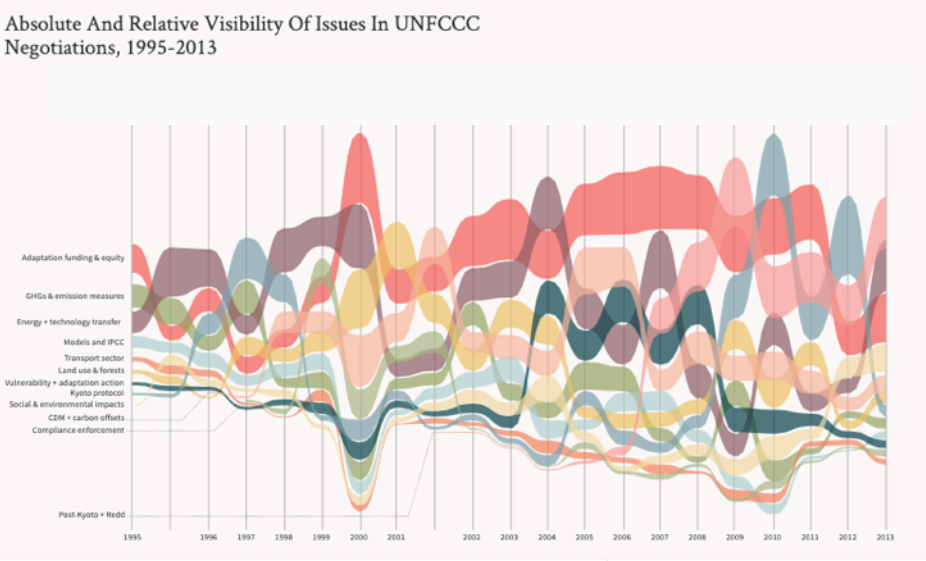
Venturini, Tommaso, Anders Munk, and Mathieu Jacomy (2019)
Actor-Network VS Network Analysis VS Digital Networks, Are We Talking About the Same Networks?
In ***DigitalSTS: A Handbook and Fieldguide***, eds. David Ribes and Janet Vertesi


3
Size matters
but less than diversity

More then Twitter

climatetalkslive.org





This interactive map offers a chronological view of the issues discussed in the negotiations within the United Nations Framework Convention on Climate Change. The streamgraph enables us to follow the absolute and relative importance of each issue as the Conferences of Parties. Issues are obtained from terms co-occurring in a corpus of reports on UNFCCC conferences from 1995 to 2013. Adaptation-related topics (particularly related to vulnerability and social & environmental impacts) show an increase towards the later negotiations.

HOW TO READ THE MAP

The stream graph diagram presents the absolute and relative visibility or different issues in the UNFCCC debate. Each issue is defined by a set of linguistic expressions often occurring together in the negotiations. Each issue is then represented by a flow whose size varies from conference to conference proportional to the number of paragraphs in which at least two terms defining the issue are present. The flows are sorted according to the number of occurrences: for each COP, the highest flow corresponds to the most visible theme while the lowest corresponds to the least visible. For example, "Adaptation Funding & Equity" is the most visible issue in the first COP and "Post-Kyoto and REDD" is the most visible in the last.

HOW THE MAP HAS BEEN BUILT

Our corpus is built from the 594 issues contained in the Volume 12 of the Earth Negotiations Bulletin, containing the reports on the UNFCCC conferences from 1995 in New York to 2013 in

AUTHORS

Nicolas Baya-Laffite, Ian Gray, Kari De Pryck, Benjamin Ooghe-Tabanou, Tommaso Venturini (médialab, Sciences Po, Paris); Jean-Philippe Cointet (INRA Sens, Cortext); Martina Elisa Cecchi, Paolo Ciuccarelli, Federica Bardelli and Carlo De Gaetano (Density Design); Vinciane Zabban (IFRIS); Richard Rogers (University of Amsterdam); Farhana Yamin (Chatham House).

This map is based on work done in the context of the project MEDEA (Mapping environmental debates on adaptation) and developed during the EMAPS Sprints. Funding for the MEDEA project was provided by the French National Research Agency (ANR-11-CEPL-0004).

climaps.eu

DATA TIME-STAMP

EMAPS Paris Sprint, 6-10 January 2014

DATA SOURCE

Earth Negotiations Bulletin, Volume 12

Beyond platforms APIs

Venturini, Tommaso, and Richard Rogers (2019)
'API-Based Research' or How Can Digital Sociology and Journalism Studies Learn from the Facebook and Cambridge Analytica Data Breach
Digital Journalism 7(4): 532–40.
https://www.tandfonline.com/doi/full/10.1080/21670811.2019.1591927

Venturini, Tommaso et al. (2014)
Three Maps and Three Misunderstandings: A Digital Mapping of Climate Diplomacy
Big Data & Society 1(2).
http://bds.sagepub.com/lookup/doi/10.1177/2053951714543804


4
Digital does not
mean automatic

http://www.iisd.ca/vol12/

Climate Change

Volume 12 / Earth Negotiations Bulletin (ENB)

1995

Eleventh Session of The INC for the Framework Convention on Climate Change (UNFCCC)

INC 11 | 6-17 February 1995 | New York, USA

Issue #1	6 February 1995	PDF	HTML
Issue #2	7 February 1995	PDF	HTML
Issue #3	8 February 1995	PDF	HTML
Issue #4	9 February 1995	PDF	HTML
Issue #5	10 February 1995	PDF	HTML
Issue #6	13 February 1995	PDF	HTML
Issue #7	14 February 1995	PDF	HTML
Issue #8	15 February 1995	PDF	HTML
Issue #9	16 February 1995	PDF	HTML
Issue #10	17 February 1995	PDF	HTML
Issue #11	Summary	PDF	HTML

First Conference of the Parties to the Framework Convention on Climate Change

COP 1 | 28 March - 7 April 1995 | Berlin, Germany

Issue #12	28 March 1995	PDF	HTML
Issue #13	29 March 1995	PDF	HTML
Issue #14	30 March 1995	PDF	HTML
Issue #15	31 March 1995	PDF	HTML
Issue #16	3 April 1995	PDF	HTML
Issue #17	4 April 1995	PDF	HTML
Issue #18	5 April 1995	PDF	HTML
Issue #19	6 April 1995	PDF	HTML
Issue #20	7 April 1995	PDF	HTML
Issue #21	Summary	PDF	HTML

First Session of the *Ad Hoc* Group on the Berlin Mandate

AGBM 1 | 21-25 August 1995 | Geneva, Switzerland

Issue #22	Summary	PDF	HTML

First Session Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI)

