Social Analysis for Irregular Warfare

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It’s the Behavior!

- Every operation has as its goal a behavior change, almost always in a large group
- Personal beliefs have quite limited causal effects on behaviors, and the relationship between the two is complex.
- Attitude change is not success and does not necessarily lead to success.

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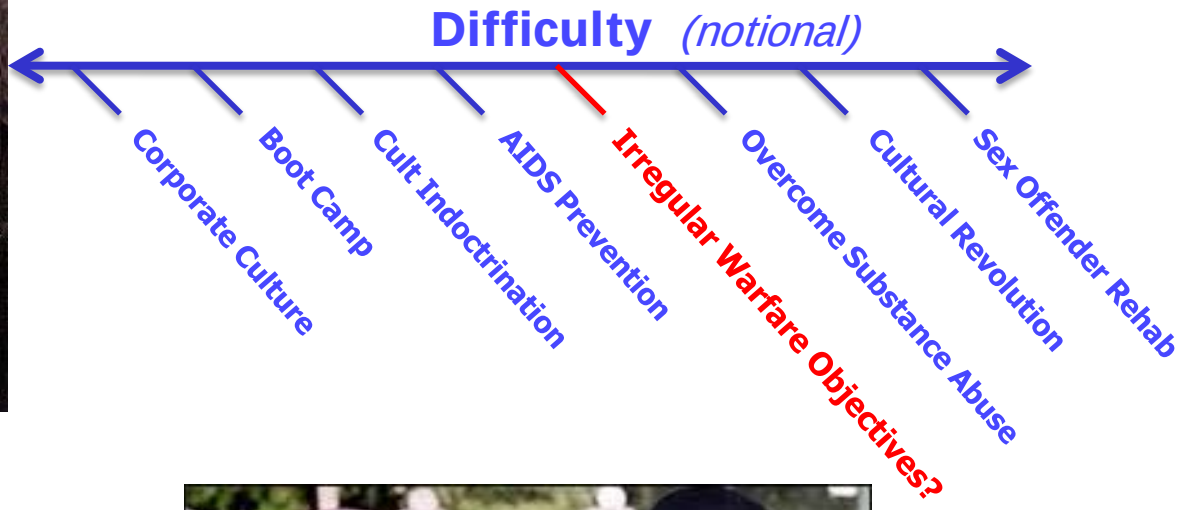
Long-Term, Deep, Large-Group Behavior Change is *Really* Hard



These Folks Can't Shape or Predict Behavior Reliably:

- Marketing & Advertising
- Economists
- Media
- Karl Rove
- No Child Left Behind
- World Health Organization

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Social Science and Large-Group Behavior Change

Behavioral Drivers are Difficult to Determine

- Individual Psychology, Social Structure, Rational Behavior Theory, Culture, Peer Pressure, Hormones, Astrology . . .
- Even knowing what caused a behavior to arise does not necessarily enable you to change it.

Available Data is Not Ideal

- Intel data is about bad guys
- Data about ordinary folks is generally qualitative, tactical, cultural
- Quantitative data tends to be at nation or province level, with no or low frequency

Most Social Scientists Are Outside Their Expertise and Comfort Zone

- Most social scientists are not practitioners of large-group change—don't ask them what to do.
- Some social scientists (and some fields of social science) operate on the prime directive.

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Resources Don't Match Requirements; We Need Big Results from Modest Efforts

These Are Low Probability Operations

- Large-group network behaviors are stable and robust to most upsets
- Cascades are rare events
- Many uncontrollable factors
- No chance for experimentation; never the same problem twice

We should run them accordingly

- Indications and warnings
- Adjustment on the fly
- Sense for unintended consequences

