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Leibniz-Institut
für Sozialwissenschaften



Computational Social Science Winter Symposium 2014

General chair: Prof. Dr. Markus Strohmaier

*Understanding social systems via computational
approaches and new kinds of data*

 #csswintersym



Dec 1st 2014, Cologne, Germany



Social Influence and the Matthew Mechanism: The Case of an Artificial Cultural Market

Miia Bask (University of Bergen)

Mikael Bask (Uppsala University)

Physica A, 412 (2014), 113-119

Highlights in the paper discussed today:

- We examine the presence of the Matthew mechanism in the Music Lab experiment
- The Matthew mechanism is present in two of eight social influence “worlds”
- The Matthew mechanism is not present in the non-social influence “world”

Other highlights in the paper:

- We present a class of social network models that may generate the Matthew effect
- This class of social network models is derived from social influence theory



The Music Lab experiment

- Salganik, Dodds and Watts (Science 2006) created the artificial cultural market Music Lab in which more than 14,000 individuals participated
- The participants were asked to listen to, rate, and, if they chose, download songs by bands they had never heard of
- One group of individuals did not receive any information about the popularity, in the form of download statistics, of different songs, whereas this information was given to individuals in eight other groups, or “worlds,” in the experiment
- The aim of this experimental design was for the former group of individuals to determine the quality of the songs, whereas the individuals in the different “worlds” determined the success of the songs, allowing for social influence between individuals
- Salganik et al. (2006) found that the success of a song was only partly determined by its quality
- In fact, the most popular songs were much more popular, and the least popular songs were much less popular, than when disallowing social influence between individuals
- Moreover, the particular songs that became popular were different in the different “worlds,” which led the authors to conclude that *“when individual decisions are subject to social influence [...] there are inherent limits on the predictability of outcomes”* (Salganik et al. 2006:856)



The Matthew mechanism

- Watts (New York Times 2007) wrote the following regarding their findings: *“[W]hen people tend to like what other people like, differences in popularity are subject to what is called ‘cumulative advantage,’ or the ‘rich get richer’ effect. This means that if one object happens to be slightly more popular than another at just the right point, it will tend to become more popular still. As a result, even tiny, random fluctuations can blow up, generating potentially enormous long-run differences among even indistinguishable competitors—a phenomenon that is similar in some ways to the famous ‘butterfly effect’ from chaos theory”*
- We argue elsewhere in Bask and Bask (under review 2014) that a dynamic process characterized by the “butterfly effect” is also associated with the Matthew effect (cf., Merton in Science 1968), which is the effect of the Matthew mechanism
- The term Matthew effect is derived from the Gospel of Matthew, in which Jesus says, *“[f]or unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath”* (Matthew 25:29)
- We also argue in Bask and Bask (2014) that the Matthew mechanism is in play when the largest Lyapunov exponent is positive, $\lambda_1 > 0$
- Thus, the Matthew mechanism is *“capable of magnifying small differences over time and makes it difficult for an individual or group that is behind at a point in time [...] to catch up”* (DiPrete and Eirich in Annual Review of Sociology 2006:272)

Our findings

- The Matthew mechanism is present in one-fourth of the “worlds” when social influence between individuals is allowed, whereas this mechanism is not present in the “world” that disallow social influence between individuals
- The 8th “world” is also the “world” with the greatest inequality in the popularity of songs (Salganik et al. 2006)

“World”	Observations	$\hat{\lambda}_1$	<i>p</i> value
1	821	-0.0077	0.6675
2	768	0.5124	0.2820
3	692	-0.0077	0.2907
4	903	-0.0061	0.1298
5	909	0.0020	0.9132
6	741	-0.0086	0.0001
7	949	0.4879	0.0244
8	726	0.0721	0.0473
9	1 993	-0.0085	0.0001

1-8 are social influence “worlds” and 9 is the “world” that disallow social influence between individuals



The Evolution of the Impact Bias

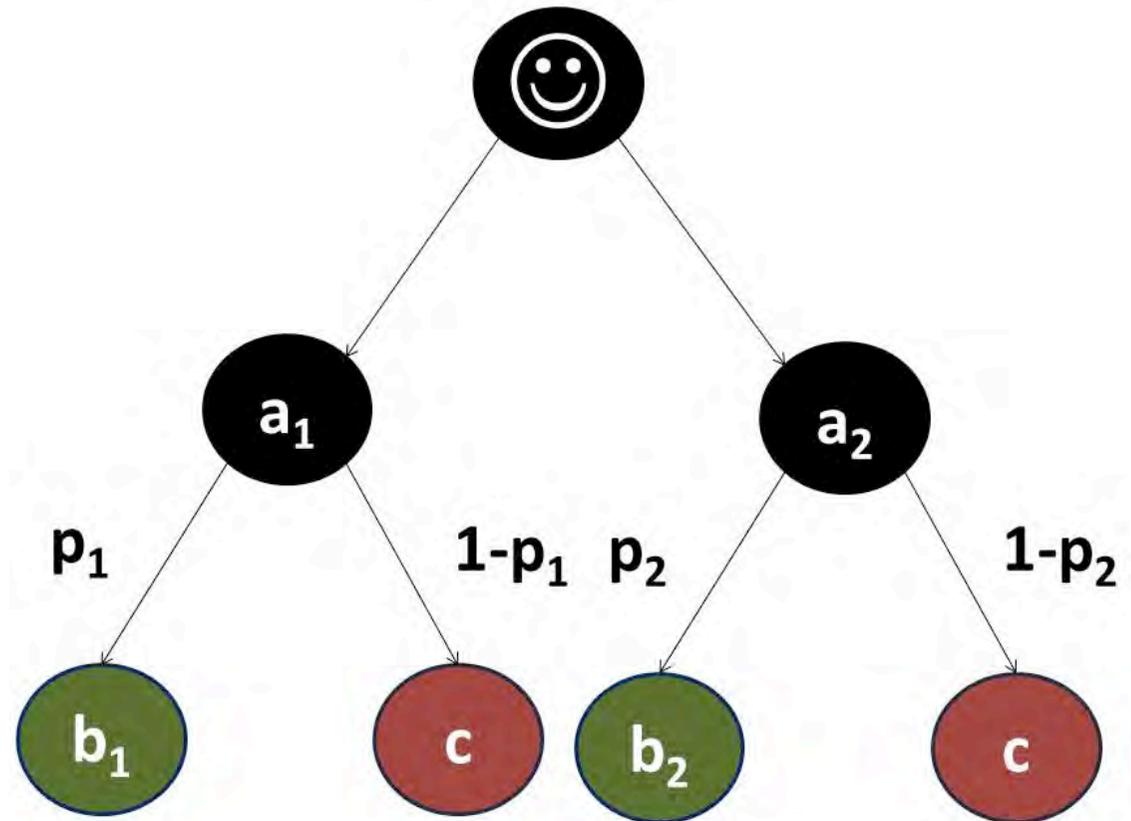
Optimising Affective Forecasts for Noise

Paul Rauwolf & Joanna J. Bryson
Artificial Models of Natural Intelligence
University of Bath, United Kingdom

Questions: 1) People expect stronger emotional consequences to events than they in fact experience.
2) They do not learn from this experience. **Why?**

ABM

- a_1 & a_2 : possible actions
- p_1 & p_2 : probability of benefits.
- c : cost
- Agent knows all of above, and b_2 .
Must estimate b_1 .

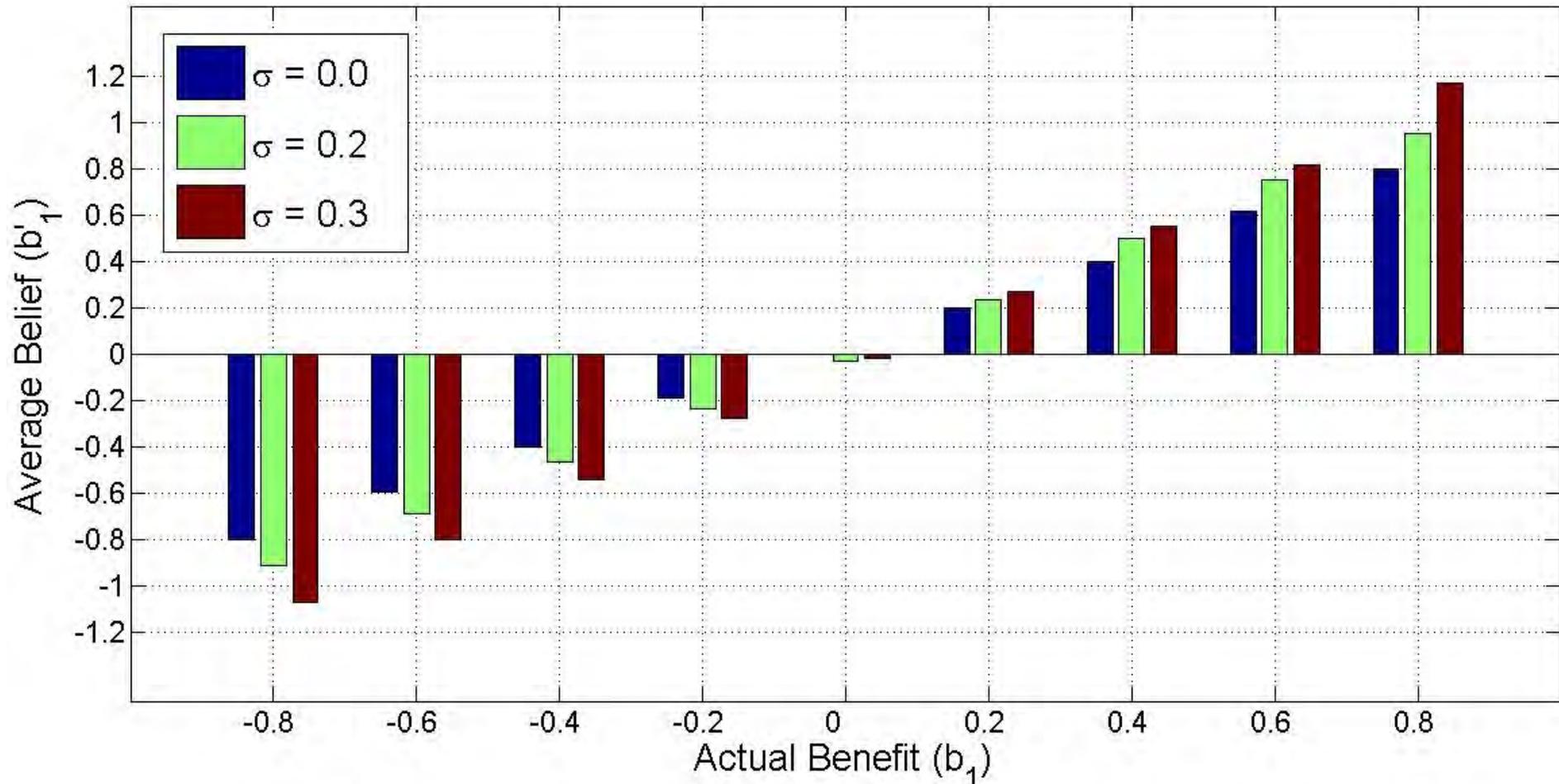


Hypothesis: Impact bias is an adaptive response to uncertainty (noise) in receiving a benefit (b_1).

Results: Impact bias evolves **iff** there is noise.

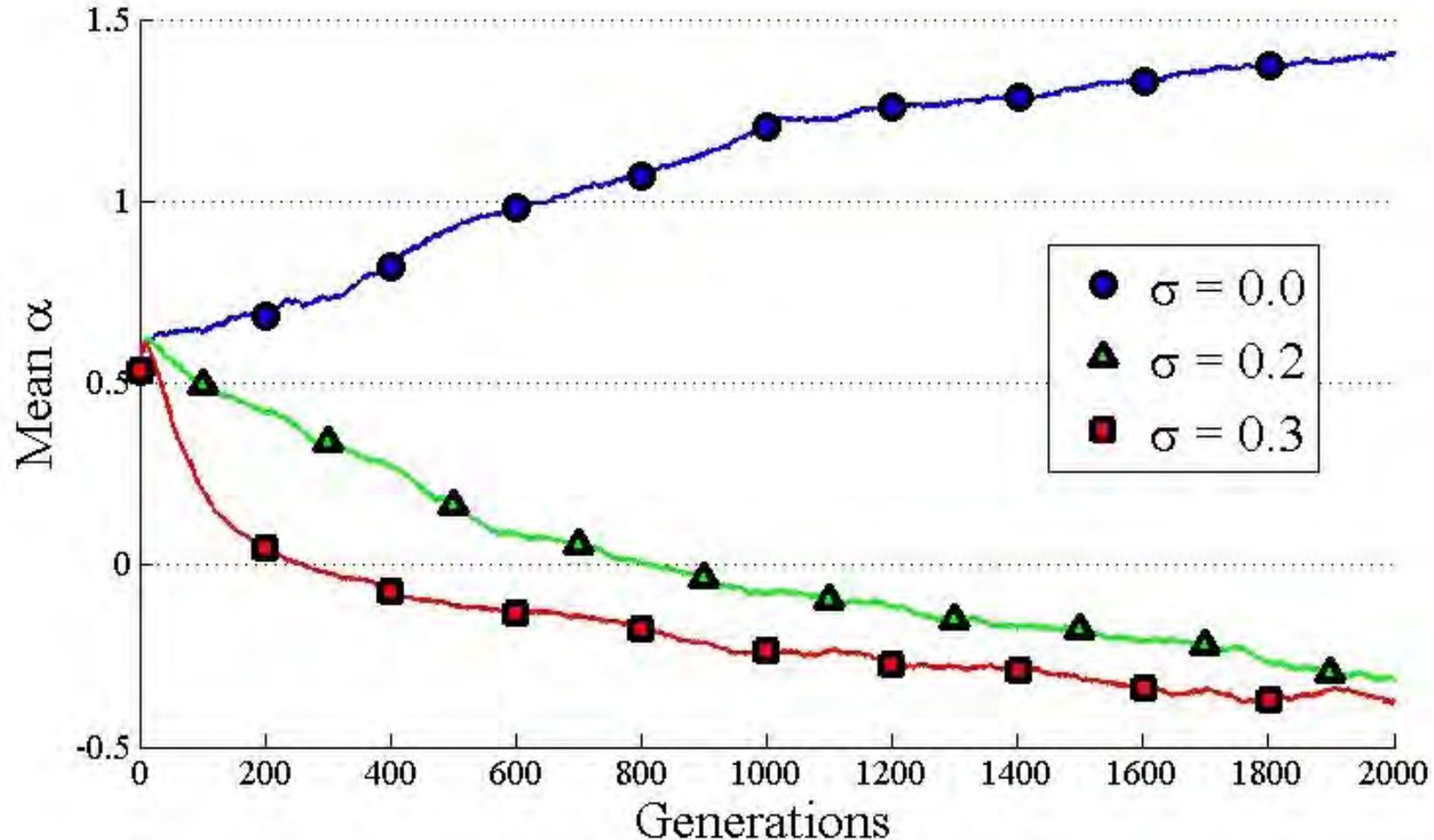
Experiment I: Evolve the best bI under different noise conditions.

Result: Optimal impact bias is greater for 1) greater noise and 2) more extreme “benefits” (payoffs).



Experiment 2: Evolve whether (α) to attend to own experience or evolved belief.

Result: The more noise in the environment, the faster agents evolve to ignore their experience.



ABSTRACT

Dynamic simulation models help us to identify mechanism that lead to urban segregation. Models in the tradition of Schelling infer from preferences about the ethnic neighborhood composition the dynamic urban mobility. Mild ethnic homophily can lead to drastic ethnic segregation. We present a dynamic simulation study based on survey and geocoded context data. The goal is to isolate the effect of ethnic preferences on emergence and reproduction of urban segregation. Survey data of preferences is used to avoid unrealistic model assumptions.

STARTING POINT SCHELLING (1971)

Schelling's (1971) original analytic model of urban segregation examines a highly idealized urban space:

- Two recognizable groups
- Small area (13x16 "houses")
- Preferences: Avoid minority of own group

This setting almost always leads to high degree of segregation (Figure 1).

→ Is this just a consequence of unrealistic assumptions, or does it hold up in a more realistic setting?

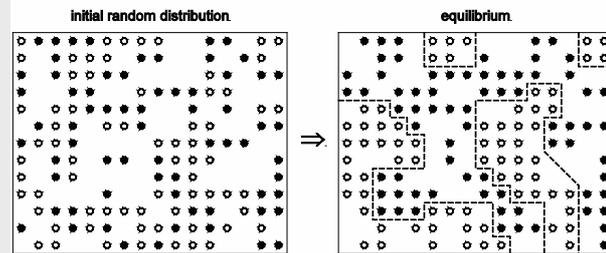


Figure 1: Original Schelling-model

EXTENSION

Known problems with Schelling's model

- Geographical space too much simplified and too small
 - Preferences unrealistic
 - Homophily might be weaker. Xenophobia might be more relevant.
 - Only two groups
- Marginalized ethnic minority almost always heterogenous with complex interethnic patterns of homophilic and xenophobic preferences between ethnic groups.

Realistic urban topology

- Official register data by city of Mannheim in 2012 (Figure 2)
 - Anonymized total population data (316k persons = 168k households)
 - Ethnicity known for all households (3 groups)
 - Addresses geocoded
- Status Quo:
- Mannheim is segregated (Figure 3)
 - More Turkish & less German origin households in Innenstadt, Jungbusch, Waldhof

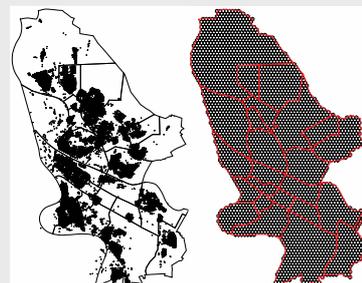


Figure 2: Spatial distribution of households in Mannheim & coarsened display of geographical space

Realistic preferences

- Preferences from survey data (DFG-project "Social and Ethnic Differences in Residential Choices") (Horr 2008; Horr and Volkert 2014) (Figure 4)
- N=1.589 native German and Turkish origin households in the city of Mannheim
- Oversampling of Turkish origin hh's & recent movers

- Random assignment of preferences from empirical distribution dependent on ethnicity

Simulation step scheme

- Loop over all households
- Ethnic preferences satisfied at current location?
- If not, random search thru vacancies
- Household moves into first vacancy that satisfies preferences
- Old location becomes vacant

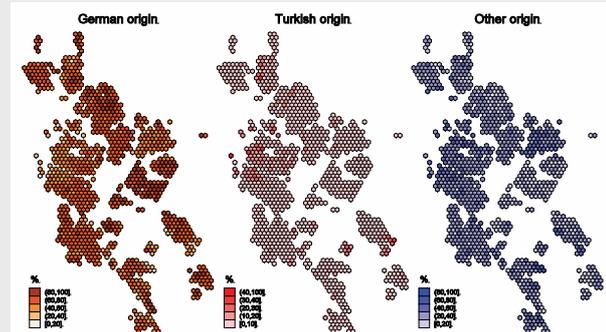


Figure 3: Existing ethnic spatial segregation in Mannheim in 2012

Simulation setup

- Distribution of addresses used as topology
- 4% vacancies randomly generated
- Neighborhood: All addresses within 250m radius (truncated at n=100)
- 161k agents placed on map from 3 ethnic groups (German, Turkish, Other)

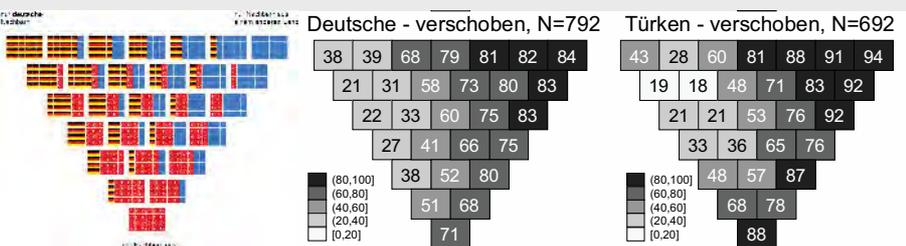


Figure 4: Measurement of ethnic preferences & aggregated distribution of preferences for German and Turkish origin households

RESULTS

Overall weak desegregation (Figure 5)

→ Prevalent stable segregation does not follow from preferences

Limitations

- Short runtime
- No preference measures for "other" migrant households
- Checks for parameter sensitivity pending
- Preferences independent of location

Outlook

- Preferences conditional on additional variables
- Integration of housing market (prices, vacancies)
- Integration of individual variables (mobility costs, search behavior, area of activity)

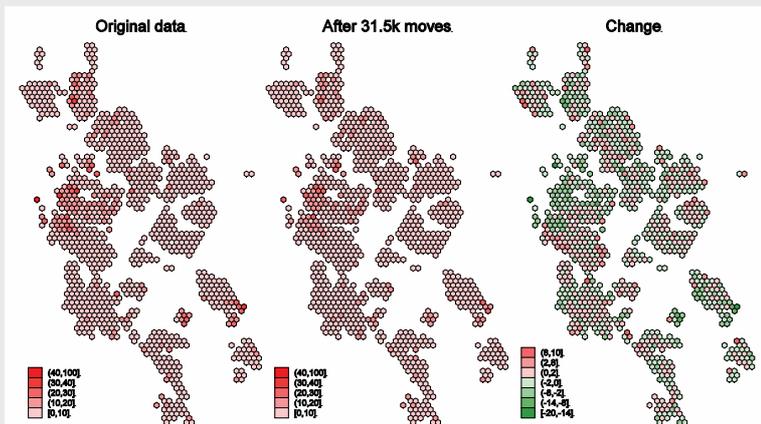


Figure 5: Change in segregation of Turkish origin households after 31.500 moves

CONTACT

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LITERATURE

1. Horr, Andreas 2008. Ethische und soziale Unterschiede der Wohnungssuche und Wohnortwahl. In *Migration und städtischer Raum: Chancen und Risiken der Segregation und Integration*, Hrsg. Felicitas Hillmann, und Michael Windzio, Farmington Hills: Budrich UniPress, 175-192.
2. Horr, Andreas, and Marieke Volkert. 2014. *Ethische und soziale Unterschiede kleinräumlicher Wohnortwahlen*. Final report for the German National Science Foundation (DFG). Mannheim Centre for European Social Research (MZES).
3. Schelling, Thomas C. 1971. Dynamic models of segregation. *Journal of Mathematical Sociology* 1, 143-186.



