Winning: it's not for everyone
Superstars
Musiclab
References

Voting, Success, and Superstars

Principles of Complex Systems | @pocsvox
CSYS/MATH 300, Fall, 2015 | #FallPoCS2015

Prof. Peter Dodds | @peterdodds

Dept. of Mathematics & Statistics | Vermont Complex Systems Center
Vermont Advanced Computing Core | University of Vermont

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What's the Story?

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Outline

Winning: it's not for everyone

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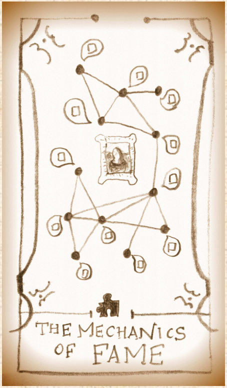
- Musiclab

References

THE SUN
THE MANIFESTO
THE WELL OF SCALES
THE LAWS OF DECAYING POWER
MINISTRY OF RANDOM WALKS
THE UNEXPECTED TRANSFIGURATION
THE RICH GET RICHER
THE DREAM OF EFFICIENT LANGUAGE
THE LAW OF DIGITS FIRST
THE DATA POOR
THE POURING DATA
THE EMERGENCE OF STRUCTURE
THE EMERGENCE OF DESTRUCTION
THE EMERGENCE OF THINKING
It was the best of times,
THE EMERGENCE OF STORIES
THE MECHANICS STATISTICAL
THE THRESHOLDS OF PERCOLATION
THE SURPRISE OF BEING ROBUST YET FRAGILE
THE MISREADING OF THE BOOK OF SAND
THE MANY TALES OF MANY TAILS
THE NETWORKS COMPLEX
THE ELEMENTS OF WEBS
THE ARK OF THE RANDOM NETWORK
THE STRANGENESS OF FRIENDS
THE SMALLNESS OF WORLDS
THE THEORY OF SIX DEGREES
THE NETWORKS FREE OF SCALE
THE UNENDING PANDEMICS
THE CONFUSION OF CONTAGIONS
THE DISEASE OF RANDOM MIXING
THE SOCIAL CONTAGION
THE THRESHOLDS OF THE MIND


THE MECHANICS OF FAME

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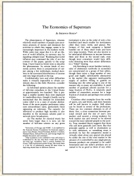
THE MECHANICS OF FAME

Where do superstars come from?



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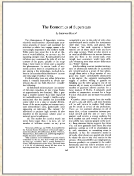

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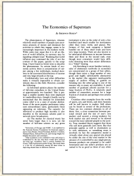
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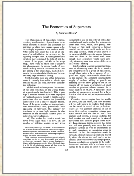

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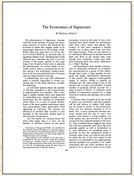
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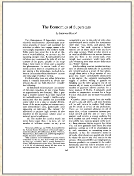

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- Highly skewed distributions again...

THE MECHANICS OF FAME

Superstars

Rosen's theory:

- Individual quality q maps to reward $R(q)$.
- $R(q)$ is 'convex' ($\mathrm{d}^2 R/\mathrm{d}q^2 > 0$).
- Two reasons:
  1. Imperfect substitution:
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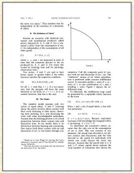

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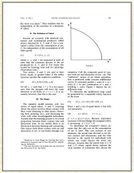

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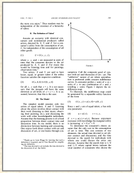

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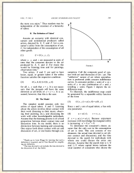

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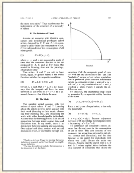

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THE MECHANICS OF FAME

Voting

Evidence from the web suggestions (Huberman et al.)

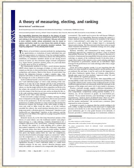
1. Easy decisions (yes/no) lead to bandwagoning
    - e.g. jyte.com
2. More costly evaluations lead to oppositional votes
    - e.g. amazon.com

- Self-selection: Costly voting may lower incentives for those who agree with the current assessment and increase incentives for those who disagree.

