

Beyond Notability. Collective deliberation on content inclusion in Wikipedia

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Lectives

Quality in TEchno SOcial Systems,
Budapest 28 September 2010

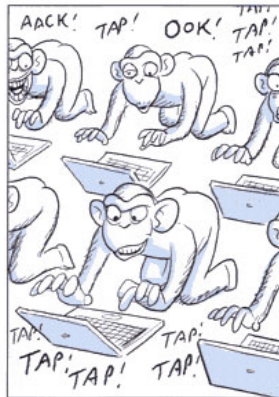
Distributed oversight in peer production systems

Commons-based peer production systems

- ▶ Open and participatory nature
- ▶ Decentralised governance
- ▶ Self-allocation of effort

(Benkler 2006)

Key to scalability = potential source of biases and suboptimal allocation of resources



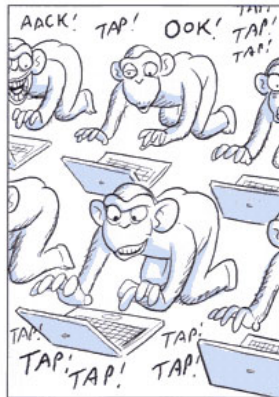
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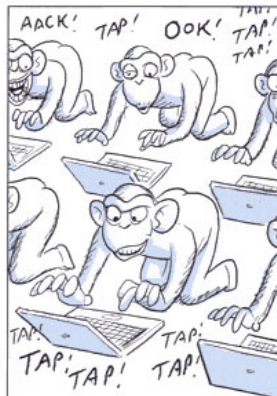
Distributed oversight in peer production systems

< 25 September

Purge server cache

Contents [\[hide\]](#)

- 1 2010 Hamas terror campaign
- 2 Juban's Restaurant
- 3 September 2010 West Bank shooting
- 4 Tomoko Nishimura
- 5 Patterson's Curse (band)
- 6 2007 National Express coach accidents
- 7 Alexys Becerra
- 8 List of Messianic and Hebrew Christian congregations
- 9 Xxoffann
- 10 Joseph Salama
- 11 Dj littlefoot
- 12 Pneumatic bladders
- 13 Coanda-1910
- 14 N.W.A. (New World Agenda)
- 15 Imran Channa visual artist



Distributed oversight in peer production systems

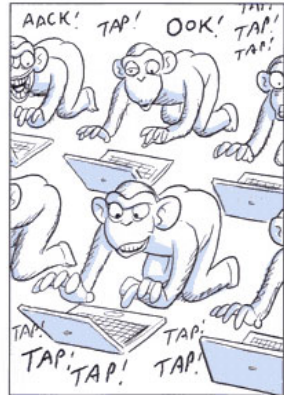
Collective deliberation on content inclusion/deletion

How to decide at a massive scale and in a timely and accurate way which topics deserve a dedicated article?

Encyclopaedic Notability assessment

“Wisdom of the crowds” approach

Expert evaluation is not applicable



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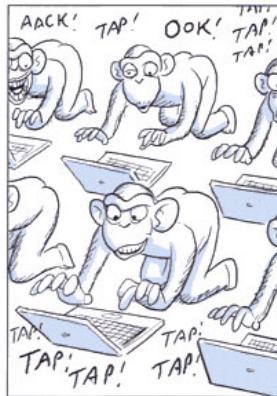
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Previous work

Beschastnikh et al., 2008; Forte et al., 2009

- ▶ Progressive decentralisation
- ▶ Growing bureaucracy

Lam & Riedl 2009

- ▶ Deletion of articles happens early
- ▶ Survival probability correlates to popularity
- ▶ *Deletionism & Inclusionism*

Leskovec et al., 2010

- ▶ Consensus-building in public deliberation
- ▶ Biases and limits of group decision-making

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Motivation

Objectives

- ▶ Identify potential biases of a cognitive and social nature
- ▶ Evidence to assess the design of decentralised deliberation systems

Outline

1. Mechanics of deletion procedures
2. Research questions
3. Dataset
4. Results
5. Discussion

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What do AfD discussions look like?