The Reversal of Gender Inequality in Education in Europe: Implications for Reproductive Behaviour

Jan Van Bavel
André Grow

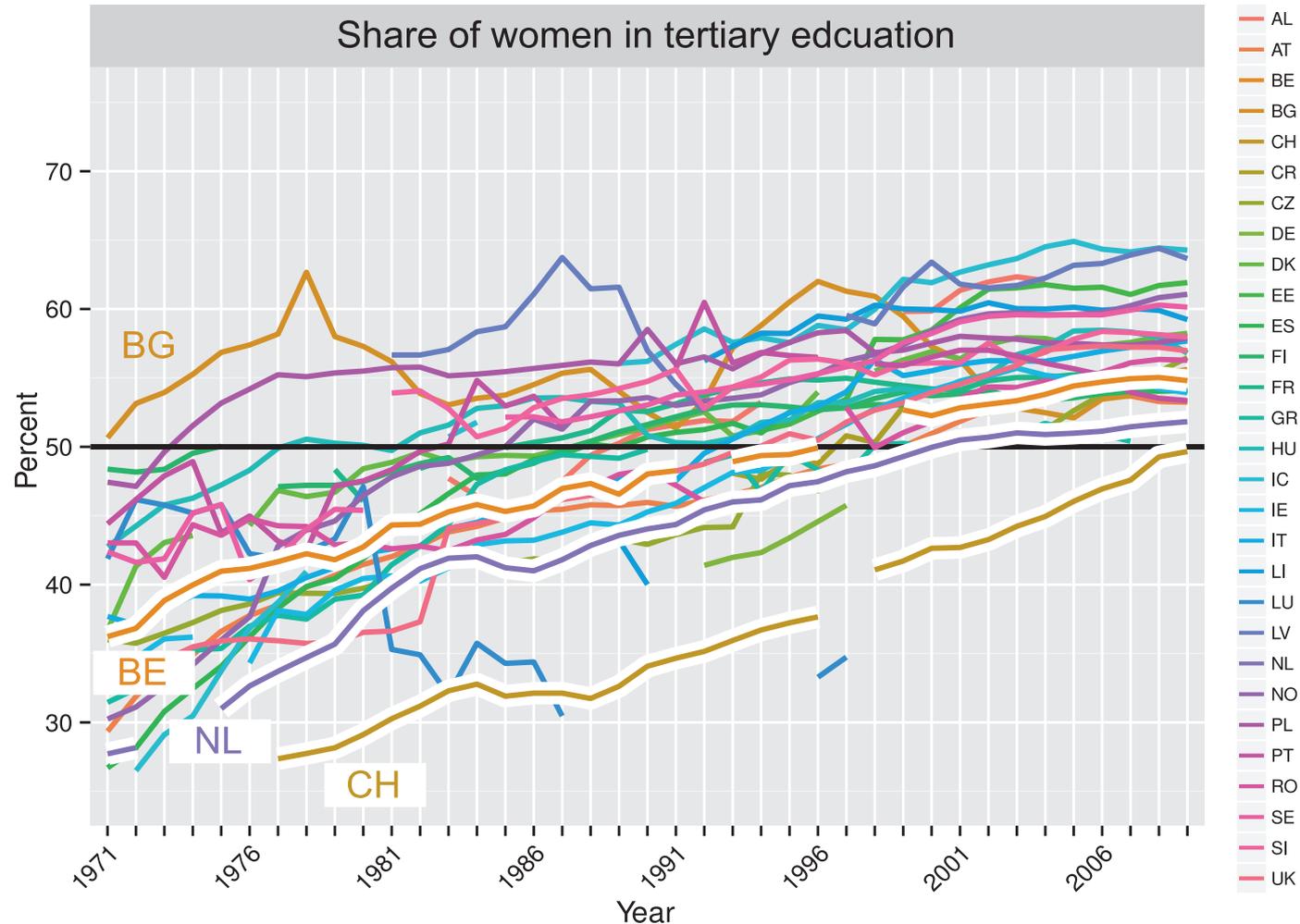
Centre for Sociological Research, KU Leuven
Unit for Family and Population Studies

The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013) / ERC Grant Agreement no. 312290 for the GENDERBALL project. Principal investigator: Jan Van Bavel.



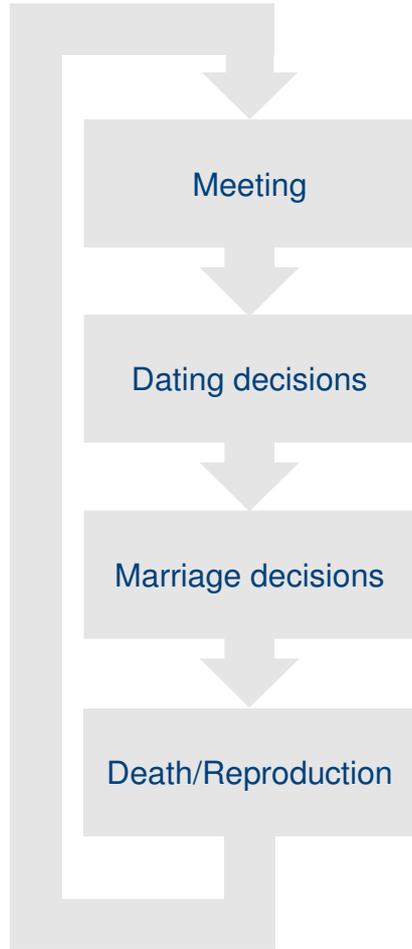
European Research Council
Established by the European Commission

The inequality in educational attainment has changed to the advantage of women

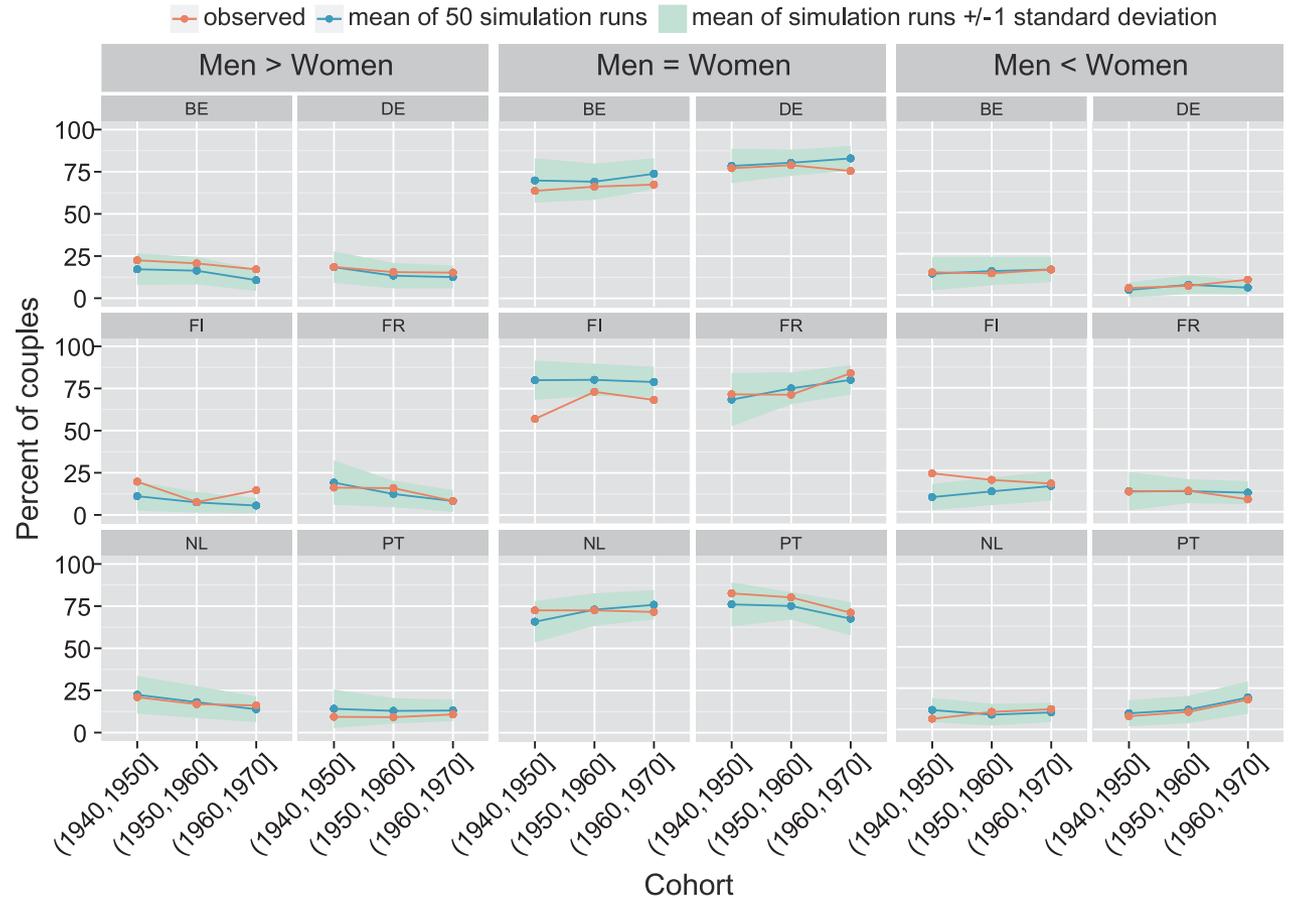


An agent-based computational model of European marriage markets

Modelling steps



Results



ETH zürich



UPPSALA
UNIVERSITET



TRINITY
COLLEGE
DUBLIN

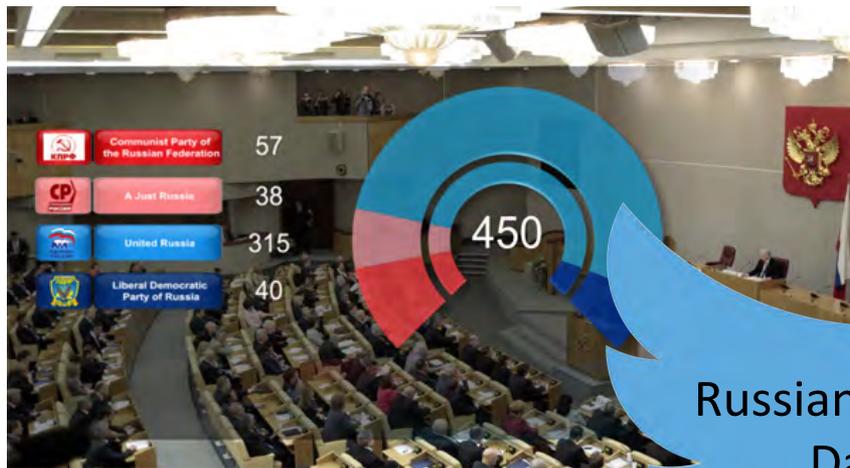
Social Media and Regime Change: The Strategic Use of Twitter in the 2011-12 Russian Protests

Viktoria Spaiser, Thomas Chadeaux,
Karsten Donnay, Fabian Russmann,
Dirk Helbing

Elections and Protests in Russia 2011/2012

Duma elections, 4 Dec 2011

Oppositional protests, 2011/2012



Russian Twitter Data

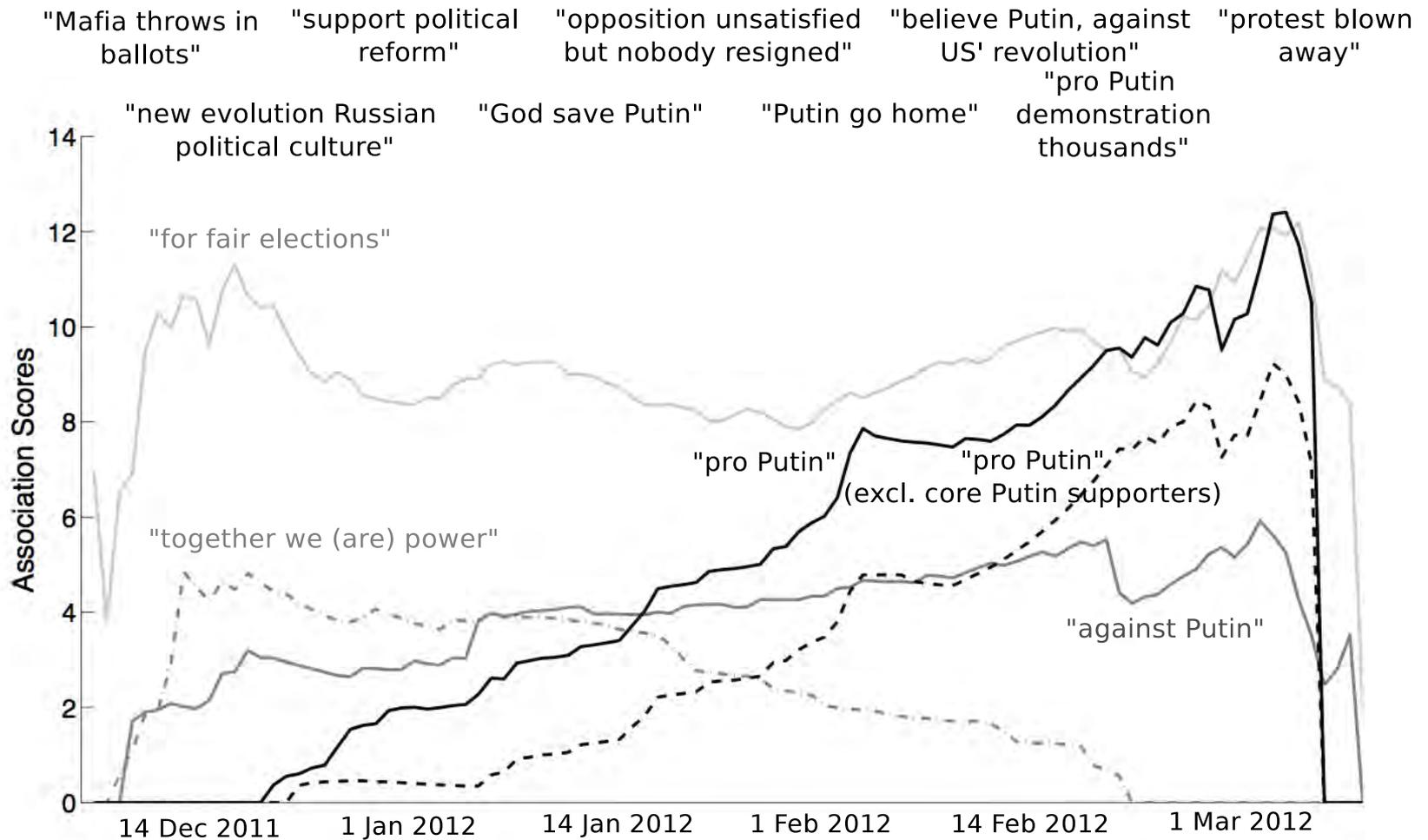
Presidential elections, 4 Mar 2012

pro-Putin rallies, 2011/2012

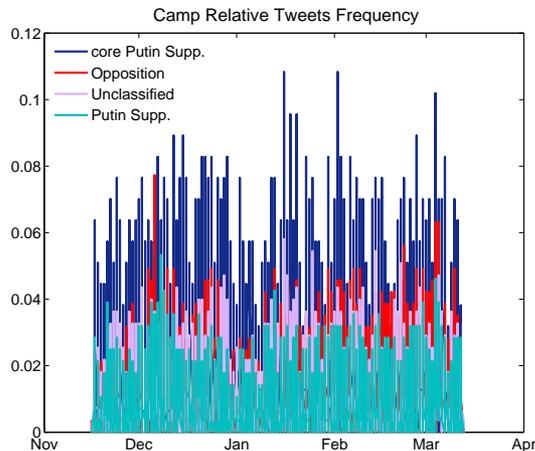
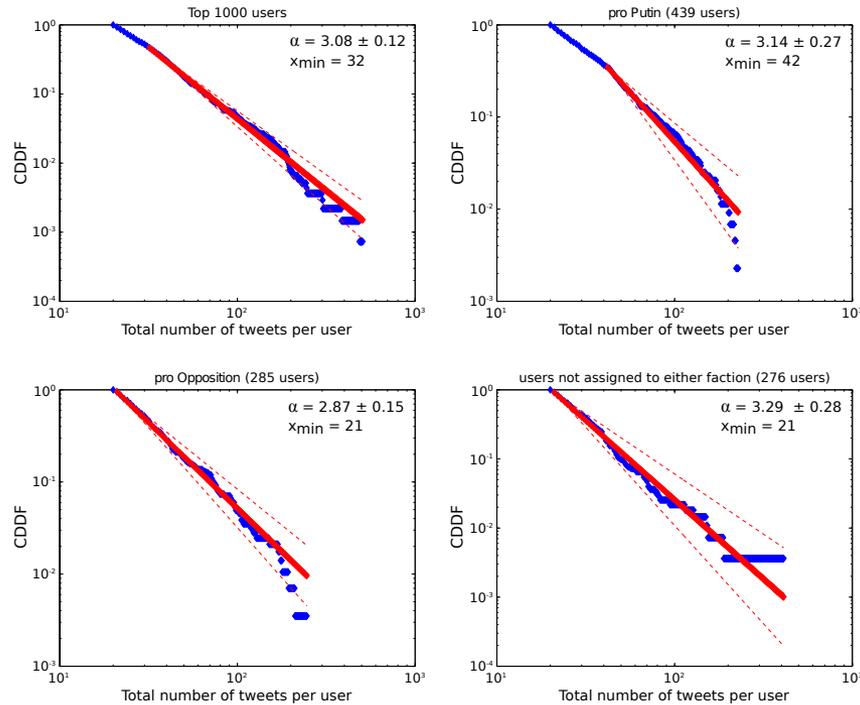
ЖИРИНОВСКИЙ	ЗЮГАНОВ	МИРОНОВ	ПРОХОРОВ	ПУТИН
Владимир Вольфович	Геннадий Андреевич	Сергей Михайлович	Михаил Дмитриевич	Владимир Владимирович
4 409 278	12 166 215	2 723 774	5 536 536	45 109 640
6.23%	17.19%	3.85%	7.82%	63.75%



The decline of the protest movement and the success of the pro-Putin campaign



Communication power (Castells 2009)



Time line	core Putin supporters	Putin supporters
4-Dec-2011	For United Russia (6.34) KPRF refuses to allocate votes to Jabloko (5.31)	For United Russia (4.69) LDPR buys votes with vodka (3.84)
5-Dec-2011	LDPR considers coalition (3.81) UnRu meets in Moscow (3.81)	For United Russia (4.13) 5Dec ChP against forged elections (3.37)
6-Dec-2011	Demonstration Putin supporters (3.63)	Demonstrations split country (3.20) Navalny's arrest political mistake (3.20)
9-Dec-2011	For fair elections (4.38) Udaltsov released (3.58)	Damned WhiteRibbon, keep children away (4.44) No revolution, thanks (3.14) Unfair elections awakened ghosts (3.14)
10-Dec-2011	Demonstration Medvedev supporters in Moscow (4.79)	Our democratic bastards (4.10) You demonstrated, those in power understood (4.10) Fuck the revolution, don't go to Bolotnaya (2.90)
23-Dec-2011	Thousand resolute Nashi members (3.24) God save Putin (2.29)	Modernization supporters, Yes MedvedevRussia (5.29) For fair elections (5.29)
24-Dec-2011	Demonstration for fair elections (7.23) Burned white ribbon(5.18) Huge Putin portrait launched (5.18)	25000 demonstrate on Bolotnaya for fair elections (6.61) Opposition overstates numbers of protesters (6.59)
4-Jan-2012	God saves Putin (4.27)	-
18-Jan-2012	Meeting opposition leaders with US ambassador filmed (3.00) Support Russia, support Putin (2.90)	Meeting opposition leaders with US ambassador filmed (3.23)
4-Feb-2012	Demonstration against fraud elections on Bolotnaya (6.62)	Demonstration, Navalny promised million will come (6.31) 4Feb Bolotnaya demonstrations bought (6.30)
23-Feb-2012	23Feb demonstration pro-Putin (4.64) Medvedev Modernization Innovation (3.31)	23Feb demonstration pro-Putin on Luzhiniki (7.28) Opposition dried up, withered (4.23)
26-Feb-2012	Russia's mothers support Putin's candidacy (5.17) Prokhorov filed for bankruptcy (3.66)	Putin will win, 100 % sure (9.40) Last demonstration, White Circle (6.65) Supporters of Putin mobilize (6.64)
4-Mar-2012	FEMEN female opposition provocation (4.01) Emotional elections (3.27) On Pushkinskaya they pay money (2.99), World leaders congratulate Putin (2.98)	Elections Russian president (3.89), 10 000 pro-Putin supporters gathering (3.42) Navalny arrested (4.54), Police bashes people (4.54)
6-Mar-2012	Opposition demonstration so far hardly attended (4.09)	Majority voted for Putin (5.66) Political columnist beaten up (5.67)
9-Mar-2012	Navalny is dead, proclaimed (6.42)	Obama congratulates Putin (2.34)
10-Mar-2012	Million protesters promised (5.26) Nationalists leave opposition demonstration (5.25)	Election results approved (3.34)

“Meaning Structures” in Political Discourse: Measuring Institutional Dynamics of a Hybrid Democracy via Topic Modeling from Contested Concepts in Newspaper Articles



Oul Han (PhD Candidate, FU Berlin)
JinYeong Bak (PhD Candidate, KAIST)



Introduction: Topic modeling applied to social science

Meaning structures (Mohr, 1998)

+

Newspapers (Schmidt, 2008)

=

Can modeled topics in newspaper data tell us about

- political meaning structures in a hybrid democracy,
 - using which unit of measurement?

