Content Analysis PDW 2011

"Content Analysis in the Rough"
Academy of Management Meetings
San Antonio, Texas

Project How-to Overview:
"What Does it Mean to be Green?"
Mark Thomas Kennedy

Project Background

Name: "What does it mean to be green?
The emergence of new criteria for corporate reputation"

Outlet: *Oxford Handbook of Corporate Reputation* (forthcoming 2011)

Barnett and Pollock, editors

Aims:

1. Link **reification** of new and controversial organizational phenomena to **convergence** of antagonists' interpretations of emergent "memes"
2. Offer **method** for measuring **similarity** of antagonists' interpretations of controversial new ideas over time
3. Draw links between **identities, categories and reputation**

Punchline:

New standards for judging corporations become more real when activists and corporations talk about them in increasingly similar ways

Theory & Method

This study develops and illustrates quantitative techniques for

- Studying the changing meaning of an idea (meme)
- Comparing trends in similarity of antagonists' interpretations
- Making inferences about who is influencing whom

This project could be seen as the theory and method of relational sociology meeting the actor-network-theory's concern with controversies as sources of what gets recognized as "the social" (and, I would add, "for real")

There is more more to say about the theory than time permits, so for now,

- Corporate Reputation = standards-based judgments of firm quality
- Reputation Criteria = dimensions of quality
- Nascent criteria → "for real" as those who propose them (e.g., activists) find **common ground** with those to be judged by them

About the Method

This project is a first *for me* on several fronts …

- First use of "association engine" tool I developed
- First time to study changing meaning directly
- First time to relate reification to convergence of antagonists' views
- First study of relations between corporations and activists
- First study of environmental movement (a long-time interest)

Links to content analysis more broadly …

- Using a "association engine" to trace changing patterns of association among (e.g.) concept attributes is a type of **relational content analysis**
- Requires **analyst-curated corpus** (documents to be analyzed)
- Requires analyst-curated "fuzzy ontology"

Intuition behind the method

We can map concept meaning by

- Collecting public discourse about it (a **corpus**)
- Analyzing it for patterns of association among terms belonging to lists of its potential instances and attributes (cf Mohr 1998)

We can observe changes in concept meaning by

- Repeating this procedure at multiple points in time (even just 2 will do)
- Assessing the degree of stability versus change over time

We can assess concept reification by

- Working from important controversies to distinct antagonists in them
- Collecting separate corpora for antagonist's point of view
- Analyzing the discourse of notable antagonists separately
- Measuring trends in the similarity of their views

Step by Step: inputs

Collect[1] **corpora** for 2 opposing views for odd years for 2001-2009

- Press releases = view of **corporate** actors
- New stories = view of **media** critics

Stories from major nat'l papers, news magazines, 9 largest CA daily papers

Read corpora to build (fuzzy) **ontology,** i.e., list of terms *potentially* relevant to what it means to be green

Index: ID Numbers for Term(s) Referring to Potential Attributes of Green **

1	"affordable"	15	"energy-efficient"	29	"environmental management"
2	"alternative"	16	"energy-saving"	30	"carbon emissions"
3	"anti-pollution"	17	"footprint"	31	"carbon footprint"
4	"budget"	18	"geothermal"	32	"sustainable development"
5	"carbon"	19	"health"	33	"energy-*"
6	"clean"	20	"management"	34	"conservatio{n|nist}"
7	"conscious"	21	"renewable"	35	"efficien{t|cy}"
8	"conversation"	22	"responsible"	36	"sustainab{le|ility|bly}"
9	"ecofriendly"	23	"safe"	37	"environmen{t|tal|talist}"
10	"economical"	24	"solar"	38	"recycl{e|ing|ed|able}"
11	"ecosystem"	25	"system"	39	"reus{able|ed}"
12	"emissions"	26	"waste"	40	"sensitiv{e|ity}"
13	"EMS"	27	"wind"	41	"transparen{t|cy}"
14	"energy"	28	"waste management"		

