

Socio-informatics and the study of complex processes

Why we need an alternative methodological way

**Francis Chateauraynaud
EHESS, Paris**

MIT, 13 Feb. 2009

How to actually follow authors-actors : the need for a sociological laboratory :

“Commenting the famous Latour’s watchword “follow scientists and engineers through society”, S. Jasanoff notes that “simple to state, that injunction has proved not so simple in practice”, because the “pathways that scientists, and their close kin in medicine and engineering, trace through society in modern times have grown increasingly complex”

S. Jasanoff, “Making Order: Law and Science in Action”, in Handbook on Science and Technology Studies, 3rd ed., MIT Press, 2008, p. 761.



CAQDAS networking project

Computer Assisted Qualitative Data Analysis

What is the CAQDAS Networking Project?

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QUIC

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Links:

We provide practical support, training and information in the use of a range of software programs designed to assist qualitative data analysis. We also provide platforms for debate concerning the methodological and epistemological issues arising from the use of such software packages and conduct research into methodological applications of CAQDAS under our new research project; [Qualitative Innovations in CAQDAS \(QUIC\)](#).

We have no commercial links to any software developer or supplier. The project is in receipt of its seventh consecutive term of funding by the UK Economic and Social Research Council (ESRC). We are currently funded by the ESRC [National Centre for Research Methods \(NCRM\)](#).

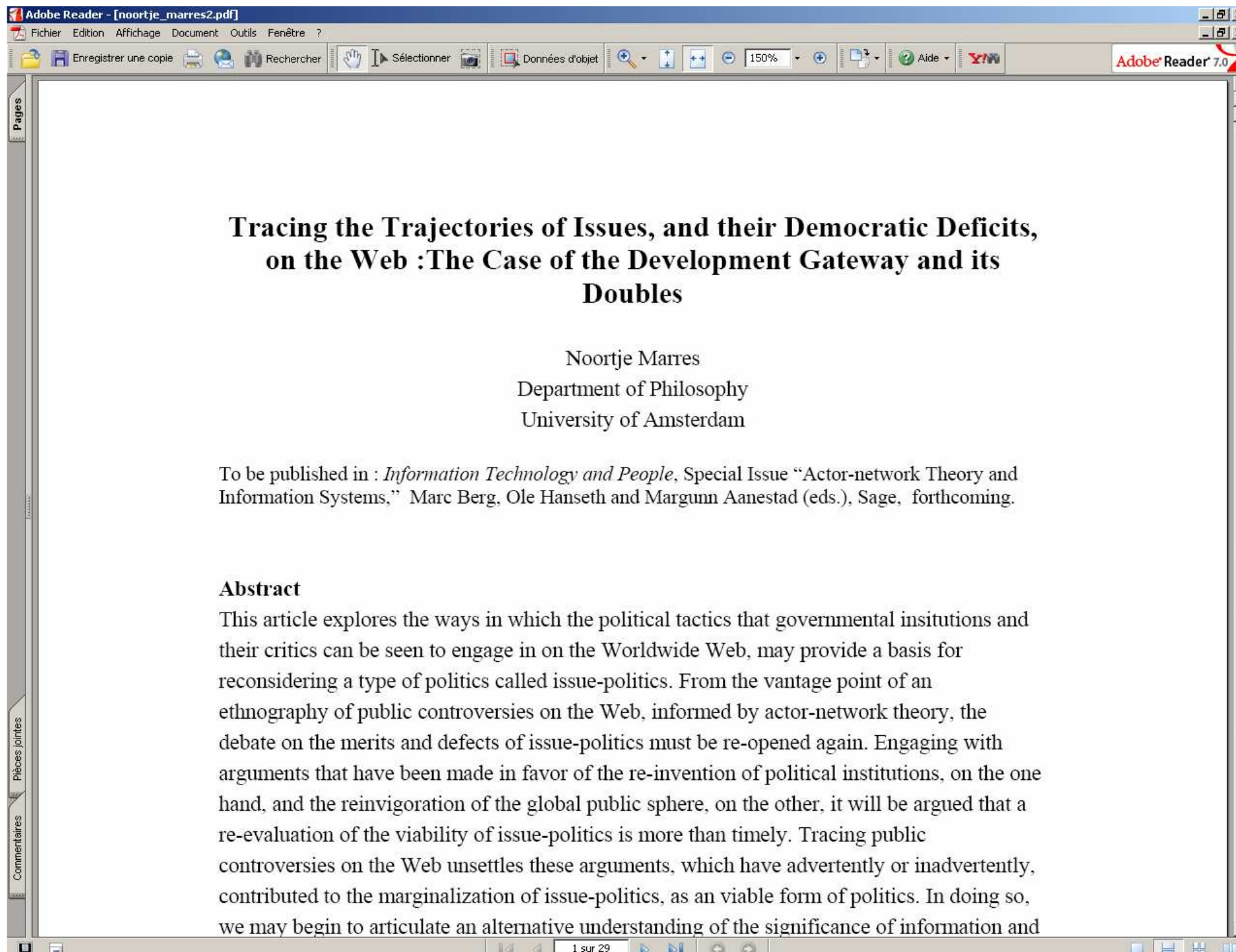
Who is involved?

Anyone interested in qualitative research in the social and behavioural sciences can participate. See [Contacts](#) for a list of project staff.

Qualitative Innovations in CAQDAS (QUIC)

The CAQDAS Networking Project is delighted to be in receipt of Node funding from the ESRC [National Centre for Research Methods \(NCRM\)](#). QUIC builds on the work the CAQDAS Networking Project have been undertaking since 1994 to further explore technological and methodological developments in qualitative software and provide additional training and capacity building opportunities to fill identified gaps in support for software users.

RECENT DEVELOPMENTS - LATEST RESOURCES



The Issue Crawler: The Makings of Live Social Science on the Web

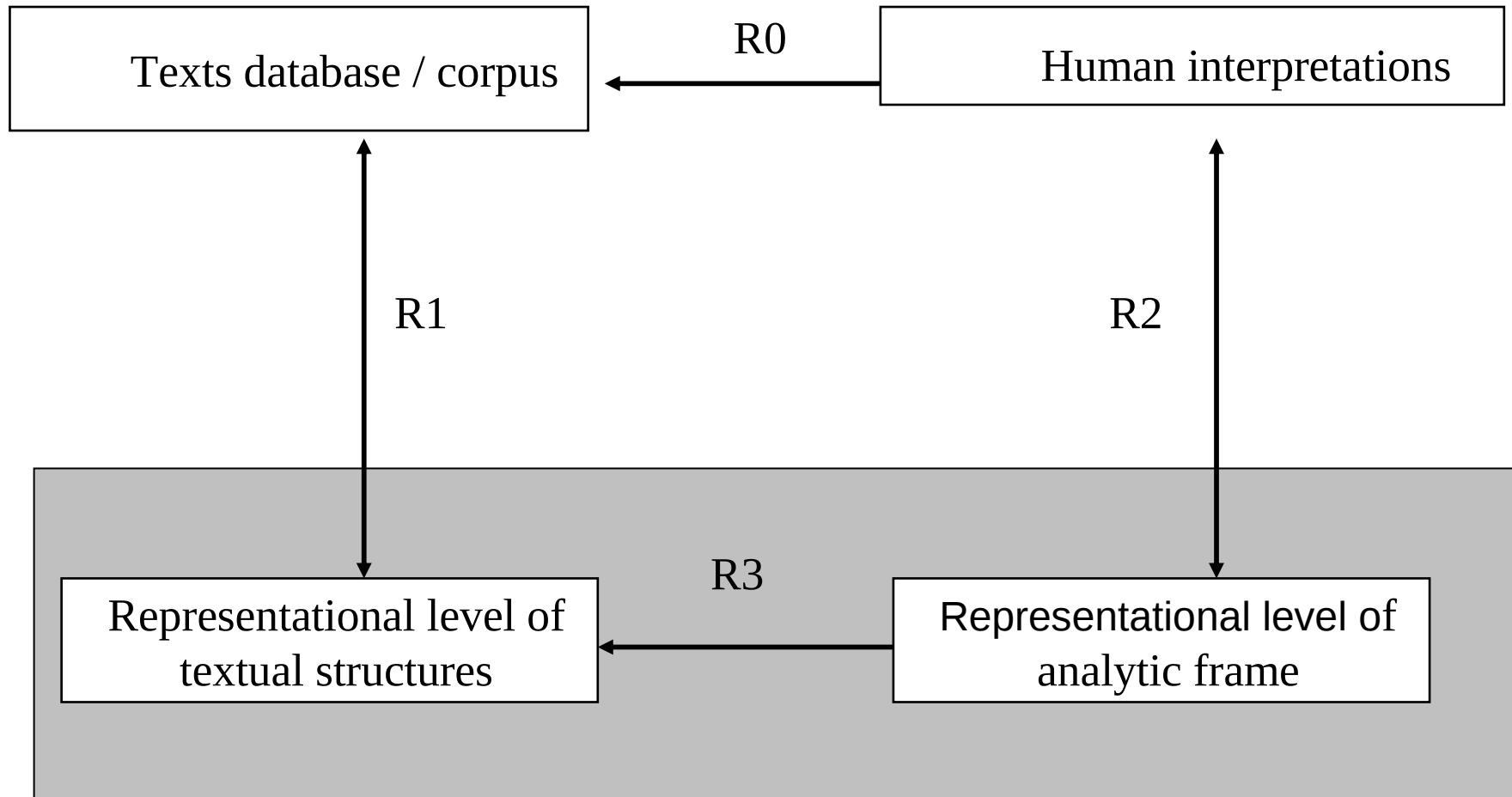
The Issue Crawler project at <http://issuecrawler.net> is really three in one - a software, visualisation project and 'live' social science project. Where the first, the software project, is concerned, we have built the Issue Crawler - a remote, server-side machine, operated through a desktop browser, that crawls a set of specified sites, brings back the sites' outgoing links, looks for common outgoing links (the co-links) in up to three iterations, and delivers the co-links by domain name (e.g., greenpeace.org) and by top- and second-level domain suffix (.gov, .com, .org, .edu, and their country-specific, subdomain equivalents) to an XML file. The Issue Crawler output, the XML file, is rendered into maps, dubbed 'issue network' maps; they make up an issue network atlas in an archive. These maps capture the state of a network of heterogeneous actors, configuring around an issue. Finally, we are able automatically schedule regular queries on the issue networks to watch them evolve over time.