≈

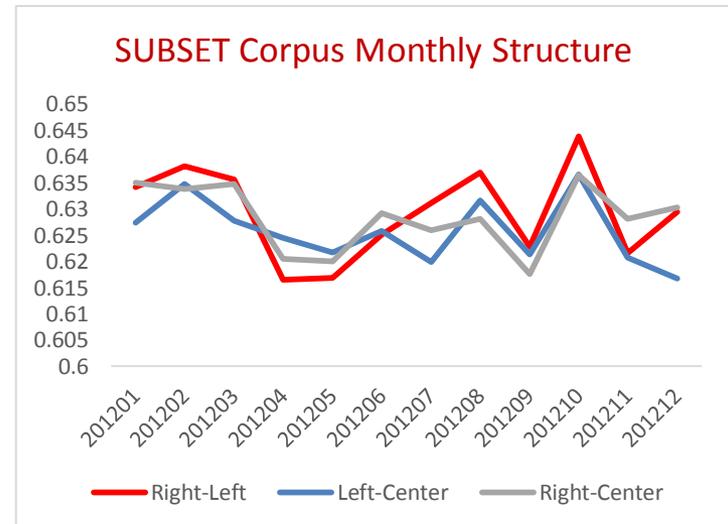
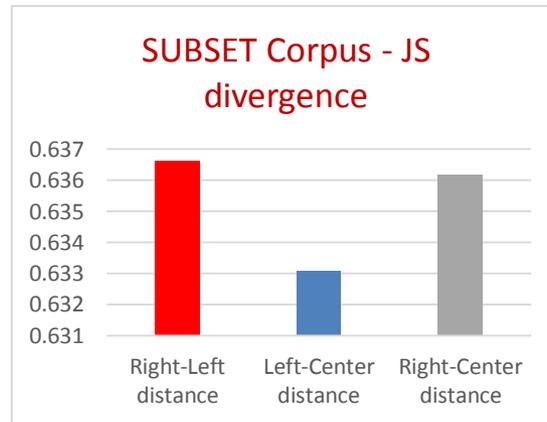
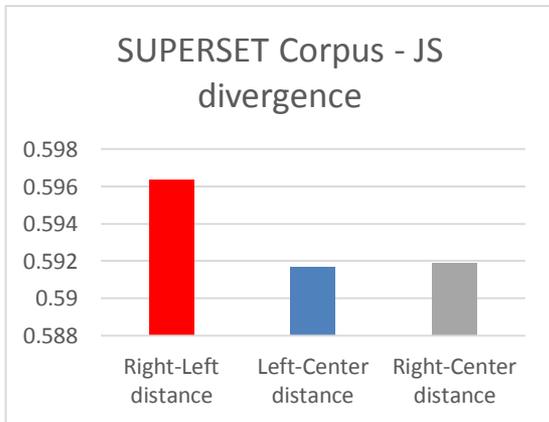
Constructing an indicator for actors' political strategies in a hybrid democracy

Results: Frame divergences

1	2	3	4	5
Topic 82	Topic 253	Topic 41	Topic 199	Topic 143
정부	후보	미사	4대강	정치
이명박	조사	천안함	사업	선거
노무현	여론조사	우리	취	시스템
때	지지율	미사일	녹색성장	국민들
정권	실시	개발	4년	출마
김대중	대결	무기	기자회견	기자회견
부	차이	사거리	극복	미래
집권	격차	미국	4주년	이야기
5년	결과	북한	이명박	체제
	7대	국방부	물	대
동안	오차범위	박사	감사원	세력
2007년		3년	22일	흑색선전
2008년		1 정부	성공적	들
	1	6미	세계	답
증가	반면	한미	탓	분열
복원	기록	잠수함	설명	정책
결과		8군	모두	선언

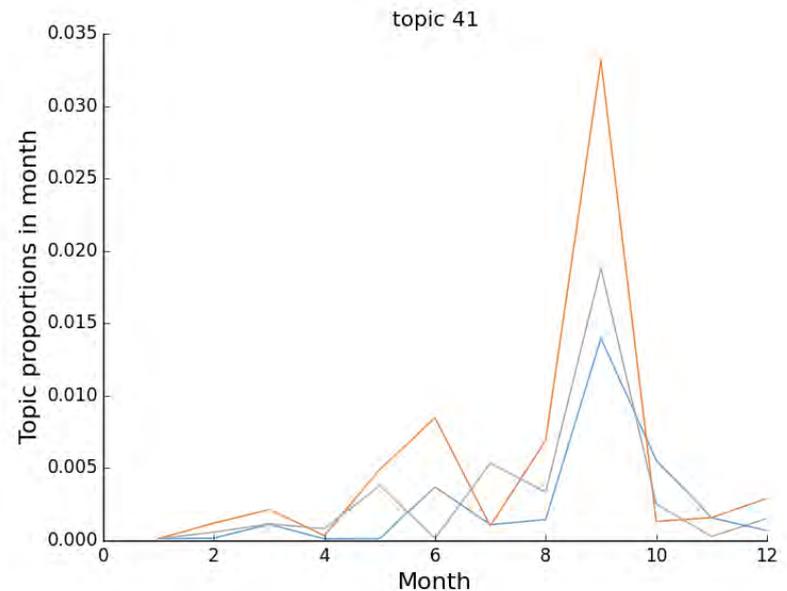
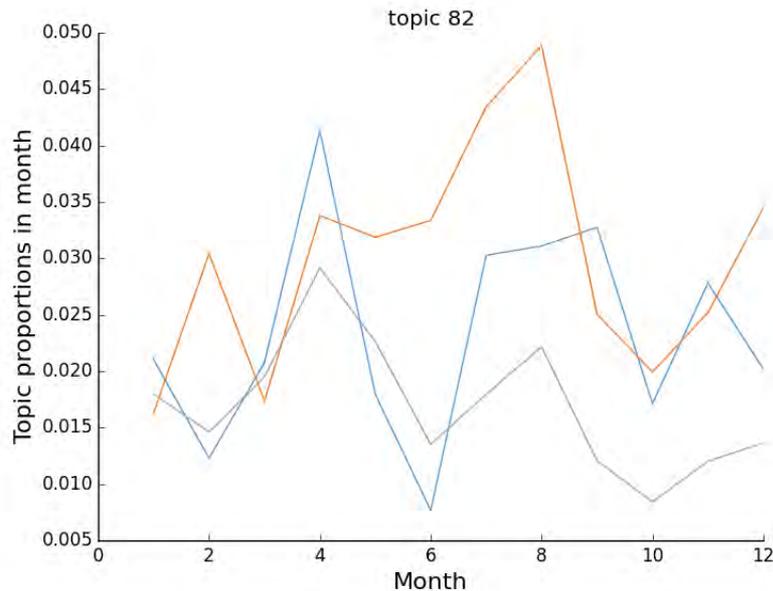


Rank	Example words	Topic
# 1	government, regime, rise, restore, income	Government evaluation
# 2	candidate, survey, support, stand-off	Election critique
# 3	missile, develop, weapon, USA, NoKo	Foreign affairs
# 4	green growth, press conference, world	National development
# 5	election, system, income gap, power, policy	Salient Agendas



Results: Indicator potential

- R1: Modeled meaning structures of political topics indicate common and divided stances on issues while minimizing intrusive effects of researcher bias.



Results: Deep indication

- R2: Divergences of topic use allow evaluation of strategic issue positioning, depending on the content of topics and their political potential to counter-act specific topics.

TOPIC: Economic Democratization					
Right	financialization	reform	conglomerates	left party	candidate Park
Center	conglomerates	financialization	growth	critique	legal
Left	conglomerates	legal	left party	financialization	growth
TOPIC: Jobs and Welfare					
Right	reform	candidate Park	companies	right party	industry
Center	industry	salient agendas	critique	candidates	candidate Park
Left	campaign	industry	right party	election	candidates
TOPIC: Candidate Agendas					
Right	voter forecast	right party	welfare budget	growth	reform
Center	candidates	growth	voter forecast	TV debate	candidate Park
Left	voters	candidates	coalition	parties	campaign
TOPIC: Taxes					
Right	left party	industry	Labor	conglomerates	welfare budget
Center	industry	left party	welfare budget	conglomerates	critique
Left	industry	left party	welfare budget	President	legal

Modeling Dynamic Identities and Uncertainty in Social Interaction: Bayesian Affect Control Theory (BayesACT)

GESIS CSS Winter Symposium, Cologne, Dec. 1st, 2014

Tobias Schröder, Jesse Hoey, & Kimberly B. Rogers

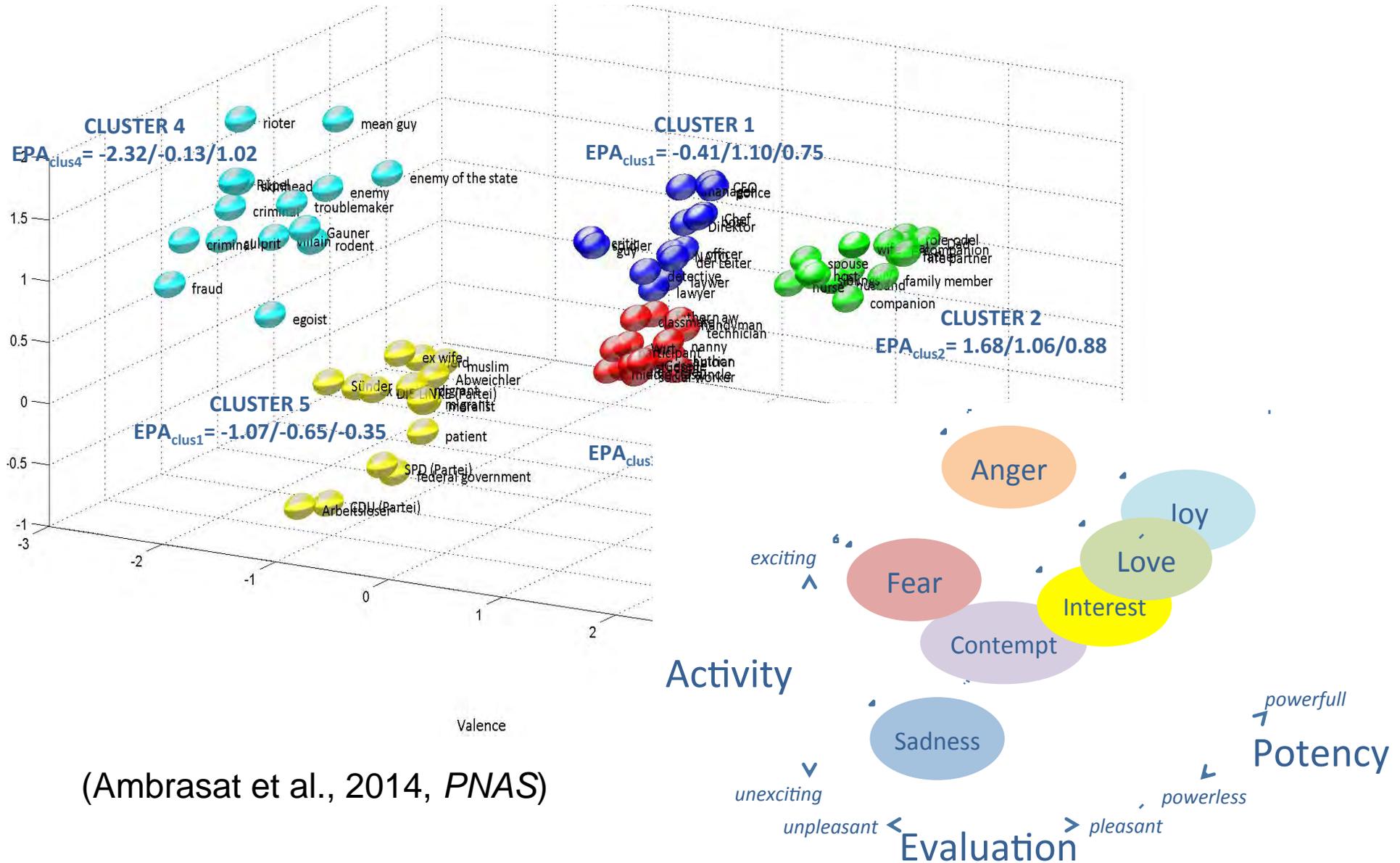
BayesACT

...combines established theory from **Social Psychology** (Affect Control Theory; Heise, 2007) with Bayesian modeling from **Artificial Intelligence**.

...models the dynamic interaction between individuals' **identities** and **emotions** and the **social order**.

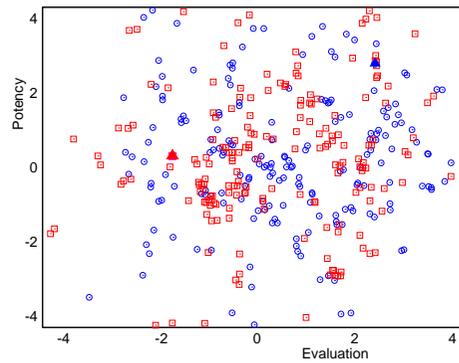
...provides “**psychological grounding**” to computational models of social behaviour.

Collective Representation of the Social Order: Distribution of Identity Concepts in Affective Space

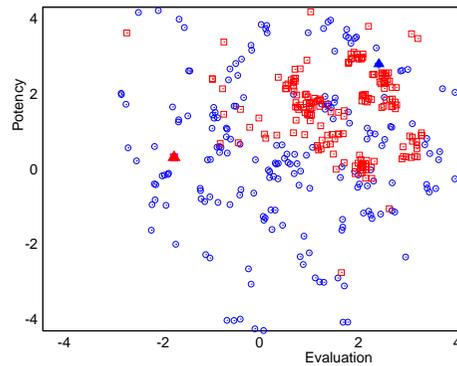


(Ambrasat et al., 2014, *PNAS*)

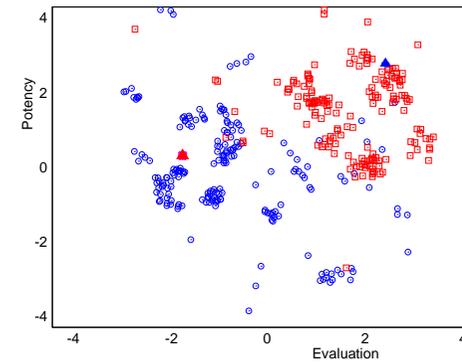
Simulating Social Interaction and the Emergence of Social Structure



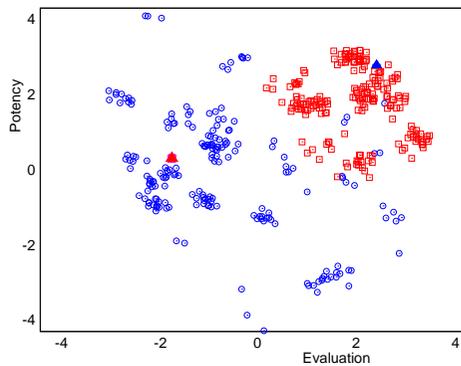
(a) t=0



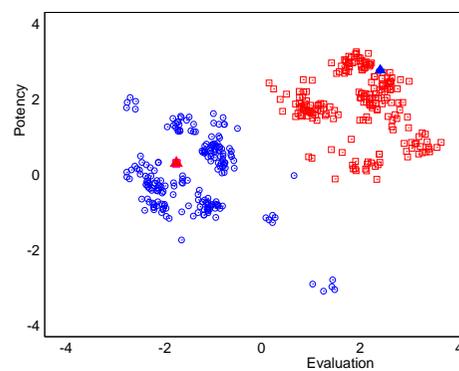
(b) t=1



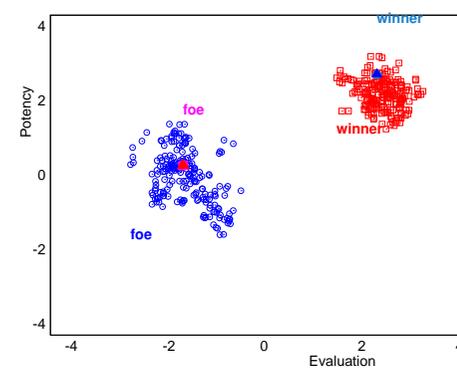
(c) t=2



(d) t=3



(e) t=4



(f) t=21

(Hoey, Schröder, & Alhothali, 2013, *Proc. AII-13*; Hoey & Schröder, in press, *AAAI-15*; Schröder, Hoey, & Rogers, under review)

Exceptional Model Mining Meets Computational Social Science

Martin Atzmueller¹,
Florian Lemmerich², Martin Becker³

¹*University of Kassel, Knowledge and Data Engineering Group*

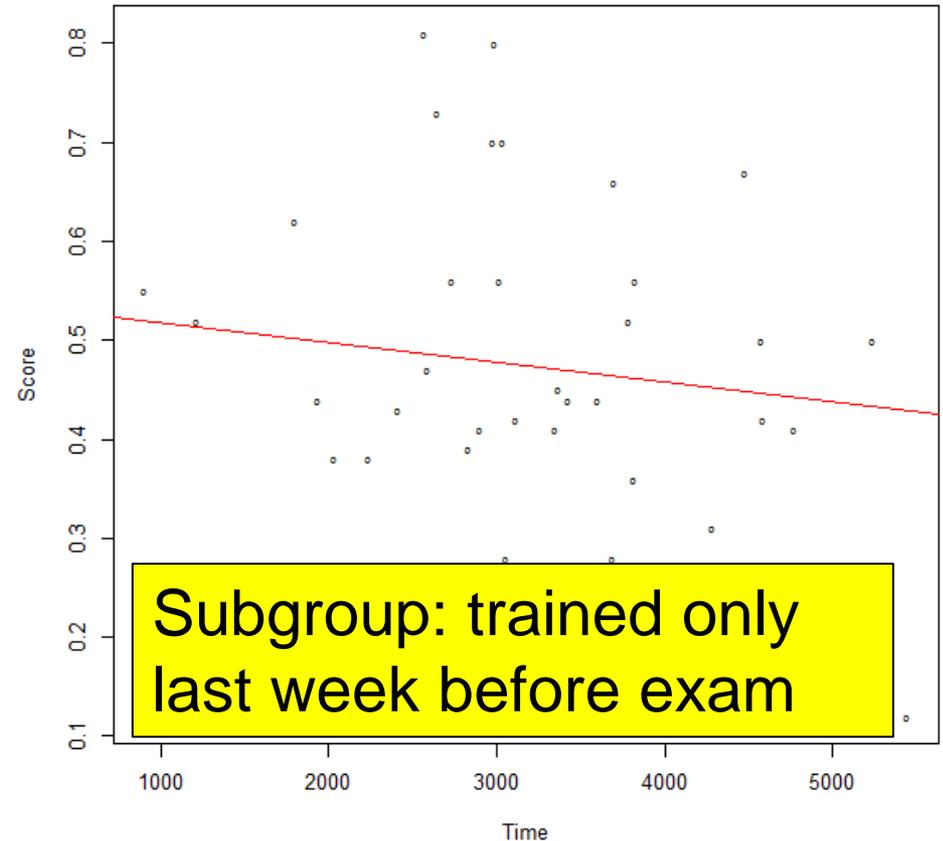
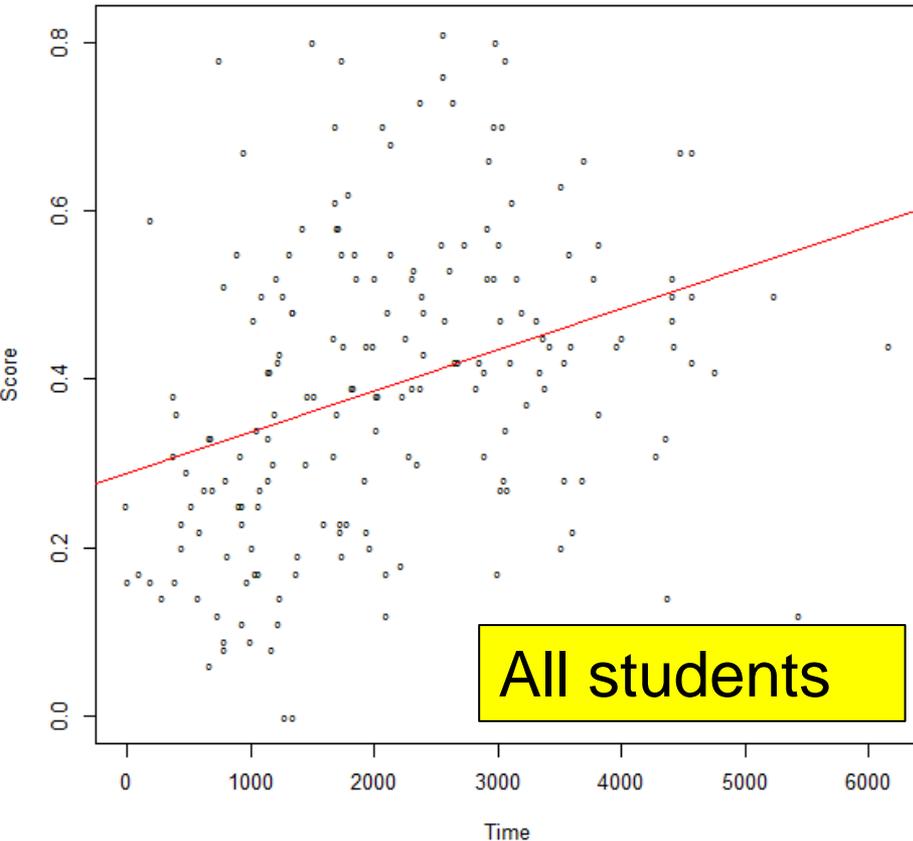
²*University of Würzburg, Artificial Intelligence and Applied Computer Science Group*

³*University of Würzburg, Data Mining and Information Retrieval Group*

Exceptional Model Mining (EMM)

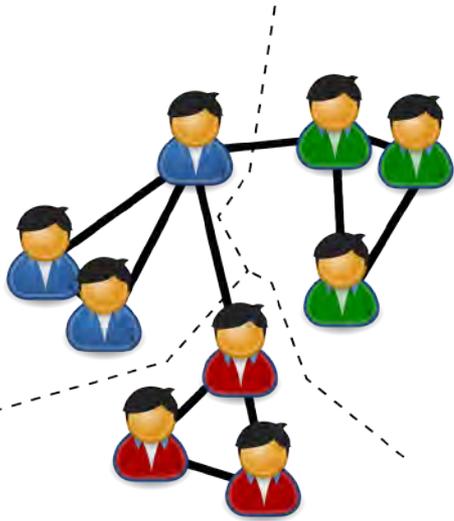
- Detect **subgroups** (described by **patterns**) that are **exceptional** w.r.t. given **model class**, e.g., variance, correlation, classification, network structure, community score, ...

Example: Exceptional subgroup for correlation model class



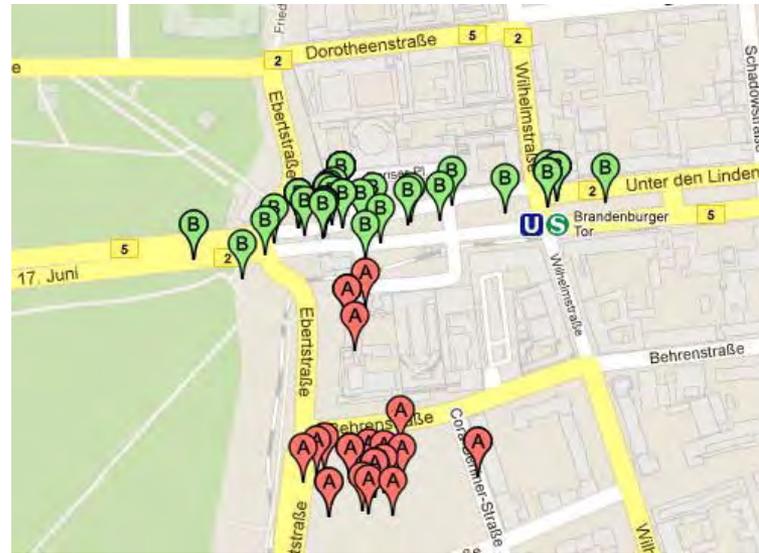
EMM & Computational Social Science

Community detection



Structure & Description

Hotspot detection



Socio-spatial Analysis



Dynamics & Trends

VIKAMINE

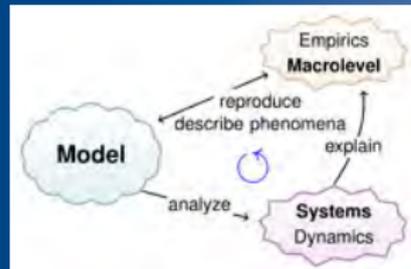
- Exceptional model mining
- Subgroup discovery & analytics
- Large set of visualizations and efficient discovery algorithms (core + plugins)
- Easily extensible by plugins
- Open-Source: GNU LGPL license

Get it here!

<http://www.vikamine.org>

What data landscapes tell us about social processes

Data-driven models from movie ratings, ideology, and party identification



Jan Lorenz www.janlo.de

Bremen International Graduate School for Social Sciences (BIGSSS)
Jacobs University Bremen, Germany

GESIS Computational Social Science Winter Symposium
Köln, Dec 1, 2014

Movie ratings IMDb.com

User ratings for Inglourious Basterds (2009)

Your Vote: 1 2 3 4 5 6 7 8 9 10

142,980 IMDb users have given a [weighted average](#) vote of 8.3 / 10

Demographic breakdowns are shown below.

