

Social and Linguistic Representations of Climate Change in Online Spaces



Nelya Koteyko,
University of Leicester

Rusi Jaspal and Brigitte Nerlich
University of Nottingham

Science in society

- The authority of science
- mediatised and ‘manufactured’ controversies
- Trust, integrity, accountability
- The role of local and cultural knowledges
- Changing media landscape



Climate sceptic discourses

How are they performed on different web-based platforms?

How is disagreement discursively constructed or framed?

- Blogs
- The relationship between blogs and online news media sources
- Online reader comments



'Climategate'

- Unauthorised release of emails in November 2009
- 'profound implications' for how climate science is discussed in the digitally mediated public sphere (Holliman, 2010)
- Studies of online discussions?



Studies of online comments

- Source of representations, audience reactions (Rowe et al , 2003);
- a long way from the deliberative ideal (Richard and Stanyer, 2011)
- Laslo et al, 2010: science-related issues
- Comments refer two to three times more to preceding comments rather than to a news article



RESEARCH QUESTIONS:

- What are the frequent topics of, or issues discussed in, comments to tabloid articles dealing with climate change in 2010?
- How do these online discussions compare to reader comments on climate change written before November 2009 (in terms of content and main themes)?
- How climate science is linguistically defined and constructed by the tabloid readers following the climategate controversy?



DATA

- The Daily Mail
- Search term 'climate change'
- Corpus 1: 'post-climategate' Jan-Dec 2010 : 4698 comments
- Corpus 2: 'pre-climategate' Nov 2008 - Nov 2009: 1799 comments
- not all news stories are open to comments; moderation; comment rating.



Text analysis and CMC

- Sphere 1: Active audiences

Focus: Rhetorical processes

- Sphere 2: Human-computer interaction

Focus: interface between users and technology

- Sphere 3: context/s

Focus: specific issues; events



Tools and principles of analysis

1. Content or topics (use of computers and attention to word frequencies; SRT)
2. Discursive strategies (what utterances 'do')
3. Specific, context-dependent linguistic realisations
4. Specificities of the online environment; observation of online activities (comment rating; moderation?)



MIXED-METHODS APPROACH

- Corpus linguistics: combines quantitative analysis of word frequencies with qualitative analysis (Partington, 2003; Koteyko, 2010)
- A linguistic approach to computer mediated communication (Herring, 2004)
- Discourse analysis (Reisigl and Wodak, 2009)
- Analysis of comment rating – webometrics (Thelwall, 2009; Koteyko et al, 2010)

- *Koteyko et al (2013)*



CORPUS LINGUISTICS

- **Keywords:** used to compare the *relative* frequency of words in any corpus with reference to another corpus
- **Collocates** - words which tend to co-occur within a few words of the search terms
- **Concordances** – a visualisation tool that shows a number of contexts where a search term is used

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Concordance

1 these money grabbing grant taking **scientists** . And I did not even ha
2 taxes? No, I, and others, believe **scientist** know where the money is
3 l that allocates our money to the **scientists** working on climate chan
4 ew it was garbage. Global warming "scientists" got big grant money.
5 it to make money. 98% of climate **scientists** agree that global warmi
6 from throwing mud at the climate **scientists** , who is pouring money
7 w the money trail of these people/ **scientists** /politicians and ex vice

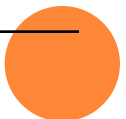
MIXING QUANTITATIVE AND QUALITATIVE ASPECTS

- Keywords generated by software (Scott, 2011)
- Focus on **science/scientists**, as the most 'key' words in the 2010 corpus - downsampling
- Collocates of these words have been examined and concordances generated for a qualitative study
- emerging linguistic/discourse patterns were organised via DA categories of rhetorical strategies (Baker et al, 2008)



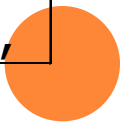
KEYWORD: MAPPING THE POINTS OF INTEREST

Corpus 1	SCIENCE, IPCC, DATA, AGW, JONES, BBC, PAPERS, POST SCIENTISTS, CLIMATEGATE, REPORTS, GLACIERS, SHORT BIN, MET, SOURCES, EMAILS, INTEREST, CAMERON, FUNDED, PROFESSOR, RAIN, TRADING, TEXAS, CONSENSUS, RESULTS, BIASED, TURBINES, FIGURES FAMILY, VESTED, NUMBERS, EXPOSED, FINANCIAL, STATES, BILLS, ANTHROPOGENIC, CONCLUSIONS, DISCREDITED
Corpus 2	TAX, MEAT, MILE, PAY, BROWN, ROAD, STERN, TRANSPORT, VEGETARIAN, CAR, CARS, SAVE, LORD EATING, PLANET, ROADS, FUEL, ANIMALS, DRIVE, COWS METHANE, DIET, PEOPLE, LIVE, POLICE, MOTORISTS, CONGESTION, MOTORIST, DRIVING, EAT, EMISSIONS,