The screenshot shows a web browser window with the address bar displaying 'http://en.wikipedia.org/wiki/Wikipedia:Articles_for_deletion/Log'. The page content includes several sections of AfD discussions:

- List of staff at South Park Elementary** [edit]
List of staff at South Park Elementary (edit | talk | history | links | watch | logs) – (View AfD • AfD statistics)
(Find sources: "List of staff at South Park Elementary" – news • books • scholar • images)
List of students at South Park Elementary (edit | talk | history | links | watch | logs)
Nothing but quarternary characters with a few exceptions. The few that are notable can be merged to the character list; the rest should go as they're barely worth a mention. List of students at South Park Elementary was kept in 2009 for God knows what reason. **Ten Pound Hammer**, his otters and a clue-bat • (Otters want attention) 03:33, 27 September 2010 (UTC)
 - **Keep** - List has the practical effect of concentrating what might be a multiplicity of pages to a single page, something that should warm every deletionist's heart... Ultra-notable show, this list includes clearly notable characters along with those who are more obscure. This nomination has the proverbial snowball's chance, BTW, so anticipating a quick snow result here... —*Carrie*, Sept. 26, 2010.
- Lee Remick (song)** [edit]
Lee Remick (song) (edit | talk | history | links | watch | logs) – (View AfD • AfD statistics)
(Find sources: "Lee Remick (song)" – news • books • scholar • images)
Non-notable single. **D O N D E** groovily Talk to me 03:32, 27 September 2010 (UTC)
 - **Merge to Hefner (band)**.→Michig (talk) 05:44, 27 September 2010 (UTC)
- Mitch Clifton** [edit]
Mitch Clifton (edit | talk | history | links | watch | logs) – (View AfD • AfD statistics)
(Find sources: "Mitch Clifton" – news • books • scholar • images)
Non-notable radio newsreader bio. **Orange Mike I** Talk 03:31, 27 September 2010 (UTC)
 - **Note**: This debate has been included in the list of Australia-related deletion discussions. —*Grahame* (talk) 08:09, 27 September 2010 (UTC)
- T Power** [edit]
T Power (edit | talk | history | links | watch | logs) – (View AfD • AfD statistics)
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The mechanics of AfD discussions

Deletion process

Nomination \Rightarrow AfD discussion \Rightarrow Assessment (no headcount)

Vote options

- ▶ Delete (D)
- ▶ Keep (K)
- ▶ Merge (M)
- ▶ Redirect (R)

The mechanics of AfD discussions

Deletion process

Nomination \Rightarrow AfD discussion \Rightarrow Assessment (no headcount)

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Research questions

Conditions for unbiased AfD discussions

- ▶ topic notability judged *on its own merit*
- ▶ voters know *and* comply with guidelines and policies
- ▶ voters are not influenced by votes previously cast
- ▶ voters are not driven by strategic reasons

Research questions

Biases: beyond sheer notability assessment

1. **Herding effects.** Is there evidence of informational cascades, suggesting that individual choices are affected by previously cast votes?
2. **Heterogeneity of participant behaviour.** Are voters homogeneous in their voting behaviour or are there tendencies that systematically differentiate how they vote?
3. **Strategic behaviour.** What is the dynamics of AfD discussions, if voter behaviour is affected by highly polarised factions?