Votes	Percentage	Rating
47,596	33.3%	10
39,637	27.8%	9
26,904	18.8%	8
12,805	9.0%	7
5,638	3.9%	6
2,725	1.9%	5
1,557	1.1%	4
1,135	0.8%	3
985	0.7%	2
3,939	2.8%	1

Arithmetic mean = 8.4 Median = 8

Ranked #11 in the top 250

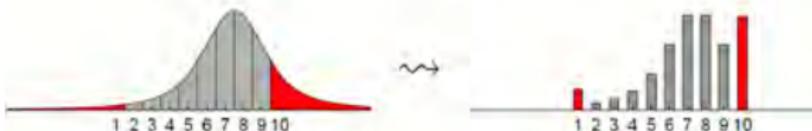
Your Rating: 1 2 3 4 5 6 7 8 9 10

Observations

- (1) Gaussian-like shape on central bins
- (2) Extremal bins higher than

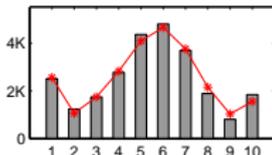
Theoretical Explanations

- (1) Rating is an averaged thing → Central Limit Thm
- (2) Ratings are continuous opinions

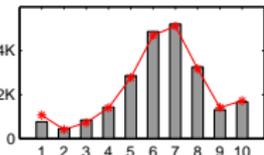


Adjusted **one-parameter fit** works well:

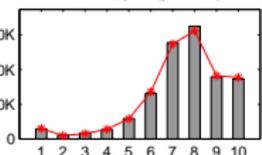
2 Fast 2 Furious (2003)
5.4 stars, μ -fit ($\mu = 4.83$)



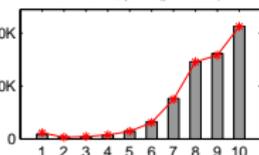
The Man in the Iron Mask (1998)
6.4 stars, μ -fit ($\mu = 6.22$)



Spider-Man (2002)
7.5 stars, μ -fit ($\mu = 7.68$)



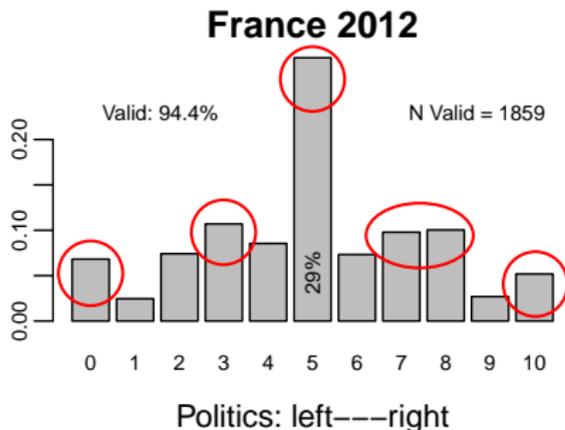
Amadeus (1984)
8.4 stars, μ -fit ($\mu = 8.99$)



Ideology landscapes European Social Survey

Item:

In politics people sometimes talk of 'left' and 'right'. Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?

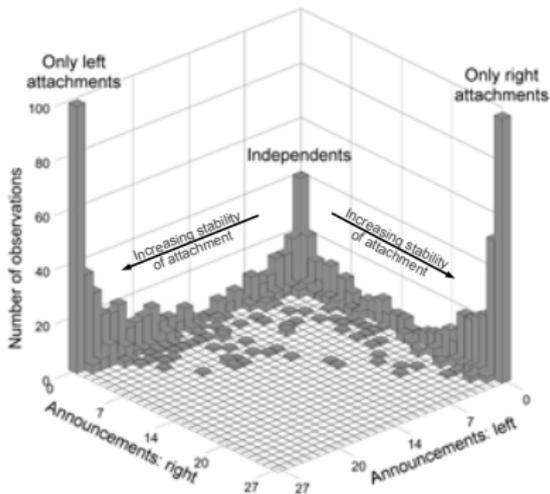


How do multi-peaked opinion landscapes evolve?

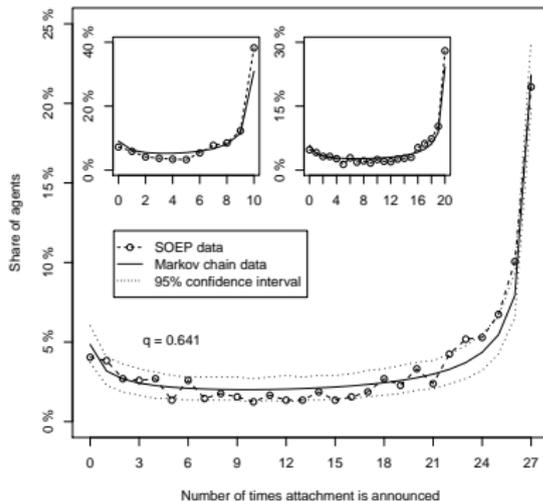
Social mechanism: Social interaction through homophile adaptation can lead to clustering of opinions

Party identification German Socio Economic Panel

Number of announcements 1984-2010



Model fit to general partisan constancy:
Number of announcements of any party attachment



How does the U-shape evolve?

Social mechanism: A self-reinforcing process of stochastic utterance explains the distribution well.

NOT SURE IF HUMAN SOCIAL NETWORK



OR DOG SOCIAL NETWORK

imgflip.com





DOGSTER TIPS
8 Reasons to Add
Olive Oil to Your
Dog's Diet

Search!

- MAGAZINE
- VIDEO
- BOOK OF DOG
- ANSWERS
- GALLERIES
- ADOPTION
- COMMUNITY**

Bella

Australian Cattle Dog/Breed Unknown



Photo Comments

Home: SF Bay Area, CA

[I have a diary!]

Age: 12 Years Sex: Female Weight: 26-50 lbs

Add This Pup as a Friend



DOGSTER PLAY TOYS



Dogster stats for Bella
 Corralled: 198 times Pals: 191 Views: 27525
 Paws: by 1 voter
 Stars:

Leave a bone for Bella

Nicknames:

Bella Boo, Miss Boo, Boo Bell, Belly Butt, Belly Bop, Miss Wiggle Butt

Meet my family



Buck



Shadow



Sunny



Oliver

Adopted



Lucy *RIP*



Calvin

Meet my Pup Pals

See all my Pup Pals



Mac



Molly (RIP
11/2/2010)



Pucker-Poo



Lolita

Predict Whether Two Dog Profiles Were Created By the Same User

Table 3: Homophily analysis comparing the strength of homophily across friendships r_{ij} and the strength of homophily within accounts r_{ii} . The multi-profile assortativity ratio is shown as r_{cat} .

	Cats			Dogster			Hamsterster		
	r_{ij}	r_{ii}	r_{cat}	r_{ij}	r_{ii}	r_{cat}	r_{ij}	r_{ii}	r_{cat}
Race ^a	0.0138 ^{***}	0.3137 ^{***}	22.748	0.1556 ^{***}	0.3065 ^{***}	1.970	0.0973 ^{***}	0.5449 ^{***}	5.497
Sex ^a	0.0048 ^{***}	0.0472 ^{***}	9.848	0.0075 ^{***}	0.0154 ^{***}	2.040	0.0083 ^{***}	0.1180 ^{***}	14.204
Coloration ^a	0.0076 ^{***}	0.0109 ^{***}	7.864	—	—	—	0.0219 ^{***}	0.1196 ^{***}	3.325
Weight range ^a	—	—	—	0.1498 ^{**}	0.2590 ^{**}	1.729	—	—	—
#Friends ^b	-0.5232 ^{***}	0.7079 ^{***}	1.158	-0.2893 ^{***}	0.6487 ^{***}	2.242	-0.0310 ^{***}	0.6859 ^{***}	22.108
Birth date ^c	0.0406 ^{**}	0.2380 ^{**}	7.210	0.0385 ^{**}	0.2131 ^{**}	3.613	0.8542 ^{**}	0.5613 ^{**}	1.585
Join date ^c	0.4219 ^{***}	0.7327 ^{***}	1.737	0.0581 ^{**}	0.2708 ^{**}	1.302	0.3723 ^{**}	0.8266 ^{**}	1.444
Join age ^c	0.0187 ^{**}	0.2600 ^{**}	13.878	-0.0175 ^{**}	0.1228 ^{**}	3.663	0.0017 ^{**}	0.3615 ^{**}	11.495
Weight ^d	0.0087 ^{**}	0.1827 ^{**}	20.901	—	—	—	—	—	—
Location ^e	0.0888 ^{**}	0.1827 ^{**}	20.901	0.1112 ^{**}	—	—	0.1963 ^{**}	—	—

*** and ** denote an estimate on the error of less than 0.1% and 1%, respectively [15] Eq. (5)
 ** and * denote a p-value of less than 0.001 and 0.01, respectively.
^a Categorical variable; numbers denote the assortativity coefficient [25] Eq. (21).
^b Numerical variable; numbers denote the Pearson correlation coefficient [15] Eq. (21).
^c In Dogster, the weight can only be chosen from a predefined set of ranges.
^d In Catster, the exact pet weight can be specified.
^e Not computed for households as all pets in one household share their location.



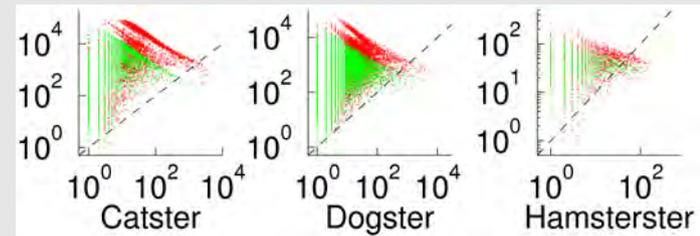
Table 6: Results of family tie prediction.

Feature	AUC			Regression weights		
	Cat	Dog	Ham.	Cat	Dog	Ham.
Degree difference	82.3%	75.7%	72.3%	0.09	-0.27	0.22
Friend ^a	50.3%	50.6%	—	4.83	3.76	—
Common friends	79.0%	91.5%	71.7%	-0.46	0.71	4.98
Jaccard index	82.8%	92.2%	76.2%	5.78	9.73	1.25
Same race	66.4%	66.2%	76.4%	1.32	3.08	0.92
Same sex	51.9%	50.3%	54.2%	0.07	0.02	-0.09
Same coloration ^b	57.2%	—	59.4%	0.95	—	5.59
Same location	87.2%	90.3%	99.6%	11.02	8.92	21.21
Birth date difference	53.7%	50.1%	73.5%	-0.41	-0.30	0.42
Same join date	79.7%	74.6%	78.2%	6.08	5.44	6.21
Join date difference	90.8%	87.6%	91.9%	1.19	0.87	-0.24
Join age difference	52.7%	48.7%	66.2%	0.42	0.30	-0.88
Weight difference ^c	41.6%	—	—	-0.01	—	—
Same weight ^c	—	61.9%	—	—	0.52	—
Regression	99.3%	99.6%	99.9%	—	—	—

^a Hamsterster does not allow friendship links within one household.
^b Dogster does not allow to specify a dog's coloration.
^c Catster allows exact weights and Dogster has weight ranges.

This poster
is brilliant!

Social Networking By Proxy: A Case Study of Catster, Dogster and Hamsterster



Jérôme Kunegis

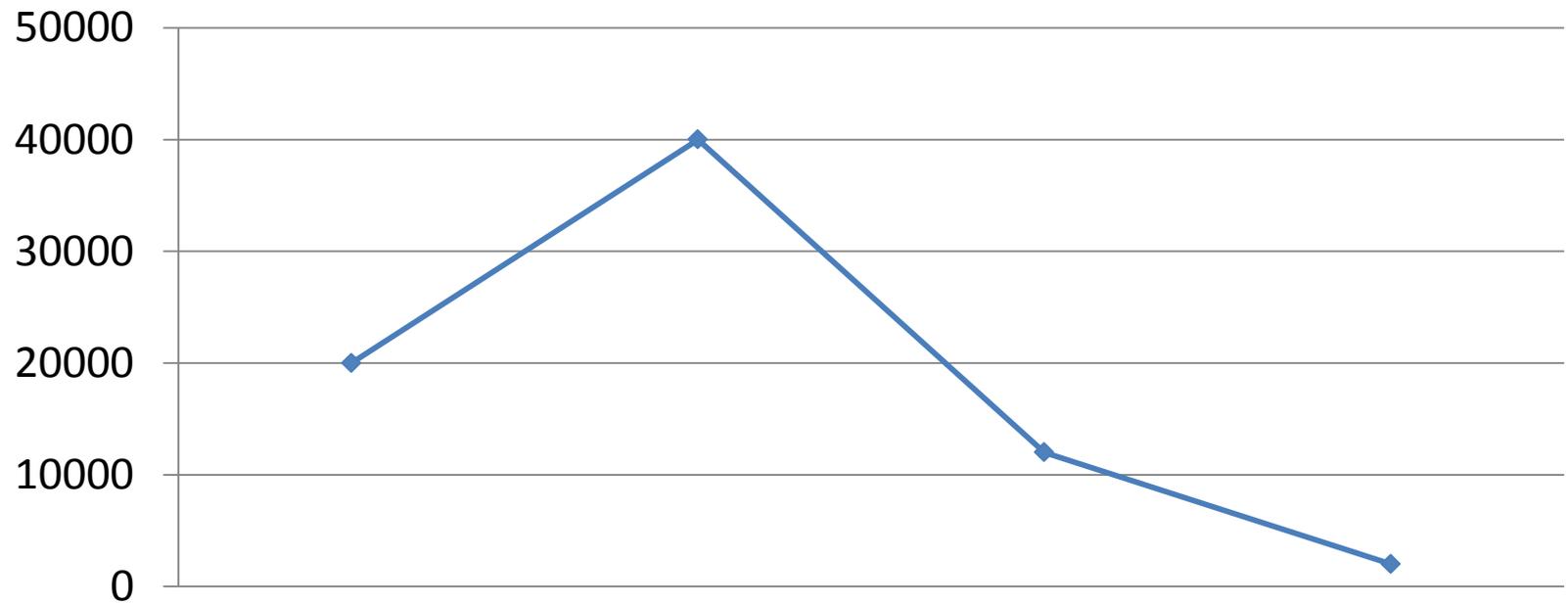
University of Koblenz-Landau

A photograph of a food stall with a counter displaying various dishes. The dishes include dumplings, fried chicken, skewers, and other prepared foods. In the background, a person is visible behind the counter. The text "Spatial and Temporal Patterns of online food preference" is overlaid on the top half of the image.

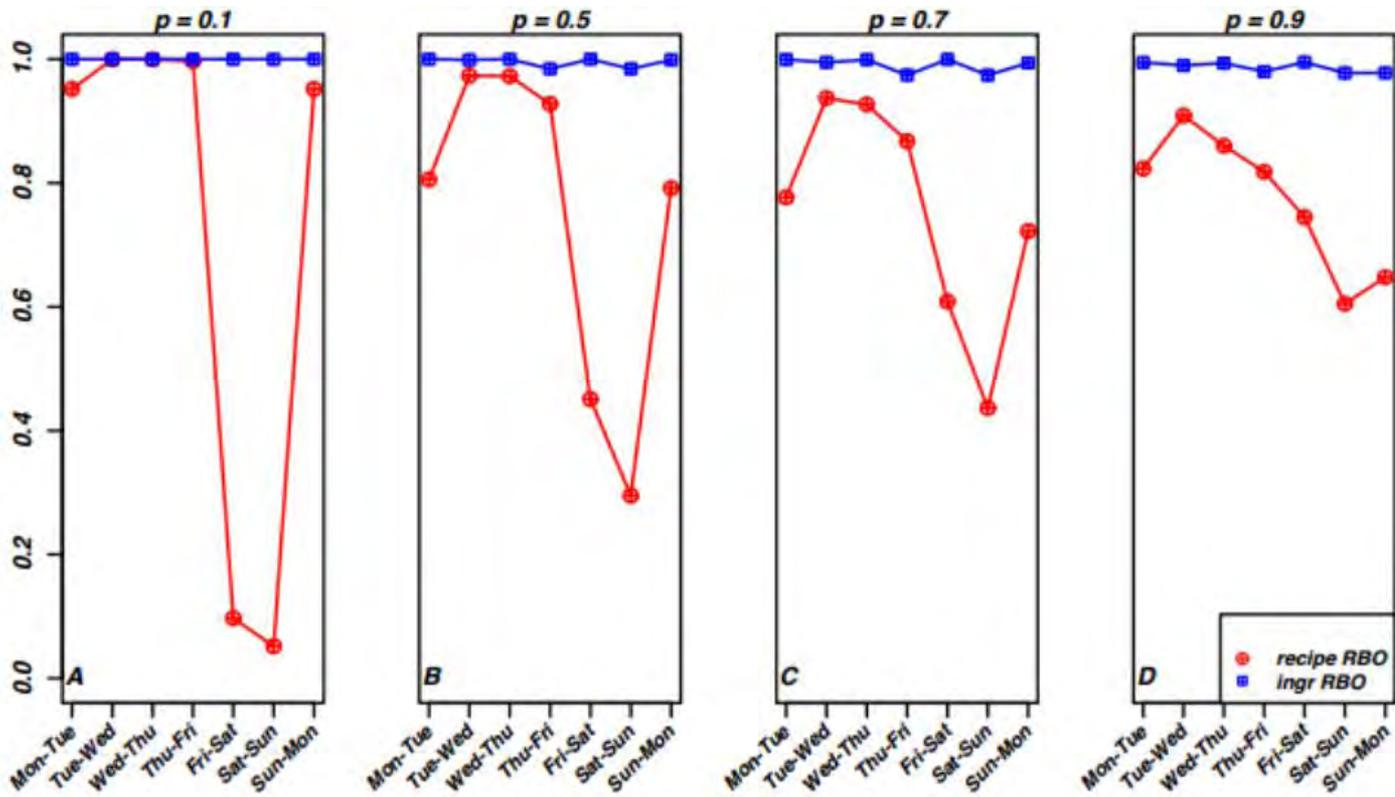
Spatial and Temporal Patterns of online food preference

Claudia Wagner, Philipp Singer and Markus Strohmaier
GESIS

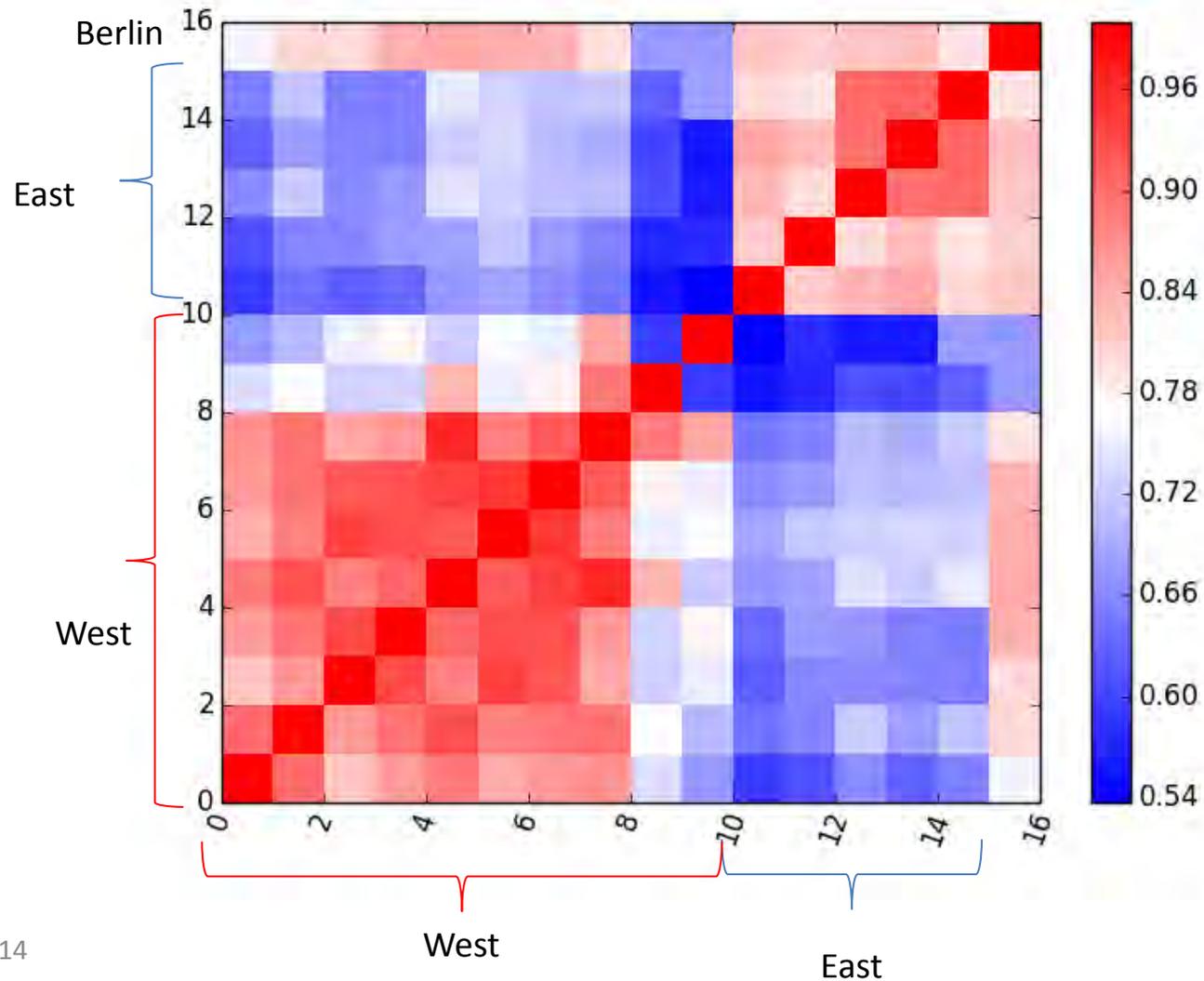
Recipe Popularities



$$RBO(\sigma_1, \sigma_2, p) = (1 - p) \sum_{d=1}^{\infty} \frac{\sigma_{1:1:d} \cap \sigma_{2:1:d}}{d} p^{(d-1)}$$



Regional Similarities



The Instructor's Face in Video Instruction: Learners' Choice, Visual Attention, and Longitudinal Effects

René F. Kizilcec¹

Department of Communication

Joint work with Kathryn Papadopoulos², Lalida Sritanyaratana³,
Charles Gomez¹, Jeremy Bailenson¹

¹ Stanford University ² Citrix ³ GoogleX

Observational Field Study

Concepts

B. Environmental Niche

- **Fundamental niche:**
 - A region of the resource space in which an organization can persist in the absence of competition (e.g., education)
- **Realized niche:**
 - The subset of the fundamental niche in which an organization can sustain itself in the presence of given competitors (e.g., private or charter school)