STUDYING THE LEXICAL PATTERNING

Search term	Collocates (frequency)
SCIENCE*	<p>not (115), settled (31), agw (29), real (28), understand (24), pseudo (23), review (15), theory (14), bad (13), called (13), man (13), peer (12), consensus (12), data (12), rocket (12), bbc (12), evidence (12), ipcc (11), money (11), reviewed (11), years (10), mean (9), point (9), politics (9)</p>
SCIENTIST*	<p>not (75), these (60), government (34), agw (30), called (29), work (23), data (21), politicians (21), , IPCC (18), real (18), climategate (15), email (15), claim (14), grant (12), majority (11), qualified (11) , scientific (11), world (11), Charles (10), funding (10), paid (10), sceptic (10),</p>



EXAMPLE: search term 'SCIENCE'

surrounding words indicate traces of different discursive strategies

N **Concordance**

1 ve, underpinned by our first-rate science , to satisfy our customers
2 of political correctness & phoney science by focusing on his pet 'c
3 da, advocacy, monitoring, climate science and data. Truly an eco-im
4 any have died as a result of poor science , no-one on the planet has
5 stly, the weather is NOT an exact science and can only really be fo
6 sting the weather is NOT an exact science . Forecasters do not know
7 itten a book which challenges the 'science' behind AGW. Taylor beli
8 country like the UK is no precise science even with a superduper co
9 why the eco movement and climate science has been hijacked by the
10 tors to Mother Earth, Traitors to Science , Traitors to truth, Trato
11 ntemptible, small people who give science a very bad name. - Charl
12 ver a month ago using genuine new science .Why this is being ignore
13 es weatherforecasting with climte science Forecasts of the weather
14 or in the North Atlantic. Climate science is based on past measurem



Results: (1) topics: DHA

Social actors: climate scientists, politicians

- 'Proper' or ideal type of science
- transparency, peer review, openness
- Fraud, scam, duplicity of climate scientists
- Corruption, financial gain and links to politicians (carbon taxes)
- Uncertainty
- Certainty, dogmatism, scientists as 'priests'



(2)-(3): strategies and linguistics realisations

Strategies	Devices	Examples from Corpus 1
Referential/ Nomination	-membership categorization -labelling -references to scientific categories (see collocates)	(not) ‘real scientists’, ‘bona fide scientists’, pseudo-scientists, AGW nuts, AGW scam, the AGW propaganda, etc. ‘you don’t have to be AGW believer to be wary of anecdotal <u>evidence</u> ’ ‘global warming is <u>theory</u> , unrepeatable in a <u>lab</u> , yet taken as a scientific <u>fact</u> ...’
Predication	-stereotypical, evaluative attribution of negative or positive traits (see concordances)	‘these money grabbing grant taking scientists.’; ‘globalwarming scaremongering scientists and politicians’
Intensification or mitigation	-intensifying or mitigating the illocutionary force or (discriminatory) utterances	‘Consensus’ IS NOT Science ! Never forget that. ...are really not scientists ...do these supposed scientists really think that. ‘... ‘so-called AGW ‘experts’ ‘so-called scientists’

Strategies of Other-presentation


- disassociating climate scientists from the category 'science' (use of negation, defining 'real' scientists, etc.)
- attribution of negative traits (fraud, corruption) through negatives associations with politics or fraud/corruption (or both)



Not 'real science'

- “This is a very **dodgy science** and flies in the face of **established scientific practice**. They just got swept into this ridiculous carbon footprint, global warming, CO2 hype.”
- “The fact is that global warming was decided by a committee of **dubiously qualified scientists** and a few politicians.”

...but 'AGW science'

- “Climate research and IPCC AR4 report is a science fiction. -Fiction may have sometimes some **scientific base** to make the story more realistic. -Science is based on **verifiable facts** and **sceptical dialogue**.”
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Certainty/uncertainty arguments in climate sceptic discourses

- Previous studies: focus on uncertainty (Wodak and Reisigl, 2009; Nerlich and Koteyko, 2009)
- Climate science in the comments:
 - existing ‘settled’ science is dogmatic, lack of openness; ‘too much certainty’
 - should strive to be ‘pure’, and not polluted by scientists engaging with politicians and the public



4. Strategies and online context

- Opinions are expressed in relation to the immediate and wider range of potential interlocutors
- Self presentation, positioning themselves in a crowded forum
- Posts ‘quickly slip from the shared argument to saying ‘I’m here’” (Myers, 2010)
- Irony, adverbial ‘boosters’, capitalisation



4: Strategies and user ranking

Newest Oldest Best rated Worst rated

- the 'best rated' comments tend to be negative/pejorative
- older posts are moved down
- visibility can impact how other readers react to content
- indirect influence if high ranking is seen as indicator of reader preferences



Reader comments and public engagement

- “the bottom half of the internet”
- The medium and the message: ‘the nasty effect’ (Brossard and Scheufele, 2013)
- A forum to express the views
- A spectrum of frames
- a typology of language and rhetoric employed to contest climate science



THANK YOU

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**From Greenhouse Effect to Climategate: A
systematic study of climate change as a
complex social issue (Nerlich; Hellsten;
Co-Is: Koteyko; Riese)**