I first hired two designers, graduates of the Design Academy in Eindhoven, to do not only the look, feel and object design of the piece of software as well as the entire site, but to deal with the myriad problems of navigation and use sense. I also secured 'proper users' at this early stage, former students of mine from the University of Vienna, who'd already suffered through 3 of my classes and who understand the theory and method of network location and issue mapping. These folks would be the co-cartographers and the user-testers, and attend a series of four mapping workshops on the 'Social Life of Issues', where we would push the theory and standardise the practice. (See <http://www.govcom.org/workshops.html>)

The Narrative Specification defined a 'narrative algorithm' which crawls sites, and returns co-links. It was specified to bring back not co-sites, but co-pages. This was the first conundrum. If you generate a map of relevant pages related to an issue, and more than one of those pages come from a single organisational site, the map may look strange. What's Greenpeace doing on the map three times? On the other hand, we are looking for the most relevant material on the web per issue. If geocities or oneworld is hosting a set of distinct sites, then we don't want the crawler to bring back 3 geocities sites, and 4 oneworld sites, if geocities and oneworld are only hosting others - organizations divided from a mother host by a mere slash. Then you'd have quite the inaccurate picture. So the solution is two-fold. We build a 'switch' that allows the cartographer to 'match pages' or 'match sites', and once the network is returned to you, you may 'edit' it. If you've matched pages, you select the page of a site that

How to equip our sociology when actors mobilize many tools, produce so many discourses, testimonies and expertises, and when Internet provides **massive information, though very difficult to evaluate ?**

We call **socio-informatics** the set of sociological tools built around **Prospero software suite**. The main goal is to provide instruments for analyzing the operations that persons and groups perform when they resort to alarm, criticism, claim or political action.



R0 : classical hermeneutics

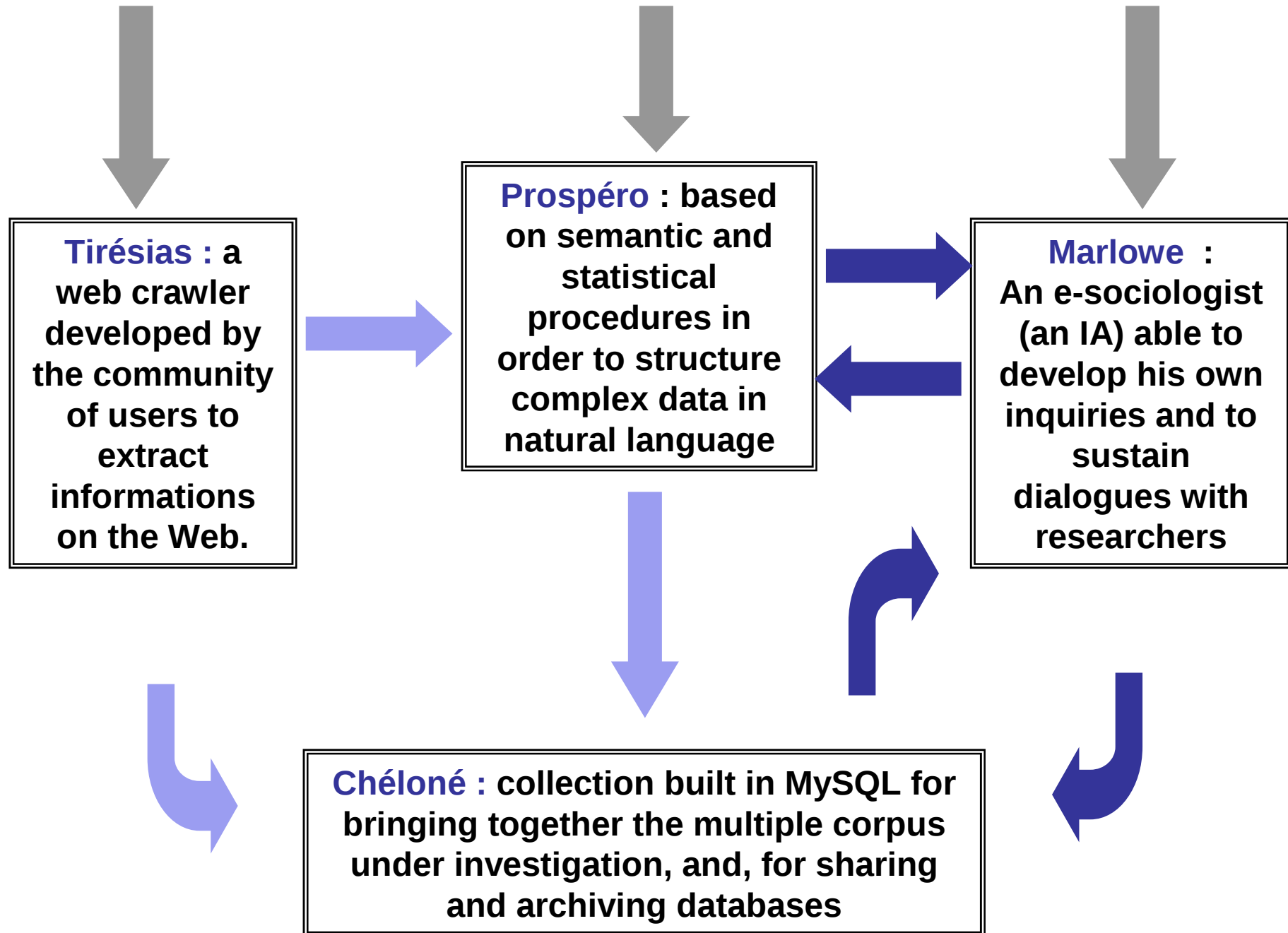
R1 : translating texts in a language of description

R2 : formalizing a set of concepts and analytical tools

R3 : dynamics of learning and inference

We designed methodological solutions in a distributed cognitive device : thus the procedures of knowledge are distributed in four tools, each one built upon a principle of symmetry between automats or bots on one side, and human researchers on the other side

- *1. Prospéro*
- *2. Marlowe*
- *3. Tirésias*
- *4 Chéloné*



To what kind of « complexity » do we refer by using an expression like « complex issues » ? Complexity refers to processes in which no actor can impose unambiguous and definitive interpretation, even if those processes can produce, as outputs, diverse representations and objects, rules or standards, more or less stabilized.

There is always uncertainty, including about the closure of the process or the settlement of the dispute - which can reappear at any time. We observe an alternation of "crisis periods" and of "silent periods". Taken in long period, a public issue is transformed by a collective work on cognitive aspects (studies, expertises, modelling) and a political work on representational stances (mobilization, debate, administrative or judicial procedures).

- A set of salient events or precedents are used by actors in order to produce their predictions or expectations. One main object of disputing process is precisely to determine what must be the future: what can we do? What seems to be irremediable ? What are the consequences of past, present or future actions ?
- Making the sociology of such complex processes supposes to take seriously the changes of temporal scales, the transformations of socio-political configurations, and the variations in sets of actors and arguments. For instance, how public arguments do incorporate scientific researches - and in some cases social sciences studies ?

We have distinguished four aspects in order to build models, cognitive structures and algorithms designed to follow complex processes

⊕	Semantics	What meaning do the actors give to entities and relationships, to arguments and narratives ? What world do they represent in texts and discourses ? What kinds of discursive regimes do they use to convince and persuade ?
	Statistics	How to measure weights, distributions, presences and absences, links or absence of links? How to identify the process of fixation of different formulas and the hierarchy between most frequent arguments ? What are the threshold of detection for emerging forms and topics ? Are we able to measure the impact of a new configuration of signs for the future ?
	Historicity	How are transformed sets of actors and arguments? What are the marking events and what kind of temporal orientation does an issue involve ? How are engaged forgetting, memory, silence, emergency or irreversibility ? What are the relevant time scales for players?
	Pragmatics	How does appear the framework, the context or the arena of mobilization in which discourses and texts have been produced ? What qualities are attributed to the speakers ? Is it possible that a same argument crosses different supports or media without being completely transformed ? Do the reader able to jump in the arena with other authors-actors? What leads to the end of dispute ? What are the speeches or texts that involve institution acts ?

□

How do Prospéro work ?

There is not a central algorithm, but a long series of operations designed to realize the different translations between texts complexity and a space of computation based on sociological concepts

1. Indexation with 3 main characteristics : cumulative dictionnaires ; distinction of few basic types (entities, qualities, verbal relations, modalities, numbers, toolwords ...) ; constructing a internal representation of each texts like a series of phrases
2. instanciation of concepts and categorization
3. distributing texts through external items : only three of them are necessary : title, author and date
4. producing statistical and relationnal structures, texts abstracts and specific properties like ascription of qualities to the different entities
5. identifying emerging topics and distribution of concepts through time
6. allowing user to build more complex objects like formulas, discursive configurations and to sample his corpus in any sub-corpus he needs for producing relevant comparisons
7. Transfert to different devices (spreadsheets ..) or network analysis tool (Pajek ...)

Nanotechnology News - Mozilla Firefox

Fichier Édition Affichage Historique Marque-pages Outils ?

http://www.nanotechproject.org/news/

Les plus visités Débuter avec Firefox À la une

The Project on Emerging Nanotechnologies

HOME NEWS

Project News



FEBRUARY 4, 2009
Nanotechnology and the Consumer
 What is nanotechnology? How will it affect our lives? And, why should we care? These are just a few of the questions addressed in *Talking Nano*, a wide-ranging 6-DVD released by the Boston Museum of Science. The set that includes presentations by noted researchers with a consumer products lecture by Project director David Rejeski. [video](#)



JANUARY 28, 2009
World's First Mandatory National Nanotech Requirement Pending
 Canada is reportedly planning in February to become the first nation in the world to require companies to detail their use of engineered nanomaterials. The information gathered under the requirement will be used to evaluate the risks of engineered nanomaterials and will help to develop appropriate safety measures to protect human health and the environment.



JANUARY 27, 2009
Ethical Evaluations of Nanotechnology
 Recent action in Congress to reauthorize the U.S. federal nanotechnology research program offers the chance to address the social and ethical issues concerning the emerging scientific field, experts say. "It is crucial to address social and ethical issues now as we consider both the substantial potential risks of nanotechnology and its possible significant contributions to our well-being and environmental sustainability," says Ronald Sandler, Northeastern University philosophy professor and author of a new report released today by the Project.



JANUARY 15, 2009
Nanotech Safety High on Congress' Priority List
 The House Science and Technology Committee introduced legislation today that highlights the growing attention on Capitol Hill to the need to strengthen federal efforts to learn more about the potential environmental, health and safety (EHS) risks posed by engineered nanomaterials. Introduction of the bill

news

For the Media

Nanotechnology RSS Feed from the Project on Emerging Nanotechnologies

Search News

Terminé

Démarrer 2 Marloweb Courrier en... Nanotech... Boston 2009 Microsoft P... FR

Google 15:14

Nanodot: Nanotechnology News and Discussion - Mozilla Firefox

Fichier Édition Affichage Historique Marque-pages Outils ?

http://www.foresight.org/nanodot/wp-rss2.php

Google

Les plus visités

Nanodot: Nanotechnology News and Discussion

the original nanotechnology blog

[Insurance industry looking for more data on nanotechnology risks](#)
lundi 26 janvier 2009 09:37

Last September we wrote that one insurer would "no longer insure against bodily injury, property damage, or personal and advertising injury related to the actual, alleged, or threatened presence of or exposure to nanotubes or nanotechnology in any form." Now Christine Peterson passes along this item from Rhitu Chatterjee writing in the American Chemical Society [...]

[Molecular motors progress for biosensors supports need for open source sensing](#)
vendredi 23 janvier 2009 09:09

In light of the call for open-source sensing arising from nanotech-based environmental monitoring, it is interesting to note this recent progress in building a nanotech-powered biosensor powered by molecular motors.

[Oral anticancer therapy through nanotechnology?](#)
jeudi 22 janvier 2009 08:18

An international team of investigators has demonstrated in mice a nanotech method of orally delivering an anticancer therapy that would normally have to be delivered by injection.

