The use of n-gram, collocation, and keyword analysis to annotate linguistically marked motives attributed to trolls in the comment threads of British political blogs

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Introduction (1)

- Trolling is a widely covered topic in the mainstream and social media
- It has also become a subject of increasing academic interest in the past 10–15 years
  - *Trolling:* a set of goal-driven behaviours (Hardaker 2013)
  - Actions, aims, and **motives**
  - *Troll:* a behaviour-based identity (Golder–Donath 2004)
- This corpus-assisted study attempts to contribute to the academic study of two under-researched aspects of trolling:
  - trolling in online informal political discourse
  - the motives attributed to the alleged trolls

Introduction (2)

- Research Questions:

(1) What linguistically marked motives do the participants attribute to those they call trolls in 1,712 comment threads of 28 British political blogs?

(2) To what extent do the motives ascribed to trolls in the academic literature correspond with those that the participants attribute to the alleged trolls in these threads?

(3) Depending on these motives, how are trolling and trolls constructed in the threads?

(4) How frequently are these motives mentioned in the threads?

Literature review: the motives attributed to trolls

- Trolling is usually described as an emotionally motivated behaviour
  - fun (Dahlberg 2001), boredom (Baker 2001), a need for attention or achievement (Shachaf–Hara 2010), loneliness, curiosity (Fichman–Sanfilippo 2015), a desire for control and self-empowerment (Herring et al. 2002), malevolence (Fichman–Sanfilippo 2015), hate towards specific participants (Herring et al. 2002), revenge (Shachaf–Hara 2010), hostility to the purpose of the interaction (Herring et al. 2002)
  - political goals (Dahlberg 2001) and (political) ideologies (Özsoy 2015: 550)
- Most studies on trolling treat the motives for trolling in a speculative manner
- Shachaf–Hara (2010) and Fichman–Sanfilippo (2015) are the only exceptions:
  - 15 Israeli Wikipedia editors and 100 US students from Midwestern universities
  - interviews and questionnaires → they do not investigate actual interactions

Theoretical background

- Motives (Wright 2016)
  – The reasons why someone behaves in a particular way
  – Assumed mental states
- Motive attribution (Weiner 2012, 2014)
  – The process of constructing the belief that someone carries out an action because of particular reasons
  – Cognitive process that helps explain perceived human behaviour
  – Part of mental state attribution or the Theory of Mind
- Linguistically marked motive attribution
  – Those cases where a participant of a social interaction attributes motives to another participant by linguistic means

Data collection

Data collection (1)

- 1,712 comment threads of 28 British political blogs
- Selection criteria:
  - The thread had to be published in 2015
  - It had to include at least one 'troll comment' in which a user called at least one other user a troll or described at least one comment as trolling at least once
  - That is, at least one participant had to use a word form of the lexeme TROLL, such as *troll*, *trolling* or *troller* to refer to another participant or comment

    [conservativehome_24_153]
    *Not sure whether you are being serious [A]. Your comment is so misplaced **I think you are trolling***.

Data collection (2)

- Steps of data collection:
  - (1) A list of 50 British political blogs active in 2015 was compiled
  - (2) I manually searched all their 26,804 threads from 2015 for the *troll* character string
  - (3) I gathered those 1,712 'troll threads' that included at least one 'troll comment'
  - (4) I saved these threads as separate txt files
  - (5) Four corpus versions have been created

Data collection (3)

Corpus version	Content
1	Complete comment threads with blog posts and metadata
2	Complete comment threads without blog posts and metadata The troll comments (<tc></tc>) and the troll tokens (<tt></tt>) are annotated
3	Only the troll comments
4	Only the non-troll comments

Data description

Data description (1)

