

Taking the Avatar Approximation

The Promise and Peril of High-throughput
Social Science in Virtual Worlds

Jacob G. Foster
Complexity Science Group
University of Calgary

Acknowledgements



Richard Hawkins



David Foster



Maya Paczuski

Carl Bergstrom, Kelly Bergstrom, Sean Gourley, Peter Grassberger,
Alex Macdonald, Ray Op'tland

Hawkleyturay, Rilthanan, and
Tryphaena

Acknowledgements



Richard Hawkins



David Foster



Maya Paczuski

Carl Bergstrom, Kelly Bergstrom, Sean Gourley, Peter Grassberger,
Alex Macdonald, Ray Op'tland

Hawkleyturay, Rilthanan, and
Tryphaena

September 15, 2005

September 15, 2005

Ebola?

September 15, 2005

Corrupted Blood

September 15, 2005

Corrupted Blood

Omaha, Uppsala, Shanghai?

September 15, 2005

Corrupted Blood

Orgrimmar, Undercity, Stormwind

September 15, 2005

Corrupted Blood

Orgrimmar, Undercity, Stormwind

Earth?

September 15, 2005

Corrupted Blood

Orgrimmar, Undercity, Stormwind

Azeroth

September 15, 2005



Screenshot: Rockfang, from Wikipedia

September 15, 2005



Ran Balicer (Epidemiology)

E.T. Lofgren and N.H. Fefferman
(Lancet Infectious Diseases)

Screenshot: Rockfang, from Wikipedia

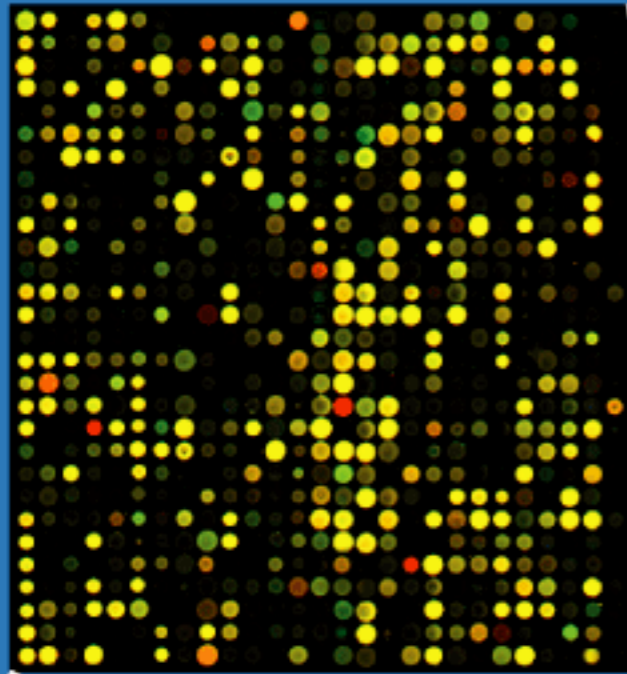
Outline

- Explain the Title
- Why study virtual worlds?
- Peril
- Promise

What is a virtual world?

- Massively Multiplayer Online Role-playing Game (MMORPG)
- or something similar e.g. Second Life
- geographically large, persistent, substantial population

High-throughput Social Science

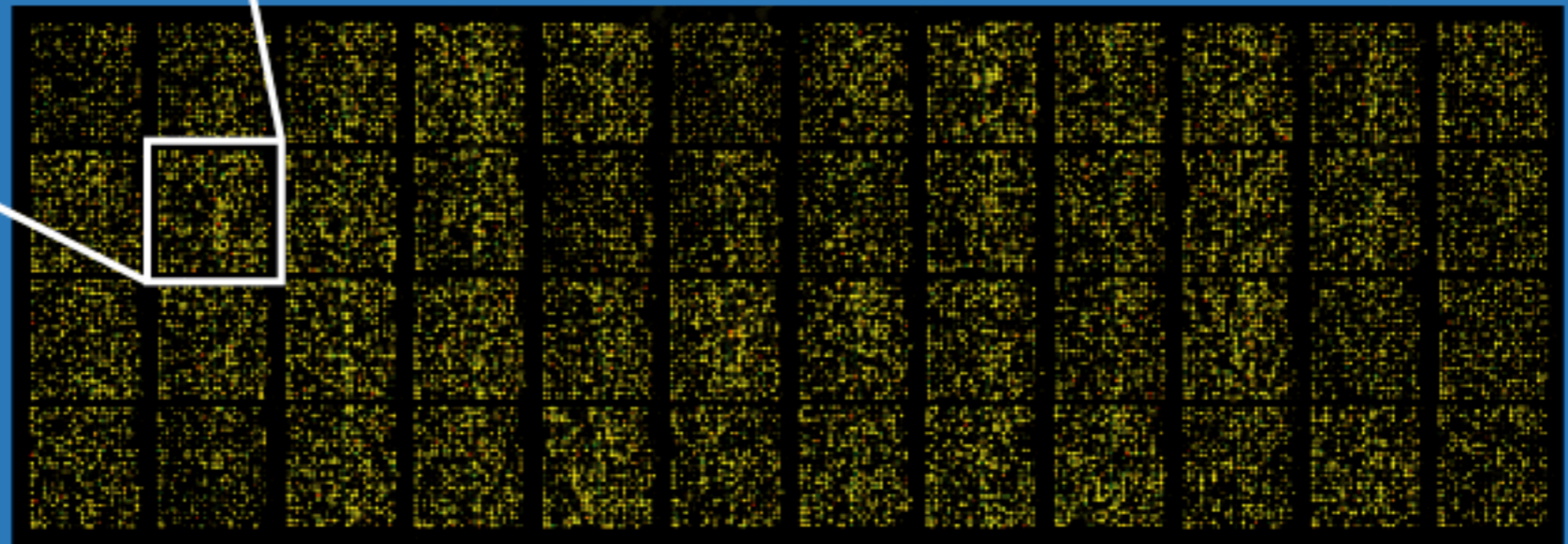


Analogy: Biology

Low-throughput



High-throughput



“Avatar Approximation”



“Avatar Approximation”

- politics --> 2 factions
- diversity --> 10 races
- professions --> finite set of technologies
- roles --> finite set of character classes
- goods --> limited universe ~ 2000

“Avatar Approximation”

- politics --> 2 factions
- diversity --> 10 races
Text
- professions --> finite set of technologies
- roles --> finite set of character classes
- goods --> limited universe ~ 2000

Norms!