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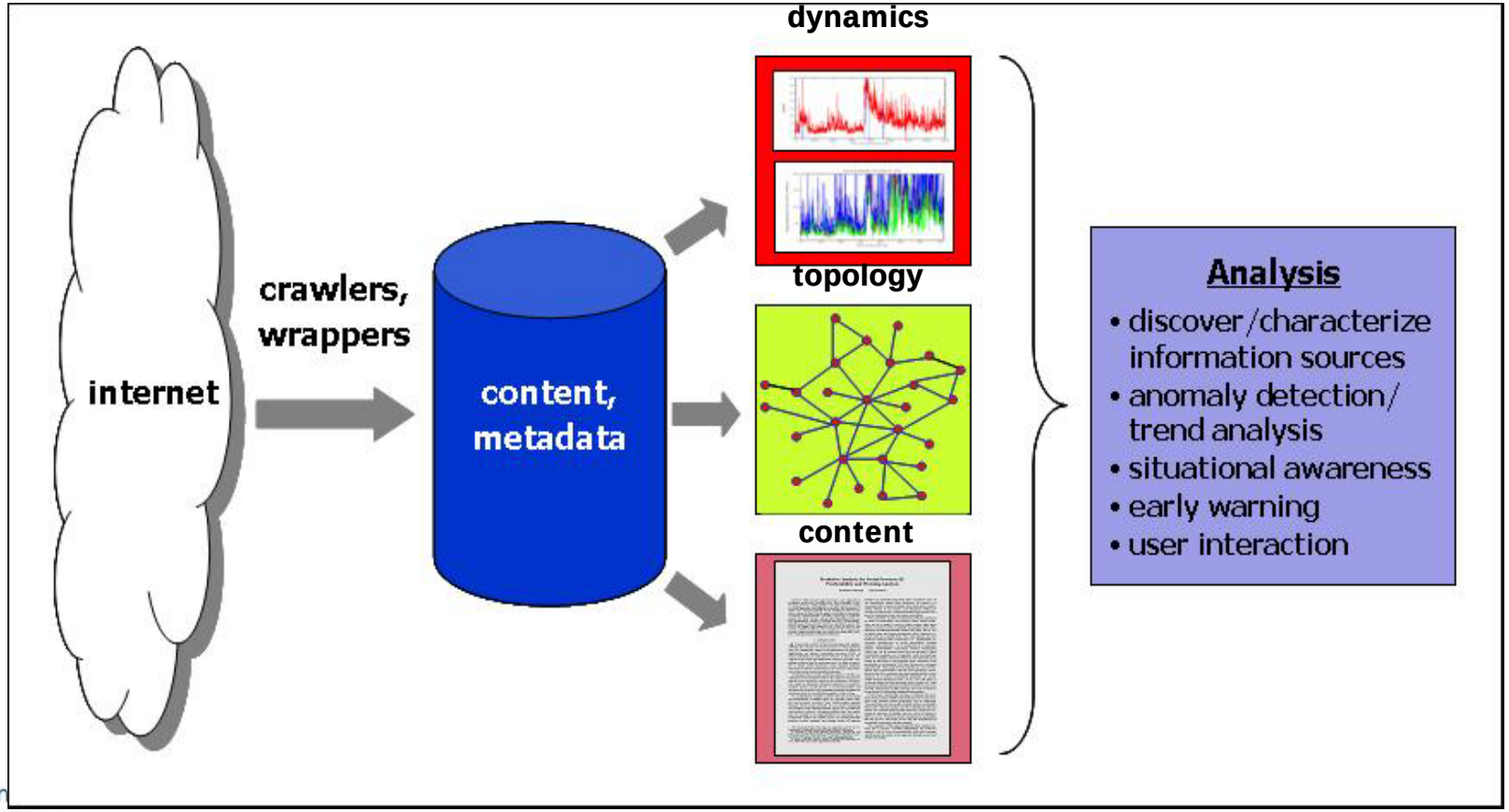
The Combination of Three Data Types Yields Deeper Insight and Predictive Power



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Intrinsics Are Often Weak Predictors of Social Behavior

Intrinsics / social influence

People often pay attention to the behavior of others, for instance in order to

- obtain the benefits of coordinated actions;
- infer otherwise inaccessible information.

In such situations, *intrinsics* (e.g., option quality in a social choice setting) matter less than *social influence*.

Despite this, most methods for predicting outcomes are based on intrinsics.