THE MECHANICS OF FAME

Voting

Score-based voting versus rank-based voting:



A theory of measuring, electing, and ranking

PNAS

"A theory of measuring, electing, and ranking"
Balinski and Laraki,
Proc. Natl. Acad. Sci., **104**, 8720–8725, 2007. [2]

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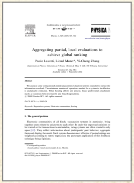
Aggregating partial, local evaluations to achieve global ranking
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$$p_i(t) \propto v_i(t)^{\alpha} \text{ or } p_i(t) \propto q_i v_i(t)^{\alpha}.$$

- If $\alpha < 1$, correct quality ordering is uncovered
- If $\alpha > 1$, some objects are never evaluated and mistakes are made...
- Related to Adler's approach

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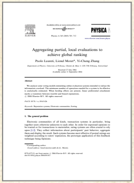

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PHYSICA

Aggregating partial, local evaluations to achieve global ranking

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Abstract

1. The general problem

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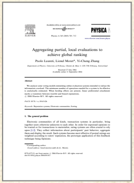

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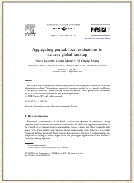

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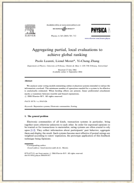

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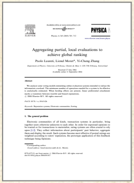

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Dominance hierarchies

Individual differences versus social dynamics in the formation of animal dominance hierarchies

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Chase et al.,
Proc. Natl. Acad. Sci., **99**, 5744-5749, 2002. [3]

- The aggressive female Metriaclima zebra:

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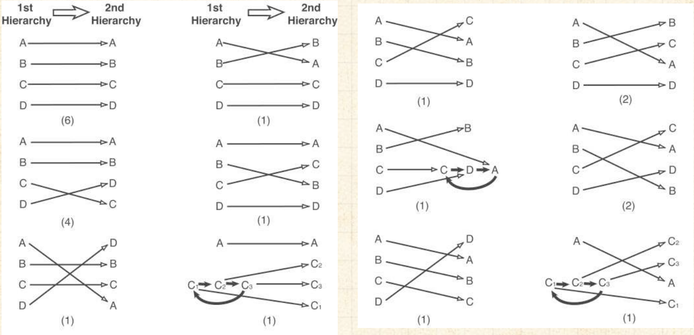
Dominance hierarchies

Fish forget—changing of dominance hierarchies:


1st Hierarchy
2nd Hierarchy
1st Hierarchy
2nd Hierarchy
A
B
C
D
(6)
(4)
(1)
(1)
(1)
(1)
(1)
(2)
(1)
(2)
(1)
(1)
C₁
C₂
C₃

- 22 observations: about 3/4 of the time, hierarchy changed

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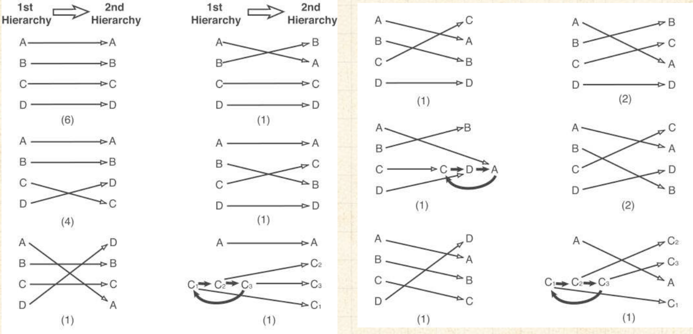
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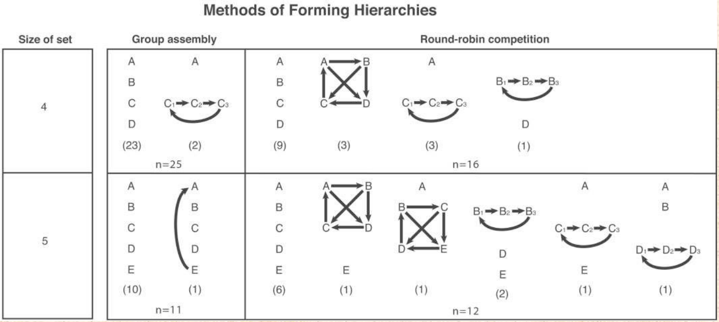
Methods of Forming Hierarchies
Size of set
Group assembly
Round-robin competition
4
A B C D
(23)
A C₁ C₂ C₃
(2)
n=25
A B C D
(9)
A B C D
(3)
A C₁ C₂ C₃
(3)
B₁ B₂ B₃ D
(1)
n=16
5
A B C D E
(10)
A B C D E
(1)
n=11
A B C D E
(6)
A B C D E
(1)
A B C D E
(1)
B₁ B₂ B₃ D E
(2)
A C₁ C₂ C₃ E
(1)
A B D₁ D₂ D₃
(1)
n=12