“Avatar Approximation”

- politics --> 2 factions

- diversity --> 10 races

This can **maybe** be understood!

- professions --> finite set of technologies

- roles --> finite set of character classes

- goods --> limited universe ~ 2000

Why study WoW?

interesting sui generis

Why study WoW?

interesting sui generis

- ~ 10 million accounts
- total MMORPG market ~ 20 million
- WoW 62.2% of market, Bruce Woodcock (MMOGChart.com)
- Like Facebook, Twitter, etc.

This morning!

BBC

Search

Explore the BBC

NEWS

▶ Watch ONE-MINUTE WORLD NEWS

News Front Page



Africa

Americas

Asia-Pacific

Europe

Middle East

South Asia

UK

Business

Health

Science/Nature

Technology

Entertainment

Also in the news

Video and Audio

Have Your Say

In Pictures

Country Profiles

Special Reports

Related BBC sites

Sport

Page last updated at 10:16 GMT, Friday, 15 August 2008 11:16 UK

✉ E-mail this to a friend

🖨️ Printable version

Writing the history of virtual worlds



Ultima Online was one of the first popular multiplayer online games

Next time you cut down a monster in an online game or punch a supervillain into the next county remember that your actions are helping to write the history of a new world.

To ensure that the big and small events in these fledgling worlds are not forgotten, erased or overlooked, the University of Texas, Austin has kicked off a project to study the best way to preserve their history.

"It's a huge challenge for archivists to deal with digital information," said project co-ordinator Professor Megan Winget from the School of

SEE ALSO

- ▶ [Fantasy fuels games with finances](#)
30 Dec 05 | Technology
- ▶ [Virtual worlds opened up to all](#)
19 Sep 07 | Technology
- ▶ [Deadly plague hits Warcraft world](#)
22 Sep 05 | Technology
- ▶ [Old parliament archives go online](#)
13 May 08 | Edinburgh, East and Fife
- ▶ [Aboriginal archive offers new DRM](#)
29 Jan 08 | Technology
- ▶ [Walking in a barbarian's footsteps](#)
20 May 08 | Technology
- ▶ [Early stereo recordings restored](#)
01 Aug 08 | Technology
- ▶ [Gay rights win in Warcraft world](#)
13 Feb 06 | Technology
- ▶ [Virtual game is a 'disease model'](#)
21 Aug 07 | Health
- ▶ [Making money from virtually nothing](#)
11 Aug 03 | Technology

RELATED INTERNET LINKS


Why study WoW?

“Migration”

Why study WoW?

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Workshop on Challenges and Visions
Program
in the Social Sciences

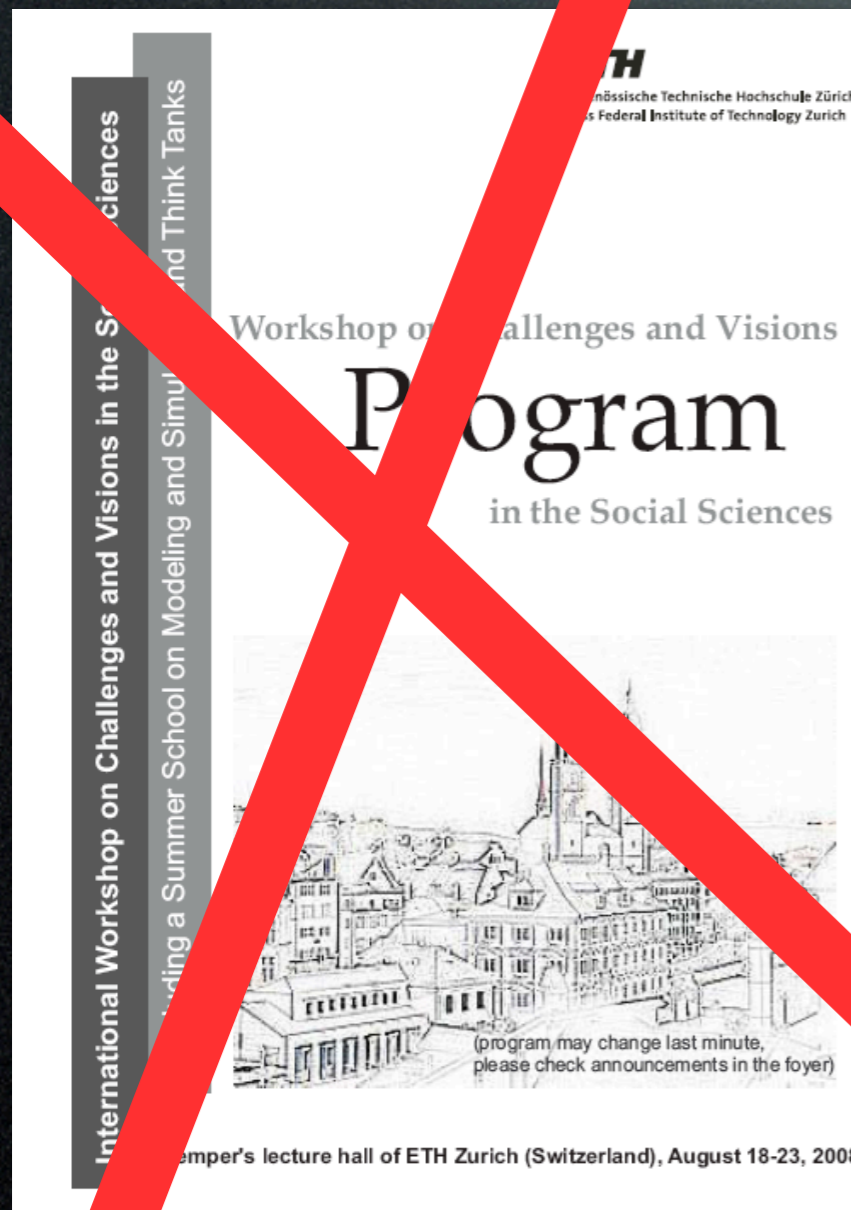


(program may change last minute,
please check announcements in the foyer)

