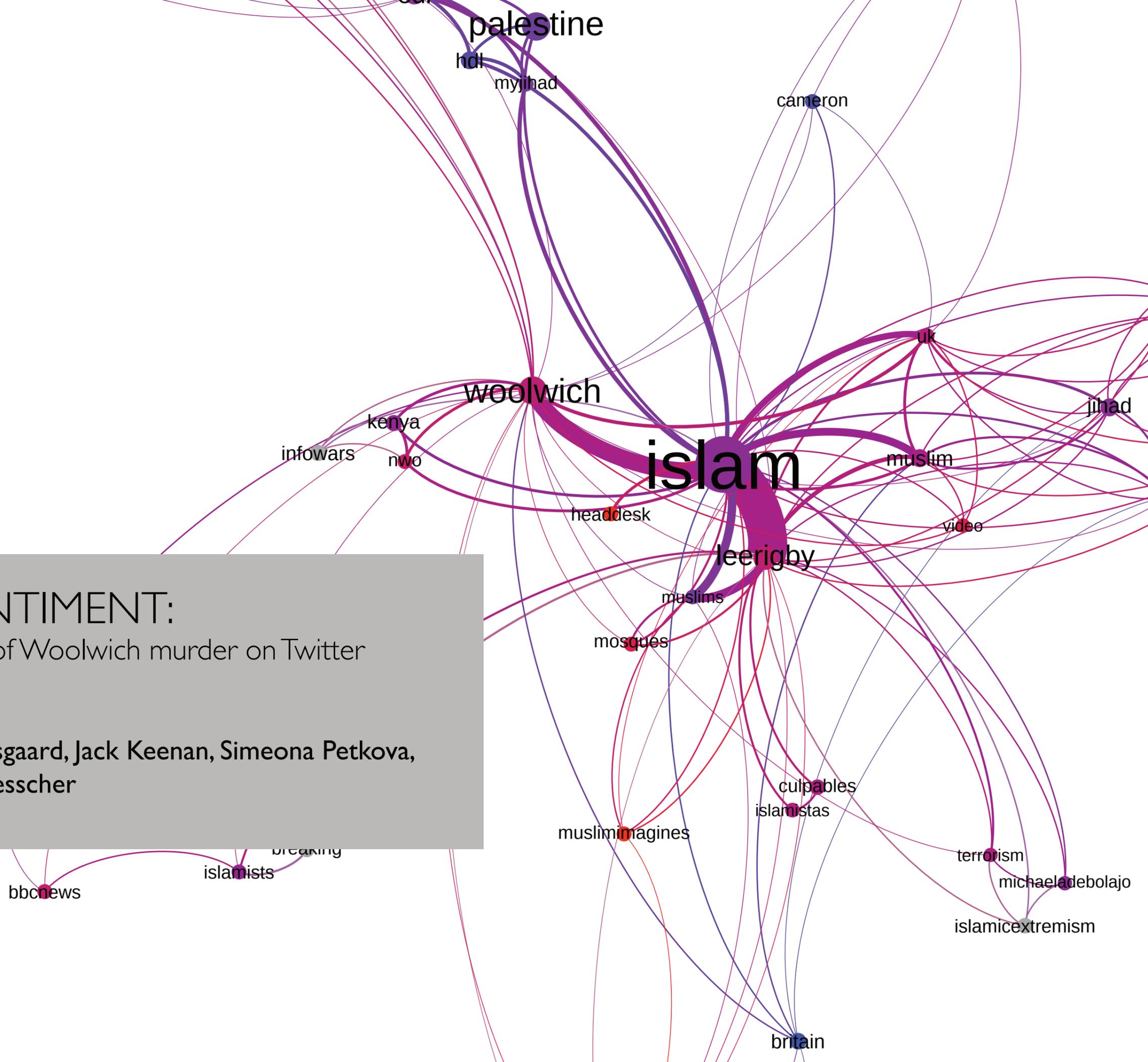# OBJECTS OF SENTIMENT:
Testing sentiment analysis of Woolwich murder on Twitter
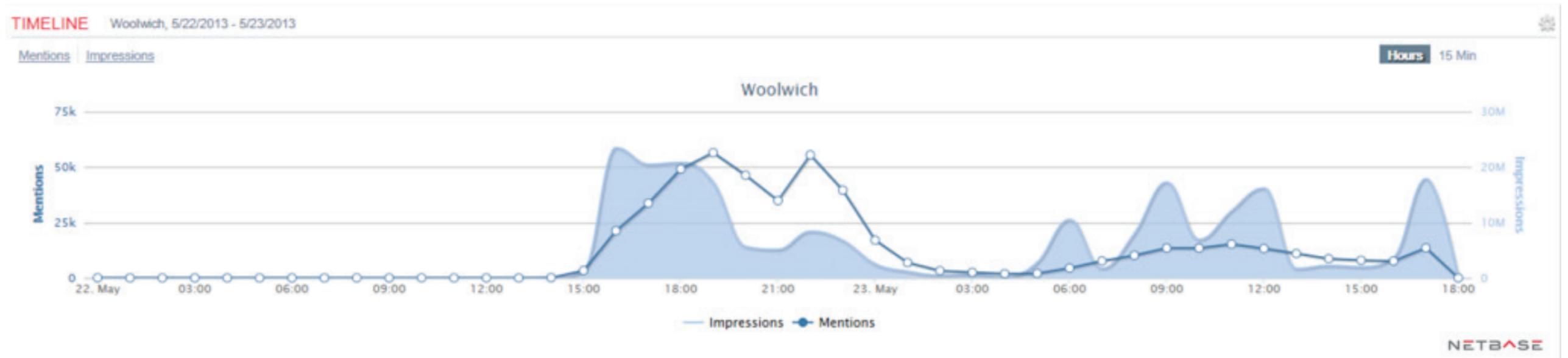
David Moats, Mads Emil Dalsgaard, Jack Keenan, Simeona Petkova, Catherine Somze, Nadia Dresscher