- Group versus isolated interactions produce different hierarchies

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Music Lab Experiment

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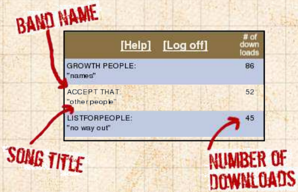
48 songs
30,000 participants


BAND NAME
SONG TITLE
NUMBER OF DOWNLOADS
[Help] [Log off]

	# of down loads
GROWTH PEOPLE: "names"	86
ACCEPT THAT: "other people"	52
LISTFORPEOPLE: "no way out"	45

multiple 'worlds'
Inter-world variability

- How probable is the world?
- Can we estimate variability?
- Superstars dominate but are unpredictable. Why?

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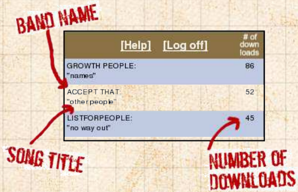
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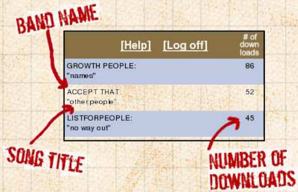
BAND NAME
SONG TITLE
NUMBER OF DOWNLOADS

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GROWTH PEOPLE: "names"	86
ACCEPT THAT: "other people"	52
LISTFORPEOPLE: "no way out"	45

48 songs
30,000 participants

multiple 'worlds'
Inter-world variability

- How probable is the world?
- Can we estimate variability?
- Superstars dominate but are unpredictable. Why?

THE MECHANICS OF FAME

Music Lab Experiment

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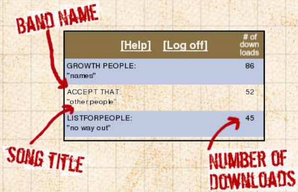
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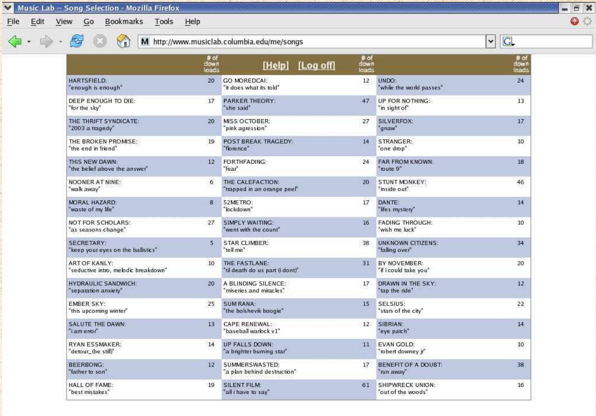
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File Edit View Go Bookmarks Tools Help
http://www.musiclab.columbia.edu/me/songs

	# of downloads	[Help] [Log off]	# of downloads		# of downloads
HARTSFIELD: "enough is enough"	20	GO MOREDCAI: "it does what its told"	12	UNDO: "while the world passes"	24
DEEP ENOUGH TO DIE: "for the sky"	17	PARKER THEORY: "she said"	47	UP FOR NOTHING: "in sight of"	13
THE THRIFT SYNDICATE: "2003 a tragedy"	20	MISS OCTOBER: "pink agression"	27	SILVERFOX: "gnaw"	17
THE BROKEN PROMISE: "the end in friend"	19	POST BREAK TRAGEDY: "florence"	14	STRANGER: "one drop"	10
THIS NEW DAWN: "the belief above the answer"	12	FORTHFADING: "fear"	24	FAR FROM KNOWN: "route 9"	18
NOONER AT NINE: "walk away"	6	THE CALEFACTION: "trapped in an orange peel"	20	STUNT MONKEY: "inside out"	46
MORAL HAZARD: "waste of my life"	8	52METRO: "lockdown"	17	DANTE: "lifes mystery"	14
NOT FOR SCHOLARS: "as seasons change"	27	SIMPLY WAITING: "went with the count"	16	FADING THROUGH: "wish me luck"	10
SECRETARY: "keep your eyes on the ballistics"	5	STAR CLIMBER: "tell me"	38	UNKNOWN CITIZENS: "falling over"	34
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HYDRAULIC SANDWICH: "separation anxiety"	20	A BLINDING SILENCE: "miseries and miracles"	17	DRAWN IN THE SKY: "tap the ride"	12
EMBER SKY: "this upcoming winter"	25	SUM RANA: "the bolshevik boogie"	15	SELSIUS: "stars of the city"	22
SALUTE THE DAWN: "i am error"	13	CAPE RENEWAL: "baseball warlock v1"	12	SIBRIAN: "eye patch"	14
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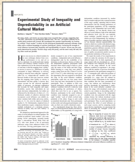
HALL OF FAME: "best mistakes"	19	SILENT FILM: "all i have to say"	61	SHIPWRECK UNION: "out of the woods"	16