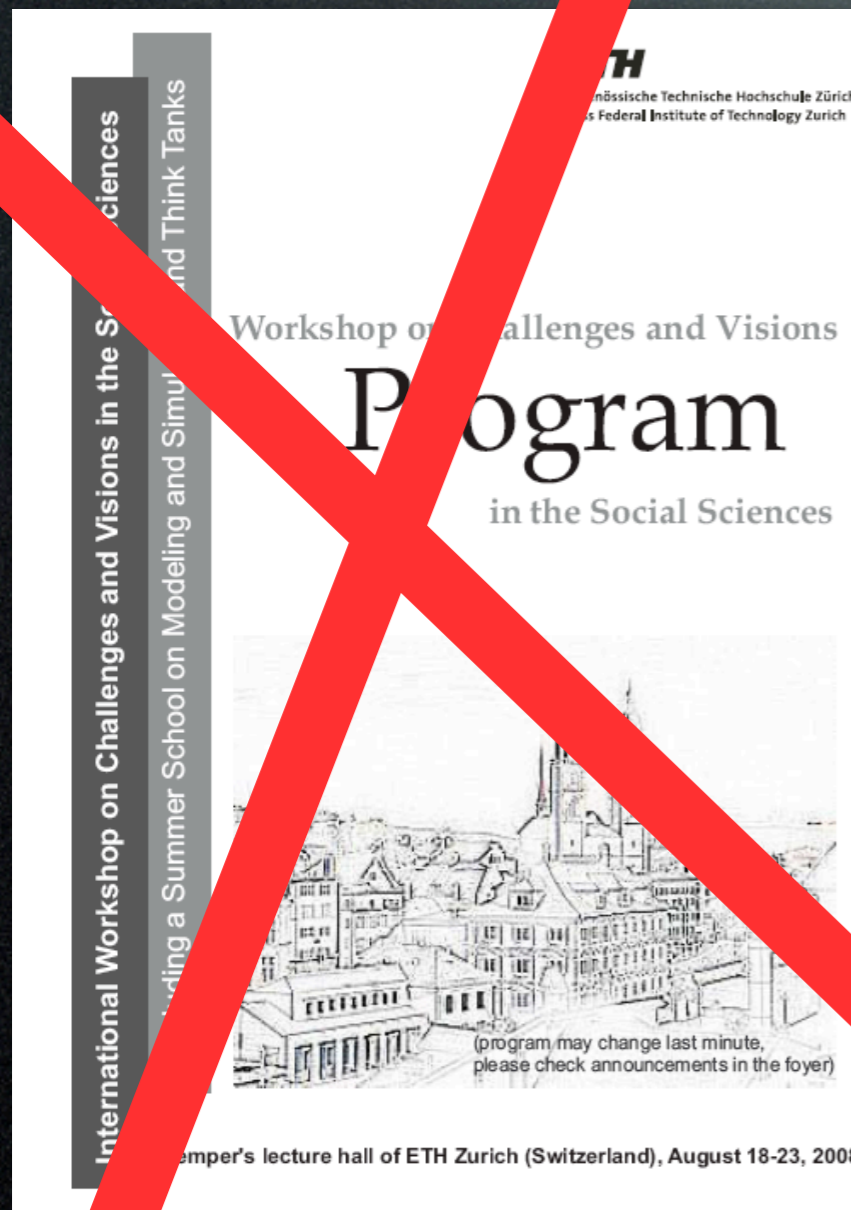
International Workshop on Challenges and Visions in the Social Sciences
including a Summer School on Modeling and Simulation and Think Tanks

Semper's lecture hall of ETH Zurich (Switzerland), August 18-23, 2008

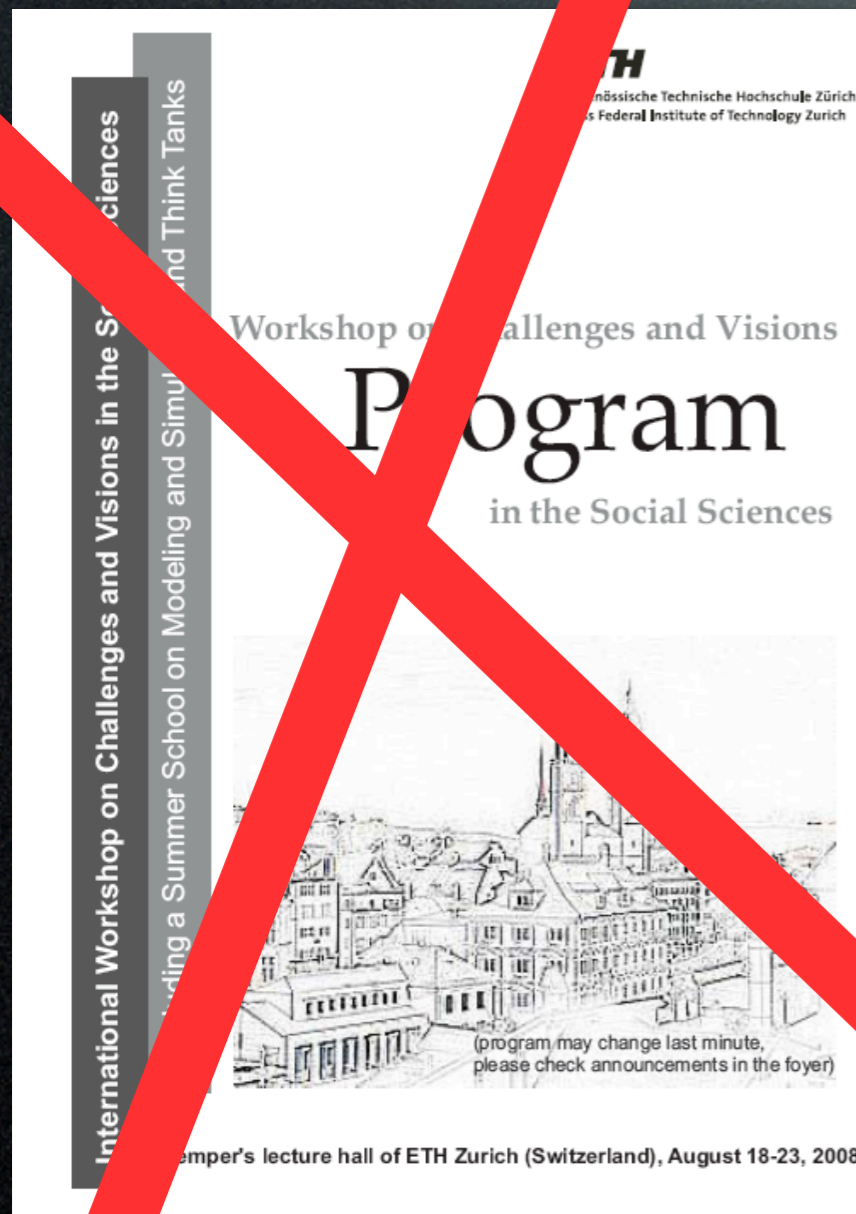
Why study WoW?