[Nanotechnology oversight issues moving forward in Congress](#)
mercredi 21 janvier 2009 09:52

The Project on Emerging Nanotechnologies, via AAAS EurekAlert, brings us an update on federal efforts to address the potential environmental, health and safety (EHS) risks posed by engineered nanomaterials. "New House bill addresses need for more risk research, oversight": The House Science and Technology Committee [on January 15] introduced legislation that highlights the growing attention on [...]

[Nanotechnology method to shut down cancer inches toward clinical trials](#)
mardi 20 janvier 2009 08:15

Having demonstrated a year ago an effective nanotech method for shutting down specific gene expression in a mouse model of colitis, a team of researchers at Tel Aviv University is preparing to test this method in clinical trials for blood, pancreatic, breast and brain cancers.

[Preparing semiconducting carbon nanotubes for nanotechnology applications](#)
mardi 20 janvier 2009 01:36

A method that eliminates metallic single walled carbon nanotubes from mixtures leaving fully functional semiconducting SWCNTs may open the way for various nanotech applications that require pure semiconducting SWCNTs.

[Civil nanotechnology: Open source sensing in Seed magazine](#)
samedi 17 janvier 2009 00:02

From the February 2009 issue of the "science is culture" publication Seed magazine, not yet online: Hypothesis: Civil Nanotechnology Starting in 2009, nanotech-based sensing will enable a level of environmental monitoring that could help reduce pollution tremendously. Such devices could be of immense benefit to the environment, but unfortunately, without careful attention they will trigger serious privacy and civil-liberty concerns that [...]

[Update on promise of nanotechnology for radically extended life span](#)
vendredi 16 janvier 2009 08:22

The January issue of *Life Extension Magazine* offers a report on the eventual promise of medical nanobots.

[Error correction in nature's nanotechnology](#)
jeudi 15 janvier 2009 08:31

The ribosome has a previously unsuspected method of error correction—in this case monitoring the fidelity of protein synthesis *after* the peptide bond is formed.

[Discovery of repulsive Casimir forces might eliminate friction as a concern in nanotechnology](#)
mercredi 14 janvier 2009 08:52

Terminé

Démarrer

Raccourci vers Marl... frame_1

Nanodot: Nanote...

I:\Textes en chanti...

Séance Chimères n...

FR Bureau

Mes documents

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Stimulus Debate Highlights Need for Focus on Nanotech Risks

New nano reauthorization bill includes crucial safety research mandates

Washington, DC – The nearly \$800 billion stimulus package being debated in Congress contains a number of measures intended to improve information technology, infrastructure and the energy economy in the United States – all areas that will be greatly aided by nanotechnology. However, without an increased focus by the federal government on possible risks posed by engineered nanomaterials, many of the potential societal advancements created by the emerging technology could be compromised.

The importance of understanding the possible risks posed by engineered nanomaterials is a centerpiece of legislation passed February 11 in the House of Representatives. The bill, the [National Nanotechnology Initiative Amendments Act of 2009 \(H.R. 554\)](#), which passed by a voice vote, highlights the growing need to learn more about the possible environmental, health and safety dangers posed by some nanoscale materials. The Senate is expected to take up a companion bill later this year.

Nanotechnology – which some scientists and business leaders hail as the next Industrial Revolution – is a key part of President Barack Obama's research and development strategy, particularly in the energy sector. Nanoscale-lithium batteries will be in the next generation of electric cars, and nanoscale materials are being used in solar panels that will deliver power to countless homes, businesses and government buildings.

 FEBRUARY 11, 2009

SUMMARY

The nearly \$800 billion stimulus package being debated in Congress contains a number of measures intended to improve information technology, infrastructure and the energy economy in the United States – all areas that will be greatly aided by nanotechnology. Today, the House of Representatives passed legislation that makes the importance of understanding the possible risks posed by engineered nanomaterials a centerpiece of the government's reauthorization of funding for nanotechnology research. The bill highlights the growing need to learn more about the possible environmental, health and safety dangers posed by some nanoscale materials.

TOPICS

news

[News Archive](#)[For the Media](#)[Nanotechnology RSS Feeds](#)
[the Project on Emerging Nanotechnologies](#)[Search News](#)

View on a key composed topic and its distribution in the corpus on nanotechnologies

The screenshot displays a software interface for analyzing a corpus. The main window, titled 'PERSONNAGES DU ETRES FICTIFS', shows a list of fictional entities on the left and a detailed view of the 'nanobiotechnology' topic on the right.

PERSONNAGES DU ETRES FICTIFS

Etres Fictifs	Type	Présence
86		100.00% [24/24]

nanobiotechnology

Corpus	Anti-corpus
Roco99622.txt [2] 22/6/1999	nanotechnow04712.txt
Smalley99622.txt [1] 22/6/1999	nanotechnow05823.txt
Converging Technologies1.txt [1] 1/7/2002	nanotechnow02619.txt
ETC7.txt [1] 23/7/2002	nanotechnow02626.txt
ETC6.txt [8] 23/1/2003	Rej07C01.txt
NIST03212.txt [2] 12/2/2003	Rej07801.txt
ETC3.txt [1] 14/4/2003	Rej04527.txt
ETC2.txt [3] 16/5/2003	Re03630.txt
ETC0.txt [11] 1/6/2004	JolyKaufmann_sac final.txt
nanol3.txt [1] 1/10/2004	nanotechproject06504.txt
Bruce05715.txt [1] 15/7/2005	Rejeski_Testimony_FULLTEXT5-4-C
ETC05731.txt [4] 31/7/2005	nanotechproject07104.txt
ETC06.911.txt [1] 11/9/2006	nanotechproject07207.txt
	nanotechproject06C05.txt
	nanotechproject06B16.txt
	nanotechproject06B16b.txt
	nanotechproject06A23.txt

Liste des Auteur(s), qui utilisent le plus nanobiotechnology

Auteur
29 ETC
2 NIST
2 Roco
1 Meyer and Kuusi
1 Bruce
1 Smalley
1 Roco and Bainbridge

Sélection du filtrage

Règle d'interprétation de la mesure

En théorie il faut se caler sur la va

Les éléments qui sont très supérie

augmentation significative (notam

Les éléments très inférieurs à 100

significative (notamment < 50).

C:\corpus_us\nano_anglais\nano_anglais.prc

Fichier Concepts Modes d'accès Inférences Temporalités Outils Investigateur Animation

Accès par les entités

4771 NANOSCIENCES-AND-TECHNOLOGIES@
 1531 research
 1417 SCIENCE@
 1280 technology
 1230 USA@
 1196 human
 902 technologies
 770 materials
 760 products
 747 development
 713 use
 680 world
 671 SCIENTISTS@
 616 information
 593 health
 572 people
 571 Drexler
 565 risks
 563 time
 551 nanoparticles
 528 STATE-ADMINISTRATION@
 515 nanoscale
 510 control
 509 particles
 504 process
 499 work
 498 nature
 498 report
 497 future
 480 life
477 TRANSHUMANISM@
 471 brain
 469 design
 454 way
 442 industry
 435 CONVERGENCE@
 429 "

Entités et Fictions

☒ poids
☐ Textes
☐ Pondéré
☐ Auteurs
☐ alphabétique

20138

Liens E
 Liens Q
 Intersect
 Inco
 Gra
 Copie
 Distribution
 Distri
 Distrb
 Expression
 Lier à v
 Lier à v
 Lier à v

Rechercher

Rang 30

NYT90A28.txt: position 1/174 : 28/10/1990

JET08901.txt: position 157/174 : 01/09/2008

0 du 28/10/1990 au 1/10/2003
 1 du 1/10/2003 au 1/12/2004
 2 du 1/2/2005 au 1/4/2005
 3 du 1/4/2005 au 1/9/2008

21 technologies
 17 human
 15 ideals
 14 transhuman
 14 technology
 12 ethics
 8 struggle
8 philosophy
 6 Bostrom
 6 humans
 6 ontology
 6 future
 6 basis
 6 posthumanity
 6 sport
 5 level
 5 argument
 4 kinds

18 people
 18 technologies
 15 human
 12 enhancement
 10 technology
 10 lifestyle
 9 life
 9 means
 8 choices
 7 development
 7 future
6 SCIENCE@
 6 beliefs
 6 humans
 6 posthumanism
 6 idea
 6 attitudes
 6 concepts
 6 progress
 5 choice
 5 Technology
 4 use
 4 Vol
 4 Journal of Evolution
 4 approach
 4 philosophy
 4 Quantum
 4 introduction
 4 notion
 4 human being
 4 improvement

nombre de périodes : 4

copier Reconfigurations successives Fermer

C:\corpus_us\nano_anglais\nano_anglais.pr

Fichier Concepts Modes d'accès Inférences Temporalités Outils Investigateur Animation Aide

Accès par les entités

435 CONVERGENCE@
431 cells
426 systems
423 issues
412 Technology
412 Research
409 risk
393 system
375 product
374 EUROPE@
370 body
369 society
366 energy
363 size
357 power
357 environment
347 nanomaterials
345 years
337 surface
336 INTERNET@
335 applications
330 case
330 University
328 carbon
327 molecules
320 humans
320 knowledge
314 level
306 form
302 properties
298 EPA@
297 devices
294 EXPERTS-INVESTIGATORS@
294 European
292 market
291 safety

Entités et Fictions

☒ poids
☐ Textes
☐ Pondéré
☐ Auteurs
☐ alphabétique

Enoncés
Réseau global
Réseaux locaux
Anti-Réseau
Evolution/réseaux
Grappes

20138

Liens Entités-Qualités
Liens Qualités-Entités
Intersection des réseaux
Incompatibles
Grand tableau
Copie vers tableau
Distribution/entité -> tableau
Distribution/Poids
Distribution/Textes
Expressions ReType

Lier à une catégorie

Lier à un être fictif

Lier à une collection

Rechercher environ

Rang 30

NYT90A28.txt: position 1/174 : 28/10/1990

JET08901.txt: position 157/174 : 01/09/2008

Liste des qualités attribuées

1164 new
513 public
503 technological
409 social
358 molecular
351 environmental
349 potential
344 different
302 scientific
301 chemical
298 National
290 New

Entités qualifiées

21 risks
21 ethics
21 impacts
18 implications
14 issues
12 health
10 applications
10 impact
9 concerns
9 philosophy
8 protection
8 ethicists

2767

Accès Enoncés Fermeture

risks

Corpus Anti-corpus

NYT02819.txt nanotechnow04712.txt

Liste des Auteur(s), qui utilisent le plus risks et environmental

611 Nanotech Project
535 Weiss
295 Lewenstein
239 Rejeski
215 Committee for Prevention and Precaution (French)
193 EPA
192 New York Times
61 ETC
30 Project on Emerging Nanotechnologies

Sélection du filtrage

Auteur

Règle d'interprétation de la mesure des écarts :
En théorie il faut se caler sur la valeur 100
Les éléments qui sont très supérieurs à 100 présentent une augmentation significative (notamment > 200).
Les éléments très inférieurs à 100 présentent une chute significative (notamment < 50).

seuil d'exclusion :

copier Détails Vue/Texte copier Vue/Texte Fermeture

View through the entry concerning "authors-actors"