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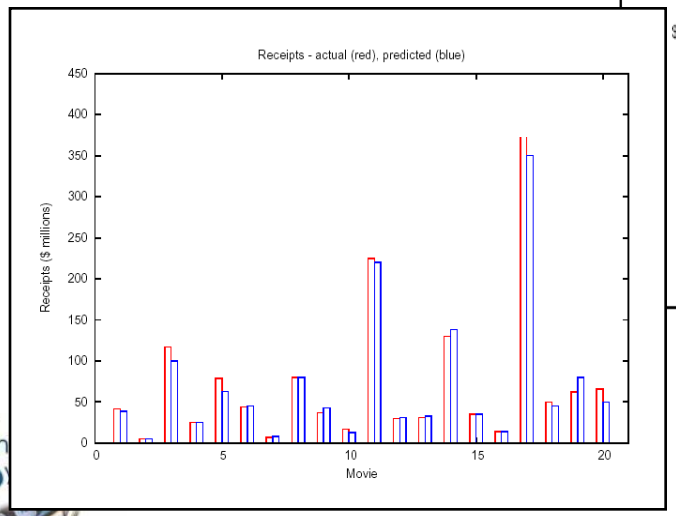
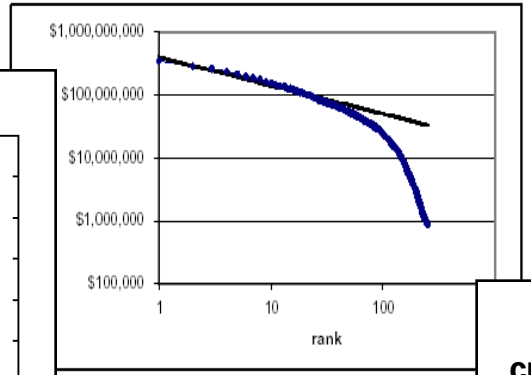
Prediction & Early Warning: Movies and TV

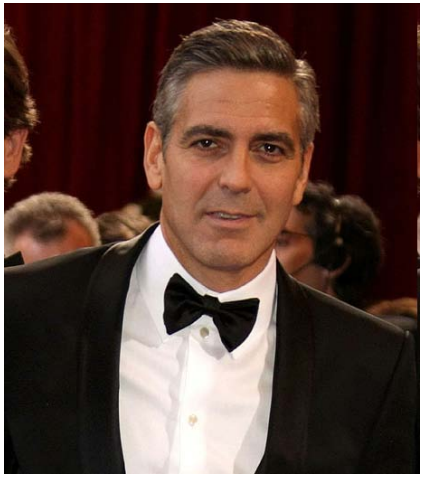
Illustrative example: popular culture!

- Predictability analysis shows movie and TV intrinsics (e.g. stars) aren't predictive of commercial success, so standard prediction methods are unsuccessful).

- Early buzz *is* predictive, however, and prediction based on prerelease buzz outperforms existing methods (e.g. HSX).







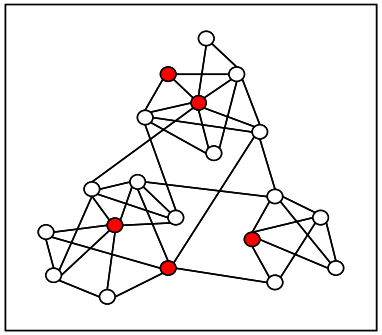
Observable	Predictive?
current rating	yes ($p<0.01$)
stars	no
chat volume	no
chat dispersion	yes ($p<0.05$)
critic reviews	no
trend	no

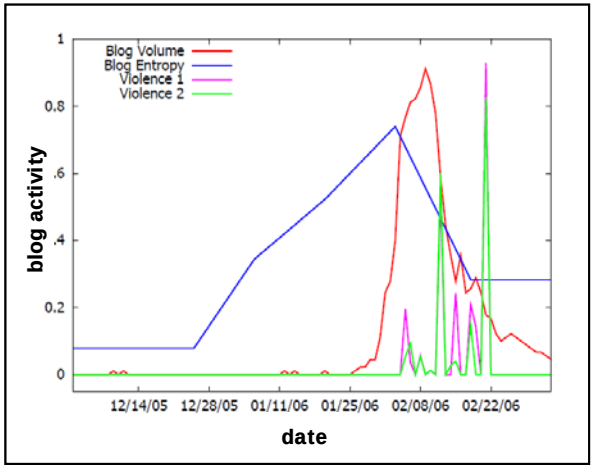
Prediction & Early Warning: World Events

Sample result: social media analytics

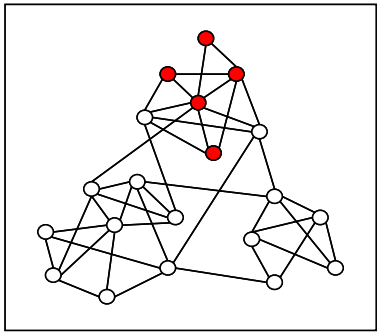
Dispersion of discussion across blog network communities is useful early indicator of large mobilization events.