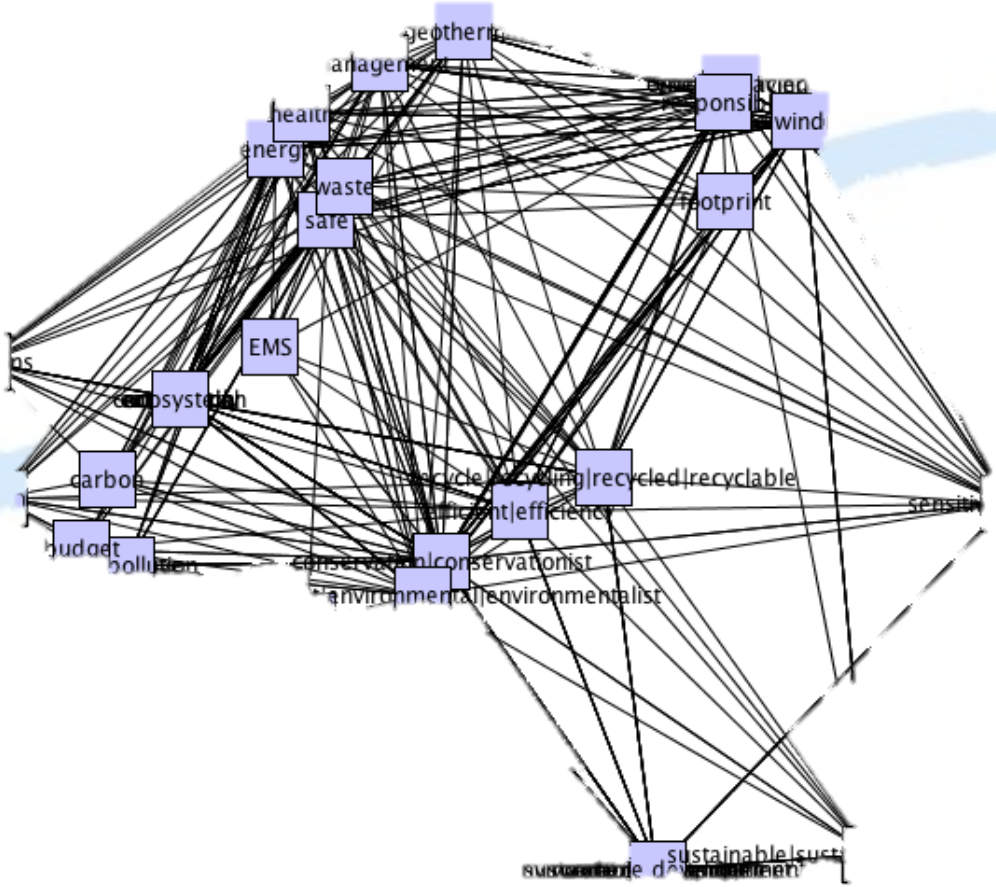
** (List developed from reading the corpora)

[1] Searched Nexis for items in which green was mentioned in a sentence with corporation or corporate, business, management or technology

Step by Step: associate attr x attr

Used association engine to produce graphs for each year for each corpus

e.g., 2001 NP
(Metric MDS)