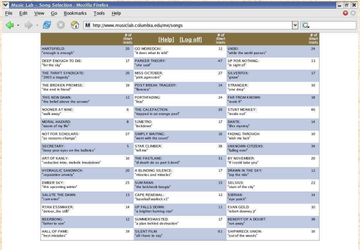
"An experimental study of inequality and unpredictability in an artificial cultural market"

Salganik, Dodds, and Watts, Science, **311**, 854–856, 2006. [6]

THE MECHANICS OF FAME

Music Lab Experiment

Experiment 1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http://www.musiclab.columbia.edu/me/songs
[Help] [Log off]

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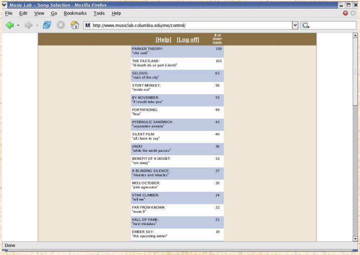
Experiments 2–4


Music Lab – Song Selection - Mozilla Firefox
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http://www.musiclab.columbia.edu/me/control/
[Help] [Log off]
Done

	# of downloads
PARKER THEORY: "she said"	159
THE FASTLANE: "til death do us part (i dont)"	103
SELSIUS: "stars of the city"	62
STUNT MONKEY: "inside out"	56
BY NOVEMBER: "if i could take you"	55
FORTHFADING: "fear"	49
HYDRAULIC SANDWICH: "separation anxiety"	43
SILENT FILM: "all i have to say"	40
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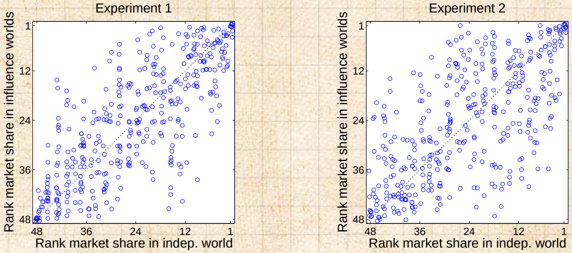
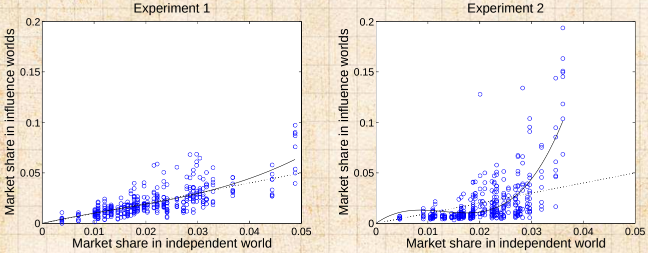
THE MECHANICS OF FAME

Music Lab Experiment



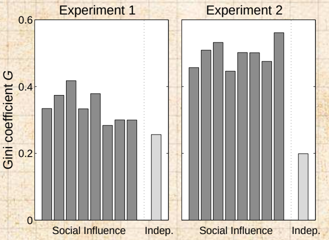
- Variability in final rank.

Music Lab Experiment



- Variability in final number of downloads.

Music Lab Experiment

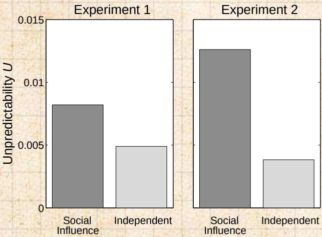


- Inequality as measured by Gini coefficient:

$$G = \frac{1}{(2N_\mathrm{s} - 1)} \sum_{i=1}^{N_\mathrm{s}} \sum_{j=1}^{N_\mathrm{s}} |m_i - m_j|$$

THE MECHANICS OF FAME

Music Lab Experiment



- Unpredictability

$$U = \frac{1}{N_{\mathrm{s}}\binom{N_{\mathrm{w}}}{2}} \sum_{i=1}^{N_{\mathrm{s}}} \sum_{j=1}^{N_{\mathrm{w}}} \sum_{k=j+1}^{N_{\mathrm{w}}} |m_{i,j} - m_{i,k}|$$

Music Lab Experiment

Sensible result:

- Stronger social signal leads to greater following and greater inequality.