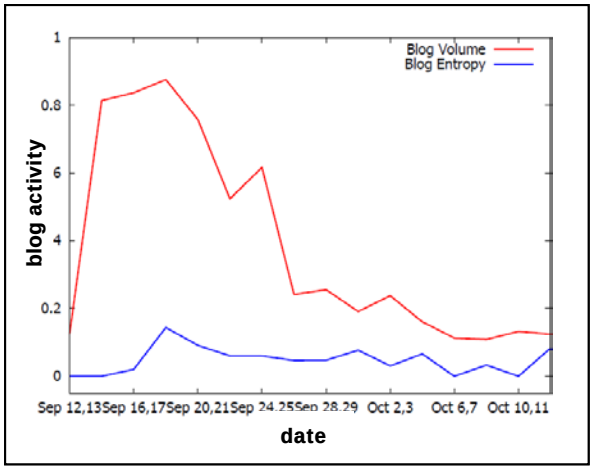
Danish Cartoons 1





Pope Lecture





Predictive Analysis

Metric	Predictive?
post entropy	yes ($p<0.002$)
post volume	no
lexicon intrinsics	no

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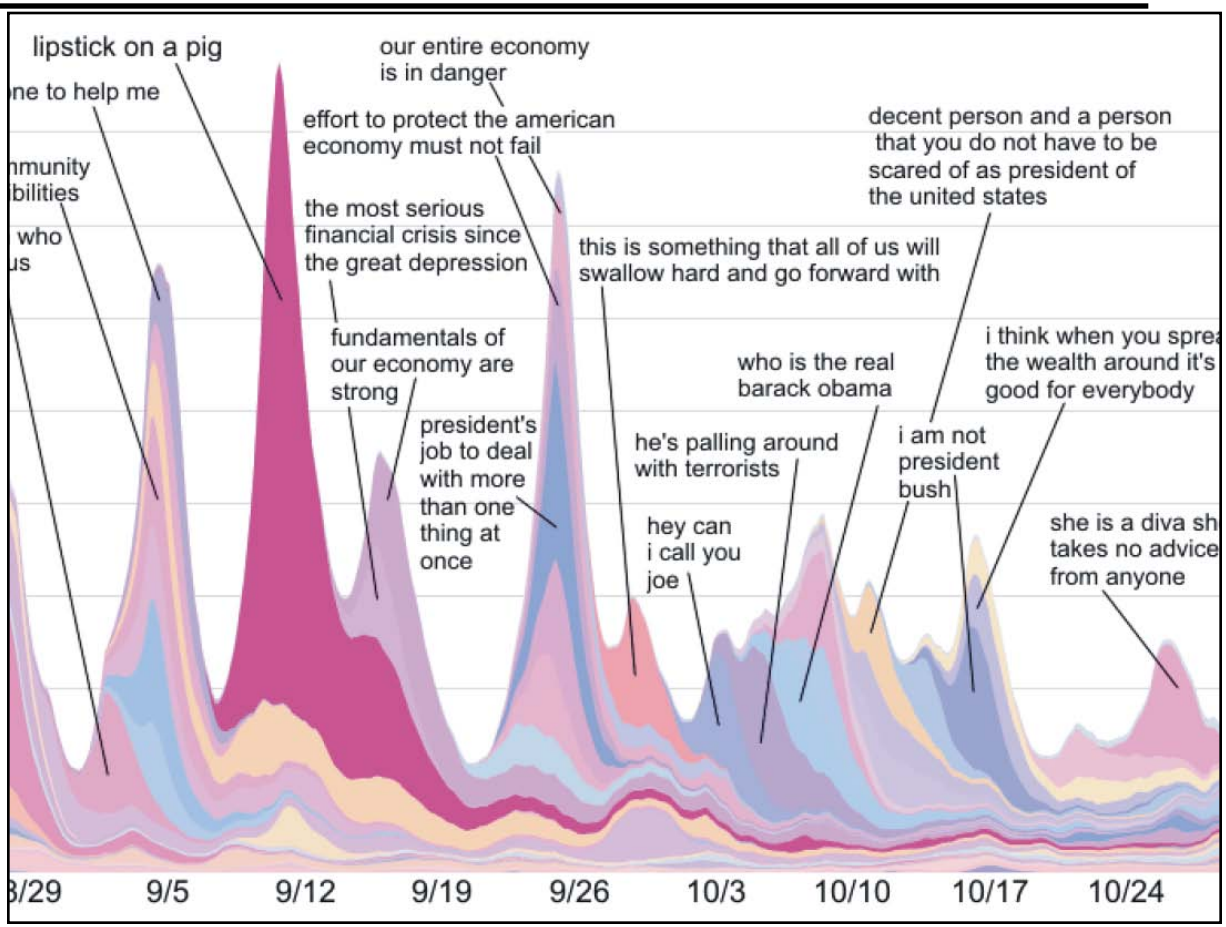
Emerging Topics: US Politics