Dataset

Data collected via the Wikipedia API

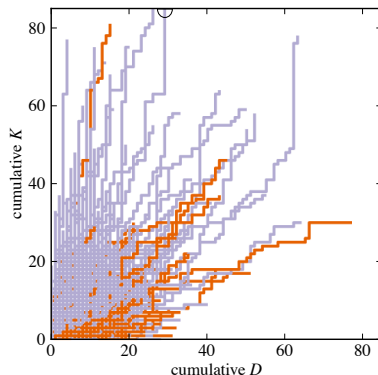
- ▶ 223,209 AfD discussions over 7 years (January 2003 to July 2010)
- ▶ 1,218,267 unique votes cast by 68,998 individual users.
- ▶ dataset includes, for each vote, the title of the corresponding AfD, the user name of the voter and the option voted (no text comments).
- ▶ 8,361 anonymous users (12.1%) identified only by the IP address and are responsible for 11,931 votes.

o	D	K	M	R
f_o	0.6837	0.2543	0.0415	0.0204

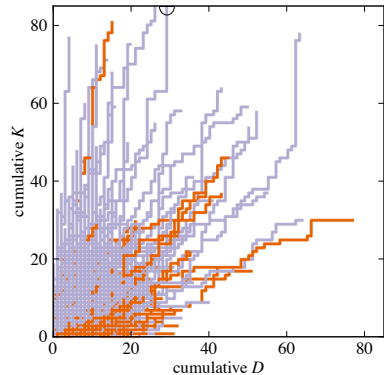
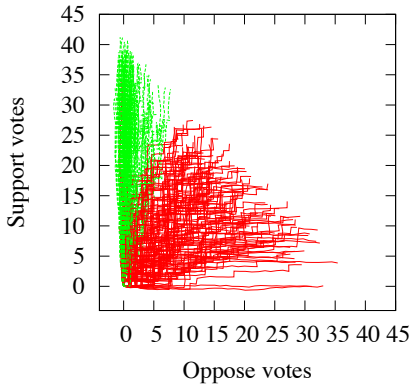
Guidelines compliance: Trajectories and outcome

Cumulative number of K and D at any given step of an AfD sequence.

Colour codes the outcome.
Orange: AfD that resulted in the page being deleted; Purple: page kept, redirected or merged. The circle indicates one AfD sequence that ends off the plot.



Guidelines compliance: Trajectories and outcome



Leskovec al., 2010

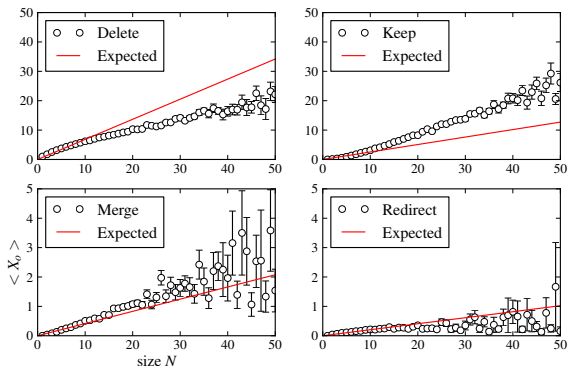
Individual biases: Herding effects

IID model of a voter: chooses option o with prob. f_o

$X_o(N)$ = number of votes accrued by option o after N trials.

$\langle X_o(N) \rangle = Nf_o$.

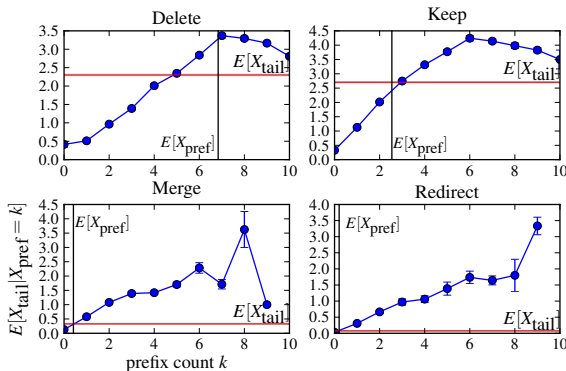
There is agreement until $N = 10$.



Individual biases: Herding effects

Are participants in an AfD discussion influenced by the level of consensus they perceive at the time in which they join a vote?