Why study WoW?



Why study WoW?



Why study WoW?

Tool in “Paradigm Shift”


Why study WoW?

Tool in “Paradigm Shift”

- Enormous Scope
- Microscopic Detail
- Simplicity
- Replication! (experiments...)
- Narrative Embedding


Why study WoW?

Tool in “Paradigm Shift”

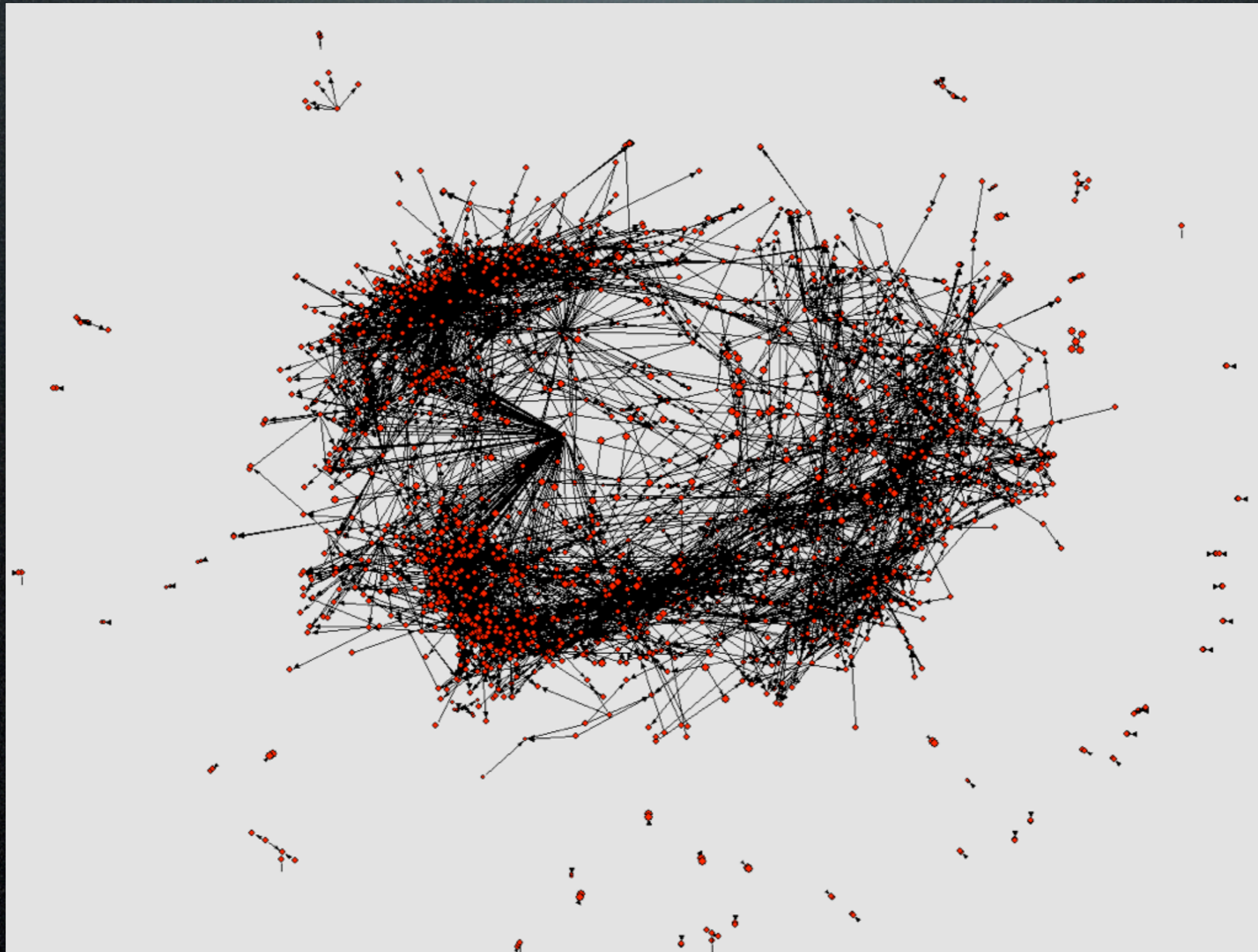
- Enormous Scope
- Microscopic Detail  (“digital traces”)
- Simplicity
- Replication! (experiments...)
- Narrative Embedding

Why study WoW?