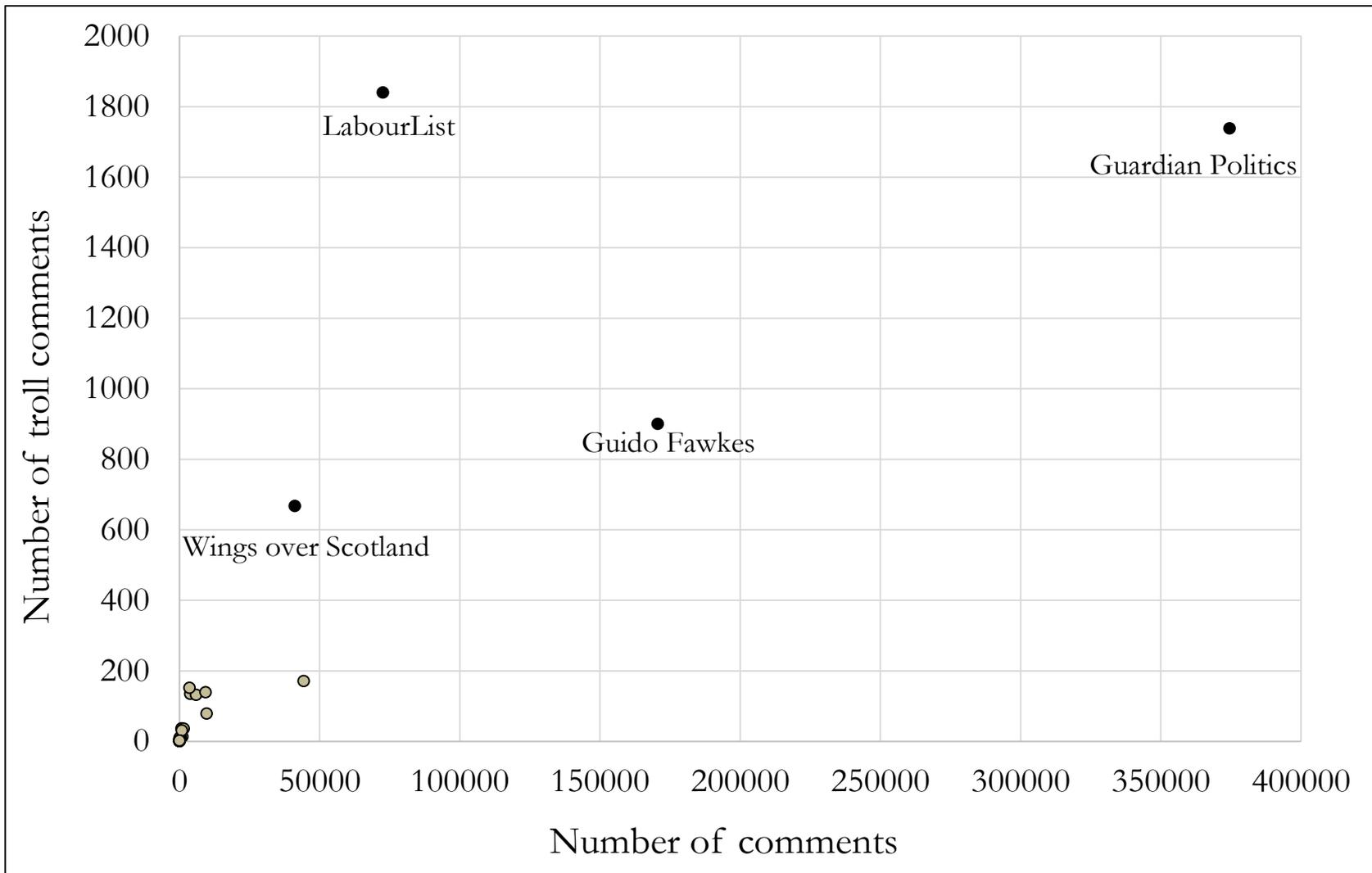|	
Blogs	28
Threads	1,712
Comments	740,841
Words	32.2 million
Troll comments	6,129
Troll tokens	6,897

Data description (2)

Data analysis

Data analysis (1)