SB 1 | 28 August - 1 September 1995 | Geneva, Switzerland

Issue #23	Summary	PDF	HTML

Second Session of the *Ad Hoc* Group on the Berlin Mandate

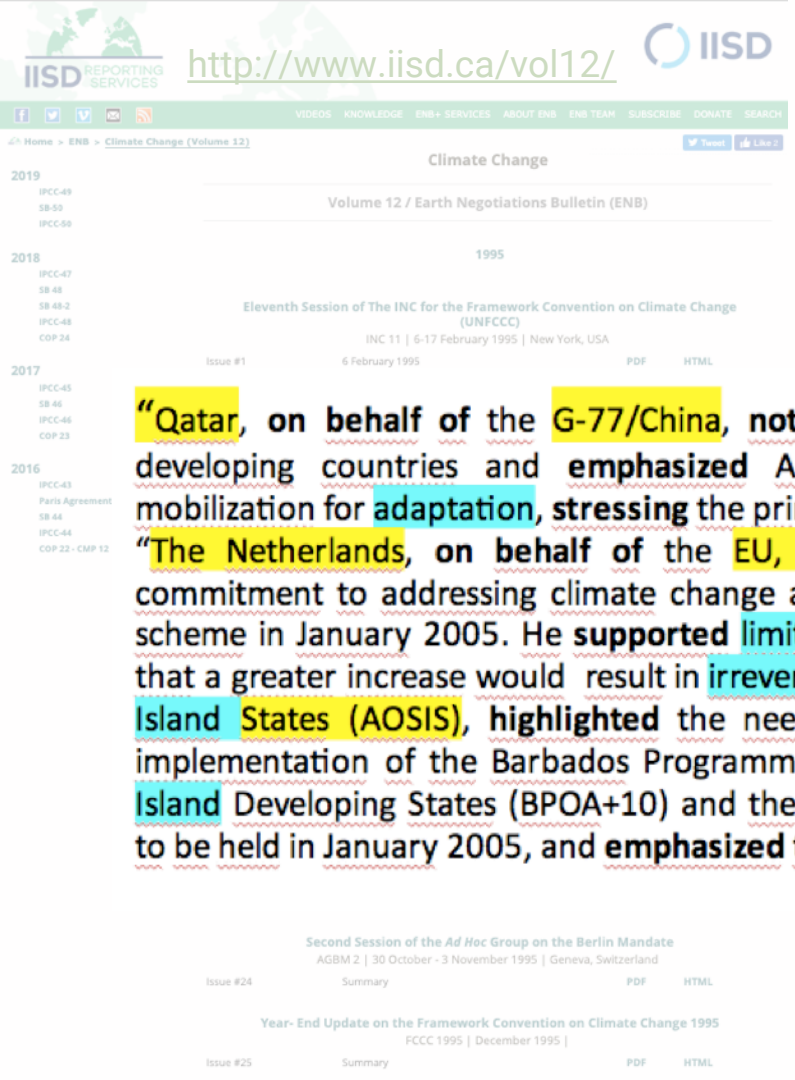
AGBM 2 | 30 October - 3 November 1995 | Geneva, Switzerland

Issue #24	Summary	PDF	HTML

Year- End Update on the Framework Convention on Climate Change 1995

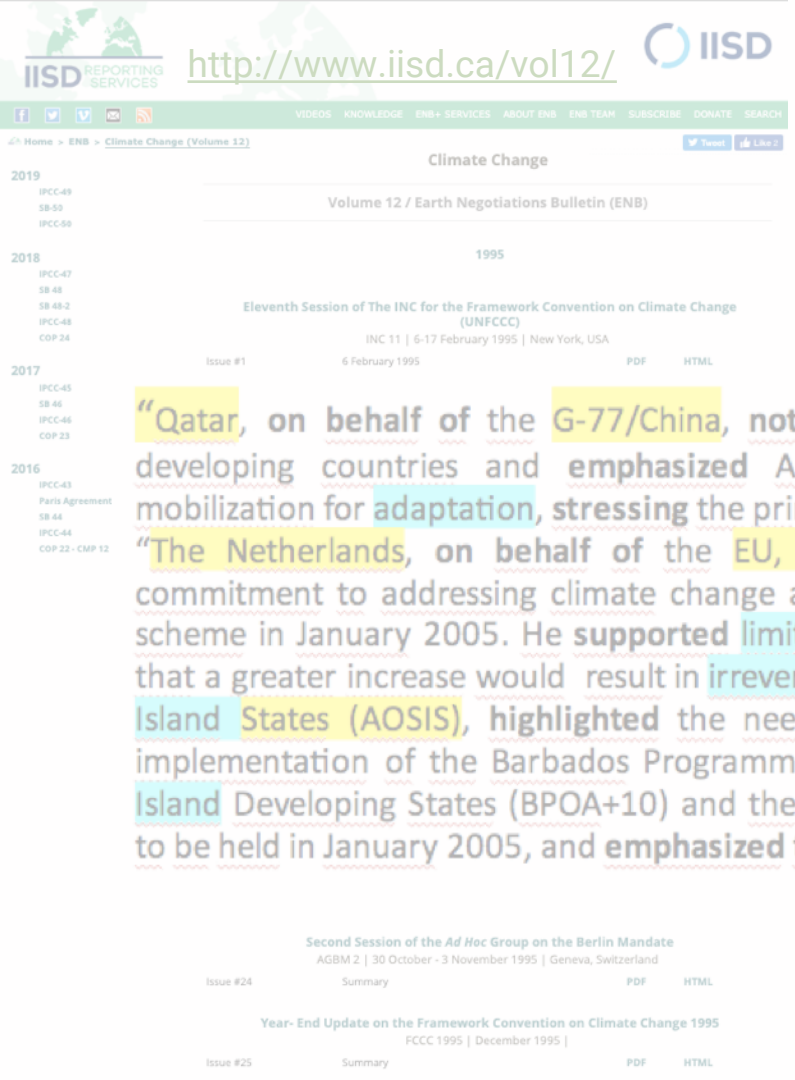
FCCC 1995 | December 1995 |

Issue #25	Summary	PDF	HTML



"Qatar, **on behalf of** the G-77/China, **noted** the impacts of recent climate-related disasters on developing countries and **emphasized** Annex I Parties' responsibility for financial resource mobilization for adaptation, **stressing** the principle of common but differentiated responsibilities."

"The Netherlands, **on behalf of** the EU, Bulgaria, Romania and Turkey, **expressed** continued commitment to addressing climate change and **highlighted** the launch of the EU emissions trading scheme in January 2005. He **supported** limiting global temperature rise to 2 degrees Celsius, **noting** that a greater increase would result in irreversible damages. Tuvalu, **on behalf of** the Alliance of Small Island States (AOSIS), **highlighted** the need for strong linkages with the 10-year review of the implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States (BPOA+10) and the World Conference on Disaster Reduction (WCDR), both to be held in January 2005, and **emphasized** the importance of dialogue on adaptation."