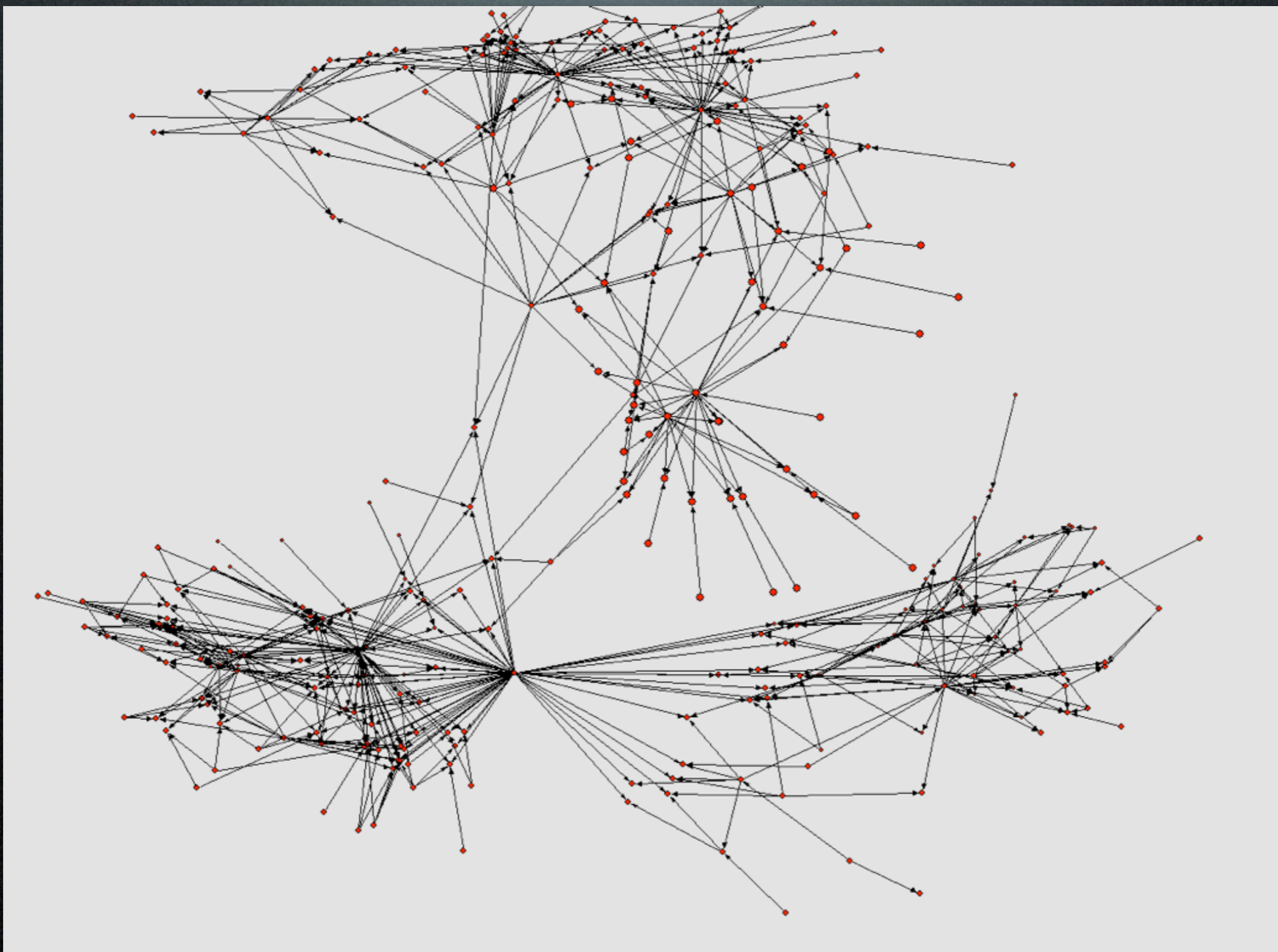
Tool in “Paradigm Shift”

- Enormous Scope
 - Microscopic Detail
 - Simplicity
 - Replication! (experiments...)
 - Narrative Embedding
- “Encapsulation”--
different from “easy data”
- 

Thanks to Kaliope of Llane & Crafter's Tome



(Elias)



Why study WoW?

Tool in “Paradigm Shift”

- Enormous Scope
- Microscopic Detail
- Simplicity
- Replication! (experiments...)
- Narrative Embedding

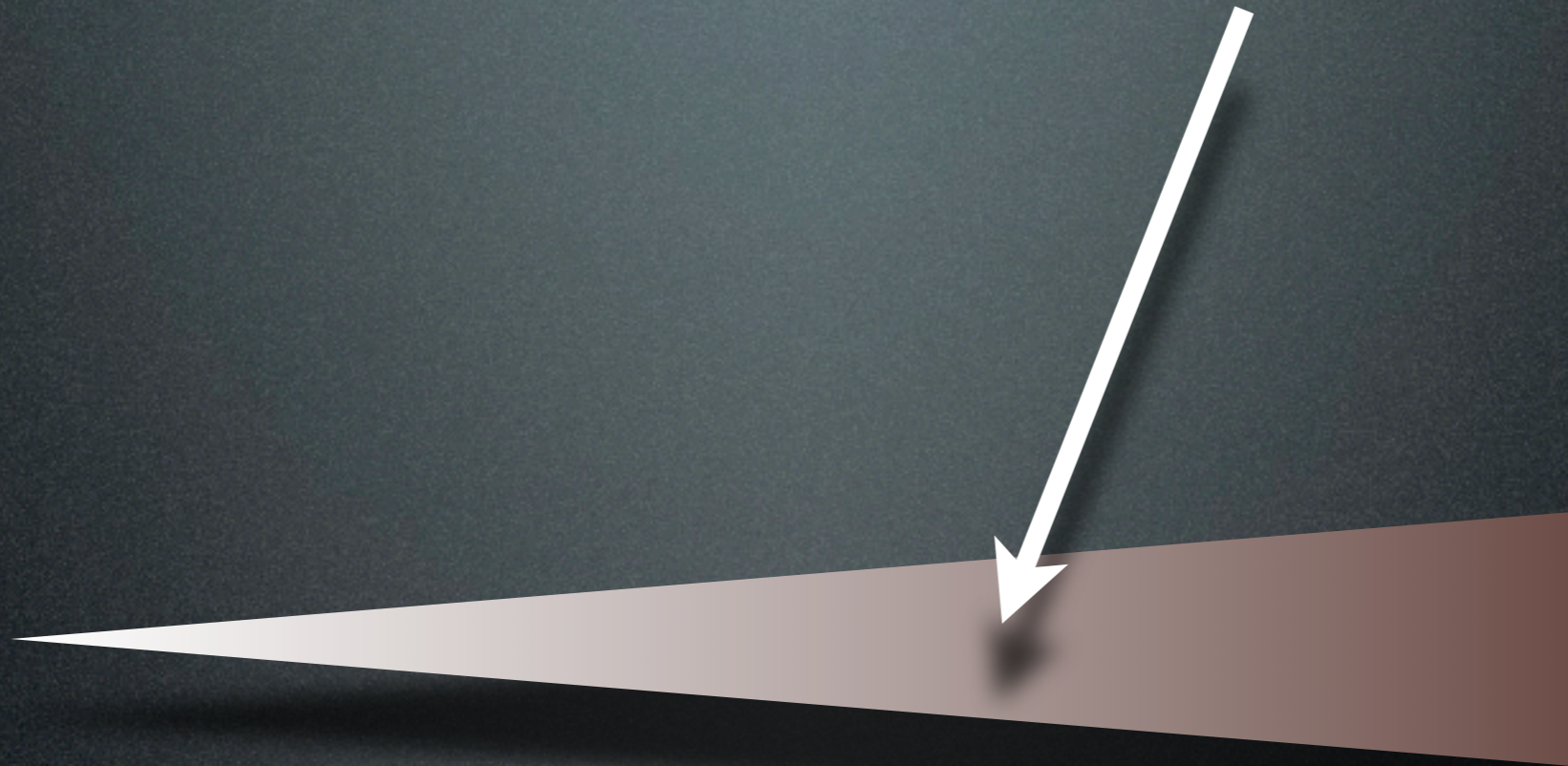
Why study WoW?