Nouvelle version

63 Nanotech Project

25 New York Times

12 ETC

5 Rejeski

2 Bainbridge

2 EPA

2 Smalley

2 Hughes

2 Bostrom

2 Miah

2 Bensaude-Vincent

1 Harper

1 Mize

1 Buhro

1 Henderson

1 Joly and Kaufmann

1 Maynard

1 Lee

1 International Coalition of NGOs

1 Brice Laurent

1 Forman

1 IEET

1 Dvorsky

1 Walker

1 Lin and Allhoff

1 Kansa

1 Project on Emerging Nanotechnologies

1 Committee for Prevention and Precaution (French)

1 McGee

1 Roco and Bainbridge

1 Nordmann

1 Cameron

1 Kumar

1 Roco

705 NANOSCIENCES-AND-TECHNOLOGIES@

225 research

168 USA@

135 STATE-ADMINISTRATION@

131 risks

130 products

119 SCIENCE@

116 Project

97 safety

95 report

92 Maynard

83 FDA@

83 Emerging

78 health

76 nanomaterials

74 risk

71 EPA@

... 47 EPA

... 24 Environmental Protection Agency

71 Rejeski

68 information

64 PEN

61 food

60 materials

58 Research

6 LCA

6 Administrator

6 TRI

5 Disc

5 Partner

5 co-author

5 Highlights

5 Kahan

4 RFF

4 Kuzma

4 agrifood

4 Brothers

4 Obama

4 Listen

4 Cutting-Edge

4 Carothers

3 STATEMENT

571 Drexler

477 TRANSHUMANISM@

288 patent

272 ETC@

269 vasculoid

247 enhancement

237 TEKS

226 death

225 person

215 blood

195 Smalley

193 nano-scale

189 idea

182 argument

181 God

179 techniques

entités

Comparaison

Sortie

Première contribution : 4/ 5/2006

Dernière contribution : 4/ 2/2009

Nombre de pages : 113.59

Nombre de textes : 63

Enoncés

Enoncés

Enoncés

☒ Elements spécifiques

☒ Elements absents

C:\corpus_us\nano_anglais\critical point of view1.frm

Désignation des classes de formules

Créer

Modifier

Supprimer

23 Critical point of view

Ouvrir

☐ Intra-é

Corpus

Anti-corpus

Roco99622.txt [1]

Bruce05715.txt [1]

nanotechnow04712.txt

nanotechnow05823.txt

nanotechnow02619.txt

nanotechnow02626.txt

Rej07C01.txt

Rej07801.txt

Rej04527.txt

Bruce05715.txt

C:\corpus_us\nano_anglais\nanotechnow04712.txt 174sur 174

Composition des formules/Visualisation des résultats

22 /CAT_QUALITE='Critical feature' /ENTITE of /ENTITE

1 /ENTITE \\'s /CAT_QUALITE='Critical feature' /ENTITE

2 critical areas of research

2 ambiguous concept of humanness

1 partial pressure of O2

1 false sense of eternity

1 erroneous view of human

1 frivolous waste of money

1 worst effects of climate

1 biased selection of MPAs

1 arbitrary number of atoms

1 critical mass of resources

1 insufficient level of human

1 partial list of nanoparticle

1 false comfort of isolationism

1 suspected violation of Germany

1 critical assessment of Drexler

1 speculative Sphere of knowledge

1 critical areas of nanotechnology

1 false impression of inevitability

Interrompre

Calcul

Résultats

tout sélectionner

annuler sel

C:\corpus_us\nano_anglais\Roco99622.txt

critical areas of research

[TEXTE :C:\corpus_us\nano_anglais\Roco99622.txt / AUTEUR : Roco / date:22/06/1999]

énoncé n° : 159

There are critical areas of research and development that are being ignored by industry or have significant underinvestment .

C:\corpus_us\nano_anglais\Bruce05715.txt

critical areas of research

[TEXTE :C:\corpus_us\nano_anglais\Bruce05715.txt / AUTEUR : Bruce / date:15/07/2005]

énoncé n° : 353

New techniques for renewable energy generation , energy conservation and storage are critical areas of research and development .

Raccourci vers

Entre croisé...

Raccourci vers

AFSSET PC ...

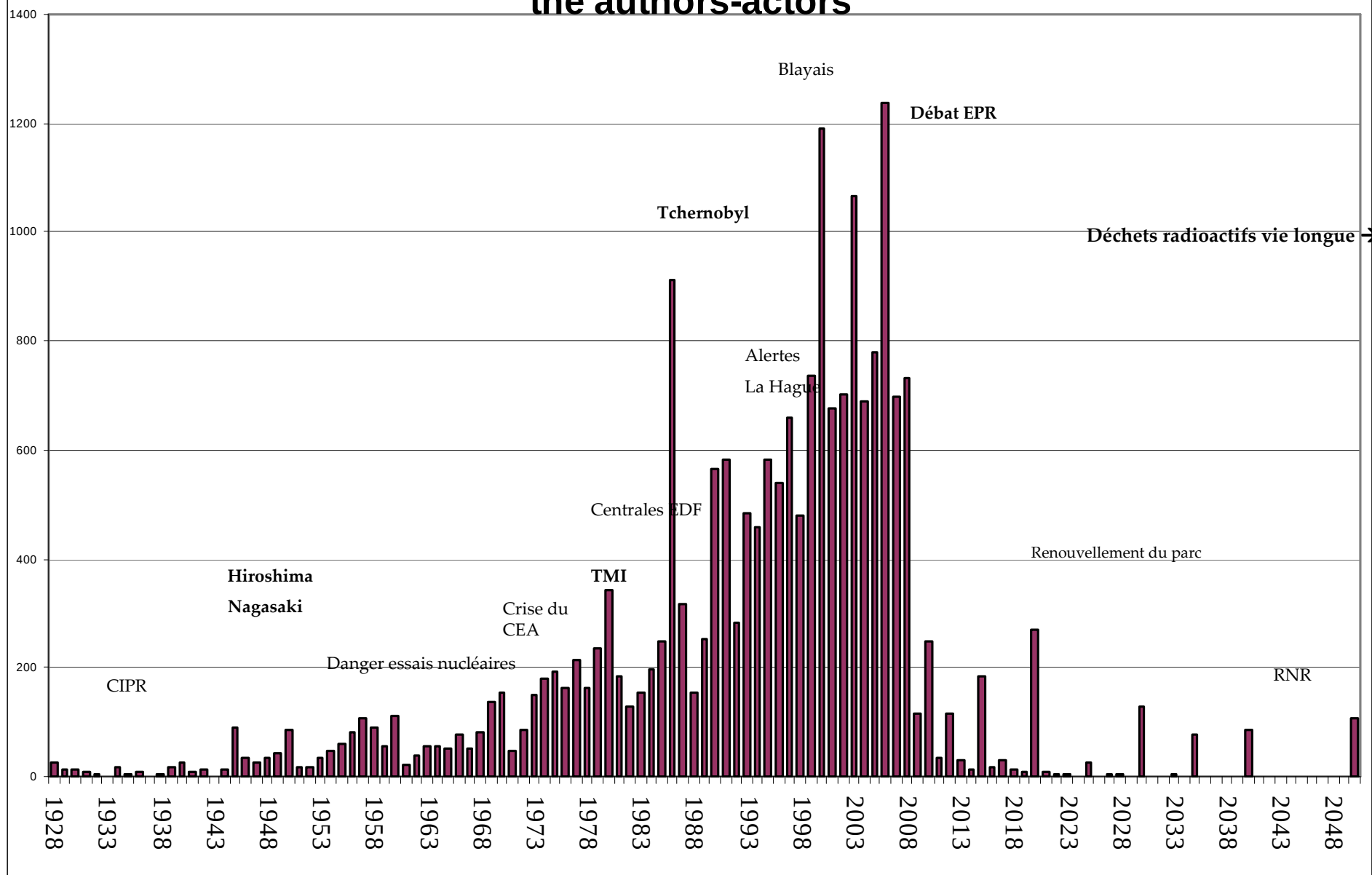
Semantic categories designed to identify and map discursive regimes

The screenshot displays a software interface for semantic analysis. The main window is titled "C:\corpus_us\nano_anglais\nano_anglais.prc" and contains a menu bar with options: Fichier, Concepts, Modes d'accès, Inférences, Temporalités, Outils, Investigateur, Animation, Aide. Below the menu bar, there are two main panels. The left panel, titled "catégories instanciées", lists various semantic categories such as "2341 Factuality", "1880 Economy", "1788 Calculative Rationality", "1347 Rationality based on the Most Advanced Techn", "1296 Controversy", "1279 Alarm and Danger", "1274 Communication-Information", "1097 Morality and Value", "1095 Health and Medicine", "923 Culture and Language", "1890 Emergent", "1817 Essential feature", "1204 Fairness and Justice", "1151 Reality", "787 Critical feature", "762 Strength", "731 Ecological Features", "693 Rationality", "506 Weakness", "284 Death and Destruction", "3875 Negative Form", "1887 Analogy and Comparison", "1847 Needs and Deeds", "1324 Reformulation", "1273 Question", "718 At the Present", "491 Repetition", "330 Examples", "321 In the Future", "313 Opposition", "769 Declarations", "289 Arguing", "264 Discussing", "191 Calling for", "154 Destroying", "131 Breaking-stopping", "109 Denouncing", "107 Proving", "63 Warning", "31 Re-Configuration", "565 risks", "409 risk", "72 dangers", "57 threat", "46 danger", "42 threats", "27 warning", "16 urgency", "11 alarm", "10 warnings", "467 environmental", "100 toxic", "46 ecological", "32 inhaled", "28 green", "23 Green", "11 radioactive", "8 contaminated", "7 carcinogenic", "4 Ecological", "449 But", "372 However", "191 however", "46 in fact", "42 In other words", "41 Moreover", "39 Instead", "34 In fact", "33 Nevertheless", "31 After all", "12 warns", "11 warned", "8 urge", "7 urged", "6 endanger", "6 alarming", "6 urges", "4 warn", "2 alarmed", "1 whistleblower". The right panel, titled "Alarm and Danger", shows a list of authors and a table of instances. The authors listed are: 214 Nanotech Project, 169 Bostrom, 147 ETC, 68 Committee for Prevention and Precaution (French), 61 EPA, 59 New York Times, 58 Joy, 54 Maynard, 42 Rejeski, 41 Nordmann, 40 Laurent & Petit, 39 Preston, 26 Dupuy, 25 Schummer, 25 Tournay, 22 Hansson. The table of instances shows the following data:

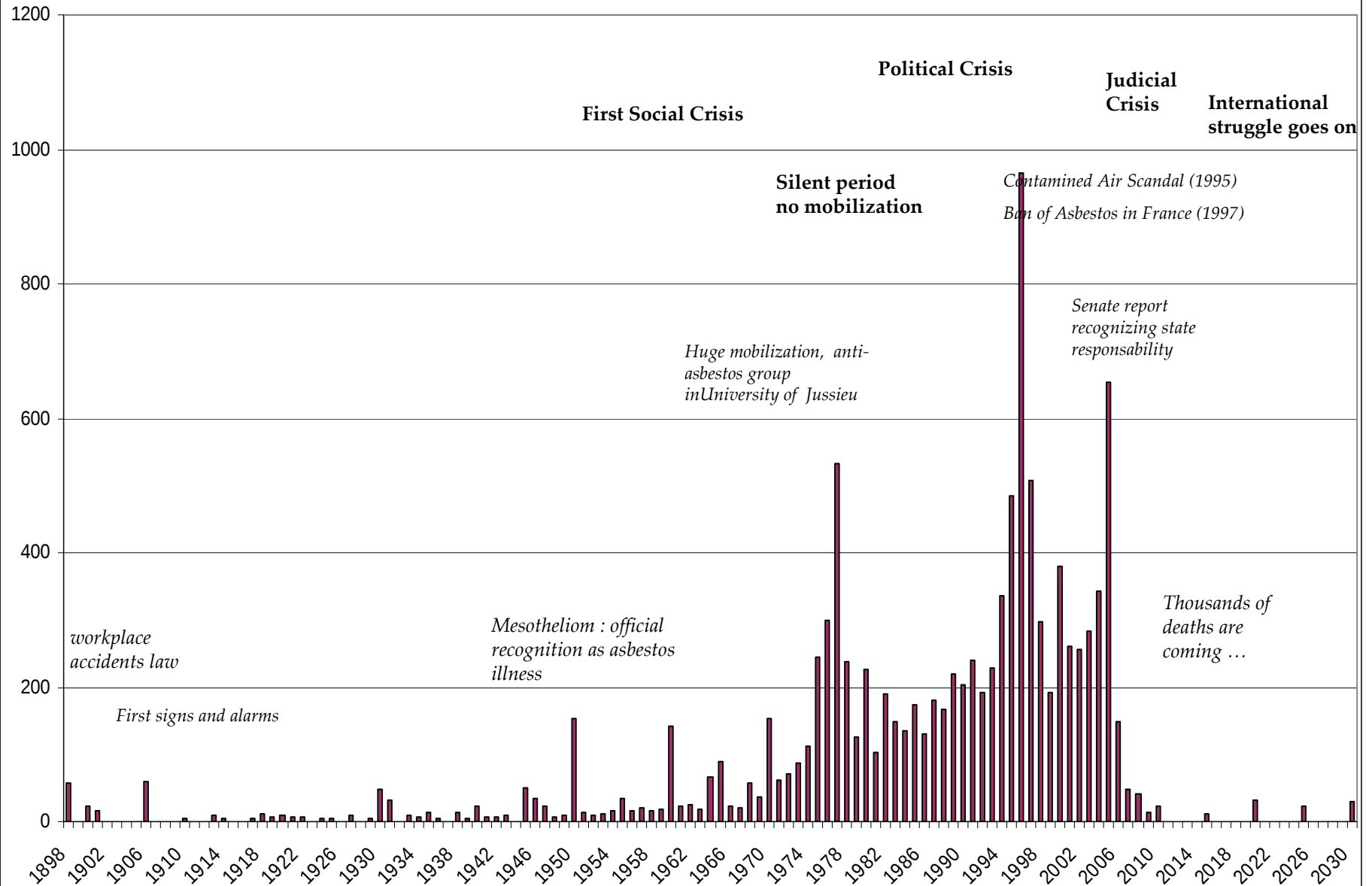
Corpus	Anti-corpus
Moravec97C01.txt [1]	1/12/1997
Roco99622.txt [2]	22/6/1999
NYT00121.txt [1]	21/1/2000
Joy00401.txt [58]	1/4/2000
JET01701.txt [2]	1/7/2001
Hughes01701.txt [2]	1/7/2001
Bostrom02301.txt [153]	1/3/2002
Freitas02301.txt [20]	1/3/2002
Walker02301.txt [5]	1/3/2002
ETC9.txt [2]	6/3/2002
ETC8.txt [2]	25/3/2002
Converging Technologies1.txt [10]	
ETC7.txt [10]	23/7/2002
NYT02819.txt [11]	19/8/2002
ETC6.txt [8]	23/1/2003
NYT03203.txt [8]	3/2/2003
ETC5.txt [3]	6/2/2003

The dialog box also includes a "Filtres" section with options for "poids" and "date". Below the filters, there are buttons for "Créer un corpus externe", "seuil d'exclusion", "copier", "Détails", "Vue/Texte", "créer un corpus interne", and "Opérations sur les fichiers". At the bottom of the dialog box, there is a "Fermer" button. The dialog box also includes a "Liste des Auteur(s), qui utilisent le plus Alarm and Danger" and a "Liste des Auteur(s), qui n'utilisent jamais Alarm and Danger". The first list includes: 214 Nanotech Project, 169 Bostrom, 147 ETC, 68 Committee for Prevention and Precaution (French), 61 EPA, 59 New York Times, 58 Joy, 54 Maynard, 42 Rejeski, 41 Nordmann, 40 Laurent & Petit, 39 Preston, 26 Dupuy, 25 Schummer, 25 Tournay, 22 Hansson. The second list includes: 2 Smalley, 1 Mize, 1 Buhro, 1 Henderson, 1 IEET, 1 McGee, 1 NIST, 1 Phoenix, 1 Foresight Nano Institute, 1 McCullagh, 1 López, 1 Bueno, 1 Hennig. The dialog box also includes a "Règle d'interprétation de la mesure des écarts" section with the following text: "En théorie il faut se caler sur la valeur 100. Les éléments qui sont très supérieurs à 100 présentent une augmentation significative (notamment > 200). Les éléments très inférieurs à 100 présentent une diminution significative (notamment < 50)."

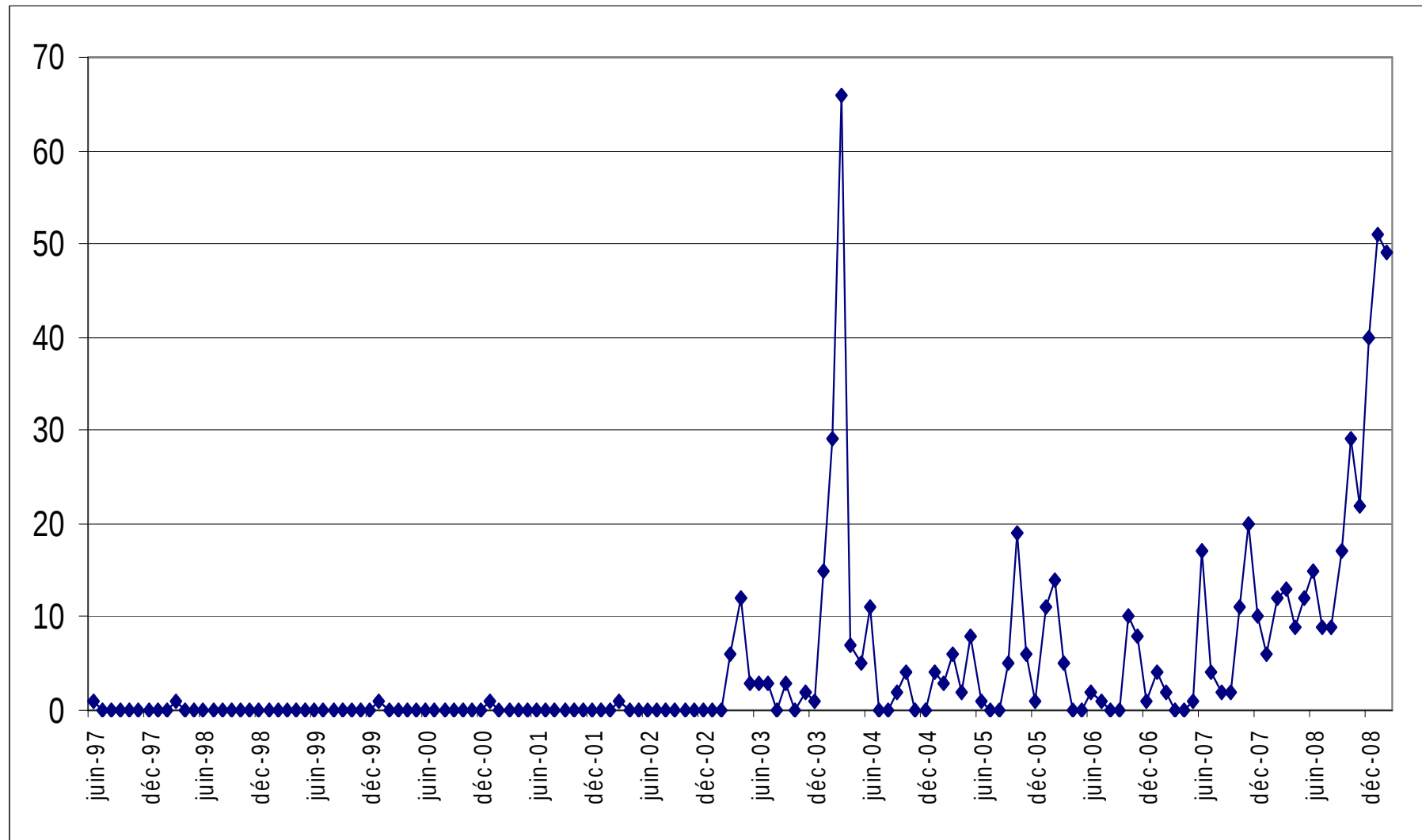
Nuclear controversy in France : years used for datation by the authors-actors



Asbestos public trajectory in France



“Nicolas Sarkozy must engage with French researchers if his much-needed science reforms are to succeed.” *Nature*, 457, 636 (5 February 2009)



How a radical standpoint can change over time

- Réseau Sortir du nucléaire (01/09/2004):
- Tout en reconnaissant que "les arguments avancés par le maître d'ouvrage sur le caractère stratégique de ce projet, dans un secteur-clé de la production d'énergie (...) lui donnent un caractère d'intérêt national", **la CNDP tente de minimiser l'importance de l'affaire:** "considérant qu'il s'agit du renouvellement, à technologie différente, d'une usine existante, (...)." Enfin, la CNDP reconnaît qu'Areva a déjà tranché: "considérant enfin l'état d'avancement de ce projet et les actions locales d'information dont il a fait l'objet depuis mars 2003". Mais, au lieu de dénoncer un passage en force du lobby nucléaire, **la CNDP cautionne la mascarade [...]** De façon générale, le Réseau "Sortir du nucléaire" estime que les débats organisés par la Commission nationale du débat public (CNDP) constituent une **véritable parodie** de démocratie destinée à donner une apparente légitimité à des décisions déjà prises dans le dos des citoyens.
- Réseau Sortir du nucléaire (13/09/2005):
- Pour le Réseau "Sortir du nucléaire", **ce n'est pas la CNDP qui est en cause** (en diffusant la contribution dans son intégralité, elle peut être attaquée pour "compromission"). Ce sont l'industrienucléaire et le pouvoir français qui sont responsables de l'opacité et du mensonge qui entourent le nucléaire.
- Réseau Sortir du nucléaire (14/11/2005):
- L'information de la population et sa protection face au risque nucléaire majeur doivent primer sur le secret Défense. Une démocratie dévoyée et exaspérante **Le gouvernement a véritablement miné le débat public CNDP** et démontré le peu de cas qu'il accorde à l'expression des citoyens et à la "transparence" sur le nucléaire.