- Steps of data analysis:

    (1) Using the concordance lines of the search term *<tt>*troll*</tt>* in AntConc (Anthony 2016), I selected and annotated those troll comments from Version 2 in which the assumed motives for trolling were discussed

    [wingsoverscotland_56_476]
    Some trolls are paid others do it for pleasure*. I think **[A] has a foot in both camps**.*

    (2) I identified the linguistically marked motives that participants attributed to those they called trolls and created a taxonomy from them

Data analysis (2)

- Steps of data analysis:
    - (3) I described how the different linguistically marked motives affect the discursive construction of trolling and trolls in the comments
    - (4) I used the motives as descriptive categories and provided each troll motive comment with motive-related annotations
    - (5) I studied the n-grams and collocates of the search term *<tt>*troll*</tt>* in Version 2 and 3 and the positive keywords in Version 3 against Version 4 as a reference corpus to identify those that consistently mark a motive attributed to trolls
    - (6) I summarised the quantitative results of the annotation

Data analysis (3)

	Corpus version	Node	Min. freq.	Statistic	Settings
N-grams	Version 3	<tt>*troll*</tt>	5	N/A	Search term on both sides Cluster size: 2–4
Collocates	Version 2	<tt>*troll*</tt>	5	Log Ratio	LR≥1.0 Span: 5L 5R
Keywords	Version 3 (Ref corpus: version 4)	N/A	5	Log Ratio	LR≥1.0

Qualitative analysis

Qualitative analysis (1)

- The qualitative analysis focused on the troll motive comments identified in the corpus

- In total: 2,459 comments (0.5% of all comments, 40.1% of the troll comments)

- These are examples of linguistically marked motive attribution

Qualitative analysis (2)

- Five motives attributed to trolls emerged during the analysis of the troll motive comments

  - Various emotional/mental health-related, and social reasons (EMS)
  - Financial gain
  - Political beliefs
  - Being employed by a political body
  - Unspecified political affiliation

Qualitative analysis (3)

- Assumed motive for trolling (1): emotional/mental health-related, and social reasons

(1) [labourlist_58_490]
*No wonder **99.9% of people who spend** a considerable amount of **time trolling political websites are sex-starved, frustrated losers**. [A] may be one of the 0.1% who isn't, but I doubt it. **I suspect he's sat behind a computer surrounded by empty pot noodles and gets a cold sweat when he gets to close to ladies.***

- Assumed motive for trolling (2): financial gain

(2) [guardian_48_3718]
*He/she might be an individual expressing their own opinion, legitimate in a democracy whether you or I agree with it. Whereas **you could be described as a paid troll**.*

Qualitative analysis (4)

- Assumed motive for trolling (3): Political beliefs

(3) [guido_90_573]
*FFS we have an unusually high number of **stupid socialist trolls** in this thread. Are they seriously trying to tell us that Bin Laden wasn't a murderous butcher who had declared war on the western world? Keep it up **you lefty trolls** so everyone realises how vile and stupid you are.*

Qualitative analysis (5)

- Assumed motive for trolling (4): Being employed by a political body

(4) [guardian_129_6462]
*Nice **trolling from a Tory Party Central Office intern**. **Hopefully**, come the 11th, **you'll be signing on as unemployed**.*

- Four explicitly discussed recurring components:
  - These political bodies send trolls to these blogs
  - They tell them how to troll
  - They sponsor their trolling
  - They train the trolls

Qualitative analysis (6)

- Assumed motive for trolling (5): unspecified political affiliation

(6) [labourlist_432_1761]
   Tory troll *hanging around Labour sites. Why?*

Qualitative analysis (7)

Assumed motive	Trolling	Trolls
EMS	Emotionally motivated individual behaviour	Individuals with emotional problems
Financial gain	Financially motivated individual activity	Rational but unethical individuals
Political beliefs	Ideologically motivated individual activity	Political fanatics
Being employed	Financially motivated and centrally organised collective activity	Unskilled and low-paid employees of low prestige
Unspecified political affiliation	Ambiguous	Ambiguous