Tool in “Paradigm Shift”

- Enormous Scope
- Microscopic Detail
- Simplicity
- Replication! (experiments...)
- Narrative Embedding

Why study WoW?

Agent
Based



“Real”
World

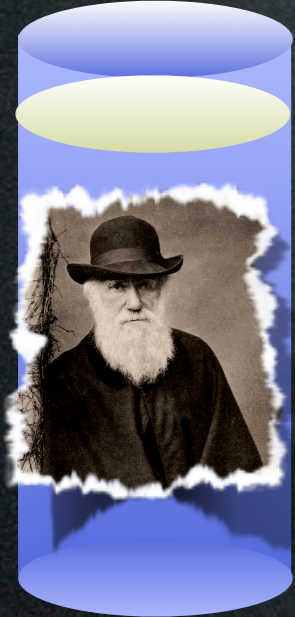
Why study WoW?

Analogies

- Experimental Evolution
- Counterfactual History

Why study WoW?

Analogies

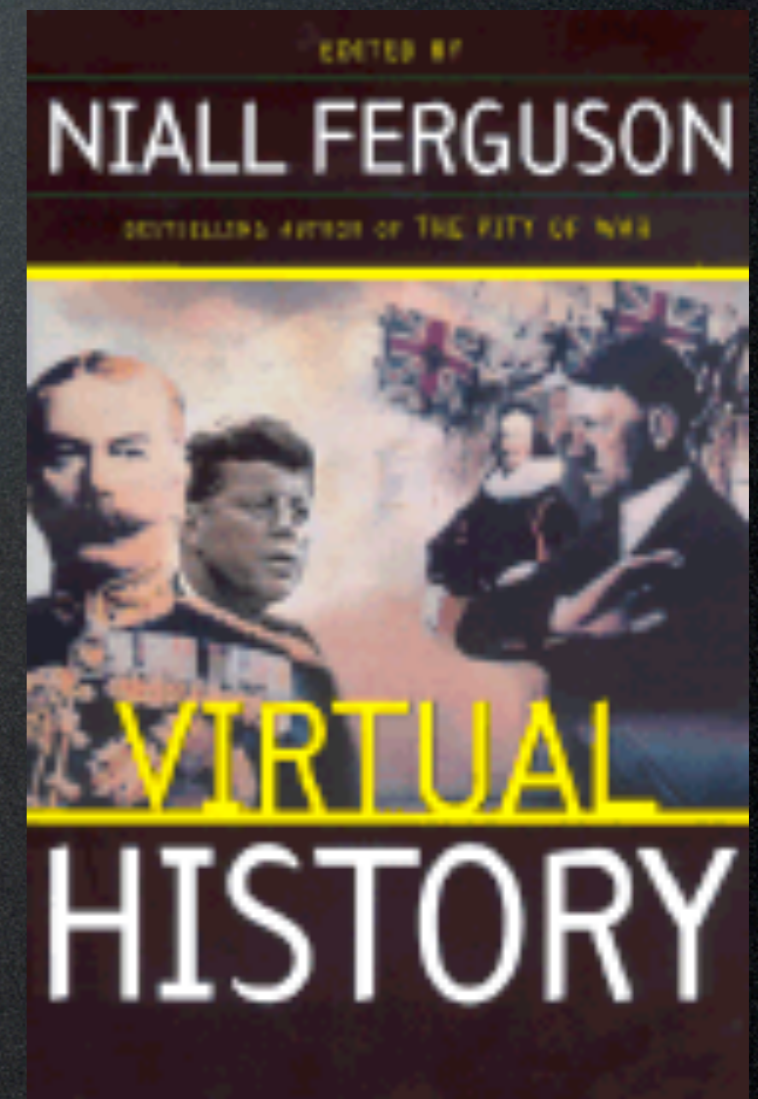


- Experimental Evolution (Nigel Gilbert)
- Counterfactual History

Why study WoW?

Analogies

- Experimental Evolution
- Counterfactual History (David Krakauer)



Peril

Demographics

Survey Instruments



Peril

Quality of Proxy Data

Peril

Quality of Proxy Data

(Troublesome for
social network data,
less worrisome for
economic data)

Peril

Quality of Proxy Data



Also need serious
ethnography!

Peril

Quality of Proxy Data



Is it “real”?

(Castronova verifying law of demand)

Peril

Quality of Proxy Data

George Herbert Mead



Is it “real”?

(Castronova verifying law of demand)

Peril

Quality of Proxy Data

Surveillance



Is it “real”?