These fragments illustrates the changes in the argumentative modalities that occurred in the course of the public debate over the EPR, a new nuclear reactor developed by EDF and Areva – firms which control the sector in France.... and try to expand around the world ... Soon in north America ?

The major anti-nuclear NGO, Réseau Sortir du nucléaire shifted the target of its criticism from CNDP towards the government: while in September 2004 it still accused the CNDP of having accepted the “masquerade” of public debate on nuclear, in autumn 2005 on the contrary it criticised the government for disrespecting and undermining the debate organised by the CNDP.

If the public debate has no effect on the games of players and the balance of power, adding that epiphenomena and anecdotes to the path of an irreducible conflict itself, there would be no change in argumentative way as shown above.

Argumentative Indicators in Discourse. Argumentation between pragmatics and semantics

- A good strategy for argumentative analysis is to take seriously the techniques by which protagonists themselves perform the task to identify, classify and evaluate arguments.
- In France, Marianne Doury provides powerful analytic grids to detect what kind of arguments or counter-arguments an actor takes in charge and what kind of argumentative movement is produced in interactions or monologic productions as texts and discourses[\[1\]](#).
- The presence of key indicators like “argument”, “claim”, “problem” ..., critical attributes, comparative marks, signs of agreement or disagreement, temporal modalities and key adverbs, and many other linguistic tools, help to find and to analyze argumentative activities. As an example, let us take the following fragments extracted from texts belonging to the nanotechnology collection.
- [\[1\]](#) M. Doury, « Evaluating Analogy: Toward a Descriptive Approach to Argumentative Norms », in Houtlosser P. & van Rees A. (eds), Considering Pragma-Dialectics. A Festschrift for Frans H. van Eemeren on the Occasion of his 60th birthday, Mahwah (NJ) London, Lawrence Erlbaum Associates, 2006, pp. 35-49 ;
- M. Doury, « The accusation of ‘amalgam’ as a meta-argumentative refutation », in van Eemeren F. H. & Houtlosser P. (eds), The practice of argumentation, John Benjamins, Publishers, 2005, pp. 145-161.

énoncé n°: 1445 ¶

·It also should be noted that our current knowledge of the biological functions of the circulatory system is incomplete; so the design presented here must be considered provisional at best. ¶

énoncé n°: 1446 ¶

·But the principal challenge of the present work was to advance a plausible argument that a nanomechanical whole-body thermal and biomaterials transport system would violate no known physical, engineering, or medical principles; could presumptively be made adequately safe for the user; and might confer some significant advantages over simpler whole-body systems exclusively employing unlinked populations of individual bloodborne and tissueborne nanorobots. ¶

énoncé n°: 1447 ¶

·Ultimately, and from the standpoint of human-guided evolution, the body exists primarily to ensure the survival of the mind -- not the replication of the genes, which was the ancient paradigm [586, 587]. It would seem that a somewhat more advanced and compact version of the proposed device could function independently of nearly all noncortical tissue. ¶

¶

Freitas, "Vasculoid: A Personal Nanomedical Appliance to Replace Human Blood", Journal of Evolution and Technology, Vol. 11 -- April 2002 ¶

¶

----- ¶

¶

énoncé n°: 8 ¶

·Oberdörster's father, Günter Oberdörster, a professor of environmental medicine at the University of Rochester, have shown that such particles can enter the brain. ¶

énoncé n°: 9 ¶

·The fish studies, however, were the first to indicate destruction of lipid cells, the most common form of brain tissue. ¶

énoncé n°: 10 ¶

·Dr. Oberdörster of S. M. U. said that the results underscored the need to learn more about how buckyballs and other nanoscale materials are absorbed; how they might damage organisms and what levels of exposure represent hazards. ¶

énoncé n°: 11 ¶

·But she rejected arguments made by some nanotechnology critics that the limited toxicological research to date justified a moratorium on the development and sale of the new materials. ¶

énoncé n°: 125 ¶

·"This is a yellow light, not a red one" ¶

¶

New York Times, "Study Raises Concerns About Carbon Particles", March 29th 2004 ¶

¶

¶

Journals under Threat: A Joint Response from HSTM Editors

↵

We live in an age of metrics. All around us, things are being standardized, quantified, measured. Scholars concerned with the work of science and technology must regard this as a fascinating and crucial practical, cultural and intellectual phenomenon. Analysis of the roots and meaning of metrics and metrology has been a preoccupation of much of the best work in our field for the past quarter century at least. As practitioners of the interconnected disciplines that make up the field of science studies we understand how significant, contingent and uncertain can be the process of rendering nature and society in grades, classes and numbers. We now confront a situation in which our own research work is being subjected to putatively precise accountancy by arbitrary and unaccountable agencies. Some may already be aware of the proposed European Reference Index for the Humanities (ERIH), an initiative originating with the European Science Foundation. The ERIH is an attempt to grade journals in the humanities -- including "history and philosophy of science". The initiative proposes a league table of academic journals, with premier, second and third divisions. According to the European Science Foundation, ERIH "aims initially to identify, and gain more visibility for, top-quality European Humanities research published in academic journals in, potentially, all European languages". It is hoped that ERIH will form the backbone of a fully-fledged research information system for the Humanities". What is meant, however, is that ERIH will provide funding bodies and other agencies in Europe and elsewhere with an allegedly exact measure of research quality. In short, if research is published in a premier league journal it will be recognized as first rate; if it appears somewhere in the lower divisions, it will be rated (and not funded) accordingly.

↵

This initiative is entirely defective in conception and execution. Consider the major issues of accountability and transparency. The process of producing the graded list of journals in science studies was overseen by a committee of four (the membership is currently listed at <http://www.esf.org/research-areas/humanities/research-infrastructures-including-erih/erih-governance-and-panels/erih-expert-panels.html>). This committee cannot be considered representative. It was not selected in consultation with any of the various

Désignation des classes de formules

Créer

Modifier

Supprimer

560 Entités et critique

Ouvrir

Enregistrer

☒ Intra-énoncé

D:\corpus\amiante\MIDILIB08B04.txt 1066sur 1066

Composition des formules/Visualisation des résultats

459 /ENTITE /CAT_QUALITE=Accusation-Critique
68 /CAT_QUALITE=Accusation-Critique /ENTITE
33 /ENTITE /MARQUEUR /CAT_QUALITE=Accusation-Critique

Créer

Modifier

Supprimer

3 attitude totalement irresponsable
2 paradoxe d'autant plus regrettable
1 motif non critiqué
1 campagne très hostile
1 façon un peu excessive
1 taux nettement anormal
1 idée complètement fausse
1 études trop controversées
1 nombre tout à fait anormal
1 nombre tout-à-fait anormal
1 décision assez controversée
1 caractère absolument abusif
1 négligence très regrettable
1 faute réellement inexcusable
1 présentation trop lénifiante
1 façon encore plus contestable
1 indifférence très regrettable
1 postes complètement aberrants