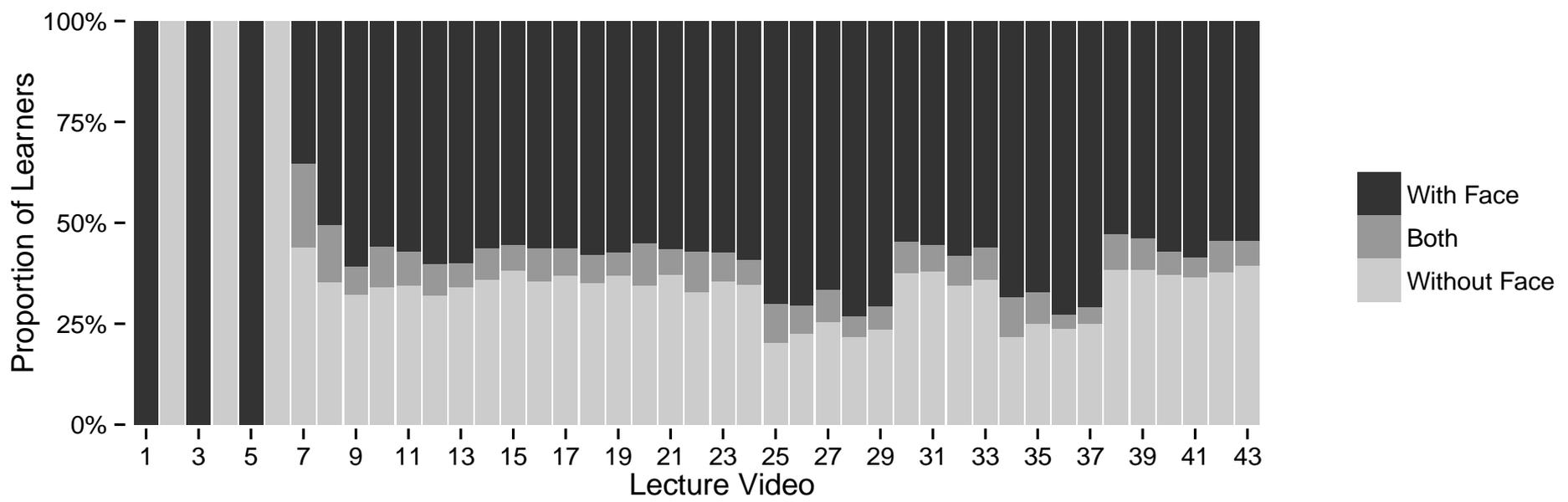
McFarland Lectures

Concepts

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McFarland Lectures

Eye-tracking Experiment

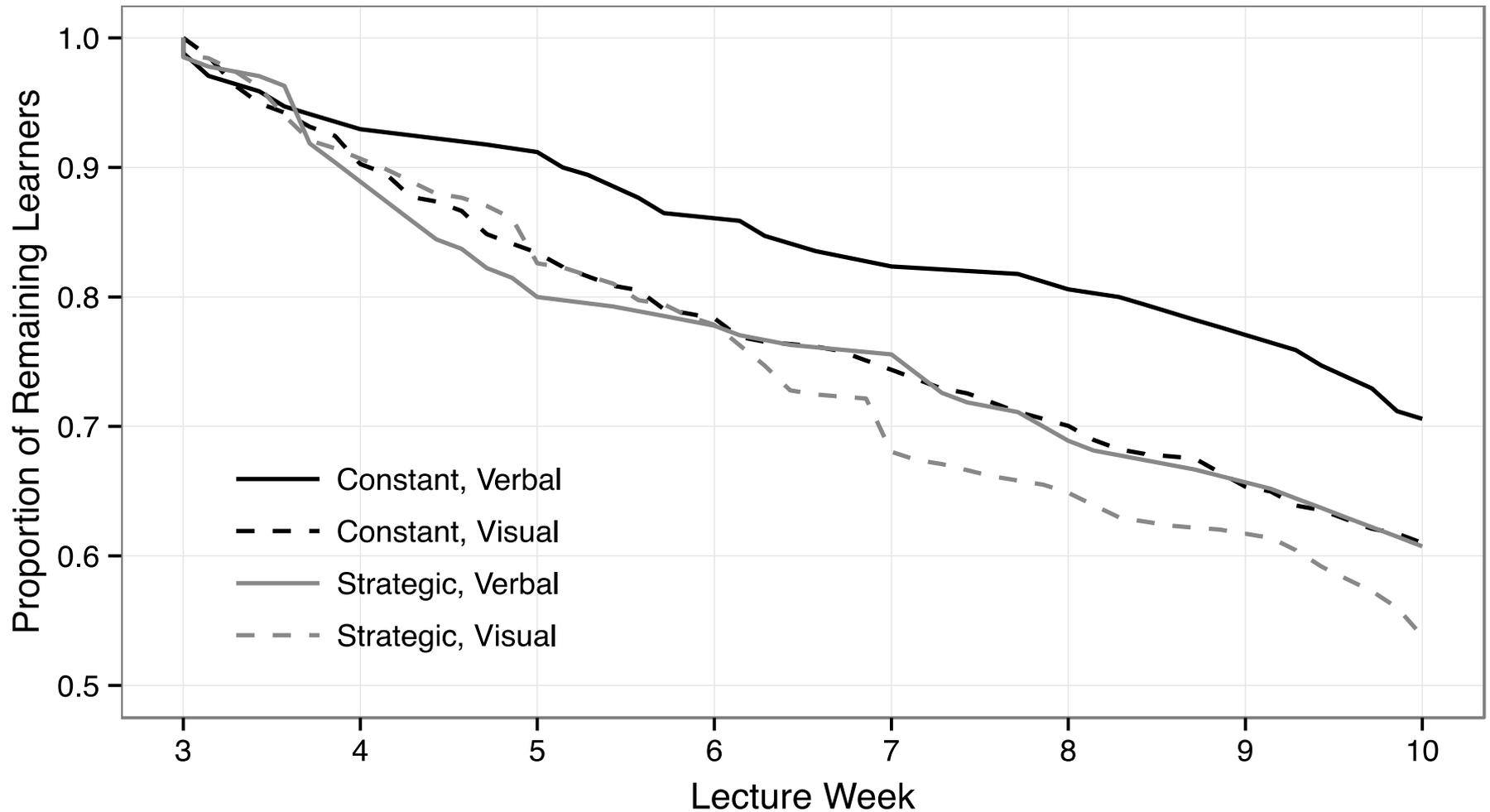
Face Present



Face Absent



Field Experiment



The Hidden Data of Social Media Research: Exploring Practices and Problems of Studying Social Media Data



Dr. Katrin Weller

katrin.weller@gesis.org

Twitter: @kwelle

<http://katrinweller.net>



Dr. Katharina E. Kinder-Kurlanda

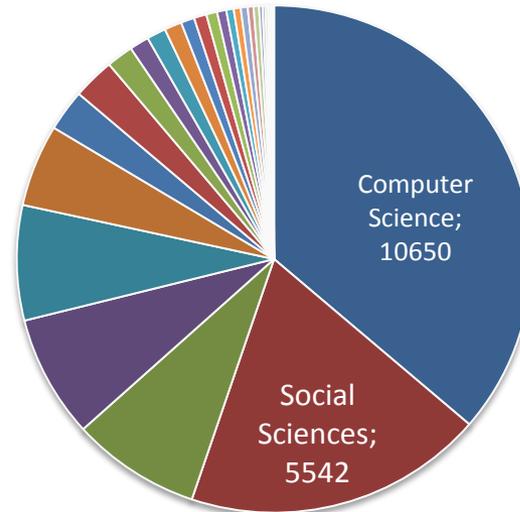
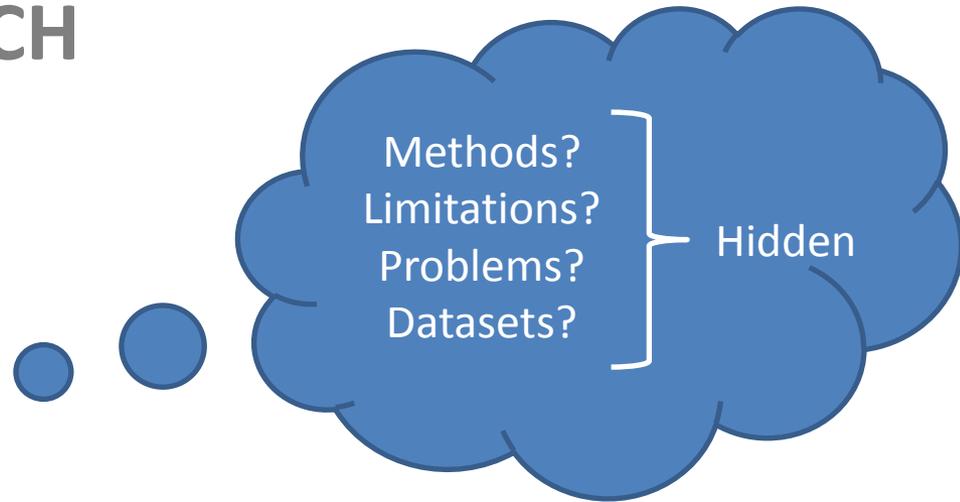
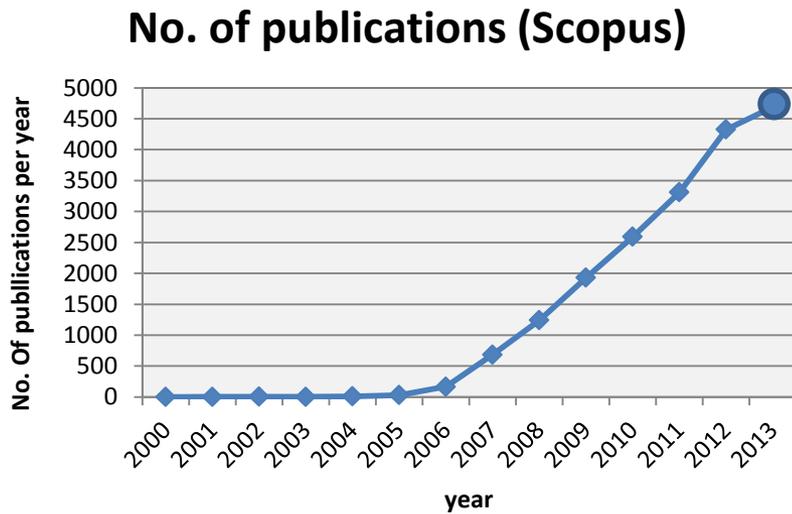
katharina.kinder-kurlanda@gesis.org

Twitter: @ka_kinder

<http://www.gesis.org/sdc>



SOCIAL MEDIA RESEARCH



QUALITATIVE APPROACH



FIRST RESULTS

interdisciplinarity

“I always feel it must be great to be a **hacker!**”

research ethics

“I love thinking about **ethics!**”

“I would like more **tools** for collecting data. From services that aren't Twitter.”

„one wish“



The Power of Super-Voters in Online Delegative Democracy

Christoph Carl Kling, Jérôme Kunegis,
Heinrich Hartmann, Markus Strohmaier



Voting Platform of the German Pirate Party

Complete voting/delegation history over 1,200 days.

13,836 members

14,964 delegations

499,009 votes

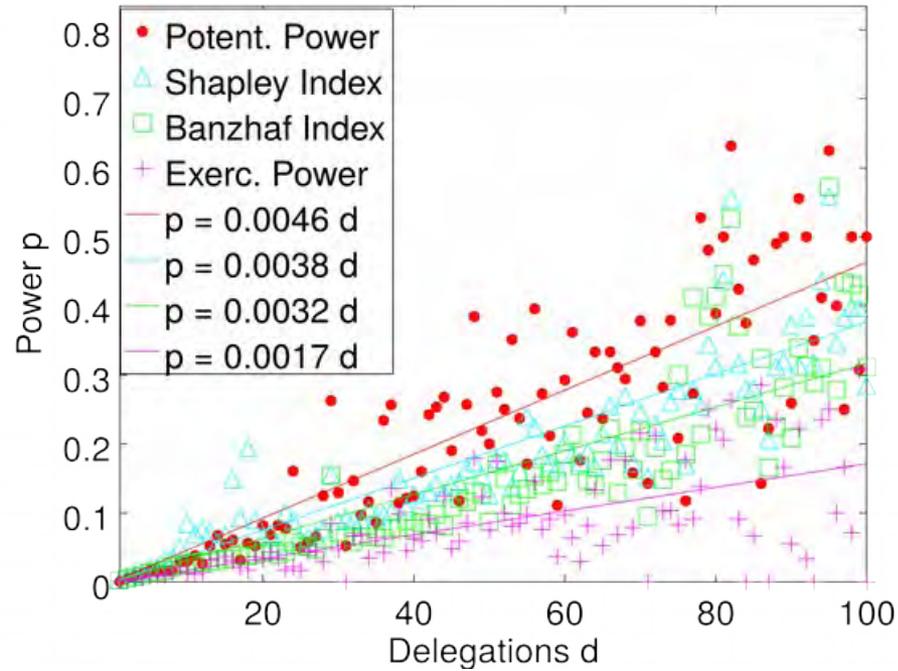
Power:

Ability to turn the outcome of a vote.

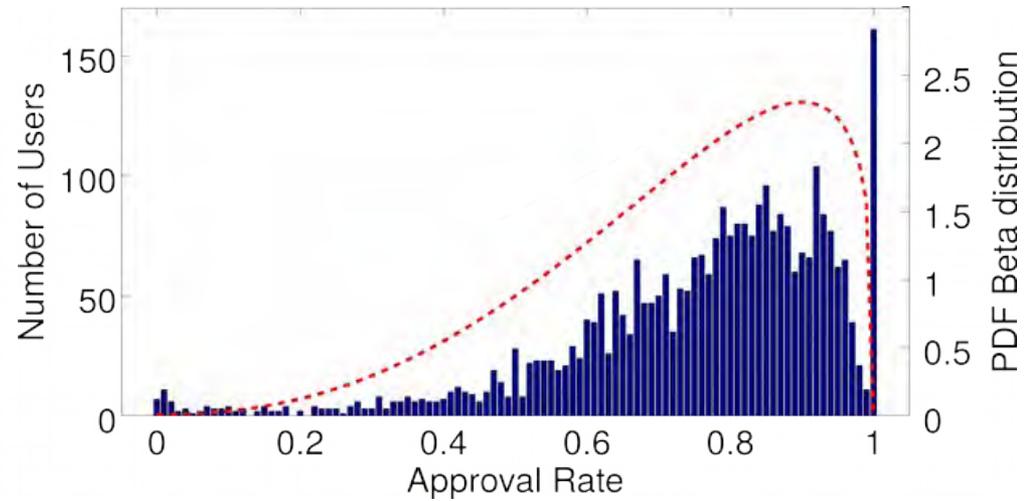
Power Indices:

Predict the power of a user.

Power

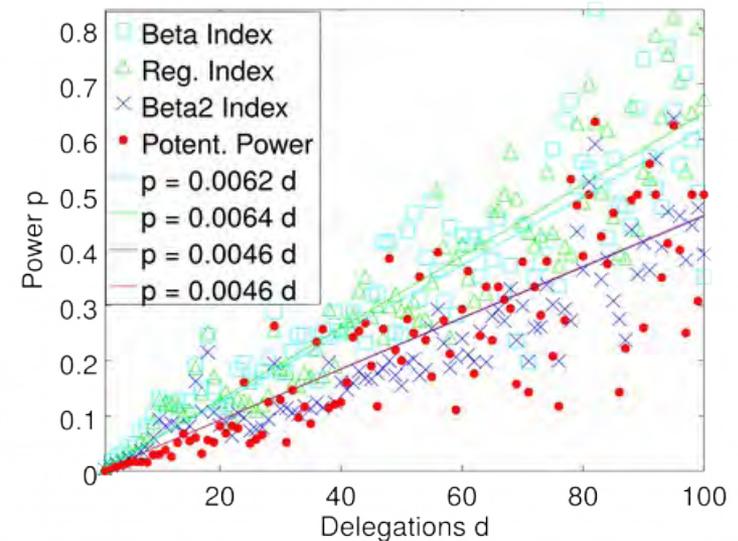


Voting Bias



Results

First evaluation of power indices on a large voting history.



Including voting bias in power indices improves the prediction.

Super-Voters use their power “wisely”.

Interlinking of Structure and Culture

Exploring the Spatial Representations of Science Semantics Using LSA and Bipartite Networks

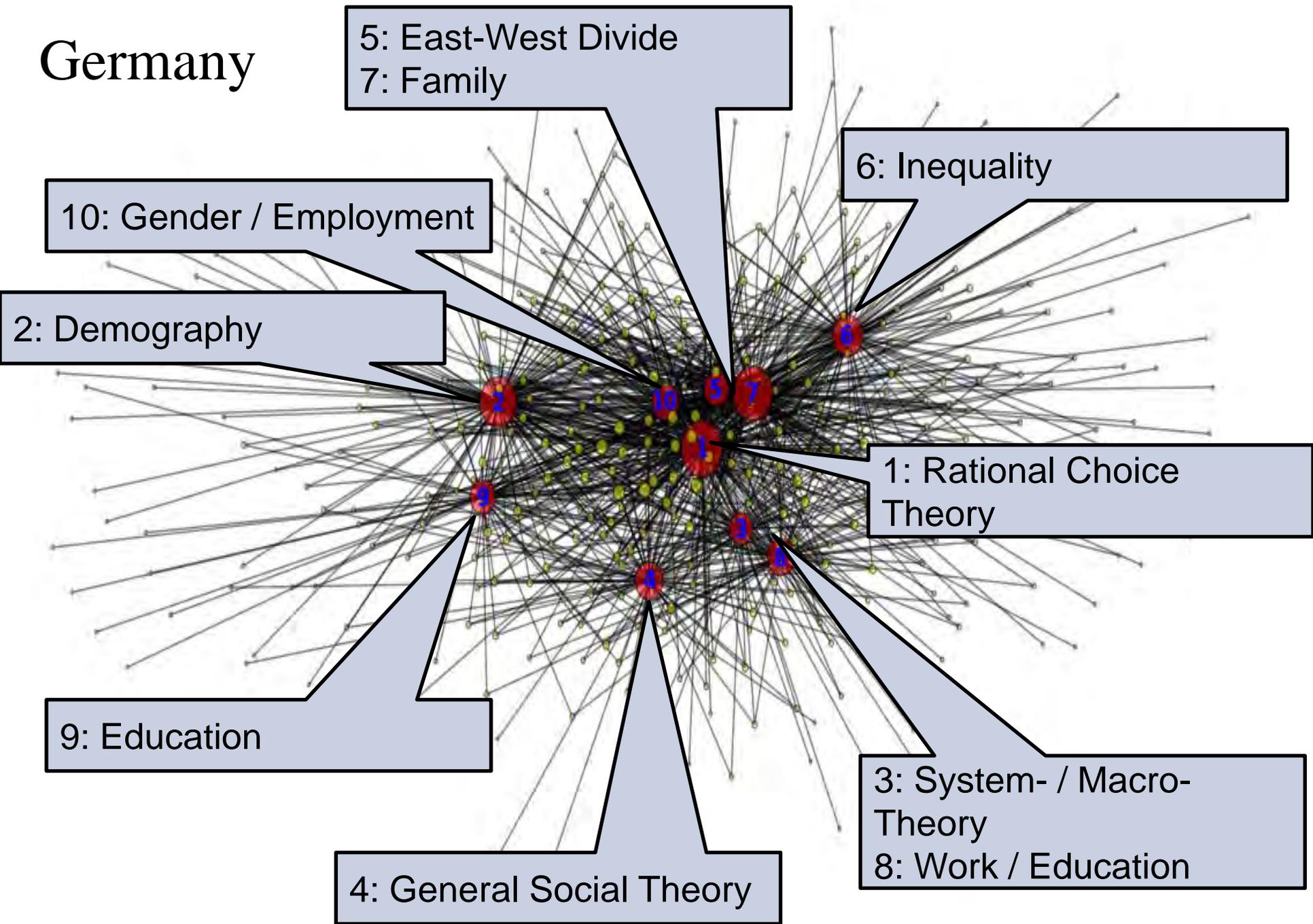
Jan R. Riebling, Raphael H. Heiberger

- 2 perspectives in Sociology of Science:
 - macro-structural (institutions, disciplines, topics)
 - micro-cultural (scientific practice, knowledge cultures)
- How can we analyze the interaction of both levels?
- Representing the topology through:
 - Dominant topics of scientific discourse → Topic Modelling
 - Focus of scientific practice on specific topics → 2-Mode Networks

Methods

- Latent Semantic Analysis → Structure of Topics
 - No stemming (standard algorithms not suited)
- Bipartite Networks → Relation of authors to the semantic space
 - „Folding In“ of the cumulative abstracts of an author
 - Cutting all ties below 0.02 („elbow criteria“)
- Comparing the UK and Germany
- Dataset
 - WOS Abstracts from 1991 to 2010
 - Most influential, non-specialized Journals (3 UK; 3 Ger.)

Germany



UK

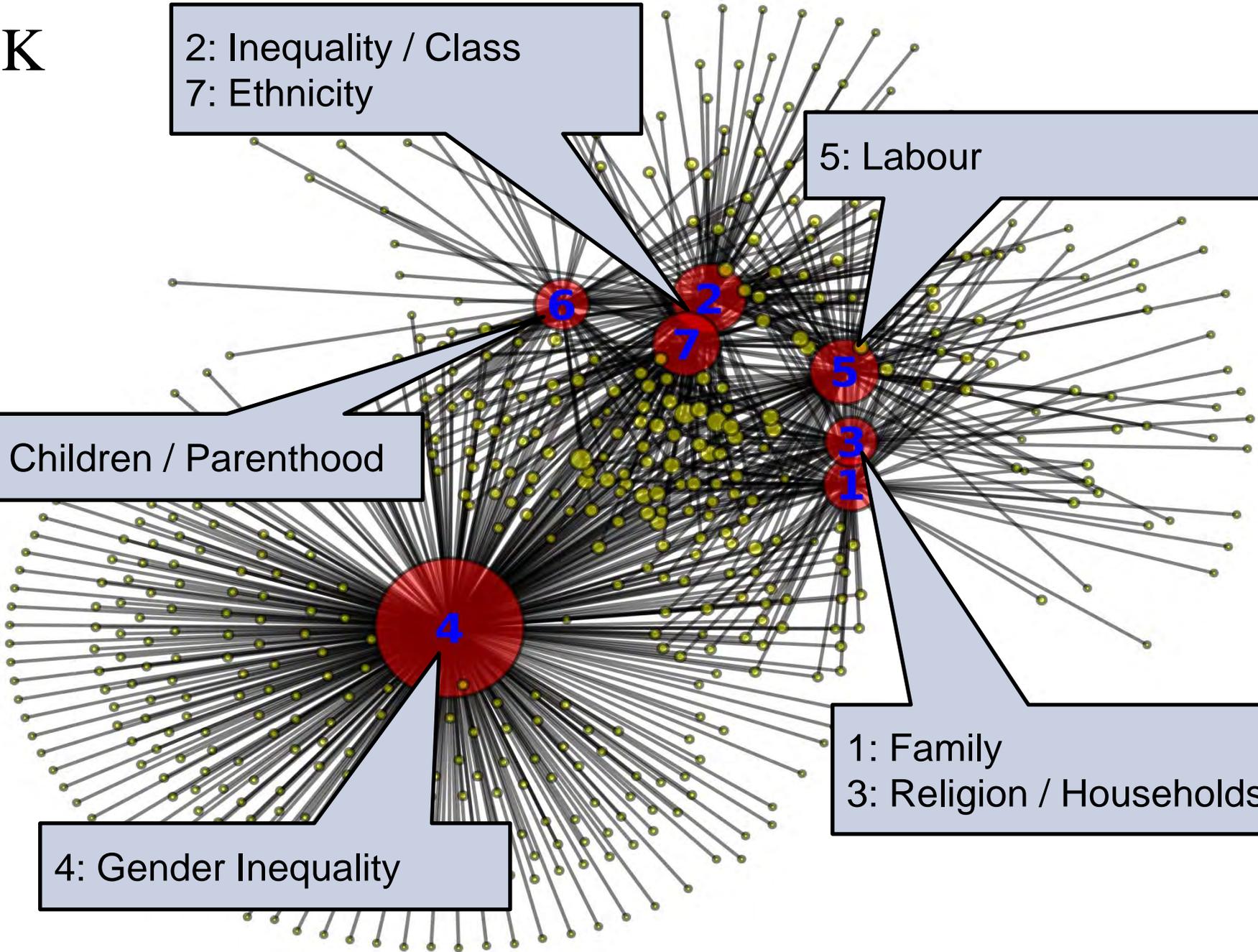
2: Inequality / Class
7: Ethnicity

5: Labour

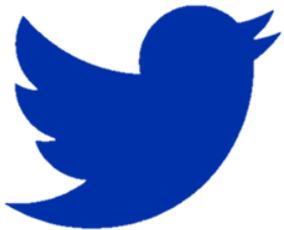
6: Children / Parenthood

1: Family
3: Religion / Households

4: Gender Inequality



Personalizing Twitter – political online communication in the 2013 German election campaign



Lukas Otto, Isabella Glogger, and Michaela Maier
University of Koblenz-Landau
Institute for Communication Psychology



Personalization

“The claim is that personalization is changing the focus from topics to people and from parties to politicians.” (Adam & Maier, 2010)

- Personalization has been investigated in three areas of political communication:
 - Citizens’ (voting) behavior
 - Political media coverage
 - Election campaigns
- Televised debates are said to boost personalization.
- Analyses of personalizing effects of debates on recipients’ perception, media coverage, and campaigns have been tripartite since these areas did not share a common discourse room.
- Now social media applications have opened up new common, discursive rooms for political communication.