(Castronova verifying law of demand)

Promise

- social networks (revolutionary)
- how to promote/limit violence
- discipline & free-riding
- tool for theory -- theorize a little universe

Promise

- social ne
- how to promote/limit violence
- disciplin
- tool for t
universe



Promise

- social networks (revolutionary)
- how to promote/limit violence
- discipline & free-riding
- tool for theory -- theorize a little universe

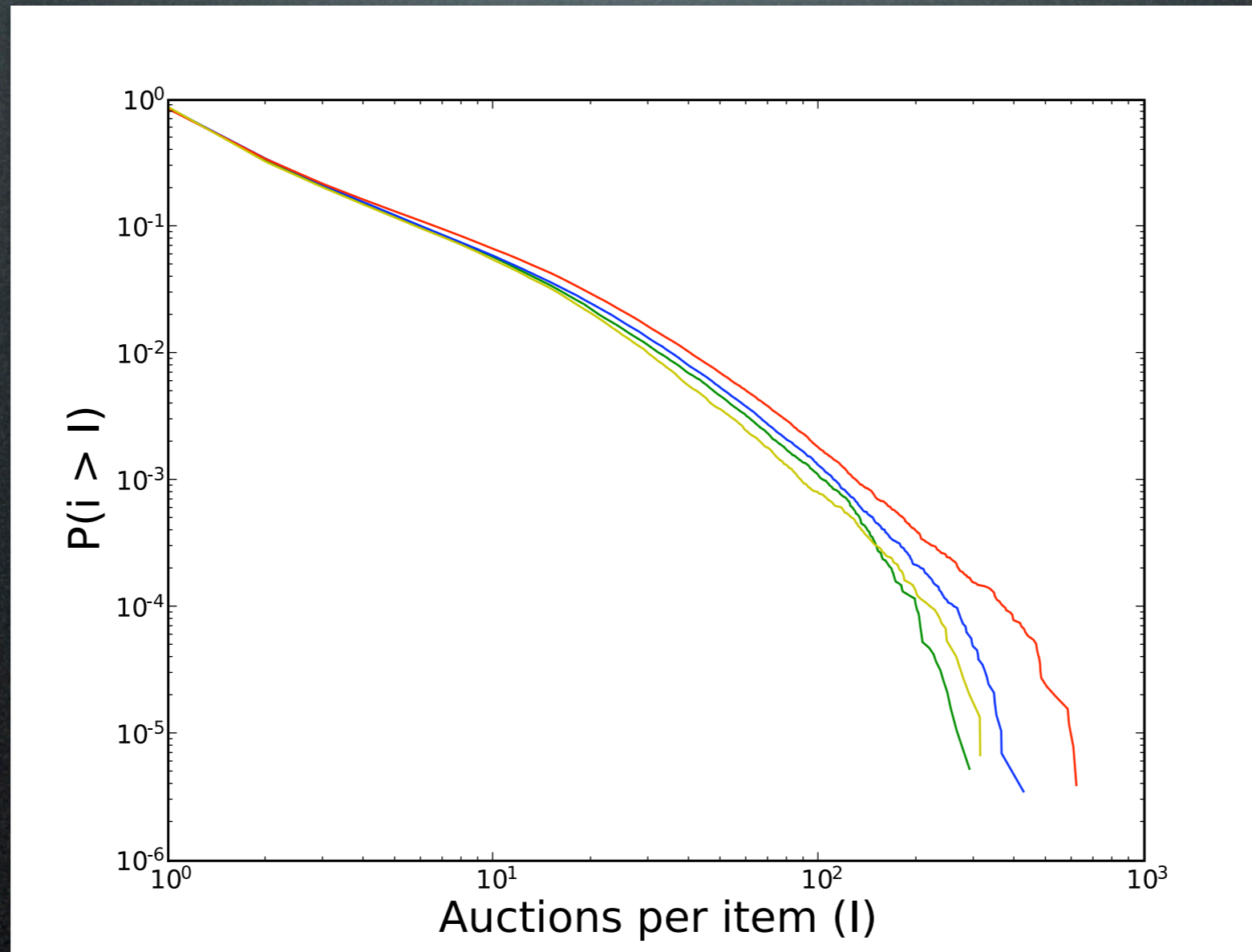
Promise

- social networks (revolutionary)
- how to promote/limit violence
- discipline & free-riding
- tool for theory -- theorize a little (Social) universe

Some fresh data

(Auctioneer)

Wealth Distribution?



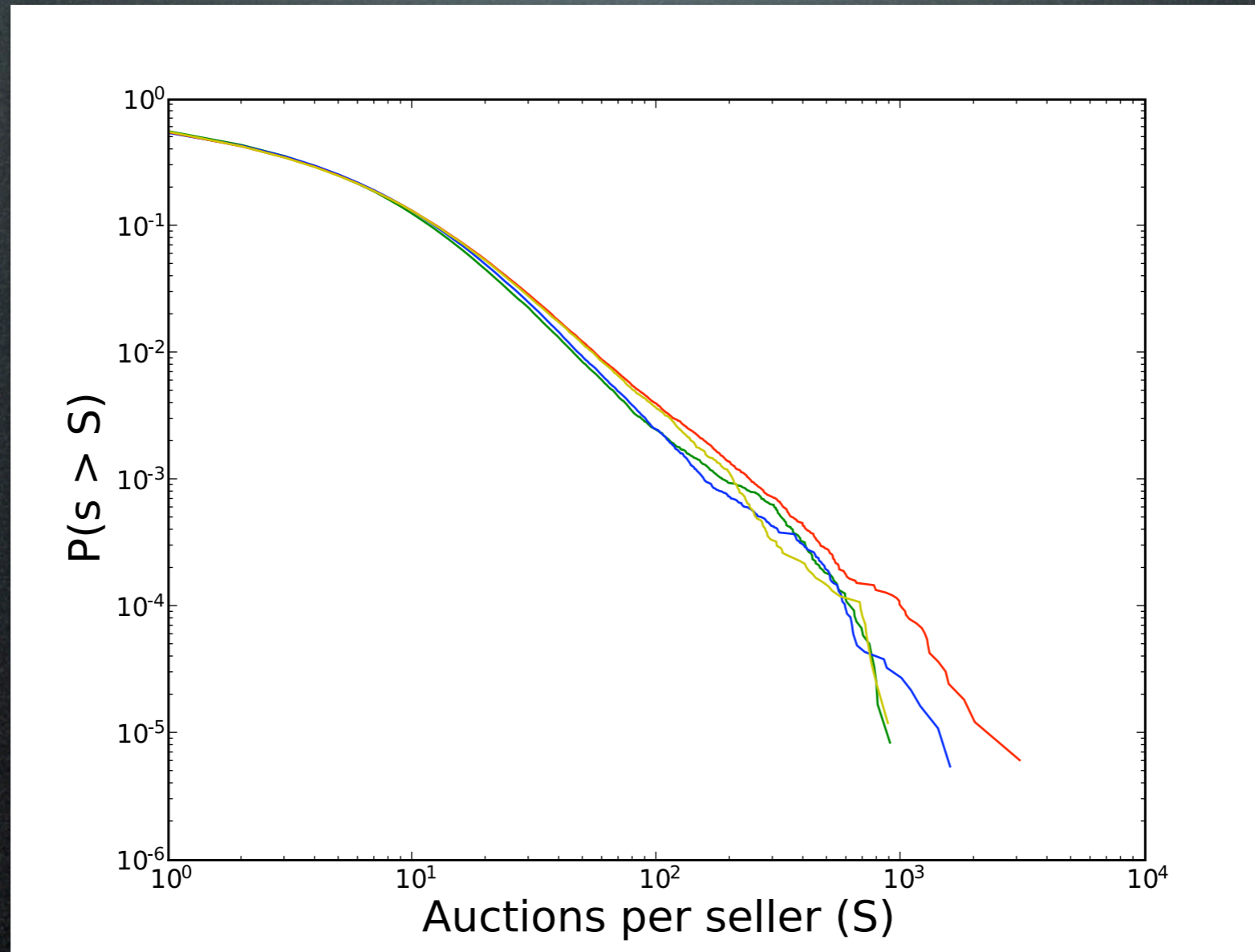
Green: Cairne Horde (Mar 08)