Interrompre

Calcul

Résultats

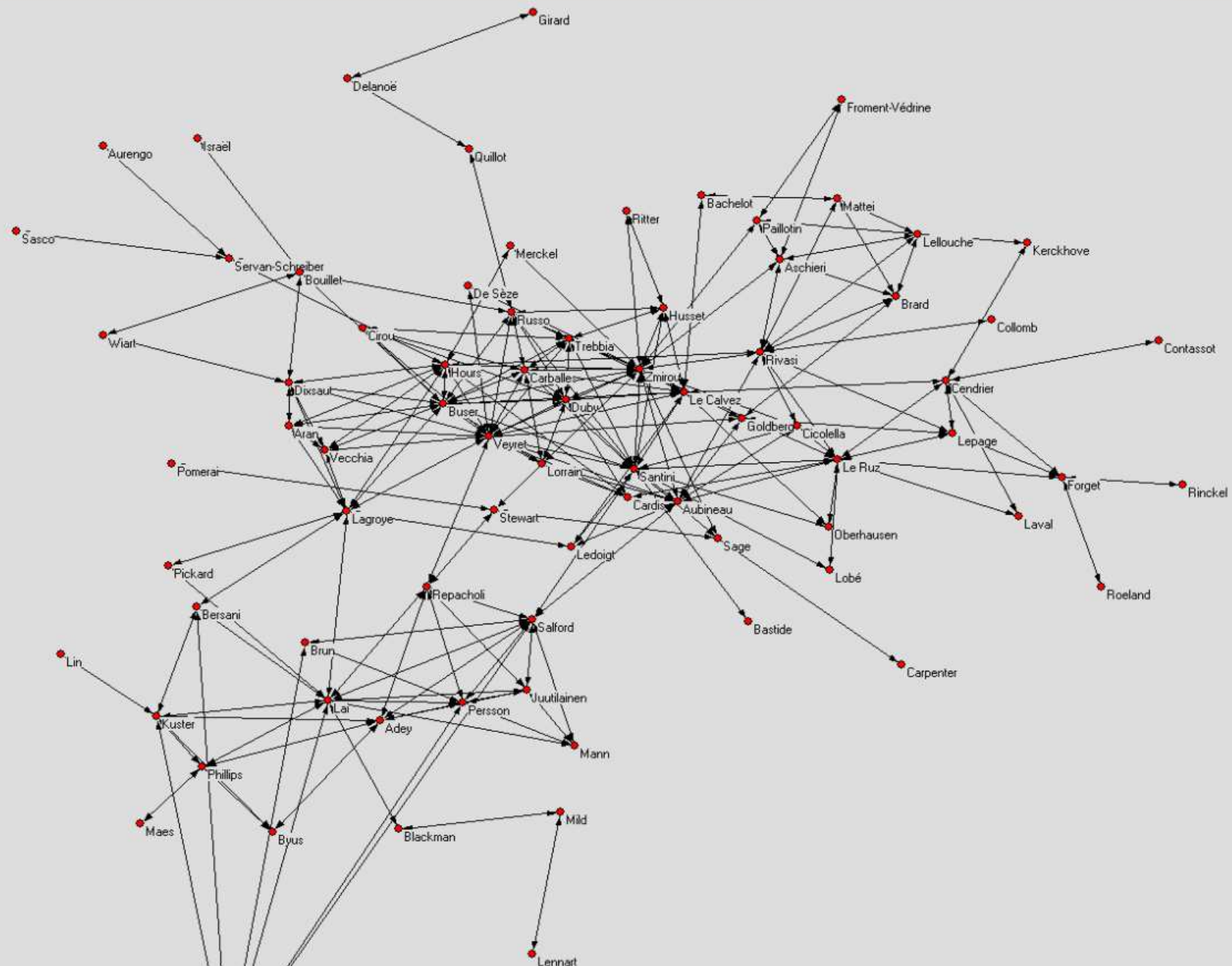
tout sélectionner

annuler selection

Fermeture

From Prospéro to Pajek

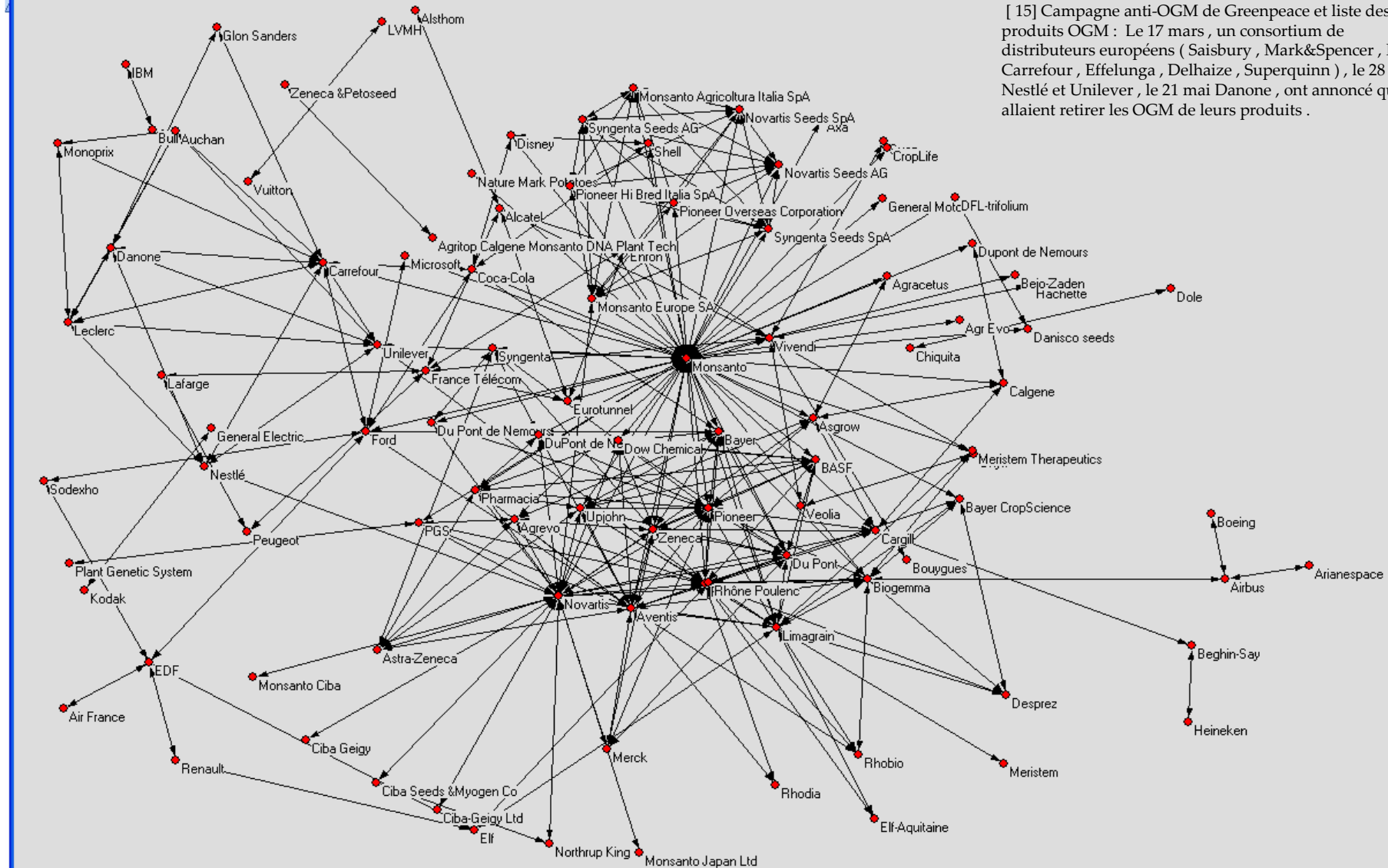
- Mapping semantic networks and comparing periods over time
- An example extracted from a corpus on microwaves issue (key persons involved in the field)
- A comparison of networks of firms in two periods extracted from the GMOs corpus



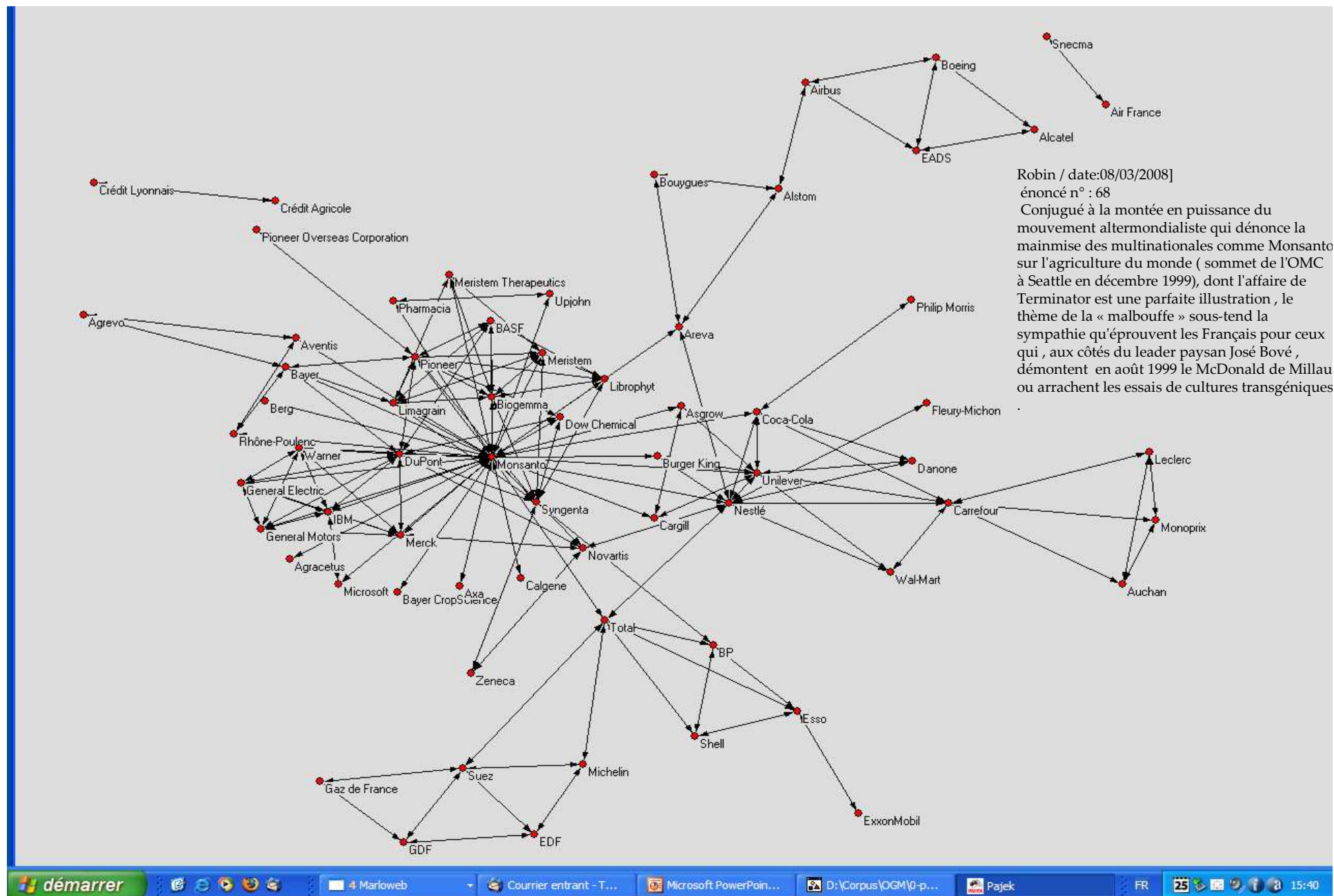
OGM Dangers / date:22/09/1999]

énoncé n° : 104

[15] Campagne anti-OGM de Greenpeace et liste des produits OGM : Le 17 mars , un consortium de distributeurs européens (Saisbury , Mark&Spencer , Migro , Carrefour , Effelunga , Delhaize , Superquinn) , le 28 avril Nestlé et Unilever , le 21 mai Danone , ont annoncé qu'ils allaient retirer les OGM de leurs produits .



Carte de liens des firmes sur le sous-corpus « séries historiques »
(1987-2002) Prospéro -> Paiek



Carte de liens des firmes sur le sous-corpus « séries contemporaines » (2003-2008)
Prospéro -> Pajek

Journals under Threat: A Joint Response from HSTM Editors

↵

We live in an age of metrics. All around us, things are being standardized, quantified, measured. Scholars concerned with the work of science and technology must regard this as a fascinating and crucial practical, cultural and intellectual phenomenon. Analysis of the roots and meaning of metrics and metrology has been a preoccupation of much of the best work in our field for the past quarter century at least. As practitioners of the interconnected disciplines that make up the field of science studies we understand how significant, contingent and uncertain can be the process of rendering nature and society in grades, classes and numbers. We now confront a situation in which our own research work is being subjected to putatively precise accountancy by arbitrary and unaccountable agencies. Some may already be aware of the proposed European Reference Index for the Humanities (ERIH), an initiative originating with the European Science Foundation. The ERIH is an attempt to grade journals in the humanities -- including "history and philosophy of science". The initiative proposes a league table of academic journals, with premier, second and third divisions. According to the European Science Foundation, ERIH "aims initially to identify, and gain more visibility for, top-quality European Humanities research published in academic journals in, potentially, all European languages". It is hoped that ERIH will form the backbone of a fully-fledged research information system for the Humanities". What is meant, however, is that ERIH will provide funding bodies and other agencies in Europe and elsewhere with an allegedly exact measure of research quality. In short, if research is published in a premier league journal it will be recognized as first rate; if it appears somewhere in the lower divisions, it will be rated (and not funded) accordingly.

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Default Clustering with Conceptual Structures

VELCIN J. and GANASCIA J.-G.