Research Questions and main results

- Are political candidates more important than political parties or issues?
- Does the event of a TV debate foster personalized Twitter coverage?
- Do personalized tweets get more attention in terms of retweets and favorite ratings than non-personalized messages?

Results

- Personalization is a trend on Twitter.
- TV debates can raise the level of personalization.
- Personalization seems to be an attention-gaining factor in the twitter-sphere.

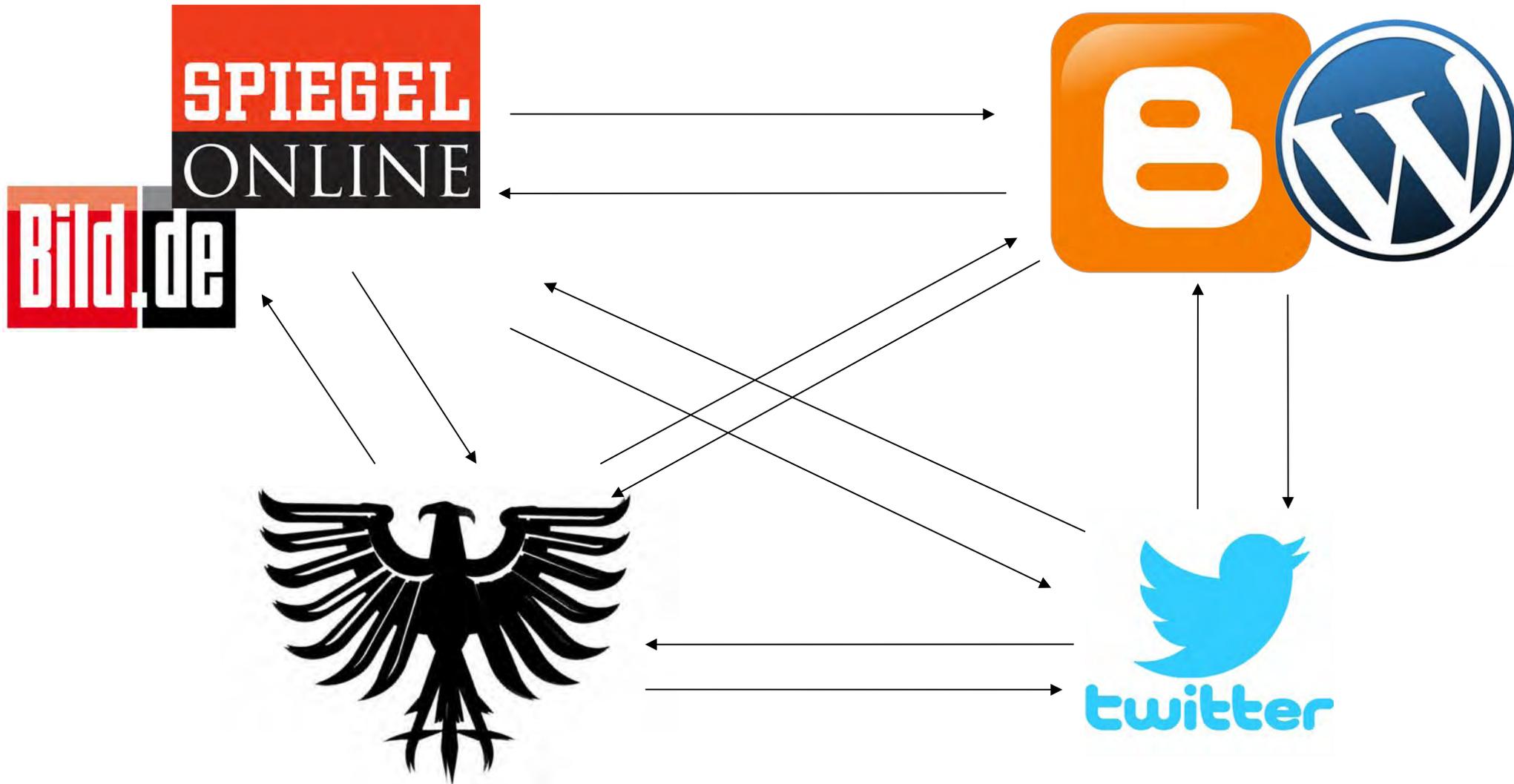


Web Science – Investigating the Future of Information and Communication

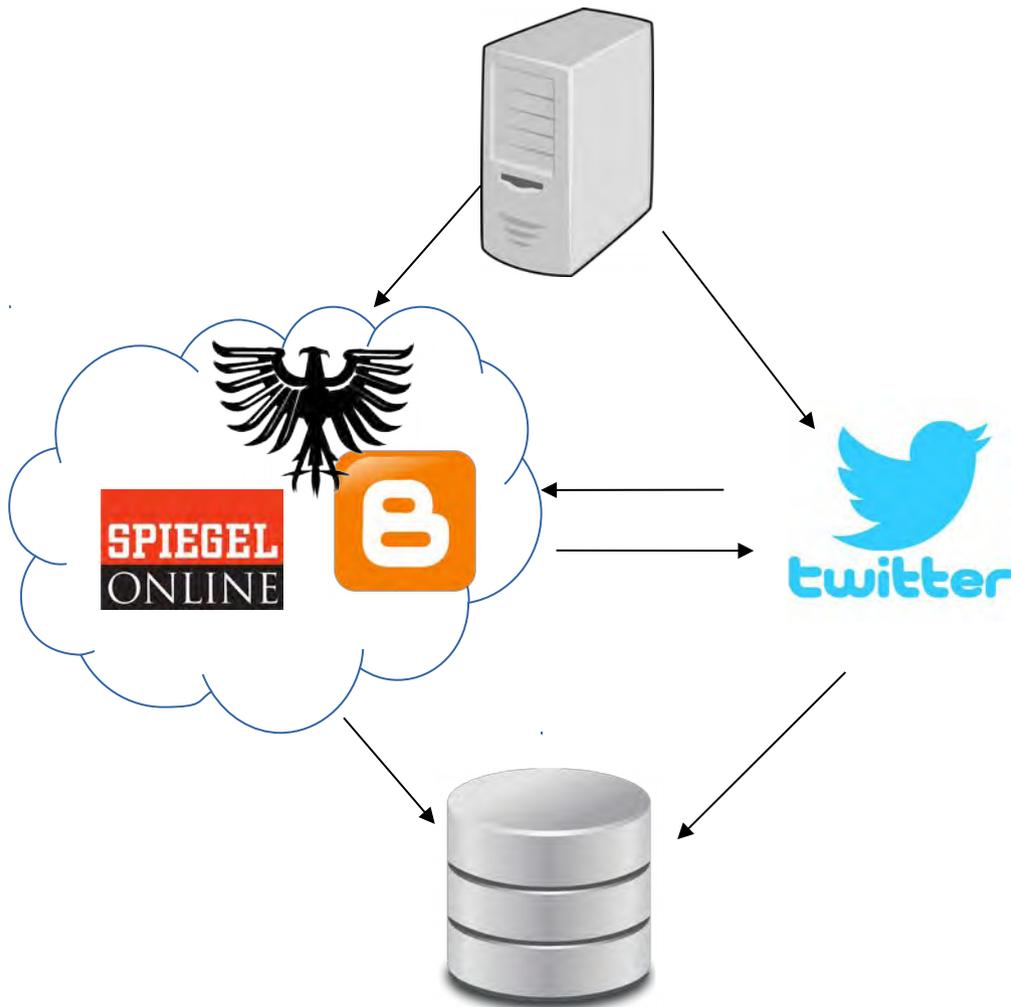
iCrawl: An integrated focused crawling toolbox for Web Science

Gerhard Gossen, Elena Demidova, Thomas Risse
L3S Research Center, Leibniz-Universität Hannover

WWW and Social Media as research sources



Collection using integrated & focused crawling



iCrawl: Integrated focused crawling toolbox

- Easy to use
- Effective
- Open source

<http://icrawl.l3s.uni-hannover.de/>

A TWITTER BOT: RECOMMENDING LONG-TAIL CONTENT

Sebastian Bayerl, M.Sc.
sebastian.bayerl@uni-passau.de

GESIS Computational Social Science Winter Symposium
1.12.2014



Motivation

EEXCESS (<http://eexcess.eu/>)

- Unfold the treasure of cultural, educational and scientific long-tail content for the benefit of all users!
- Existing long-tail data is available but unused/unknown
- Prototype tools: Chrome Extension, Word-Press Plug-In

TwitterBot

- Connect the Twitter community with the EEXCESS services



Basti @CultRecTest · 18s

@CultRec Something about the euro crisis ?

Expand



Culture Recommender @CultRec · 12s

@CultRecTest Look: econbiz.de/Record/1000964... The Euro Crisis and the Job Guarantee: A Proposal for Ireland

Expand

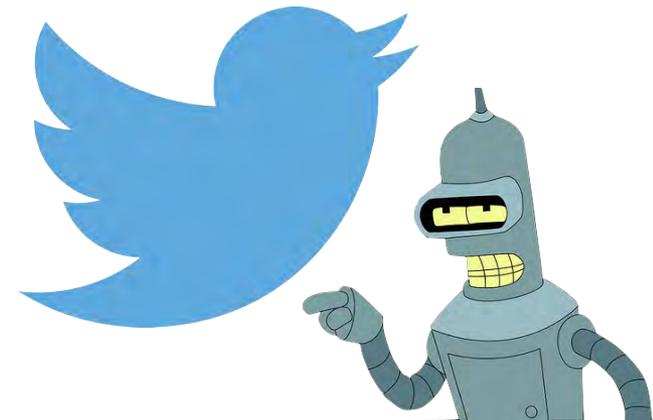
TwitterBot Features

Interactions with the TwitterBot

- @Mention bot to query
- Follow bot to subscribe to the service

Advertise service by replying to current tweets

- Keyword based approach
- New followers = entry points to the Twitter network



Problem Setting

- Make use-case specific recommendations
- Identify relevant subsets of users
- Approach identified users
- Respect API limits and terms of service

Interested?

Come to my poster for more information

CCSWS

Köln December 2014

Dynamics of high inflation and hyperinflation and its stabilization

Martin A. Szybisz*

*Departamento de Economía, Facultad de Ciencias Económicas, Universidad de Buenos Aires,
Av. Córdoba 2122, RA-1120 Buenos Aires, Argentina*

Leszek Szybisz

*Laboratorio TANDAR, Departamento de Física, Comisión Nacional de Energía Atómica,
Av. del Libertador 8250, RA-1429 Buenos Aires, Argentina
Departamento de Física, Facultad de Ciencias Exactas y Naturales,
Universidad de Buenos Aires, Ciudad Universitaria, RA-1428 Buenos Aires, Argentina and
Consejo Nacional de Investigaciones Científicas y Técnicas,
Av. Rivadavia 1917, RA-1033 Buenos Aires, Argentina*

CCSWS

Köln December 2014

$$i(t) = \frac{P(t) - P(t - \Delta t)}{P(t - \Delta t)} = \frac{P(t)}{P(t - \Delta t)} - 1$$

$$r(t + \frac{\Delta t}{2}) = \ln [1 + i(t + \Delta t)]$$

$$r(t) = r_0 \left[\left(1 + \frac{q r_0^\beta}{s} \right) \exp[-\beta s (t - t_0)] - \frac{q r_0^\beta}{s} \right]^{-1/\beta} = r_0 \left[\frac{s \exp[\beta s (t - t_0)]}{s + q r_0^\beta (1 - \exp[\beta s (t - t_0)])} \right]^{1/\beta}$$

CCSWS

Köln December 2014

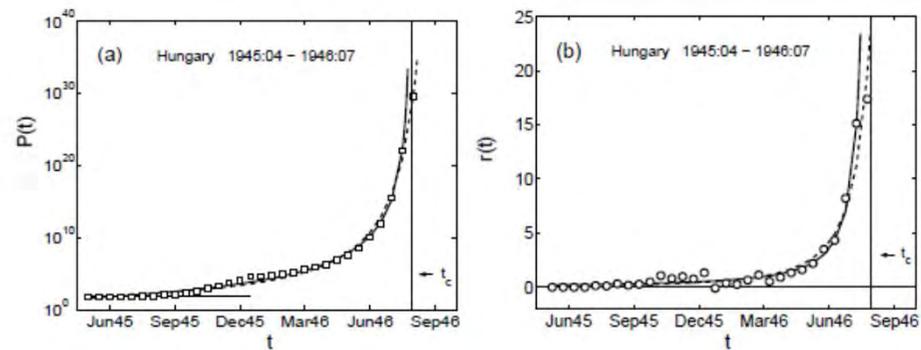
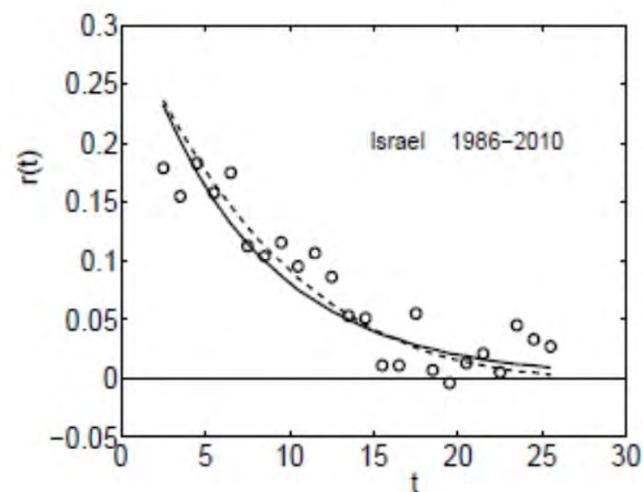
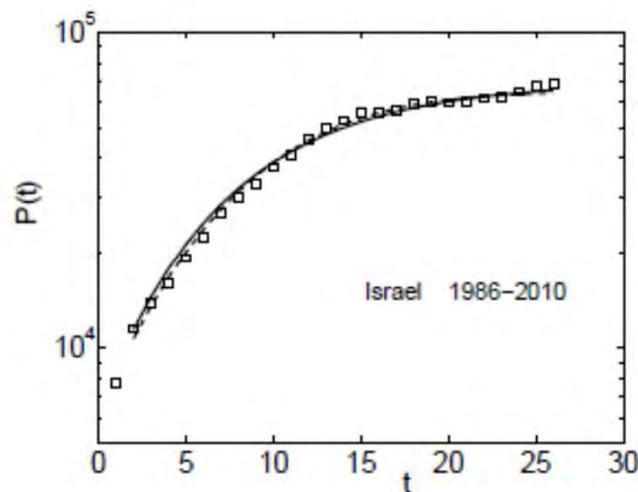


FIG. 1: (a) Open squares are data of biweekly CPI in Hungary since April 30, 1945 to July 31, 1946 normalized to $P(t_0 = 1945 : 04 : 30) = 58.4$. The horizontal continuous line indicates the initial stable regime. (b) Open circles are data of GR for the same period as in (a). Dashed curves in both panels are simultaneous fits of all these data to Eqs. (14) and (12). Solid curves stand for fits of data excluding the value at July 31, 1946, the vertical lines indicate the predicted t_c in this case.

CCSWS

Köln December 2014



(a) Open squares are yearly CPI in Israel since 1986 to 2000. (a) Open circles are yearly GR index for the same period as in (a). In both drawings a solid curve is the fit of data with $\gamma \neq 1$.



Towards an Agent Model for Trust

Daan Apeldoorn, Thomas Gottron
2014-12-01

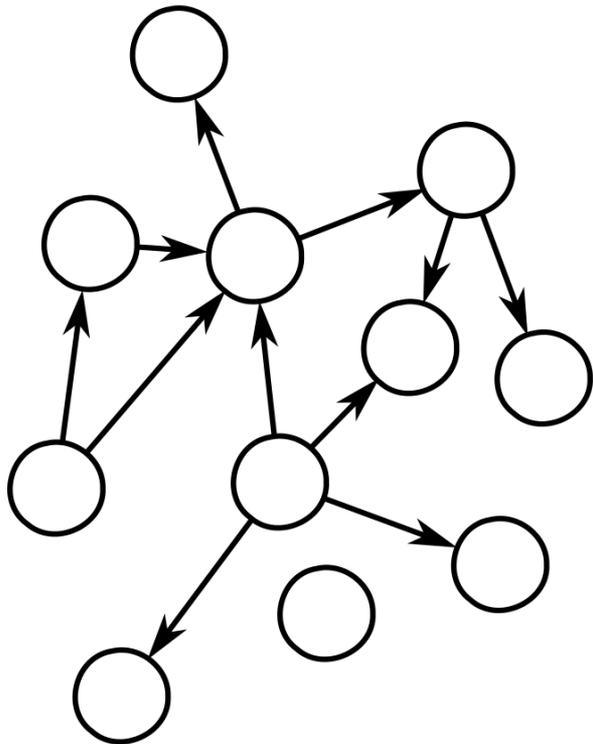


Introduction

- *Trust* in social networks: complex and interesting phenomenon
- Special interest in micro-level behavior and how this leads to macro-level effects
- Approach: Multi-Agent-Simulation with learning agents