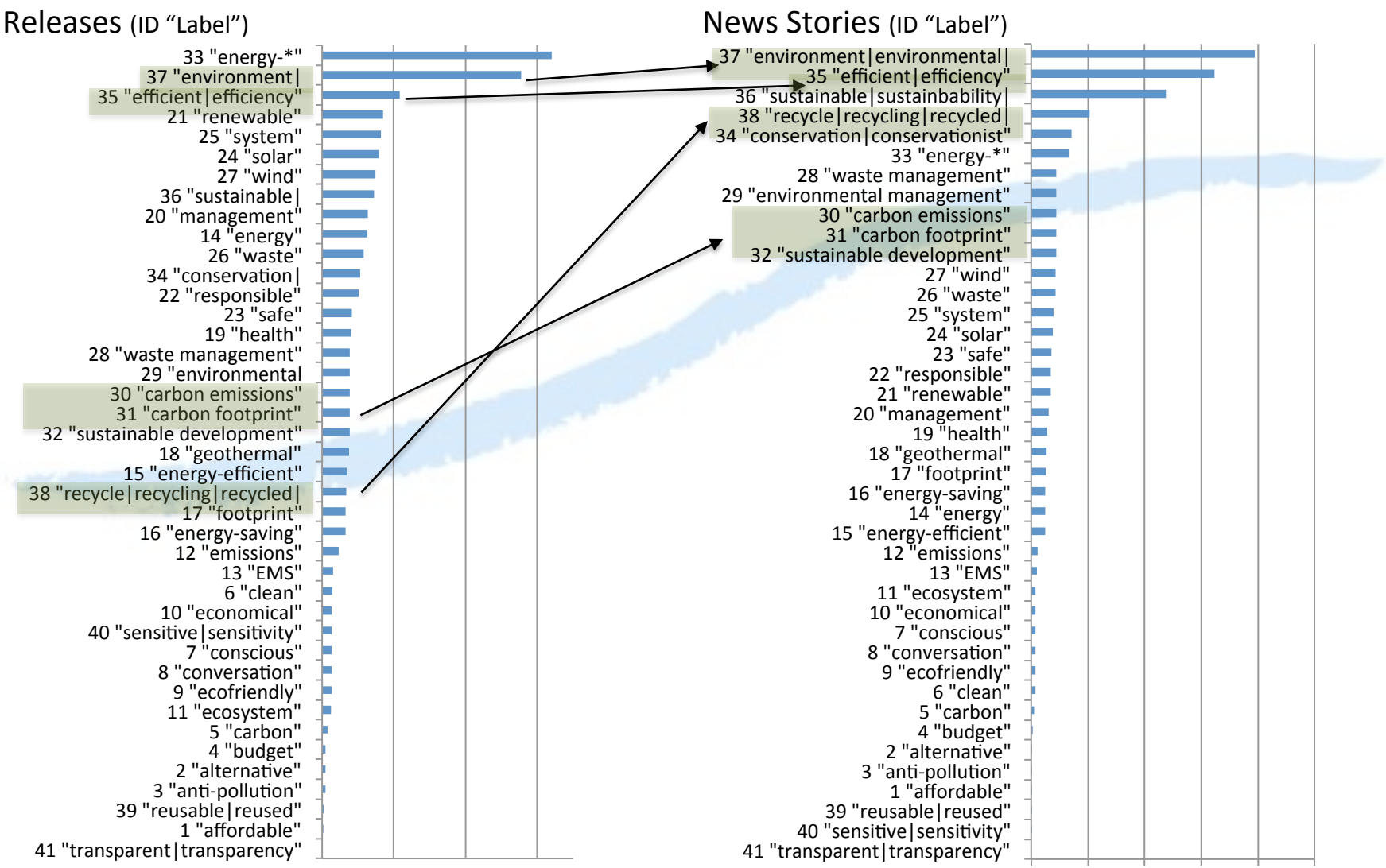
Step by Step: Explore data

Ranked concept elements by centrality in graphs for 2001, 2009

Concept Element Centrality Data for What it Means to be Green

	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
	Concept Element Centrality Rankings *					Comparison Data (# Places Different)			
	2001		2009			Media vs Releases		2001 vs 2009	
Rank	Media	Releases	Media	Releases	ID	2001	2009	Media	Releases
1	37	33	33	33	*14*	+18	+1	+18	–1
2	35	37	37	37	*28*	–17	+1	–13	+3
3	36	35	35	35	*29*	–15	+1	–13	+1
4	38	36	36	24	*21*	+13		+13	
5	34	21	21	21	*30*	–13	+1	–13	–1
6	33	14	14	27	*34*	–12	+3	–12	–3
7	28	24	24	14	*31*	–11	+1	–13	–3
8	29	25	25	19	*32*	–9	+1	–13	–5
9	30	27	27	25	*38*	–9	–2	–9	+2
10	31	26	26	36	*20*	+8	+2	+8	–2
11	32	20	20	38	*24*	+8	–3	+8	+3
12	27	22	22	26	*17*	+7	+1	+7	–1
13	26	38	38	20	*15*	+6	–2	+6	+2
14	25	23	23	22	*25*	+6	+1	+6	–1
15	24	17	17	18	*41*		+5	+6	–5
	23	19	19	17	*6*		–1	+5	+1
	22	34		15				+5	–2