list of the automatically extracted terms with their different forms

main form	*forms*
C target	C target
adaptation actions	adaptation actions|&|adaptation action|&|action on adaptation
adaptation and response measures	adaptation and response measures|&|Adaptation and Response Measures|&|adaptation respons measures|&|response measures under adaptation
adaptation measures	adaptation measures
adaptation technologies	adaptation technologies|&|adaptation technology|&|technologies for adaptation|&|technology adaptation|&|technology and adaptation|&|adaptation and technology|&|adaptation or technology|&|technology for adaptation
adaptation work programme	adaptation work programme|&|work programme on adaptation|&|adaptation programme of work|&|programme of work on adaptation
adaptation	adaptation|&|Adaptation|&|ADAPTATION|&|adaptive
enhanced action	enhanced action|&|Enhanced Action|&|enhancing action
loss and damage	loss and damage|&|LOSS AND DAMAGE
Marrakesh Accords	Marrakesh Accords|&|MARRAKESH ACCORDS
national adaptation programmes of action	national adaptation programmes of action
vulnerability and adaptation	vulnerability and adaptation|&|Vulnerability and Adaptation|&|VULNERABILITY AND ADAPTATION|&|adaptation and vulnerability|&|ADAPTATION AND VULNERABILITY|&|Adaptation a Vulnerability
vulnerable countries	vulnerable countries
water resources	water resources
work on adaptation	work on adaptation|&|adaptation work|&|Work on Adaptation

list of the automatically extracted terms with their different forms

main form	*forms*
C target	C target
adaptation actions	adaptation actions|&|adaptation action|&|action on adaptation
adaptation and response measures	adaptation and response measures|&|Adaptation and Response Measures|&|adaptation respons measures|&|response measures under adaptation
adaptation measures	adaptation measures
adaptation technologies	adaptation technologies|&|adaptation technology|&|technologies for adaptation|&|technology adaptation|&|technology and adaptation|&|adaptation and technology|&|adaptation or

id	ENB_ref	ISItermscountries	projection_cluster_ISItermscopindex_ISItermscopindex	text
1	Volume 12 Number 01		- GHGs & emission measures (*emission*, *gas*) - Models and IPCC (*Intergovernmental Panel on Climate Change*)	Increasing scientific evidence about the possibility of global climate change in the 1980s led to a growing awareness that human activities have been contributing to substantial increases in the atmospheric concentrations of greenhouse **gases**. Concerned that anthropogenic increases of **emissions** enhance the natural greenhouse effect and would result, on average, in an additional warming of the Earths surface, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the **Intergovernmental Panel on Climate Change** (**IPCC**) in 1988. The Panel focused on: assessing **scientific information** related to the various aspects of climate change; evaluating the environmental and socio-**economic impacts** of climate change; and formulating response strategies for the management of global climate change. In 1990, the finalization and adoption of the **IPCC** report and the Second World Climate Conference focused further attention on climate change.
2	Volume 12 Number 01		- GHGs & emission measures (*differentiated responsibilities*, *CO2*, *emission*) - Energy + technology transfer (*technology transfer*, *technology*)	On 11 December 1990, the 45th session of the UN General Assembly adopted a resolution that established the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC/FCCC). Supported by UNEP and WMO, the mandate of the INC/FCCC was to prepare an effective framework convention on climate change. The INC held five sessions between February 1991 and May 1992. During these meetings, participants from over 150 states discussed the difficult and contentious issues of **binding commitments**, targets and timetables for the reduction of **carbon dioxide emissions**, **financial mechanisms**, **technology** transfer, and common but **differentiated responsibilities** of developed and developing countries. The INC sought to achieve a consensus that could be supported by a broad majority, rather than drafting a treaty that dealt with specific policies that might limit participation.
3	Volume 12 Number 01			The United Nations Framework Convention on Climate Change (FCCC) was adopted on 9 May 1992, and opened for signature at the UN Conference on Environment and **Development** in June 1992 in Rio, where it received 155 signatures. The Convention entered into force on 21 March 1994 (90 days after receipt of the 50th ratification). The first session of the Conference of the Parties (COP) will take place in Berlin from 27 March - 7 April 1995.
4	Volume 12 Number 01		- GHGs & emission measures (*emission*, *CO2*) - Land use & forests (*forest*, *sink*) - Energy + technology transfer (*energy*)	Since the adoption of the Convention, the INC has met five more times to consider the following items: matters relating to commitments; matters relating to arrangements for the **financial mechanism** and for technical and **financial support** to developing countries; procedural and legal matters; and institutional matters. During these INC sessions, scientific work was done to improve the methodologies for measuring **emissions** from various sources, but the larger scientific problem is choosing the best methodology to estimate the removal of **carbon dioxide** by **sinks**, namely **oceans** and **forests**. The other major task before negotiators has been to work on the difficult issue of **financial support** for implementation, particularly for developing country Parties who will require new and additional resources to obtain data and implement **energy**- efficient technologies and other necessary measures.
5	Volume 12 Number 01		GHGs & emission measures (*emission*, *gas*)	The INC held its ninth session from 7-18 February 1994, in Geneva. In discussions on matters relating to commitments, delegates examined methodologies for calculations/inventories of **emissions** and removal of greenhouse **gases**, the first review of information communicated by Annex I parties, the role of the subsidiary bodies established by the Convention, and criteria for **joint implementation**. Delegates also reviewed the **adequacy of commitments**. The need for broader action beyond the year 2000 on the commitments in Article 4.2(a) and (b) was considered, based on the understanding that the provisions of this article refer to the present decade.
				In its discussions on matters relating to the **financial mechanism** and technical and **financial support** to developing country Parties, the Committee chose to focus on the implementation of Article 11. It was agreed that only developing countries that are Parties to the Convention would be eligible to

main form	*forms*	*frequency*
emission	emission | emissions	990
technology	technology	816
funding	funds | fund | funding | fundings	790
CDM	cdm | clean development mechanism	681
technology transfer	technology transfer | transfer of technology | sharing technology | transfer of technical | transfer of technologies | transfer technology | transfer technologies | technology and transfer | technology information | information and technology | information technology | information on technology	564
development	development	530
GEF	gef | global environment facility	438
LDCs	ldcs | ldc | least developed countries	382
joint implementation	ji | joint implementation | aij | jointly implemented | implemented jointly	375
Kyoto Protocol	kyoto protocol | kyoto protocols	335
Intergovernmental Panel on Climate Change	intergovernmental panel on climate change | ipcc	318
LULUCF	lulucf | lucf	297
reducing emissions	reducing emissions | reducing greenhouse gas emissions | reduction commitments | reduction commitment | emission reductions | emission reduction | emissions reductions | emissions reduction | reduction of emissions | reductions of emissions | reductions in emissions | reduction in emissions	289
financial mechanism	financial mechanism | financial mechanisms	267
gas	gas | gases	241
Adverse Effects/Impacts	adverse effects | adverse impacts | adverse effect | adverse impact	233
energy	energy	230
POLICIES AND MEASURES	policies and measures | p&ms	196
second commitment period	second commitment period | second commitment periods | second protocol commitment period | second kyoto protocol commitment period	188

automatically extracted terms with their different forms

rm	*forms*
t	C target
tion actions	adaptation actions|&|adaptation action|&|action on adaptation
tion and ie es	adaptation and response measures|&|Adaptation and Response Measures|&|adaptation respons measures|&|response measures under adaptation
tion es	adaptation measures
tion	adaptation technologies|&|adaptation technology|&|technologies for adaptation|&|technology adaptation|&|technology and adaptation|&|adaptation and technology|&|adaptation or

text

tific evidence about the possibility of global climate change in the 1980s led to a growing awareness that human activities have been bstantial increases in the atmospheric concentrations of greenhouse **gases**. Concerned that anthropogenic increases of **emissions** ural greenhouse effect and would result, on average, in an additional warming of the Earths surface, the World Meteorological MO) and the United Nations Environment Programme (UNEP) established the **Intergovernmental Panel on Climate Change** (**IPCC**) in focused on: assessing **scientific information** related to the various aspects of climate change; evaluating the environmental and **impacts** of climate change; and formulating response strategies for the management of global climate change. In 1990, the finalization he **IPCC** report and the Second World Climate Conference focused further attention on climate change.