INTRODUCTION

Woolwich on Social Media

On May 22nd, 2013 two British Muslim converts killed Lee Rigby in what has been called 'the Woolwich Murder'. According to the Guardian (date here) this was the first UK murder ever to be transmitted 'live' on the Internet. Also, according to the Guardian, the Woolwich murder sparked more muted political response than other previous attacks (date here).

Sentiment Analysis and Digital Methods

Sentiment analysis implies researcher demarcated data set: no 'noise'

Is this compatible with Digital Methods?

If we get rid of football, or Nick Griffin we might miss connections.

coys, woolwich, afc, thfc, bnp, splash, gemma, edl, tcot, leerigby, arsenal, flooding, bankrupt, c4news, islam, ff, news, job, endofanera, criminal, benefitsstreet, muslims, cbb, london, priceless, uk, england, nld, pjnet, ukip, bellend, fuckwits, luton, stopnyposthate, universaljobmatch, muslim, twisters, fb, facup, lestweforget, nickgriffin, scum, spurs, indeed, winstonchurchill, savebankruptnick, prayfornick, yids, jihad

QUESTIONS

How does the 'sentiment' change over time between the murder and the trial?

Can we make sentiment object-based?

How does sentiment analysis compare to co-word?

What else does sentiment analysis detect (bots, controversy)?

METHODS

1. **Qualitatively investigate the data set**
   Identify spikes in activity
   Top Hashtags, Users, URLs, Retweets

   Which objects relate to the topic? Which ones work over time?