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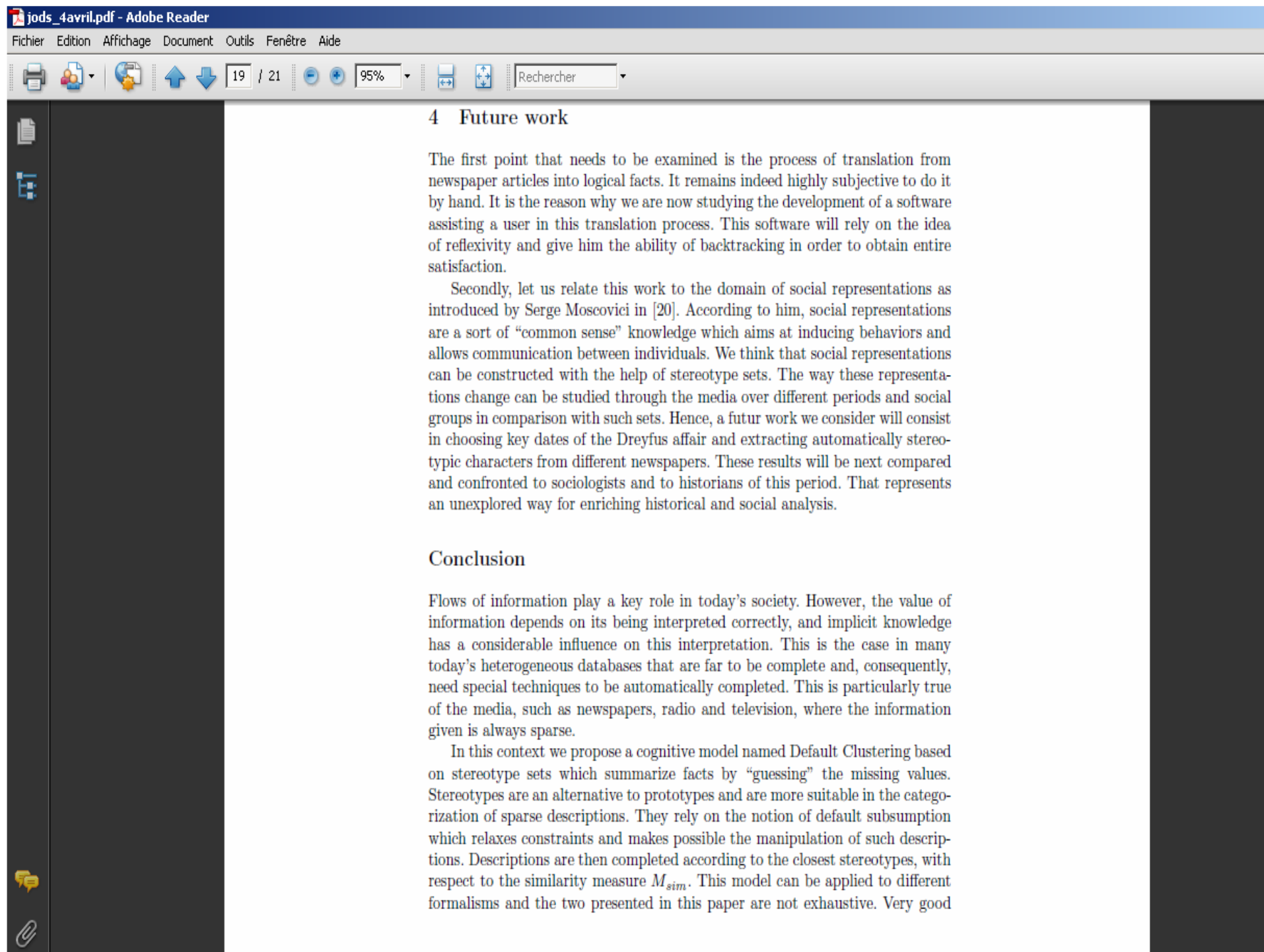
Abstract. This paper describes a theoretical framework for inducing knowledge from incomplete data sets. The general framework is declined into two formalisms: the attribute-values formalism and Sowa's conceptual graphs. The induction engine is based on a non-supervised algorithm named Default Clustering which uses the concept of stereotype and the new notion of default subsumption, inspired by the default logic theory. A validation using artificial data sets and an application concerning an historic case are given at the end of the paper.

Introduction

This work sets up a clustering model that deals with sparse data sets. Being given this general framework, it is illustrated with two formalisms: the classical attribute-values formalism, and Sowa's conceptual graphs.

Conceptual clustering [1] is a fundamental machine learning task. It takes a set of object descriptions as input and creates a classification scheme. The sparseness of information is a recurrent problem in clustering, especially with databases. It can be due to several reasons: voluntarily omissions, human mistakes, broken material [2]. The proposed model uses a default reasoning in order to induce knowledge from such data sets. It can be then applied to quickly classify and reason about new information.

This induction engine erects categories from incomplete data and names them thanks to specific conceptual descriptions. The concept of stereotype is used to reflect the internal coherence within the clusters. It is really appropriate to quickly classify the observed facts and to automatically complete their omitted features. The categories are formed with a new relation we introduce named *default subsumption* that has been inspired from the default logic theory [3]. But





marloweb *Espace de requête*

Identifiez-vous

login

mot de passe

Valider

Etat du service il y a actuellement 7 machines connectées et 45 corpus disponibles sur le réseau.

Graphisme [CD](#)

**marloweb***Espace de requête***Sélection des corpus**

Poséidon_2 L'EHESS à Aubervilliers ?
Poséidon_2 Téléphonie : que la presse !
Poséidon_2 OGM Exhaustif
Samildanach Ethers de glycol (archive)
Samildanach Charte de l'environnement (dossier clos)
Samildanach FADO QP
Samildanach Téléphonie mobile (dernier état)
Samildanach Amiante (1971-2007)
Gandhi Nucléaire (copie)
Gandhi Questions parlementaires sur les pesticides (copie)
Gandhi Téléphonie mobile (copie)
Gandhi Charte de l'Environnement (dossier clos)
Gandhi Gaucho/Régent... et désormais Cruiser !
Gandhi Pollution intérieure (copie)
Gandhi Grippe aviaire (copie)

Accéder aux descriptifs des corpusVeuillez entrer vos questions >>> [Voir des exemples](#)

qui parle le plus de la coexistence des filières ?
quoi de neuf sur les OGM ?
quel est l'avenir de ce dossier ?

Envoyer le questionnaire**Mise à jour le 18
novembre 2008**

An example of application through an ANR Project 2006-2009

Forms of mobilization and legal tests around GMOs in France and in Europe.

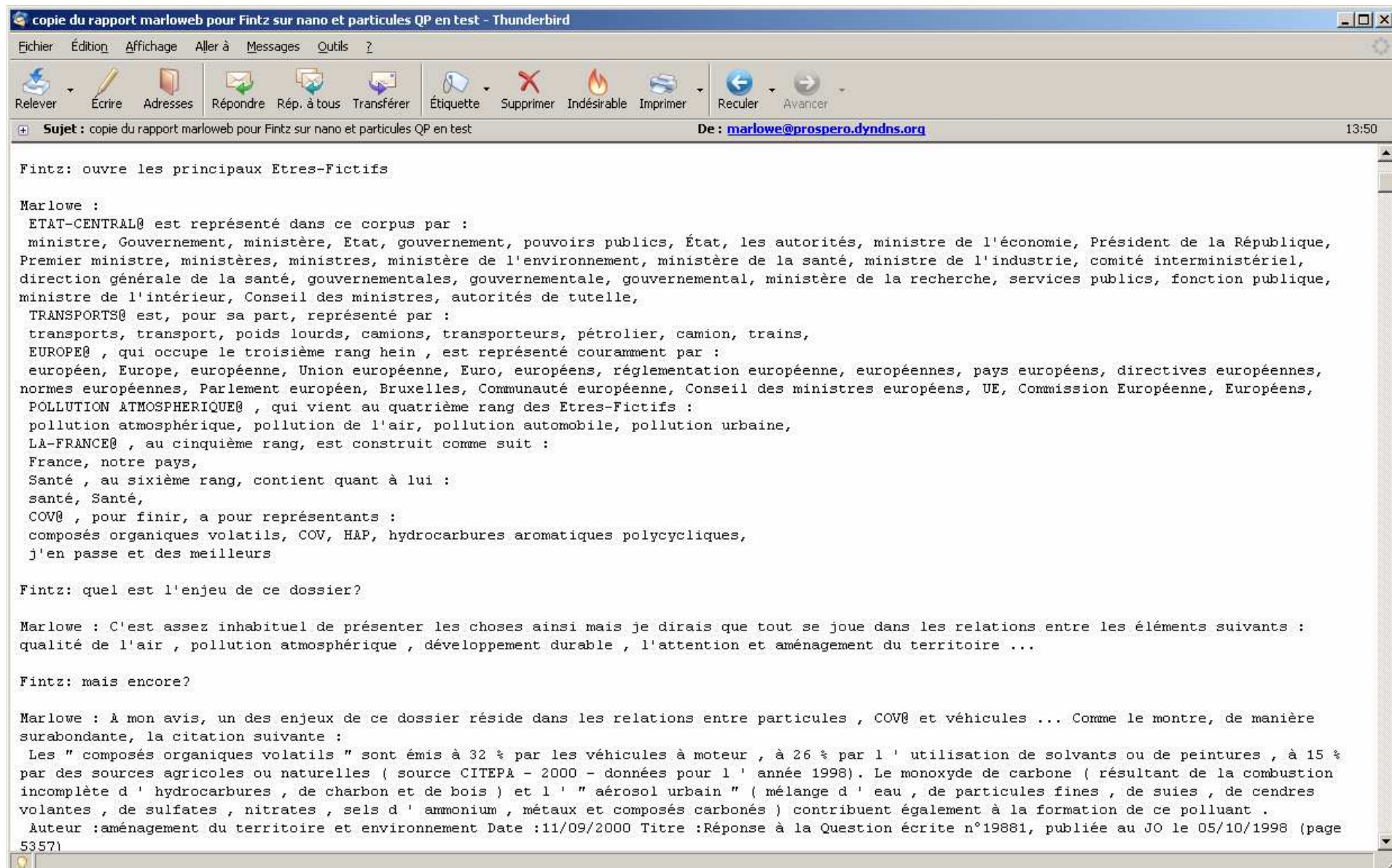
Construction and implementation of a computerized sociological observatory

sociology, law, controversies, mobilization, text databases

- [...] Leaning on a long experience of treatment of large cases of alarms and risks, we propose to **rebuild the GMO corpus**, and to **organize his follow-up for the future years, in order to allow a better legibility of the balance of powers, sets of actors and arguments**. It will permit to re-read past series, to characterize the present configuration adequately and to distinguish the future potentialities. To do so, we will use specific instruments, born in the milieu of pragmatic sociology, allowing the description and the analysis of large complex cases, marked by the plurality of author-actors, the proliferation of arenas the events, and therefore by a strong uncertainty of their future developments.
- **Through Prospéro and Marlowe softwares**, we will usefully compare the GMO case with other large files, such as pesticides, mad cow disease, avian flu, asbestos, nuclear power plants and waste, or nanotechnologies. Three main issues will be used as discussion thread to investigate GMOs: firstly, we will study the evolution of protest forms of, this fieldwork acted like a true laboratory in open world for the return of criticism and radical action; on a second level, we will look at how the plurality of legal forms and the legal arenas are used as resources by protagonists ; finally, we will examine the cosmopolitic dimension through the means by which multiple localities are put in networks in a globalized space of mobilization under national framing constraints. [...]. **Through the share of corpora and tools for analysis**, the three partners laboratories (GSPR, TSV and UMR de droit comparé) will cross skills resulting from several disciplines: sociology, political science, economy, law, environmental sciences and data processing will be used.
- The main product of this collective research will **not only be one large corpus**, directly used via high level computerized tools, but also **a co-operative space enabling multiple interlocutors to launch new investigations, to propose analysis grids and to organize controversies**.

An important application : AFSSET uses Marloweb to follow risk issues (AFSSET :The French Agency for Environmental and Occupational Health Safety)

An expert asking questions to Marlowe on 13 February 2009



The literary technologies conceived from Prospéro and Marlowe share three key characteristics:

- They are founded on a semantic and pragmatic study of arguments and sets of actors who support, criticize or transform them. From this point of view, they suppose data-processing tools able to enter the complexity of documents and to link the logico-linguistical analysis of statements and the one, more statistical, of great corpuses.
- These techniques have as a main virtue to enable the following of affairs and controversies in the course of their evolution, without closing in advance the list of relevant documents, and they make possible the comparisons between cases; a collection of case is generated dynamically by the network of users; in addition to the building of a memory for cases, it provides bases of hints and concepts transposable from one corpus to the other.
- Finally, these tools are designed to support a co-operative space of research into which each user introduces his own grids of analysis and subjects them to the collective discussion. The confrontation of different competences and theories makes emerge standard categories and methods which enrich in return the data-processing protocols shared by researchers