r 1990, the 45th session of the UN General Assembly adopted a resolution that established the Intergovernmental Negotiating Framework Convention on Climate Change (INC/FCCC). Supported by UNEP and WMO, the mandate of the INC/FCCC was to prepare ework convention on climate change. The INC held five sessions between February 1991 and May 1992. During these meetings, over 150 states discussed the difficult and contentious issues of **binding commitments**, targets and timetables for the reduction of **emissions**, **financial mechanisms**, **technology** transfer, and common but **differentiated responsibilities** of developed and tries. The INC sought to achieve a consensus that could be supported by a broad majority, rather than drafting a treaty that dealt with that might limit participation.

ns Framework Convention on Climate Change (FCCC) was adopted on 9 May 1992, and opened for signature at the UN Conference and **Development** in June 1992 in Rio, where it received 155 signatures. The Convention entered into force on 21 March 1994 (90 t of the 50th ratification). The first session of the Conference of the Parties (COP) will take place in Berlin from 27 March - 7 April 1995.

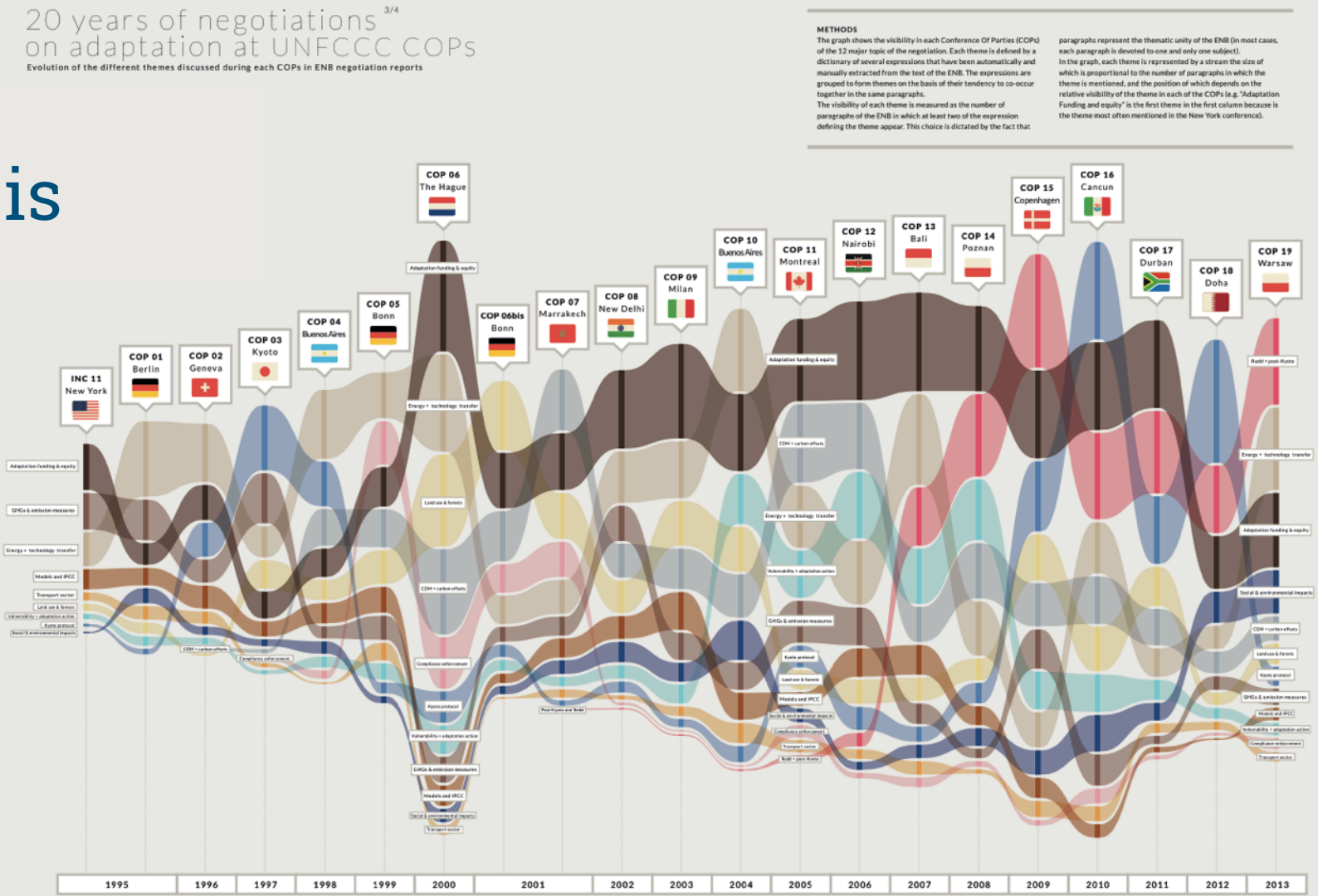
on of the Convention, the INC has met five more times to consider the following items: matters relating to commitments; matters relating for the **financial mechanism** and for technical and **financial support** to developing countries; procedural and legal matters; and ers. During these INC sessions, scientific work was done to improve the methodologies for measuring **emissions** from various sources, entific problem is choosing the best methodology to estimate the removal of **carbon dioxide** by **sinks**, namely **oceans** and **forests**. task before negotiators has been to work on the difficult issue of **financial support** for implementation, particularly for developing who will require new and additional resources to obtain data and implement **energy**- efficient technologies and other necessary

ninth session from 7-18 February 1994, in Geneva. In discussions on matters relating to commitments, delegates examined or calculations/inventories of **emissions** and removal of greenhouse **gases**, the first review of information communicated by Annex I of the subsidiary bodies established by the Convention, and criteria for **joint implementation**. Delegates also reviewed the **adequacy** . The need for broader action beyond the year 2000 on the commitments in Article 4.2(a) and (b) was considered, based on the at the provisions of this article refer to the present decade.

on matters relating to the **financial mechanism** and technical and **financial support** to developing country Parties, the Committee n the implementation of Article 11. It was agreed that only developing countries that are Parties to the Convention would be eligible to

Co-occurrence

Time analysis



Narration

climaps.eu/#!/narrative/mitigation-and-adaptation-in-the-unfccc-debates

Mitigation And Adaptation In The UNFCCC Debates

An analysis of the UNFCCC's discussions provided by the Earth Negotiations Bulletin

Climate Change Adaptation appears to occupy the center of the climate negotiations. There are claims in the literature on climate diplomacy about an 'adaptation turn' in the last years of the negotiation. We challenge these and find adaptation to have been present and highly visible from the very beginning, particularly the specific question of adaptation finance. In the larger debate on climate change, the notion of 'adaptation' is often opposed (or at least contrasted) to that of 'mitigation'. Such a contrast is not without reason. The two notions refer to vastly different ways to deal with global warming. 'Mitigation' refers to the efforts to lessen the impacts of climate change by acting on its causes and therefore reducing the emissions of greenhouse gases (GHG). 'Adaptation', on the contrary, refers to the efforts to prepare our societies to cope with the effects of climate change. Though the two approaches are not mutually exclusive (there is no contradiction between striving to avoid the dangers and prepare to deal with those that cannot be avoided), they have often been opposed by the actors in the climate change debate. In this narrative we explore the status of mitigation and adaptation in the UNFCCC debate.