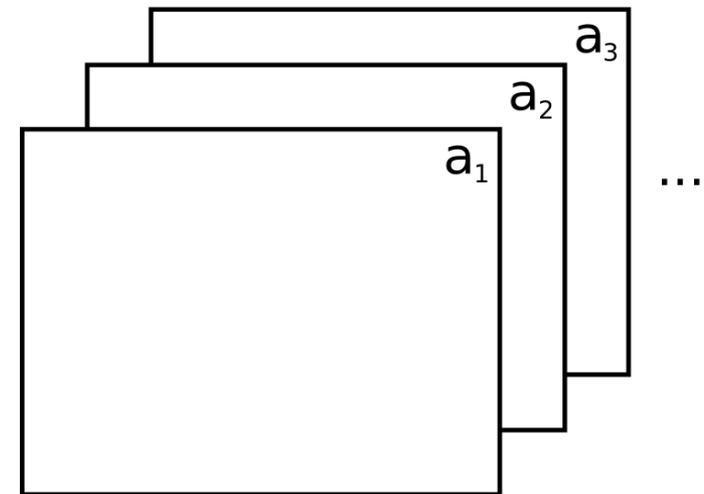
Simulation Based on Trust Network Data

Trust Network



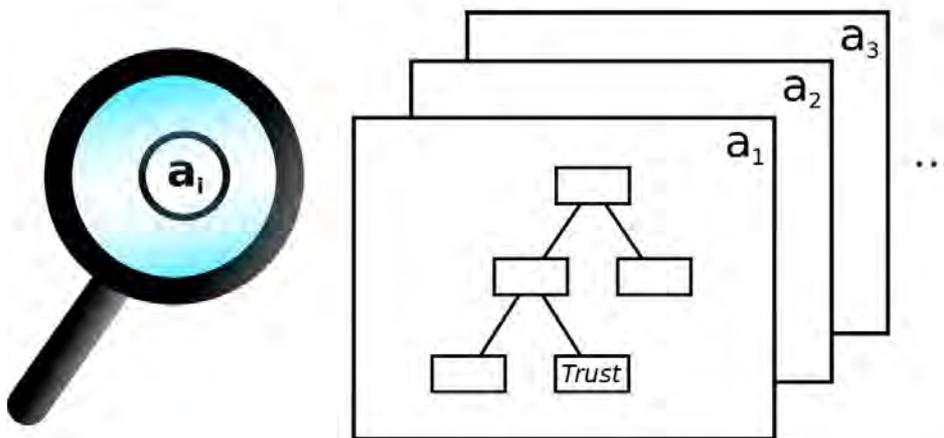
extracting
training data

Multi-Agent Simulation

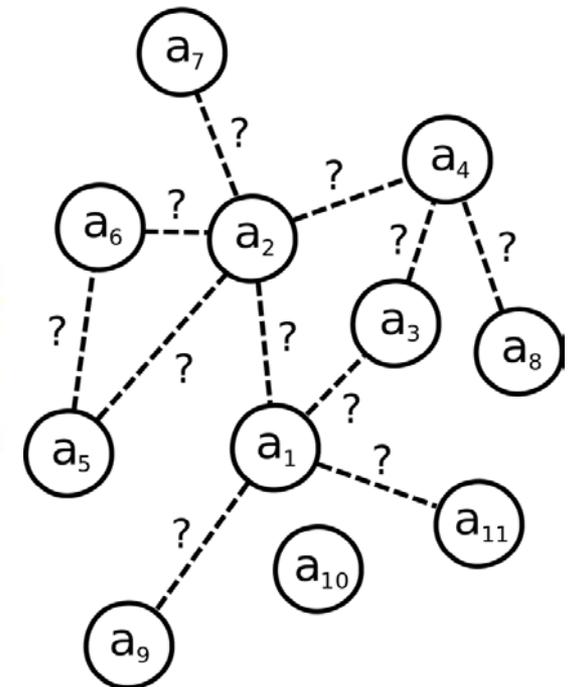


Extraction of Decision Trees and Evaluation

Micro-Level Decision Trees



Trust Network



Automatic Discovery of Social Network Generators

Telmo Menezes^{1,2} and Camille Roth¹

CNRS

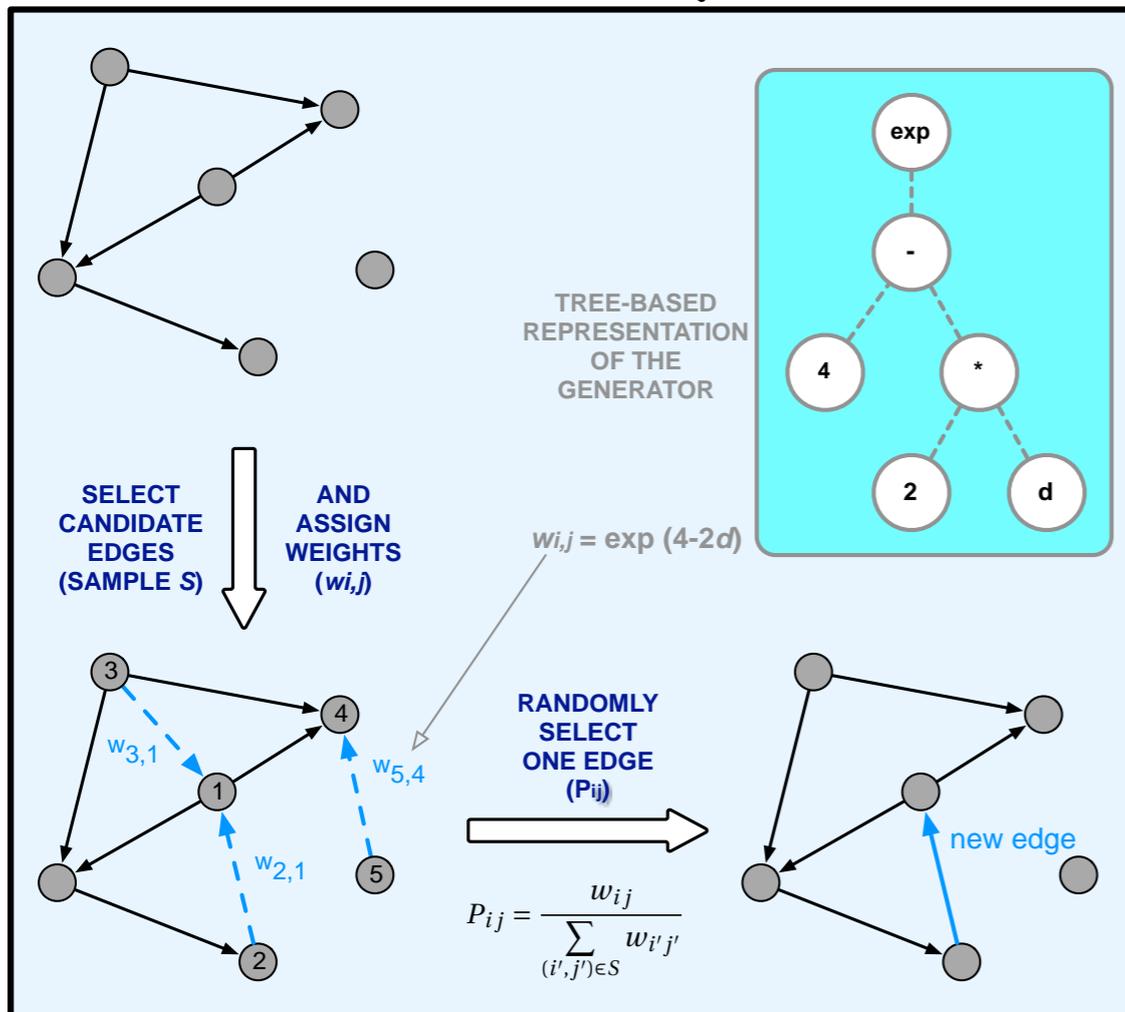
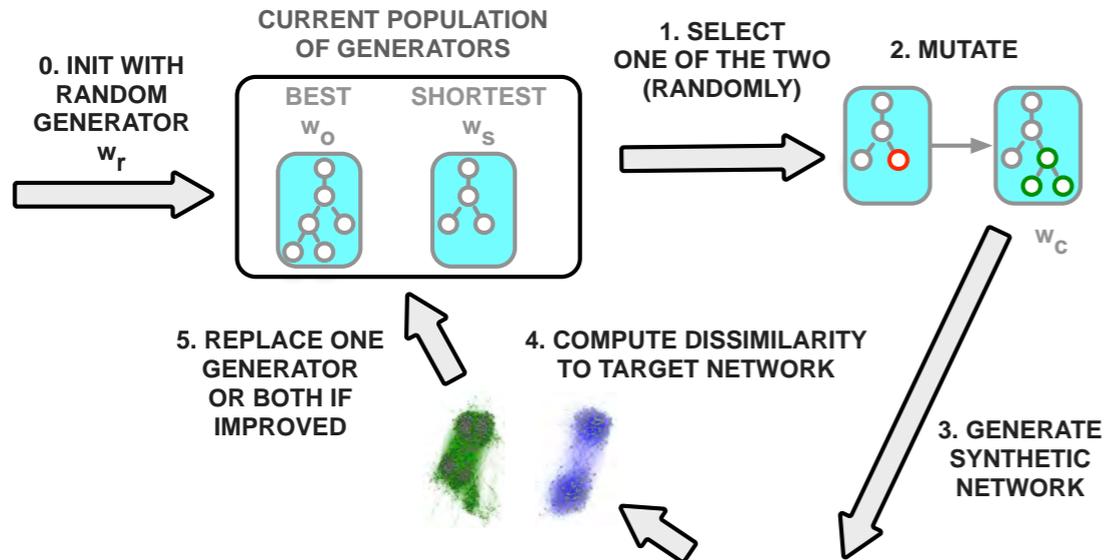
¹ Centre Marc Bloch Berlin (UMIFRE CNRS-MAE, An-Institut der Humboldt Universität)

Friedrichstr. 191, 10117 Berlin, Germany

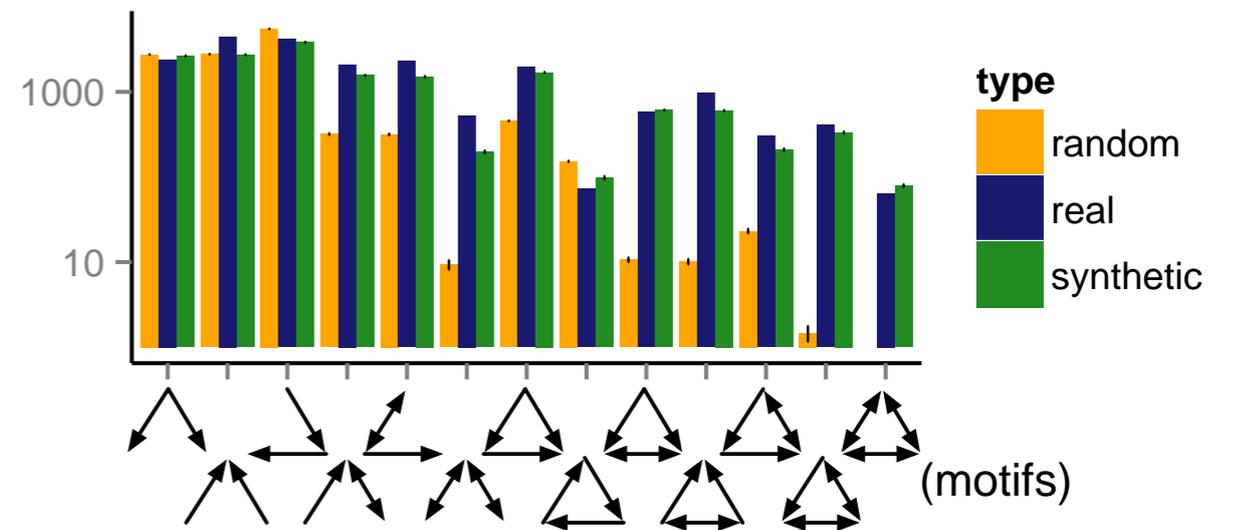
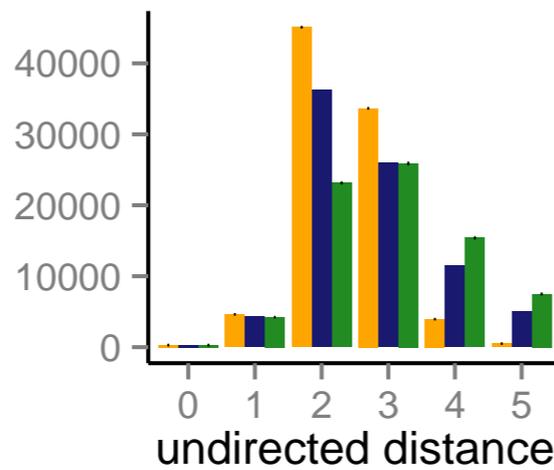
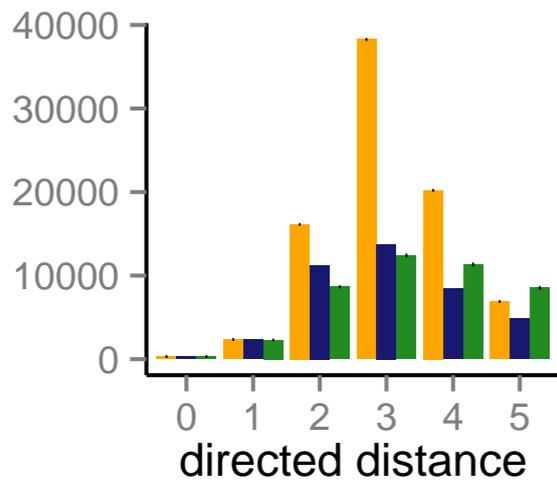
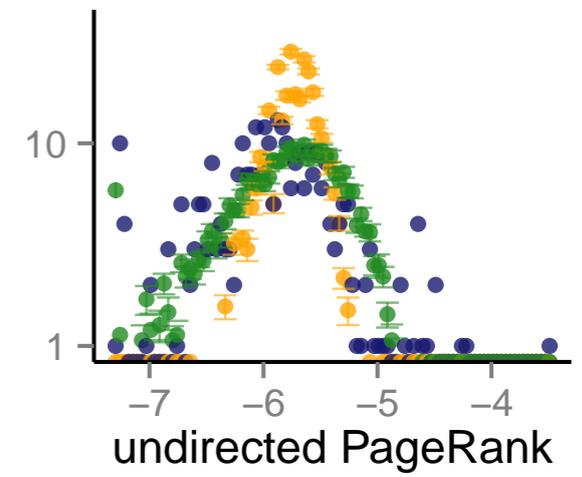
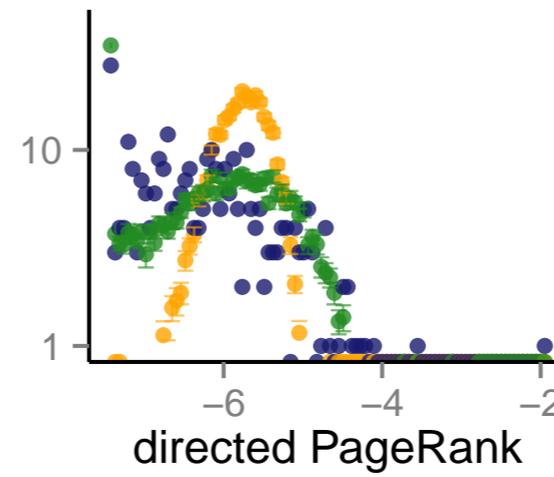
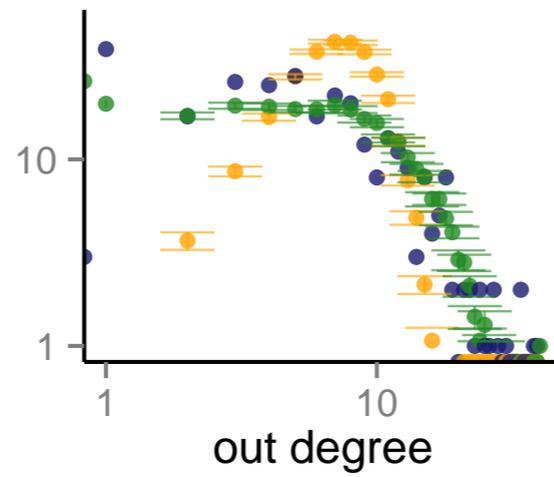
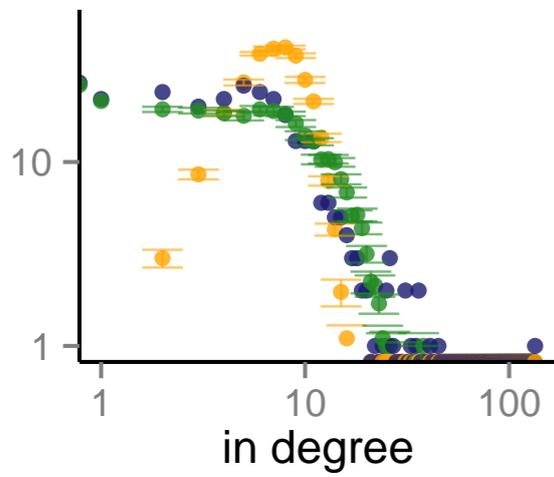
²LIP6 (UMR 7606 UPMC - CNRS)

4 place Jussieu, 75252 Paris CEDEX 05, France

Email: telmo@telmomenezes.com, roth@cmb.hu-berlin.de



- Network generators as computer programs
- Programs generate synthetic networks
- Synthetic networks are compared to target using a set of metrics
- Evolutionary algorithm iteratively improves generator



Network	Program $w(i, j)$	Real	Synthetic	Metrics
Political blogs	$\exp(4 - 2d)$			
Software collaborations	$\psi\left(\frac{k'(i)}{d}, k'(j), 0.7k(j)\right) \cdot \min(k(j), 9)$			
Facebook	$\psi(3, i \cdot k(i), k(i))$			
Word adjacencies	$k(i) - d$			

Felix Bader and Marc Keuschnigg
Department of Sociology
LMU Munich

Stake Effects and Cultural Differences in an Online Experiment among US-Americans and Indians



Online Experiments

advantages and disadvantages compared to cross-cultural laboratory experiments

Setting

- Amazon Mechanical Turk
- real (online) labor market
- comparable (online) environment
- no direct control of the participants' surrounding

Participants

- profit-maximizing workers (Horton et al. 2011)
- few students
- most are WEIRD (Henrich et al. 2010)

Laboratory (e.g. Roth et al. 1991)

- no (heterogeneous) recruiting
- no (heterogeneous) physical labs
- no experimenter effects
- no multi-language instructions

Design

- Dictator Game, Ultimatum Game and Prisoner's Dilemma random order and roles
- Sep 4th – Nov 21st 2014 – ...
- N = 864
- 50% Indian and 50% US participants

Incentives

- adjusted by **Purchasing Power Parity (PPP\$)**
e.g. \$1 in USA – \$0.40 in India

	USA	India
	\$0	\$0
	\$1	\$0.4
	\$4	\$1.6
	\$10	\$4

Treatments

- manipulation of stakes in a 2 x 4 design
- hypothesis: stakes induce selfish behavior

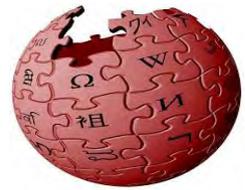
Experimenting at Amazon Mechanical Turk

Implementation

- HIT Preview as informed consent
- equal number of Indians and Americans each day
- no real-time matching

Quality Assurance

- no repeated participation (worker-ID and similar IP)
- treatments, order of games, and roles randomized
(across countries, daytime, weekday, and runtime of the project)
- control questions
- questionnaire: experimental experience, surrounding, sociodemographics



Wikipedia edition dynamics



Yérali Gandica^a, Fernando Dos Aidos^b and João Carvalho^b

^a Department of Mathematics and Namur Center for Complex Systems, University of Namur, Namur, Belgium.

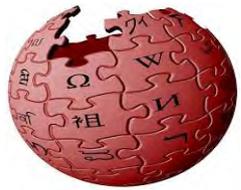
^b Centre for Computational Physics, Department of Physics, University of Coimbra, Portugal.

Wikipedia edition dynamics: What is already known and how we can reproduce the dynamics

- Real data
- Numerical analysis of Wikipedia edition dynamics: preferential attachment, fitness and ageing factor
- Comparison with real data
- Analytical description

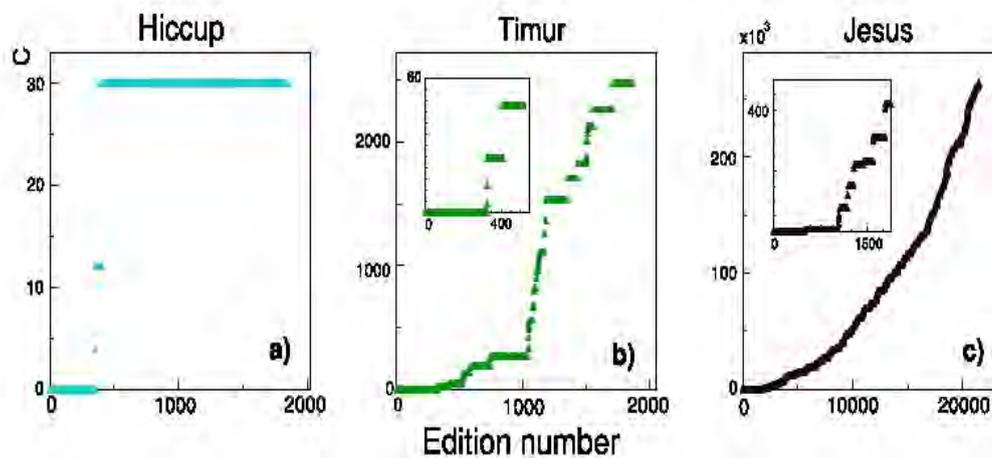


The conflict dynamics arising from the interplay between strong convictions and tolerance

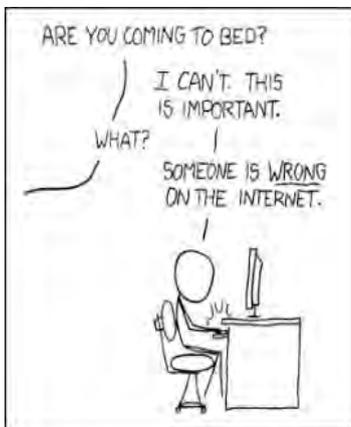


Wikipedia edition Dynamics

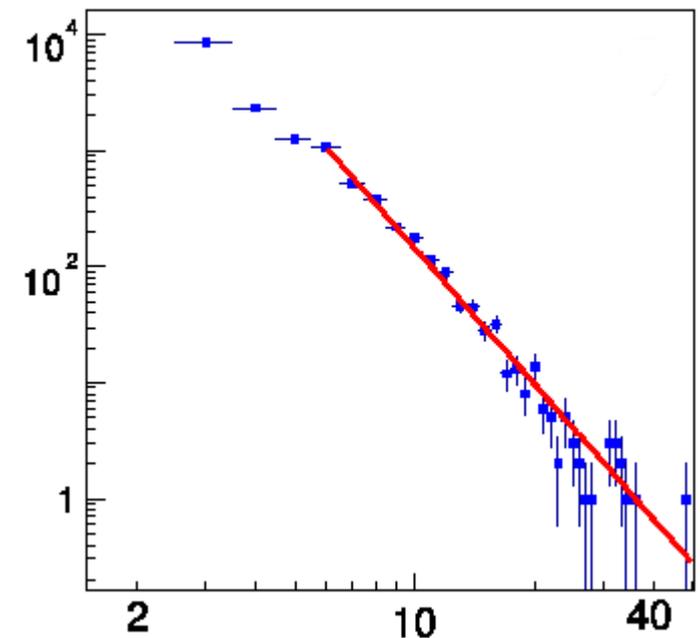
REAL DATA

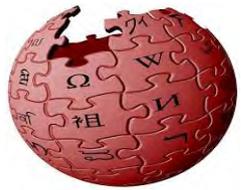


The parameter C measures the **controversy level** in terms of mutual reverts.



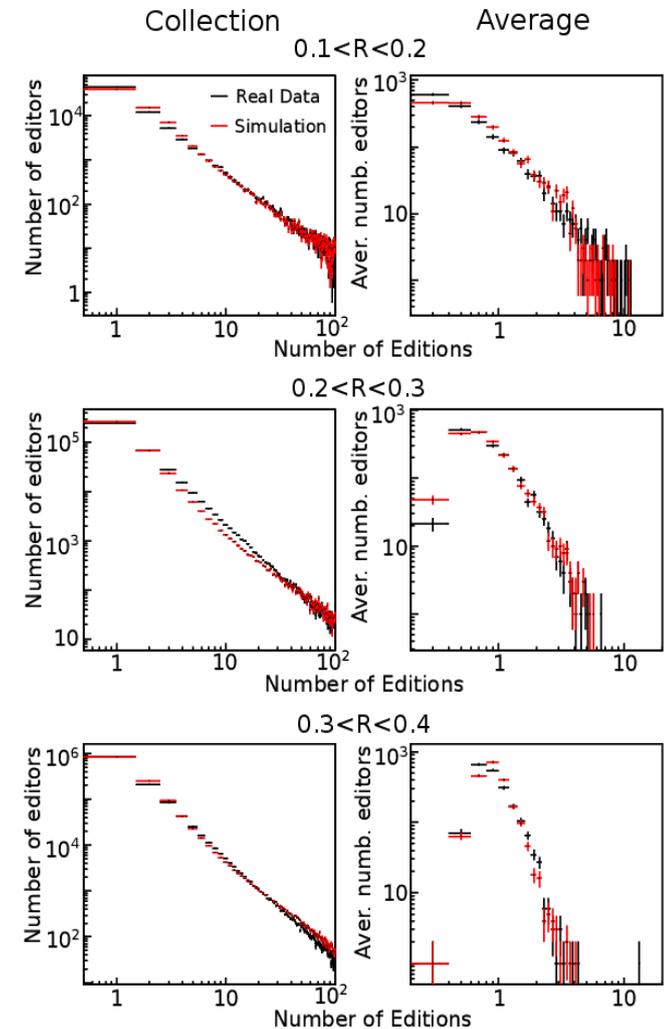
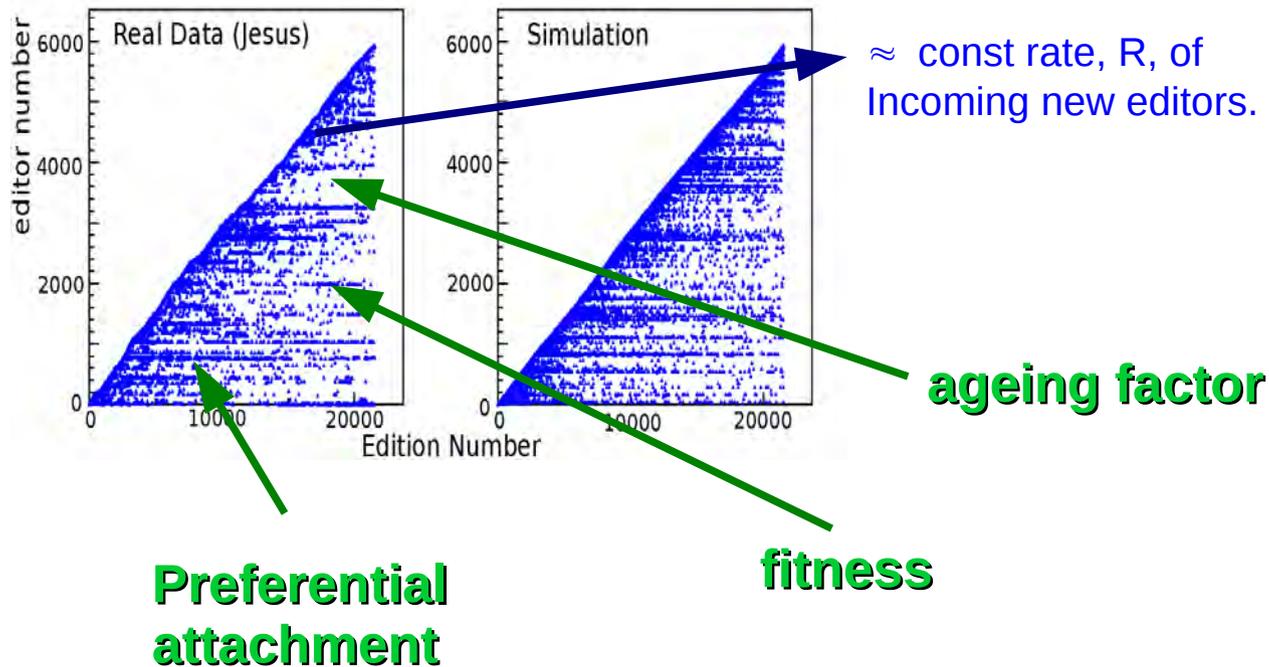
Inter-peace periods
distribution



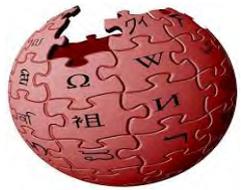


Wikipedia edition dynamics

NUMERICAL SIMULATIONS Comparaison with real data



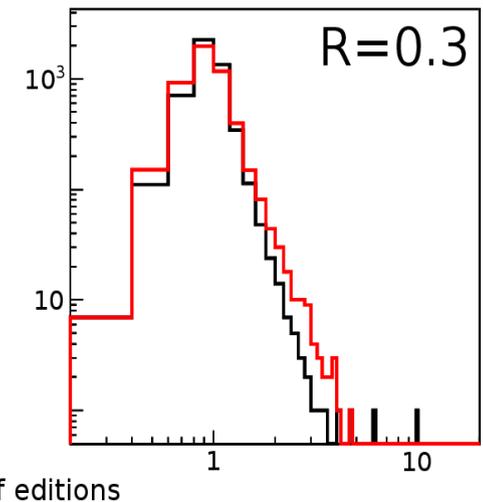
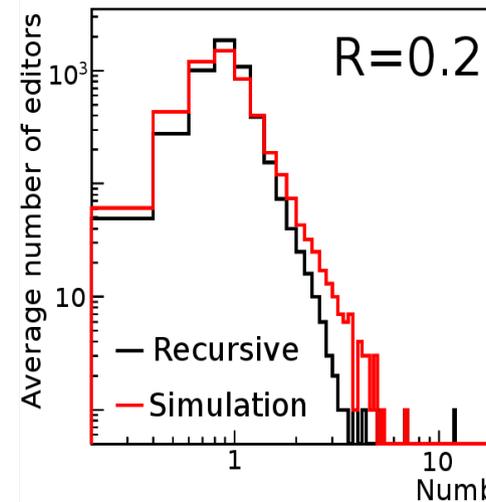
The level of conflict is determined by a tolerance parameter (\approx the editors' capability to accept different opinions).