Step by Step: Some differences



Step by Step: Measured similarity

Varying importance of concept elements to overall meaning can be seen in a vector that ranks them by centrality

We can see different takes on meaning by comparing the meaning vectors for concept maps from 2 different corpora

- Same-ranking in both corpora, similar emphasis
- Larger ranking differences, more difference in meaning

A normalized sum of emphasis differences yields a measure of meaning similarity in the two corpora

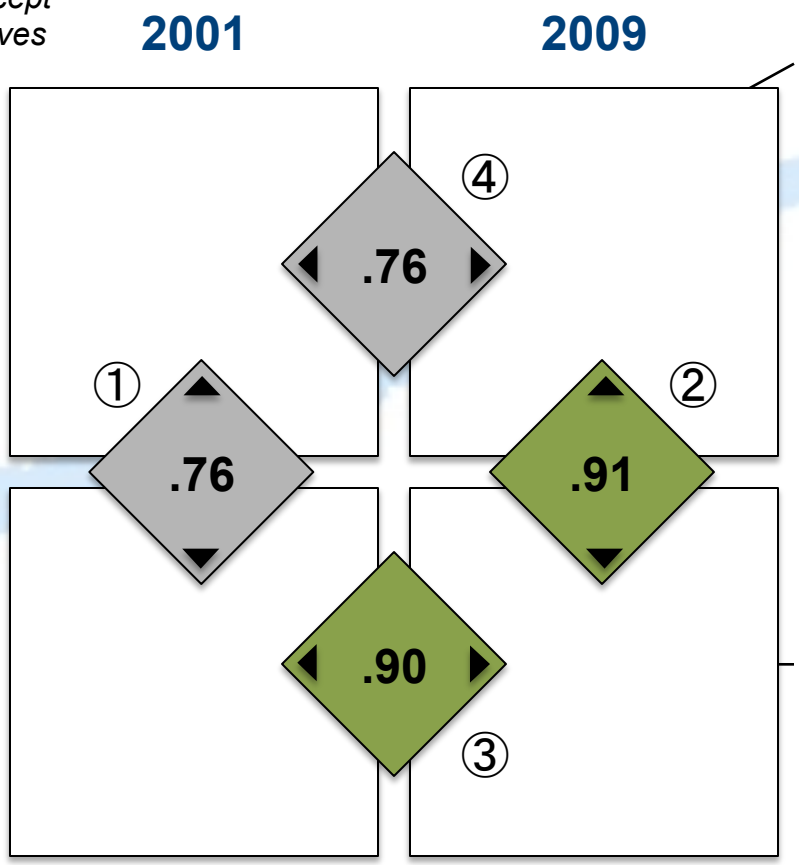
- If all rankings are the same, summed differences are 0
- Normalize by dividing total difference by its maximum
- Subtract from 1 so perfectly matched vectors have a score of 1; totally reversed, a score of 0

$$Concept\ Similarity = 1 - \frac{\sum_{i=1}^{r} \left| p(v_1, i) - p(v_2, i) \right|}{r^2 / 2}$$

p[v,i] = pos. of I in v
1 = perfect match
0 = "anti-match"

Step by Step: Observations

Concept element centrality rankings provide a basis for assessing concept similarity across time or perspectives



1. The match between element centrality rankings for 2001 news stories and press releases is on the low side

3. The match between element centrality rankings for news stories in 2001 and 2009 is also on the low side —i.e., the key elements of "green" changed over time

4. Finally, we also see a higher score when comparing 2009 news stories, press releases

2. In contrast, there is a better match between element centrality rankings of press releases for 2001 and 2009

Overall, the concept moved toward what firms have been saying about green

Conclusion

Just scratching the surface of what can be done with quantitative analysis of patterns of association to be found by

- Comparing different points of view on a controversy
- Measuring similarity
- Observing convergence of interpretation, *or emergence of* meaning

In theory (more research needed), convergence should be an indication of acceptance that an idea is at least something to be taken seriously—even if antagonists still disagree about its desirability.

Overall, a promising way to study … Emergence

(For paper, click its title under "papers" tab at http://www-bcf.usc.edu/~markkenn)