THE RISE OF ADAPTATION RELATED ISSUES

According to some actors of the climate debate, the shift from mitigation to adaptation contains two risks. From a political point of view, the focus on adaptation risks diverting attention away from efforts to mitigate - as if the adjusting to climate hazards would make the fight against them any less urgent. From a conceptual point of view, the shift from mitigation to adaptation is a shift from a relatively simple approach (based on the identification of harmful gases and the determination of emission thresholds) to a much more complex approach that requires us to take into consideration a multitude of social and natural factors (and is therefore is more prone to failure).

Below we compare the discourses on mitigation and adaptation in the United Nations Framework Convention on Climate Change (UNFCCC). Adopted at the Earth Summit in 1992 and ratified by 195 countries, the UNFCCC focuses primarily on mitigation. Its official aim is to stabilize "greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC 1992). However over the years, adaptation has assumed an increasingly important place in the international negotiations for three connected reasons: the failure to impose significant GHG reductions; the growing visibility of climate change impacts; and the efforts of developing countries to obtain funds to cope with climate change.

From these observations the following research questions can be derived:

1. Can the shift from mitigation to adaptation be observed in the UNFCCC negotiations?
2. How have debates on adaptation influenced and displaced the debates on mitigation?
3. How did the discussion of adaptation related issues evolve in UNFCCC negotiations?
4. Which countries promote adaptation related issues the most?

By analysing the reports on the UNFCCC's discussions provided by Volume 12 of the Earth Negotiations Bulletin (ENB), we produced fours maps to answer to these questions:

1. one showing the clustering of the expressions co-appearing in the same paragraphs of the ENB (Figure 1);
2. another presenting the visibility of each cluster of expressions in the different Conferences of Parties (COPS) to the UNFCCC (Figure 2);
3. a third presenting the visibility of different countries in the UNFCCC discussions (Figure 3);
4. and a fourth showing which negotiating countries are more connected to each issue (Figure 4).

THE 'PLACE' OF ADAPTATION

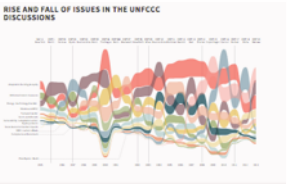
Looking at figure 1, the difference between mitigation and adaptation is evident. Terms related to the efforts to mitigate climate change organize 7 of the 12 clusters of the networks, grouped in three main semantic arenas, widely scattered across the graph ('emission reduction'; 'carbon sinks'; 'energies, technology transfer and clean development projects').

Compared to the mitigation clusters, adaptation clusters are fewer and more compact. The 3 clusters dedicated to adaptation ('environmental and social impacts', 'vulnerability and adaptation' activity and adaptive 'funding and equity') are tightly grouped at the centre of the map. This shows the difference in status of adaptation in the UNFCCC negotiations.

Where mitigation is the primary objective of the conference, and thus formulated in numerous ways, adaptation, impacts and vulnerability seem more limited in their articulation, but also more commonly connected to other issues (which accounts for their centrality in the map).

The figure also reflects the different types of contextualisation of climate change mitigation and adaptation. The success of mitigation policies can be easily monitored by the GHG emissions indicator. Thus, climate change mitigation can be promoted through the global climate regime with a clear set of instruments and mechanisms. In contrast, the debate on climate change adaptation at the global level is mainly restricted to the question of funding. When it comes to the question of which countries or regions are most vulnerable or which adaptation measure is most efficient, this has to be answered in context with the environmental and socio-economic impacts and the adaptive capacity of every single country or region (see also "Who deserves to be funded?").

Figure 1. Network of terms co-occurring in the same paragraphs of the Earth Negotiations Bulletin, Volume 12. Node position is determined by a force vector algorithm (Jacomy et al., forthcoming) bringing together terms directly or indirectly linked, and keeping away terms with fewer co-occurrences. Node size is proportional to their frequency in the corpus. Node color follows the clusters identified by the clustering algorithm. The names of the clusters have been attributed manually. A high resolution and zoomable version of this image can be found here http://medialab.sciences-po.fr/publications/misunderstandings/ (Venturini et al. 2014). Annex I explains in more detail how this map has been built.



RISE AND FALL OF ISSUES IN THE UNFCCC DISCUSSIONS

Looking at Figure 2, one will immediately notice that there is (with the exception of COP6 in the Hague) a general increase of the overall number of appearances of issues until COP16 in Cancún. This reflects the increase of the total number of participants during the COPs.

Adaptation and mitigation issues are both visible in the UNFCCC negotiations. However mitigation has been from the very beginning a top priority on the negotiations' agenda. In the first phase of the negotiations little attention was dedicated to the actions of developing countries to cope with the impacts of climate change. Except that the most vulnerable members succeeded in putting the issue of financing adaptation activities on the agenda from the first COP (see also figure 4).

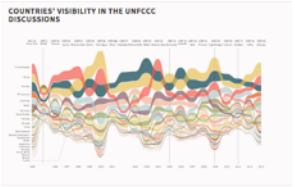
Adaptation, however, assumed greater importance in the second phase of the negotiations. With all parties facing difficulties in achieving their mitigation objectives, debates on what shall be done regarding vulnerability, climate change impacts and adaptation, as well as how to finance these actions became more relevant.

Reading the two maps (Figures 1 and 2) together, it is possible to remark that (as expected) mitigation plays a preeminent role in climate diplomacy. Mitigation constitutes the bulk of UNFCCC's discussions. Its different sub-issues (measuring GHGs, technology transfer, clean development mechanism, carbon sinks in land and forests) are spread throughout all the negotiations. Mitigation articulates the space of the debate and defines its rhythm (with the fluctuation of the debates about a binding protocol).

Adaptation, on the other hand, appears as a specific topic of the negotiation: a tightly connected group of issues located in a precise position in the map. Yet, and this was not obvious before our analysis, adaptation appears to occupy the center of the climate negotiations and has been present and highly visible from the very beginning (especially with the topic of adaptation funding). These findings challenge some of the claims in the literature about climate diplomacy about an 'adaptation turn' in the past few years of the negotiation.