Basic idea

Predictive analysis of *memes* (distinctive phrases which act as “tracers” for topics) enables early discovery of emerging topics of significance to national security.



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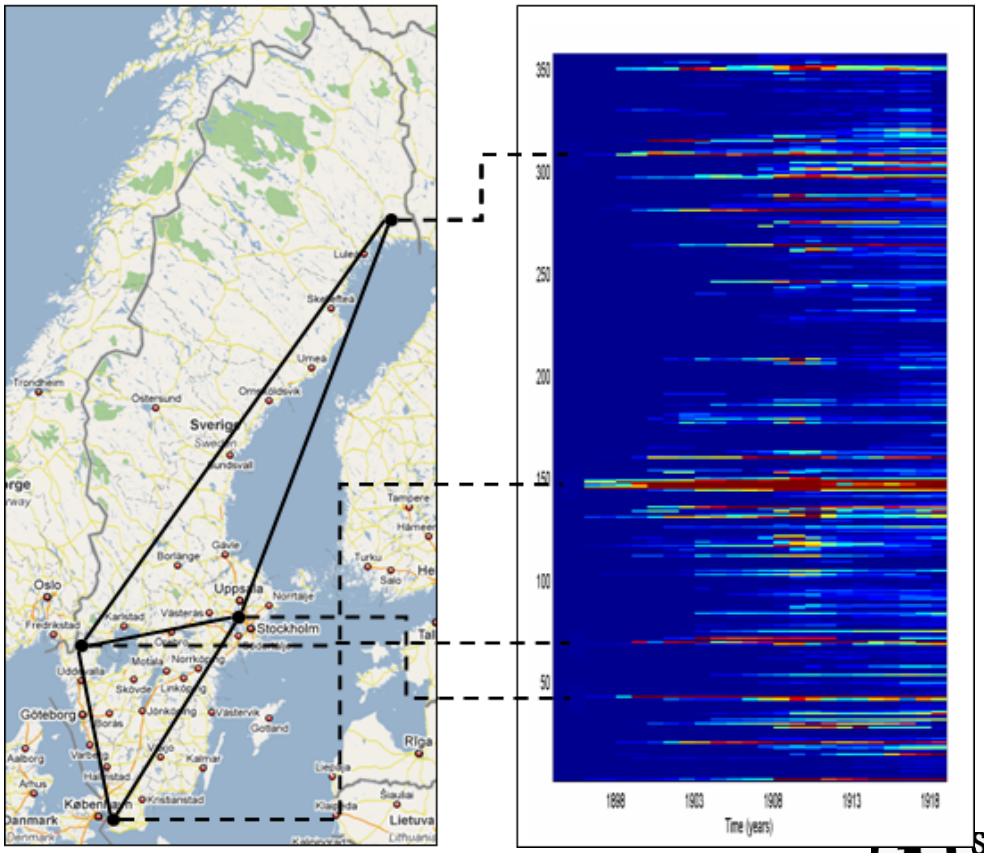
Prediction & Early Warning: Social Movements

Sample result: propagation of political ideology

Example: emergence/growth of the Swedish Social Democratic Party.

Ranking of predictors for a district's growth: current membership of

1. neighboring districts in the "activist network";
2. the district itself;
3. geographic neighbors;
4. the entire country.



Qualitative and Quantitative Together

Qualitative

Social Science Rides
The Quant Wave,
Unchanged

- Social Theory
- Contextual Understanding
- Culture
- Probe in Depth
- Intervention Ideas
- Intervention Products
- Face-to-Face

Quantitative

Predictive Model
Of Everything

- Network Science
  - Addressing interactions between scales
- Correlation & Causality
- Text Analysis
- Harvesting Digital Data at Scale
- Streaming Data
- Theory Validation
- Predictive Tools

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