Blue: Cairne Alliance

Red: Aggrammar Alliance (Dec 04)

Yellow: Aggrammar Horde

Wealth Distribution?



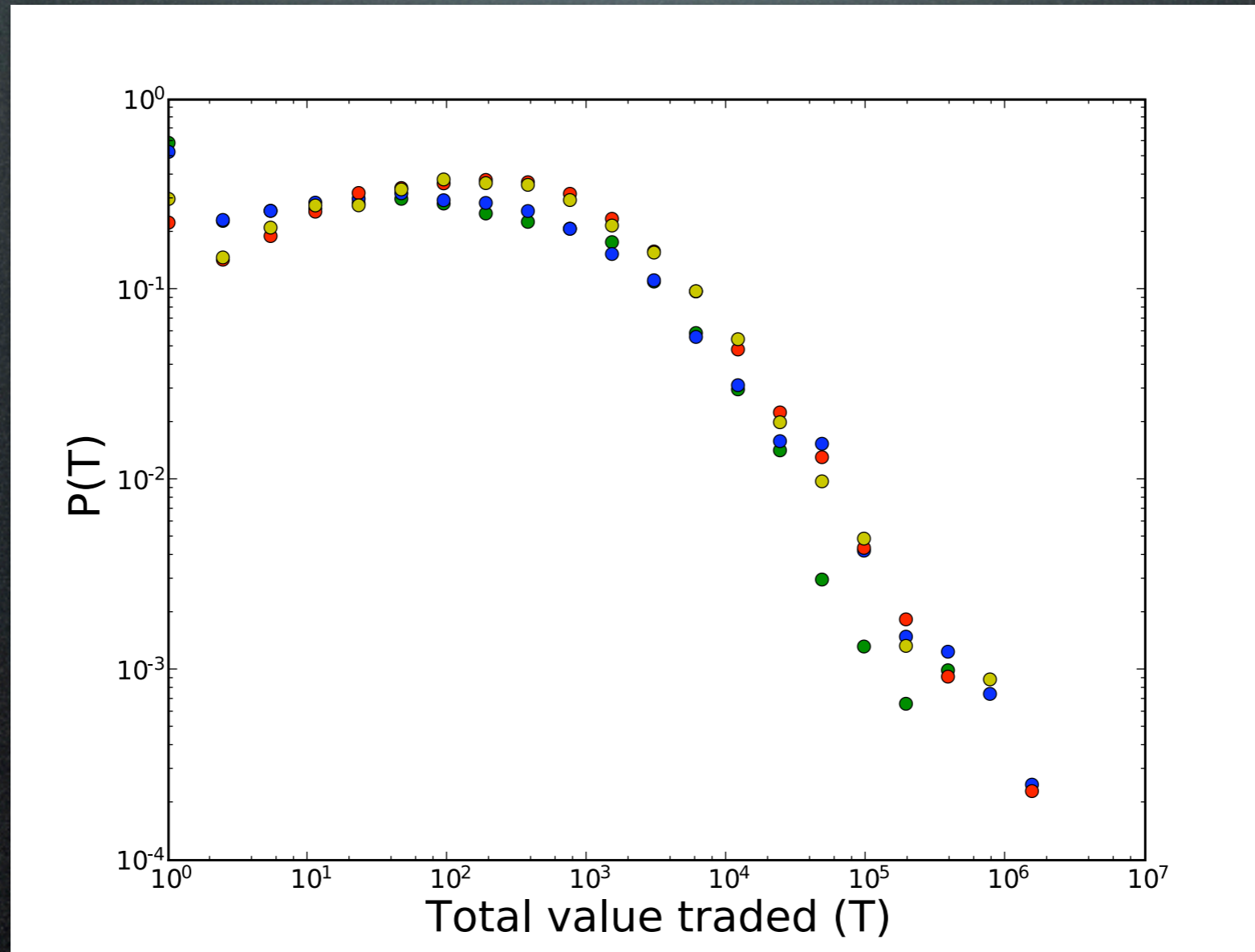
Green: Cairne Horde (Mar 08)

Blue: Cairne Alliance

Red: Aggrammar Alliance (Dec 04)

Yellow: Aggrammar Horde

Wealth Distribution?



Green: Cairne Horde (Mar 08)

Blue: Cairne Alliance

Red: Aggrammar Alliance (Dec 04)

Yellow: Aggrammar Horde

Conclusions

- Laboratory for “experimental” social science, like experimental evolution
- Perhaps arena for working out integration of behavioral sciences
- Need to develop relationships with developers
- Is this the right kind of approximation?

Conclusions

- Laboratory for “experimental” social science, like experimental evolution
- Perhaps arena for working out integration of behavioral sciences
- Need to develop relationships with developers
- Is this the right kind of approximation?

Preprint Coming Soon!