Peculiar result:

- Stronger social signal leads to greater unpredictability.

Very peculiar observation:

- The most unequal distributions would suggest the greatest variation in underlying 'quality.'
- But success may be due to social construction through following.

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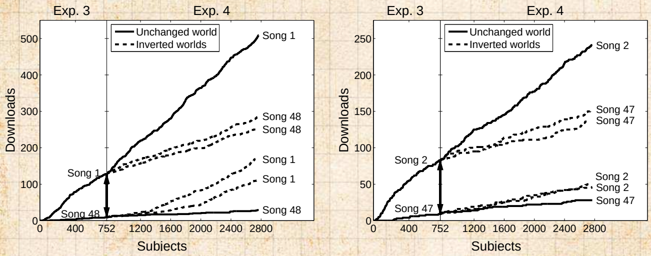
- But success may be due to social construction through following. (so let's tell a story... [8, 9])

THE MECHANICS OF FAME

Music Lab Experiment—Sneakiness [7]



- Inversion of download count
- The pretend rich get richer ...
- ... but at a slower rate

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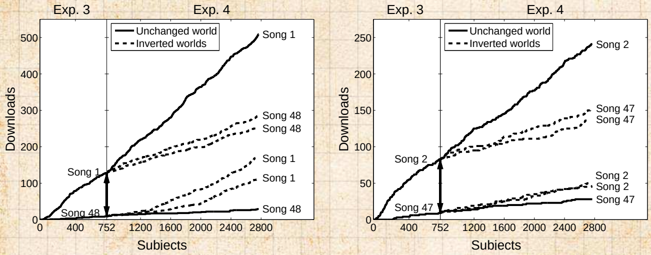
Music Lab Experiment—Sneakiness [7]



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THE MECHANICS OF FAME

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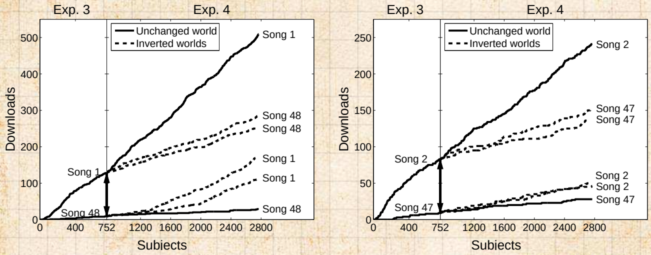

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References I

[1] M. Adler.
Stardom and talent.
American Economic Review, pages 208–212, 1985.
pdf

[2] M. Balinski and R. Laraki.
A theory of measuring, electing, and ranking.
Proc. Natl. Acad. Sci., 104(21):8720–8725, 2007.
pdf

[3] I. D. Chase, C. Tovey, D. Spangler-Martin, and M. Manfredonia.
Individual differences versus social dynamics in the formation of animal dominance hierarchies.
Proc. Natl. Acad. Sci., 99(8):5744–5749, 2002. pdf

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References

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References II

[4] P. Laureti, L. Moret, and Y.-C. Zhang.
Aggregating partial, local evaluations to achieve global ranking.
Physica A, 345(3–4):705–712, 2004. pdf

[5] S. Rosen.
The economics of superstars.
Am. Econ. Rev., 71:845–858, 1981. pdf

[6] M. J. Salganik, P. S. Dodds, and D. J. Watts.
An experimental study of inequality and unpredictability in an artificial cultural market.
Science, 311:854–856, 2006. pdf

THE MECHANICS OF FAME

References III

[7] M. J. Salganik and D. J. Watts.
Leading the herd astray: An experimental study of self-fulfilling prophecies in an artificial cultural market.
Social Psychology Quarterl, 71:338–355, 2008.
pdf

[8] C. R. Sunstein.
Infotopia: How many minds produce knowledge.
Oxford University Press, New York, 2006.

[9] N. N. Taleb.
The Black Swan.
Random House, New York, 2007.

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