Quantitative analysis

Quantitative analysis (1)

Marked motive	Tag
EMS	1
Financial gain	2
Political beliefs	3
Being employed by a political body	4
Being sent by a political body to troll	4a
Being told by a political body how to troll	4b
Being sponsored by a political body	4c
Being trained by a political body for trolling	4d
Unspecified political affiliation	5

Quantitative analysis (2)

	Total	Motive-related
N-grams	596	38 (6.4%)
Collocates	1,411	45 (3.2%)
Keywords	832	44 (5.3%)

Quantitative analysis (3)

Marked motive	N-grams	Collocates	Keywords
1	–	bitter, bored, juvenile, lonely,	lonely, immature
2/4c	paid (EU) troll(s)	paid, sponsored, funded	sponsored
3/4/5	Tory troll(s/ing), troll(ing) Tory	Tory, anti-corbyn	Tory, anti-corbyn, anti-labour
3/4/5	Labour troll(s)	corbynista(s), corbynite(s)	corbynista, corbytrolls, tory-lite
3/4/5	UKIP troll(er)(s)	kipper(s)	kipper, ukipper(s)
3/4/5	EU troll(s), establishment troll, Green troll	liblabcon, LibDem	–
3/4/5	SNP troll	cybernat	cybernat(s), anti-ukip, pro-ind(y/ependence)
3/4/5	BritNat trolls	BritNat, BNP	BritNat(s), anti-snp, anti-scottish

Quantitative analysis (4)

Marked motive	N-grams	Collocates	Keywords
3	right(-)wing troll(s)	right(-)wing, wing, far-right, eurosceptic	right(-)wing, far-right
3	left(y/ie) (wing) troll(s)	left(y/ie/ist/ard)(s), wing	left(ie/ard), trotsky
3	loyalist troll	loyalist	loyalist
3	unionist troll(s)	unionist(s)	unionist, unitroll(s)
3	–	–	libertarian
4	Central Office troll(s), CCHQ troll(s)	central, office, CCHQ, HQ, Lynton, unpaid, professional, employed	central, CCHQ, HQ, GCHQ, Lynton('s), unpaid, intern(s)
4	Hasbara troll	Hasbara	Hasbara
4	–	Kremlin	Kremlin

Quantitative analysis (5)

Motive	Tag	Frequency
EMS	1	187 (7.6%)
Financial gain	2	54 (2.2%)
Political beliefs	3	441 (17.9%)
Being employed by a PB	4	435 (17.7%)
Being sent by a PB	4a	20 (0.8%)
Being told by a PB how to troll	4b	32 (1.3%)
Being sponsored by a PB	4c	135 (5.5%)
Being trained by a PB	4d	6 (0.2%)
Unspecified political affiliation	5	1437 (58.4%)

Conclusions

Conclusions (1)

(1) Although the literature regards trolling as a chiefly emotionally motivated behaviour, in the context of online political discourse, participants attribute other motives to trolls as well

(2) A local conspiracy theory has been developed around trolling on the investigated blogs as some participants repeatedly suggest that various British political parties, other countries or the European Union secretly employ trolls

(3) A common trait of these comments is that the alleged trolls are portrayed in a strongly negative manner. Thus, participants attribute motives to the trolls not only to explain their behaviour but also to insult, discredit, and isolate them.

Conclusions (2)

(4) N-gram, collocation, and keyword analysis could be used effectively to make the annotation process more principled and consistent

(5) The motive-related n-grams, collocates and keywords have also revealed some discourse patterns around perceived trolling in the corpus

(6) However, they also had some shortcomings: infrequency and context-dependency.

(7) In sum, the analysis and the annotation of the comments was heavily based on human interpretation and the n-gram, collocation, and keyword analysis has not made this process more 'objective' but more explicit and transparent

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Thank you for your attention!