When comparing the two maps another interesting explanation emerges. 'What has always been present and visible in the negotiations is not the entire discussion about adaptation, but the specific question of adaptation finance. Interestingly, this question appears to be the most marginal of the adaptation-related topics, with a position that is not structurally different from that of the topics of mitigation. An 'adaptation turn', however, can be recognized in the rise of the question of vulnerability (from COP9 to COP14) and in the more recent ascent of the question of the climate impacts (from COP15). These are the two clusters that occupy the center of Figure 1. Reading the two maps together the hypothesis can be put forward that in the past 10 years the emergence of the initial, recognizable effects of climate change has gradually occupied the center of the negotiation scene, not as much replacing previous discussions but somehow bridging together issues that would have been otherwise separate. This analytical observation, to be sure, needs to be confirmed by further analysis.

Figure 2. Stream graph of the absolute and relative visibility of issues during UNFCCC negotiations, 1995-2013. The size of each flow is proportional to the number of paragraphs in which two terms defining the issue are present. Flows are sorted according to the number of occurrences: for each COP, the highest flow corresponds to the most visible issue while the lowest corresponds to the least visible. Data source: IISD, Earth Negotiations Bulletin, volume 12.



COUNTRIES' VISIBILITY IN THE UNFCCC DISCUSSIONS

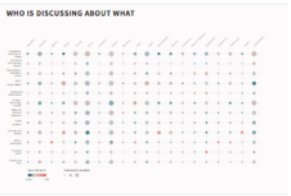
The diagram shows a remarkable stability. Most countries maintain their relative rank throughout the 19 COPs. The 10 most active countries are represented by a rather stable, small group, which includes the United States, China, Europe, Australia, and Japan. The three leaders of the negotiations – China, the United States, and Europe – are ubiquitous.

Countries also tend to be more active when they host the negotiations: Germany is first in Berlin 1995, Japan is fourth in Kyoto 1997; India is fourth in New Delhi 2002; Canada is fifth in Montreal 2005.

There are several exceptions. First, the Philippines and Bolivia, two countries from the southern hemisphere, have taken on very active roles, perhaps disproportionate with their size. Bolivia – very discreet during the first 15 COPs – has stood out from COP16 (Cancun) onwards, and has been one of the leading voices around 'loss and damages.' Bolivia often comments on issues related to the historical responsibility of developed countries and their compliance with their commitments to reduce GHGs emissions.

The Philippines' trajectory is also interesting: quite conspicuous in the early negotiations (fourth rank at the INC11 in New York and sixth rank at the COP1 in Berlin), the country steps aside during the next conferences to stand out again in Doha (COP18) and Warsaw (COP19). If the Philippines mainly speaks out on equity and 'common but differentiated responsibilities' – principle 7 of the Rio Declaration on Environment and Development – and on funding and adaptation funds, Doha and Warsaw conferences have witnessed many references to the two "unprecedented" typhoons that devastated the Philippines (Bopha/ Haiyan) at that time.

Figure 3. Stream graph of the absolute and relative visibility of the countries of the UNFCCC negotiations, 1995-2013. The size of each country flow is proportional to the number of paragraphs in which the name of the country appears. Flows are sorted according to the number of occurrences: for each COP, the highest flow corresponds to the most visible issue while the lowest corresponds to the least visible. Data source: IISD, Earth Negotiations Bulletin, volume 12.



WHO IS DISCUSSING ABOUT WHAT

Reading figures 3 and 4 together, no clear pattern exists to support the hypothesis that certain states or groups of states may be particularly active on adaptation related issues. It is possible, on the other hand, to highlight a marked difference between different adaptation related issues. While the debates about 'vulnerability and adaptation action' and 'social and environmental impact' interest the same countries, the debate about 'adaptation funding and equity' seems to happen in a separate discussion space (there is almost no matching of countries with relatively high numbers of interventions between the two issues).

Concerning 'adaptation funding and equity' countries with a relatively high number of interventions are Canada, Germany, China, Philippines, Europe, United States, South Africa, Switzerland and Japan with relatively low interventions.

The other adaptation related issues 'vulnerability and adaptation actions' and 'environmental and social impacts' show a different pattern with relatively high number of interventions from Argentina and Columbia and relatively low number of interventions from Japan, Canada, South Arabia and Tuvalu.

This is surprising as Tuvalu is a very active member of the Small Island States (AOSIS) grouping which are regarded to be most vulnerable to climate change and especially sea level rise. However, regarding the relatively high number of interventions of Tuvalu in the land use and forests theme one might assume that aspects of Tuvalu's adaptation related issues were also discussed under this topic (this needs to be confirmed by further analysis).

The visibility of some countries increases in a punctuated fashion at specific COPs. Mexico, for example, shows a rather low profile during most negotiations, but ranks fifth during COP16 (Cancun), organized in Mexico. Tuvalu's trajectory bears mentioning as well: from the Kyoto conference onwards, this small Pacific island has ranked among the 21 most visible member countries. Yet, Tuvalu also reached rank 13 in Poznan (COP14), rank 19 in Copenhagen (COP15), and rank 12 in Cancun (COP16). During these conferences, Tuvalu mainly addressed the issue of a successor to the Kyoto Protocol – the island even supports its own protocol proposition.

Figure 4. Countries issues contingency matrix, 1995-2013. Each case of the matrix contains a bubble whose size is proportional to the number of paragraphs in which the name of one country and two terms defining an issue are present together. The colour of the bubble displays the deviation of each country on each issue, that is to say whether it discussed about it more (red) or less (blue) than statistically expected. Data source: IISD, Earth Negotiations Bulletin, volume 12.

On digital data labour

Venturini, Tommaso, Mathieu Jacomy, Axel Meunier, and Bruno Latour (2017)
"An Unexpected Journey: A Few Lessons from Sciences Po Médialab's Experience"
Big Data & Society 4(2): 205395171772094
http://journals.sagepub.com/doi/10.1177/2053951717720949

Venturini, Tommaso, Anders Munk, and Axel Meunier (2018)
"Data-Sprint: A Public Approach to Digital Research"
In ***Interdisciplinary Research Methods***, eds. Celia Lury et al.
http://www.tommasoventurini.it/wp/wp-content/uploads/2016/08/Venturini_Munk_Jacomy_2016-DataSprints.pdf