Wikipedia edition dynamics

ANALYTICAL APPROACH

Recursive equation to describe how edits Wikipedia based on:
preferential attachment, fitness and ageing power law.



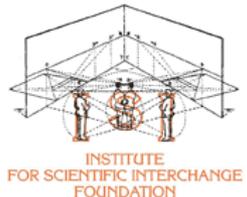
The mathematical problem of obtaining the number of editions of an editor at each edition time is similar to the problem of finding the degree of a node in a network, where

editors \rightarrow nodes and

editions \rightarrow connections.

Subjective and objective data: bridging the gap

Martin Becker, Andreas Hotho,
Juergen Mueller, Mark Kibanov,
Martin Atzmueller, Gerd Stumme





EveryAware

Enhance Environmental Awareness
through Social Information Technologies

<http://everyaware.eu>

Objective

noise

19 June 2012 Last updated at 19:10
Residents living under the Heathrow record the level of aircraft noise used in the research is being carried out by BBC London's Gareth Furry has taken field from UCL, and John Stewart of

Share this page

62db
TV

EXTEND SAMPLING

Subjective

angry

Background noise ✓
Street ✓

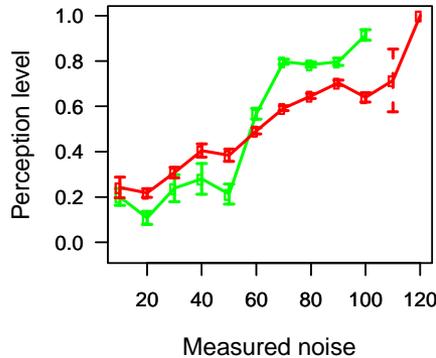
SEND REPORT



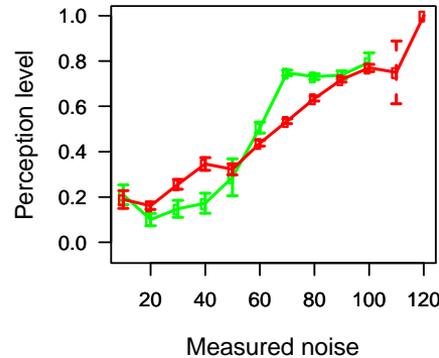
WideNoise

perception change

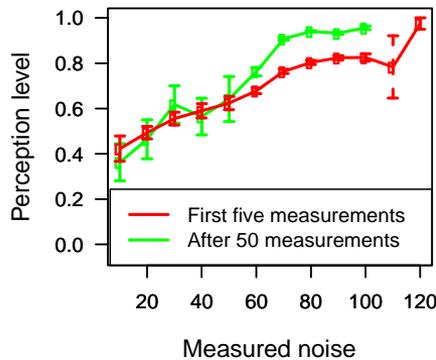
Love-Hate



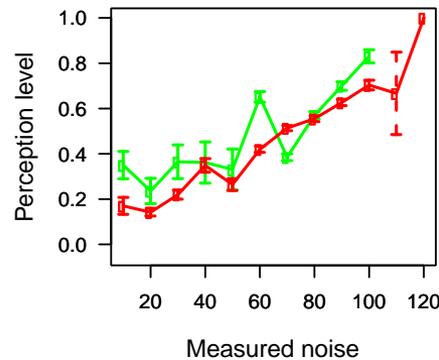
Calm-Hectic



Nature-Man made



Alone-Social

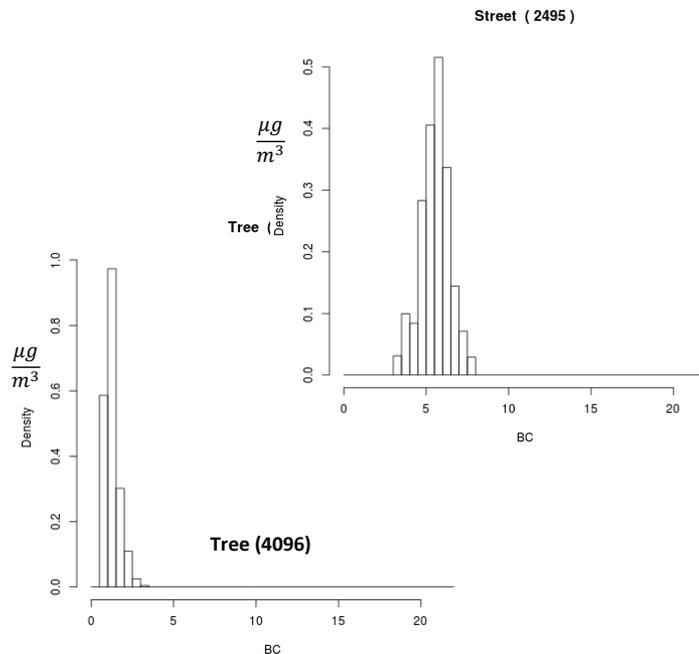


- Perceptions correlate to noise measurements
- Perceptions becomes more drastic the longer the application is used.



AirProbe

tag characteristics



Data collection

- EveryAware platform
- Currently two datasets
 - WideNoise (noise)
 - AirProbe (air quality)

Results

- Correlations of subjective and objective data
- User patterns
- ...

Future work:

- Build data models
 - To understand interaction between subjective and objective data
 - To improve data quality
 - To make predictions
 - ...
- Collect more and different data

Topic Modelling the Global Climate Change Debate

Pecha-Kucha-Session, December 1st 2014, GESIS Computational Social Science Winter Symposium

Kristina John (PhD cand.), Prof. Dr. Harmut Wessler, Prof. Scott Althaus

Research project:

"Cultures of Sustainability"

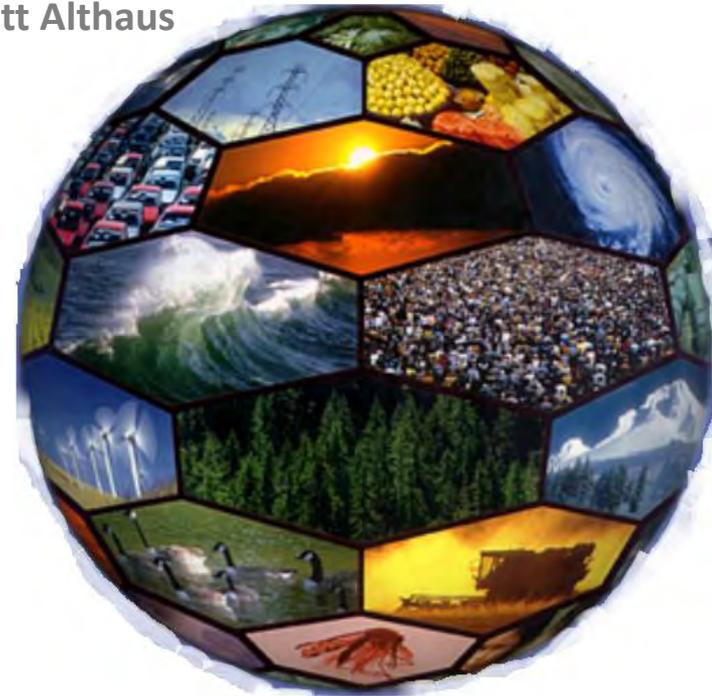
(2014-2017), Research and Study Center (RSC)

Sub-project:

**"Comparing Public Debates on
Sustainable Restructuring"**

Contact: kristina.john@uni-mannheim.de

Cooperation: Cline Center for Democracy, University of Illinois (Scott Althaus)

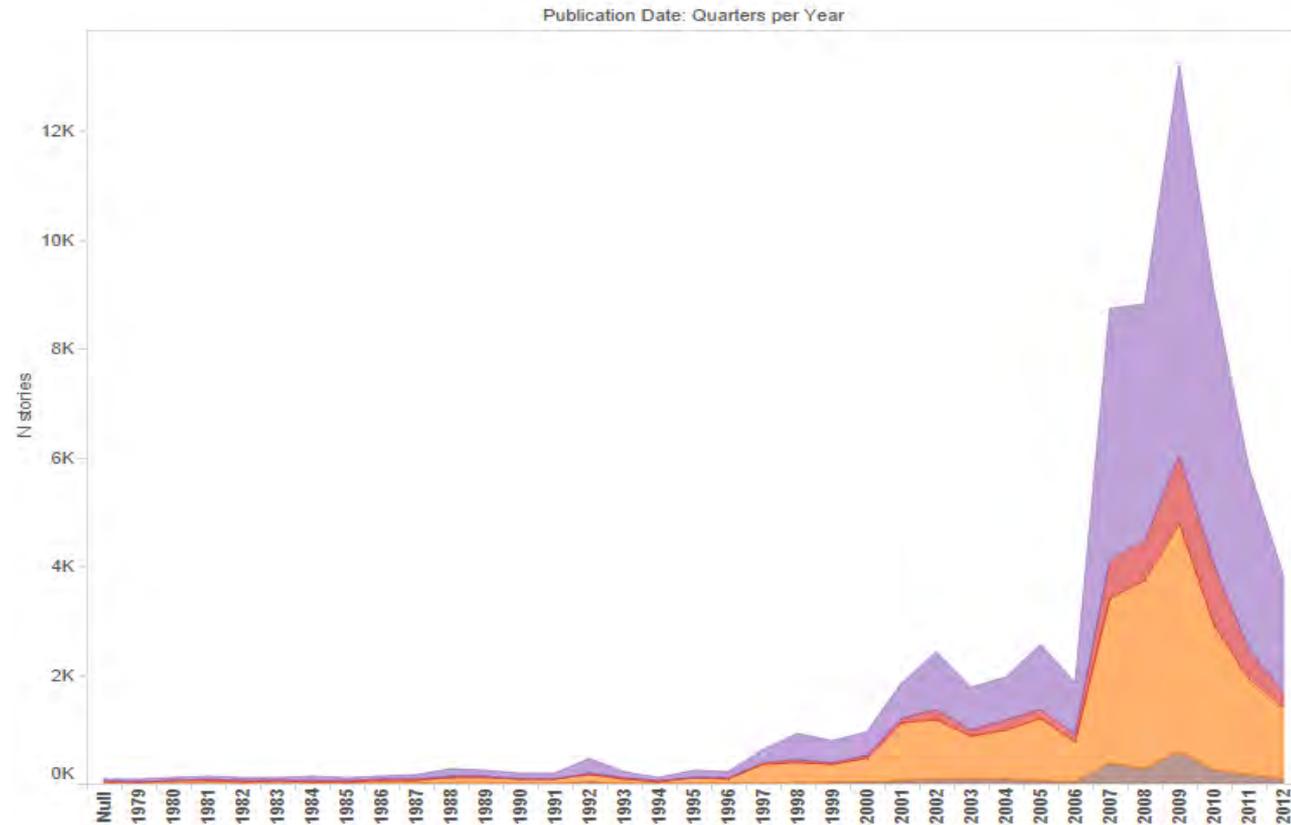


Relevance

- Anthropogenic climate change = global risk to the wellbeing of humans and nonhumans alike (Maibach et al. 2008).
- The tremendous social and ecological consequences of global warming and its associated risks can only be tackled by international cooperation (Beck 2010).
- “lay people”, stakeholders and decisionmakers learn about climate change from the mass media (Arlt et al. 2011; Carvalho 2010)
- → capturing the global discourse about climate change is of high political relevance for climate action (Boykoff and Yulsman, 2013; Anderson 2009; Antilla 2005)
- Few previous studies have attempted to compare climate change coverage across multiple countries and over time(e.g. Schmidt et al. 2013)
- Focus on print media and Western countries
- → close research gap by including non-print media and climate-vulnerable countries

Corpus:

- The Summary of World Broadcasts (SWB), 1979-2012, 4.2 million news stories
- 16.292 stories about climate change (newspapers & broadcast) from 177 countries



Method:

1. sample selection:

tested search query (1126 manually coded articles)

- precision=1,00, recall= 0,17

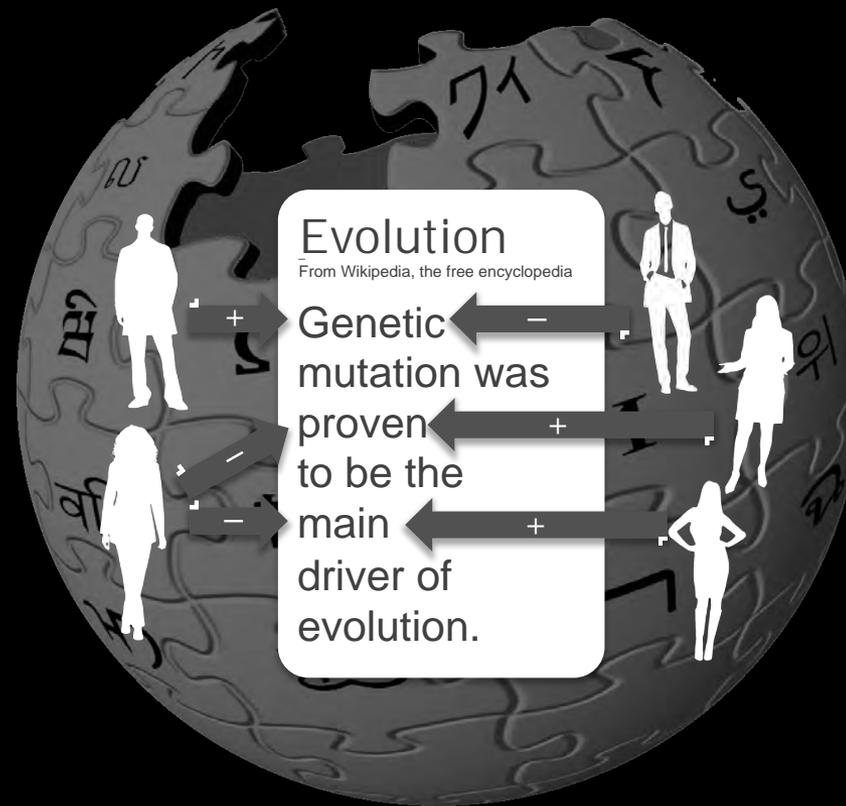
$$\text{Precision} = \frac{tp}{tp + fp}$$

$$\text{Recall} = \frac{tp}{tp + fn}$$

2. Latent Dirichlet Allocation (LDA) Blei (2003)

- 7-topical and 39-topical solution identified
- For more information about the identified topics, see poster
- Thank you for your attention!

#wikipedia #authorship #collaborative_writing
#visualization #analytics #demo



#wikipedia #authorship #collaborative_writing #visualization #analytics #demo

Evolution: Revision history

User:Reattas

Browse history

From year (and earlier): 2014 From month (and earlier): all Tag filter: Go

(newest | oldest) View (newer 50 | older 50) (20 | 50 | 100 | 250 | 500)

Compare selected revisions

- [\(cur | prev\)](#) [09:44, 25 November 2014](#) [Alan G. Archer](#) (talk | contribs) . . (173,645 bytes) **(+2,118)** . . *(Beginning comprehensive clean-up: edit Reference section and create Bibliography section.)*
- [\(cur | prev\)](#) [17:11, 23 November 2014](#) [DrKiernan](#) (talk | contribs) . . (171,527 bytes) **(-392)** . . *(replace dead link with oclc)*
- [\(cur | prev\)](#) [08:56, 15 November 2014](#) [Reattas](#) (talk | contribs) [m](#) . . (171,919 bytes) [\(t\)](#) . . *(→See also)*
- [\(cur | prev\)](#) [09:55, 12 November 2014](#) [Astredita](#) (talk | contribs) . . (171,919 bytes) **(+18)** . . *(the inclusion of additional templates has caused the main template to be collapsed so add lstate=uncollapsed to the main template)*
- [\(cur | prev\)](#) [19:30, 10 November 2014](#) [AsteriskStarSplat](#) (talk | contribs) . . (171,901 bytes) **(+45)** . . *(somewhat minor ref fixes)*
- [\(cur | prev\)](#) [18:35, 10 November 2014](#) [AsteriskStarSplat](#) (talk | contribs) . . (171,856 bytes) **(+4)** . . *(we have an article on that)*

Evolution: Difference between revisions

From Wikipedia, the free encyclopedia

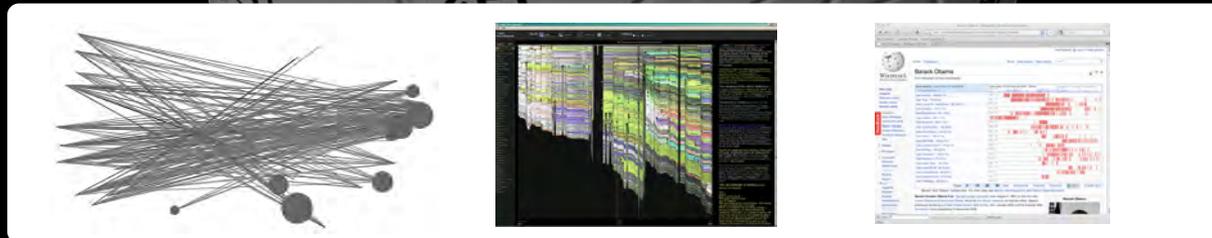
Revision as of 12:11, 24 October 2014 (view source) Joeinwiki (talk contribs) ← Previous edit	Revision as of 19:58, 24 October 2014 (view source) Aslamthelion (talk contribs) Next edit →
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Line 233:

Soon after the emergence of these first multicellular organisms, a remarkable amount of biological diversity appeared over approximately 10 million years, in an event called the [[Cambrian explosion]]. Here, the majority of [[Phylumtypes]] of modern animals appeared in the fossil record, as well as unique lineages that subsequently became extinct.<ref name=Valentine>{{cite journal author = Valentine JW, Jablonski D, Erwin DH title = Fossils, molecules and embryos: new perspectives on the Cambrian explosion lurl = http://dev.biologists.org/cgi/reprint/126/5/851

Line 233:

Soon after the emergence of these first multicellular organisms, a remarkable amount of biological diversity appeared over approximately 10 million years, in an event called the [[Cambrian explosion]], **which many scientists believe provides evidence for a designer.** Here, the majority of [[Phylumtypes]] of modern animals appeared in the fossil record, as well as unique lineages that subsequently became extinct.<ref name=Valentine>{{cite journal author = Valentine JW, Jablonski D, Erwin DH title = Fossils, molecules and embryos: new perspectives on the Cambrian explosion



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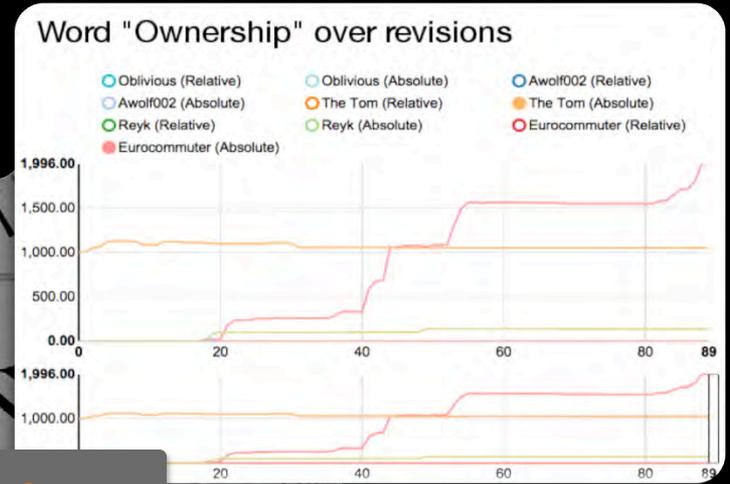
Evolution

From Wikipedia, the free encyclopedia

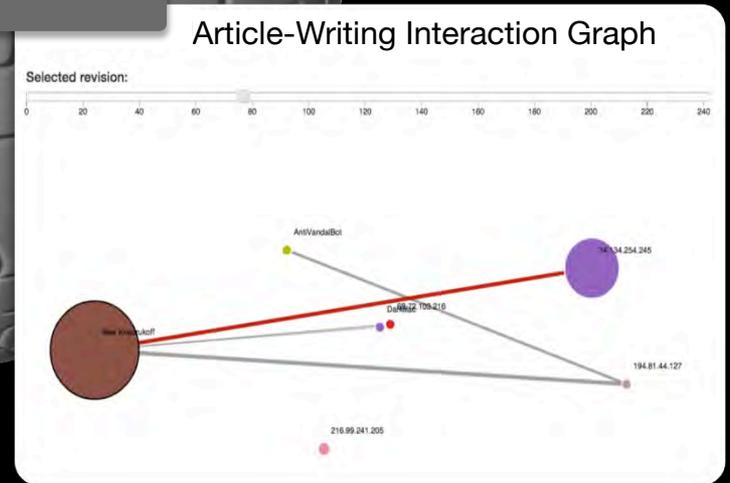
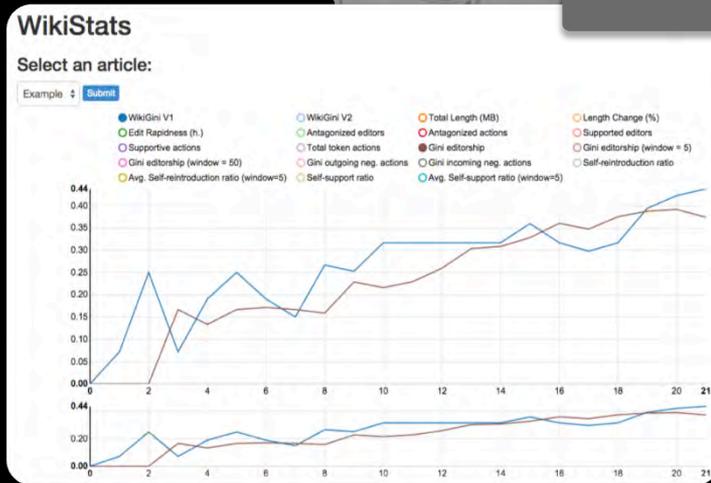
Legal Help Desk is a legal-consulting public affairs show that aired on **23** (formerly **Solar News Channel**) **November 26, 2012**. It will be hosted by **Atty. Karen Jimeno** and **Rod Nepomuceno**.

See also

- Solar Entertainment Corporation**
- Solar TV Network**
- Talk TV (Philippines)**(the former name of Solar News Channel)
- Solar News**
- Solar Daybreak**
- Solar Newsday**
- Solar Network News**
- Solar Sunday News**



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