$V_i \in \{K, D, M, R\}$, split voting sequence $V_1, V_2, \dots, V_n, V_{n+1}, \dots$ in two:
prefix: V_1, \dots, V_n and *tail*: V_{n+1}, V_{n+2}, \dots $X_{\text{pref}}, X_{\text{tail}}$ = number of votes.
 (here: $n = 10$)

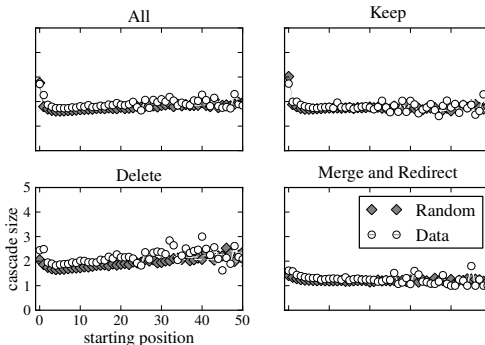


Individual biases: Herding effects

Are cascades of votes more likely to occur at a specific position in the voting sequence?

Plots: cascade size as a function of position in voting sequence.

No privileged position where cascades happen (almost flat curves), trend similar to randomly reshuffled sequences

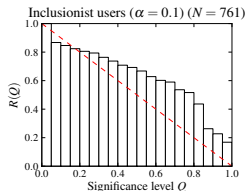
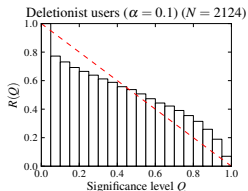
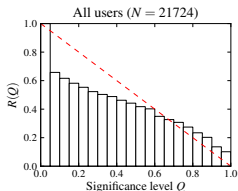


Heterogeneity of User behavior

Are there asymmetries in voting behavior at the individual level that may indicate distinct classes of users?

Test whether baseline distribution $P(o) = f_o$ reliably represents individual users. Plot compl. CDF of χ^2 p -values between observed user's u voting frequencies $P(o, u)$ and baseline $P(o)$.

“inclusionist” users: $\{\text{all users } u \text{ s.t. } P(K, u) > P(D, u) + \alpha\}$
(and similarly for “deletionist”)



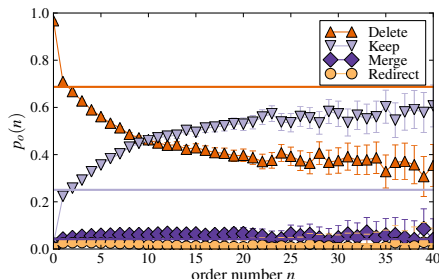
Social biases: Strategic Behaviour

Probability $p_o(n)$ of voting for a given option o after $(n - 1)$ votes have been already cast.

Strong non-stationarity in the case of K and D .

Higher probability to cast a D in the initial part of the sequence, rapidly decreasing after the first 10 votes, until it balances with that for voting K .

Users being clustered in their voting behaviour \Rightarrow “factions” do have an influence in AfD dynamics.



Directions

Key empirical questions

- ▶ What drives **participation** to collaborative decision-making
 - ▶ What drives actual **choice** once a decision to participate is made
 - ▶ What are the **emergent effects** of individual decisions at a macroscopic level
- ⇒ Appropriate **incentive structure** for these systems to be accurate, timely, and cost-effective

Directions

Reverse-engineering user psychology in collaborative settings

► Herding

Predisposition to vote as a function of order and type of previous votes
Social impenetrability

► Strategic behaviour

Predisposition to vote under recruitment
Cognitive impenetrability

⇒ Design robust systems against individual and social biases

Thanks

Giovanni Luca Ciampaglia

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<http://www.inf.usi.ch/phd/ciampaglia>

Reference

D. Taraborelli, G.L. Ciampaglia, Beyond notability. Collective deliberation on content inclusion in Wikipedia. *Fourth IEEE International Conference on Self-Adaptive and Self-Organizing Systems Workshops (SASOW 2010)*, Budapest, September 27- October 1, 2010.

<http://nitens.org/docs/qteso10.pdf>