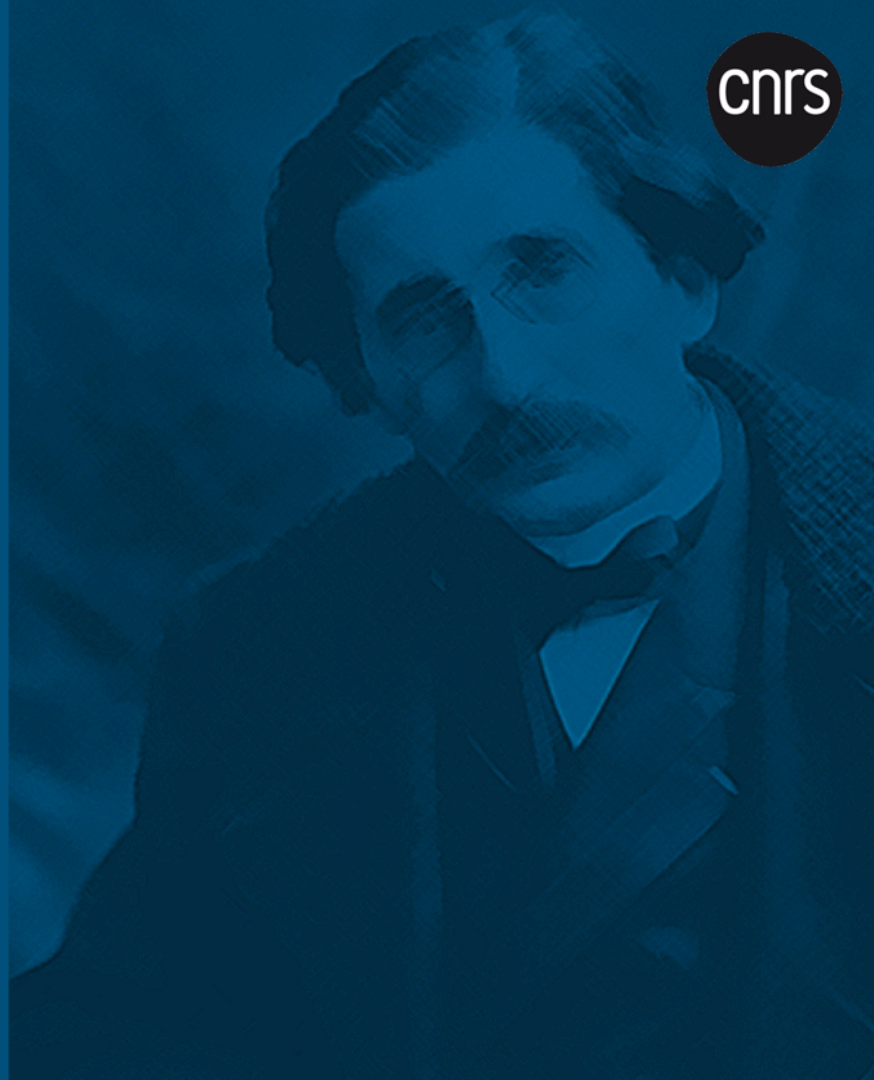

Data exploration is not
a form of distant reading

Critical proximity

Monadologie et sociologie (Gabriel Tarde, 1883)
Monadology and Sociology (2012 translation)

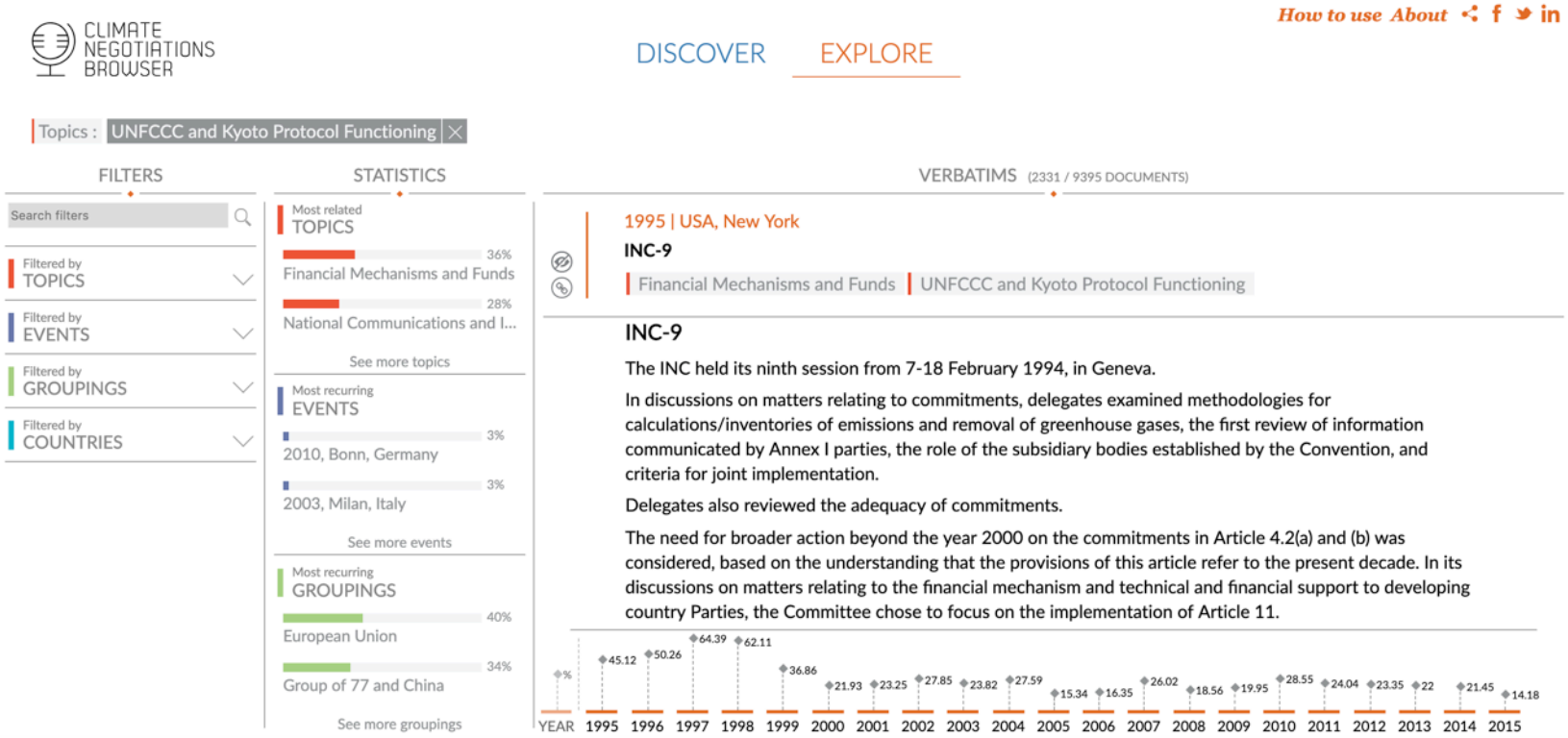
“when we arrive at human societies;
here we are at home, we are the true elements of these coherent systems of persons which we call cities or states, regiments or congregations. We know everything that goes on in them”

(pp. 36)



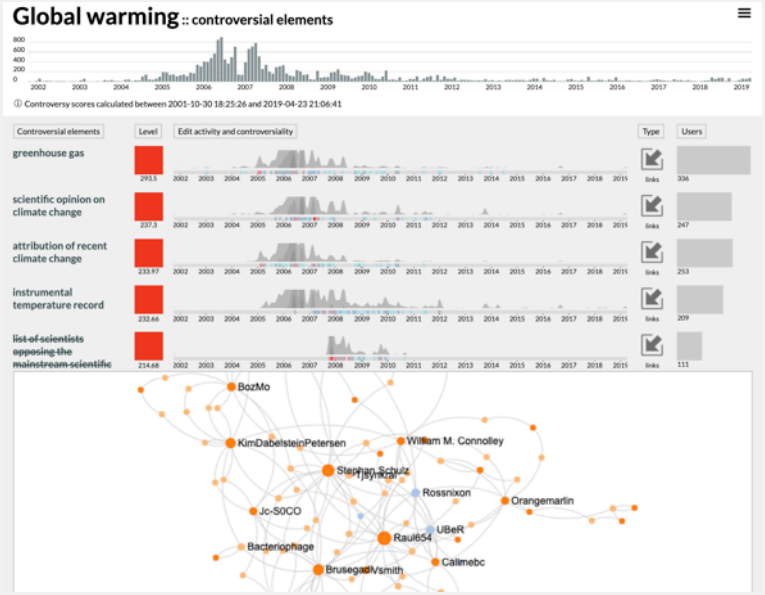
Dataset navigation

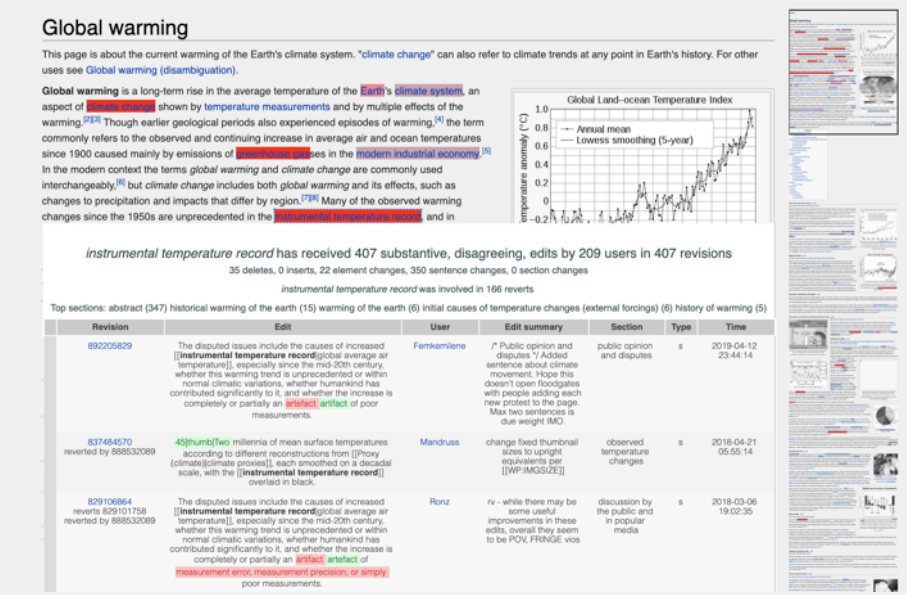
climatenegotiations.org



Dataset navigation

contropedia.net



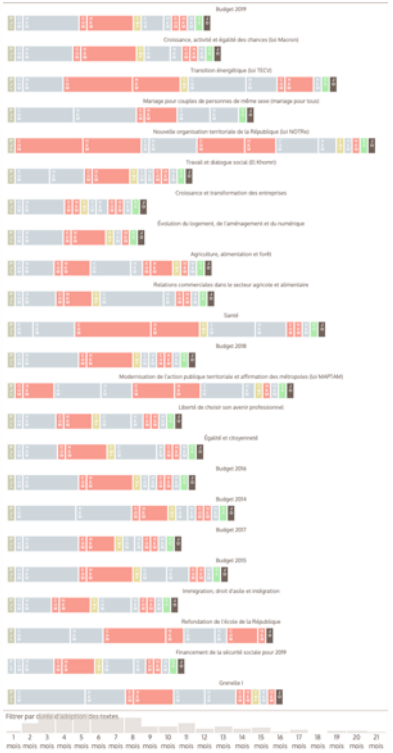


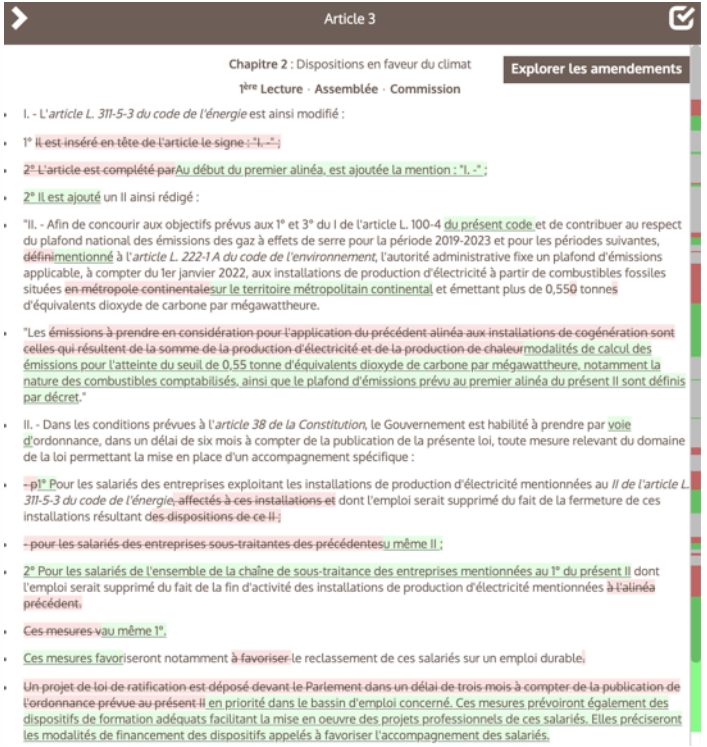
Borra, E., Weltevrede, E., Ciuccarelli, P., Kaltenbrunner, A., Laniado, D., Magni, G., Mauri, M., Rogers, R., Venturini, T., 2015. “Societal Controversies in Wikipedia Articles”

Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems - CHI ’15, , 193–96.

Dataset navigation

lafabriquedelaloi.fr





On quali-quantitative exploration

Venturini, Tommaso. 2019. “The Fish Tank Complex of Social Modelling”
In ***Frontiers of Social Science: A Philosophical Reflection (Forthcoming)***,
eds. Michiru Nagatsu and Attilia Ruzzene. New York: Bloomsbury.

Gray, Jonathan, Tommaso Venturini, and Rufus Pollock. 2015.
“Making Climate Negotiations Public”
Open Democracy, (December 20, 2015).
www.opendemocracy.net/uk/jonathan-gray-tommaso-venturini-rufus-pollock/making-climate-negotiations-public

Venturini, Tommaso, Dominique Cardon, and Jean-Philippe Cointet. 2015.
“Méthodes Digitales: Approches Quali/Quanti Des Données Numériques”
Réseaux, Special Issue 188
http://www.cairn.info/revue-reseaux-2014-6-page-9.htm


FORTH
COM
ING
2015
2013
2012
2011
2010
2009
Dankeschön!
tommasoventurini.it