2. **Hashtag - Co-hashtag with sentiment**
   Islam x 2
   Woolwich X 2

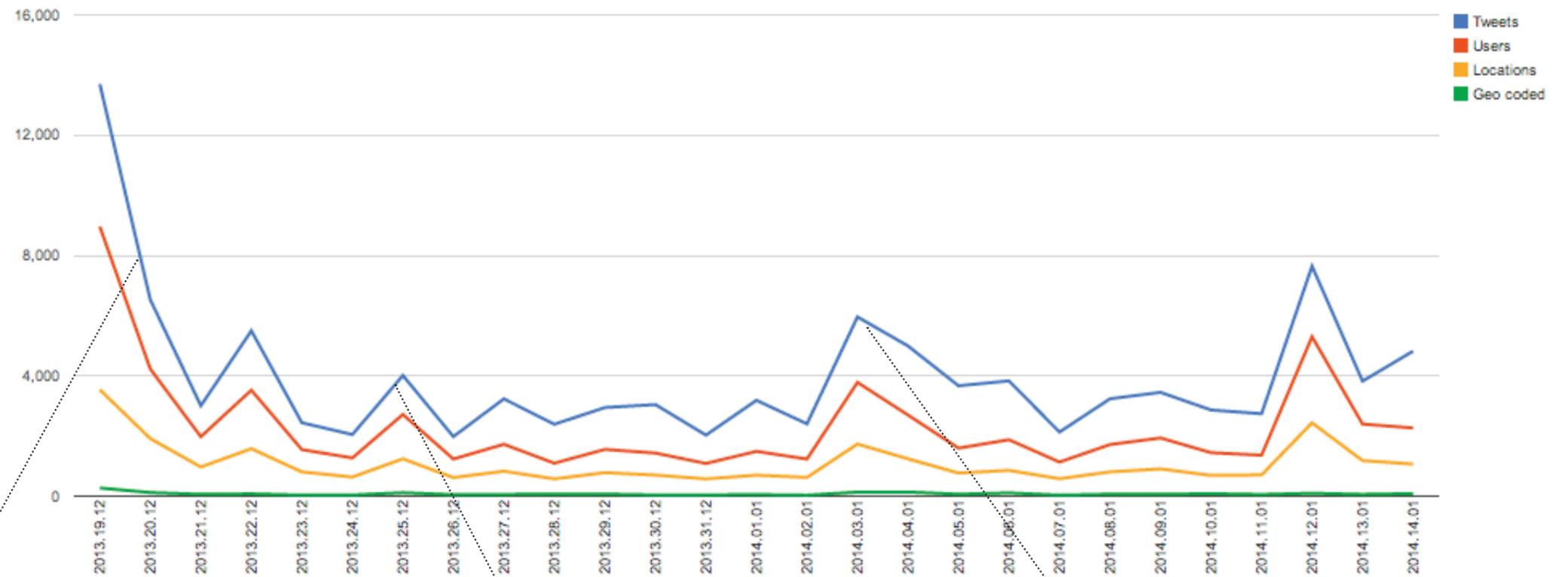3. **Top Mentioned @Users**
   Bubble Chart

4. **URL - Sentiment of Tweets over Time**
   Colour Ribbon

QUALITATIVE

Identifying objects:

- @users
- #hashtags
- Retweets
- URLs

woolwich, leerigby, job, afc, tcot, islam, london, indeed, universaljobmatch, news
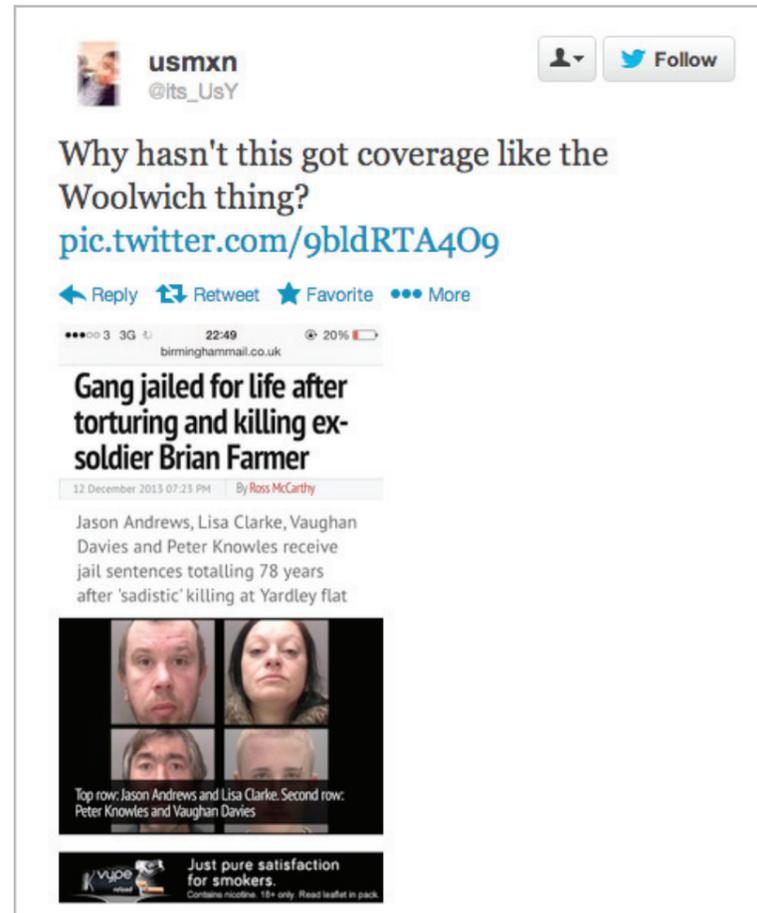
woolwich, plumstead, loki, edl, leerigby, missingkitten, tcot, bnp, england, london

coys (football), woolwich, thfc (football), bnp, afc (football),

QUALITATIVE
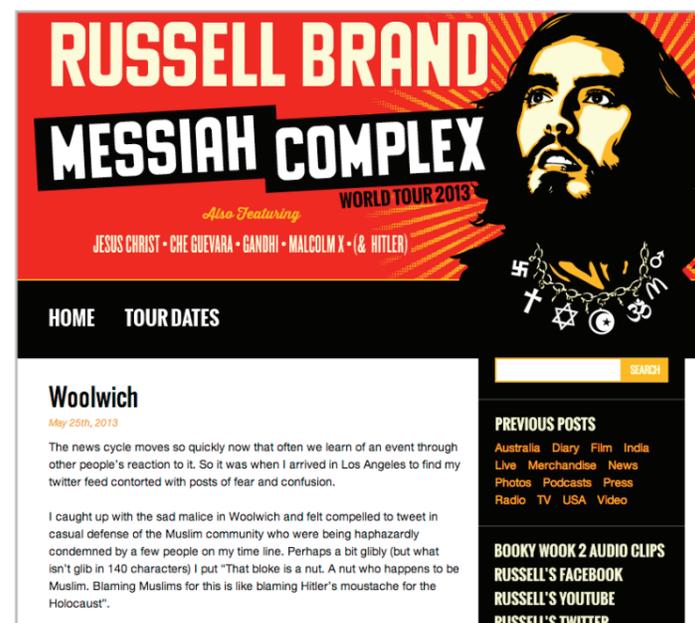
First very 'newsy' reporting

Followed by more extreme reactions by anti-Jihadist (JihadWatch, the England Defence League, its Scottish chapter, sympathisers, and the celebrity, Daily Lorde, and her own fans), humanist and pro-Islamic voices arose, interspersed with condolence messages to the Rigby family and more news about the trial

#HASHTAGS

#Woolwich

Comparison within Trial Data Set
Colour = Avg Sentiment
Size = Hashtag Frequency

19 Dec

20 Dec

#HASHTAGS

#Waziristan

Mostly from mass Re-Tweet!

> RT @SeumasMilne: 'If the whole world's a battlefield that holds in #Woolwich as well as #Waziristan' - my piece in the Guardian http://t.câ€¦

#woolwichtheuntoldstory

Very Prominent on the first day

> RT @State_Control: The Human Rights of #LeeRigby's killers are ""being considered"": http://t.co/pIVUoS9yUI #woolwich #WoolwichTheUntoldStory [[http://www.economicvoice.com/ukip-delay-of-rigby-killers-sentencing-deeply-troubling]]

#islam

Takes off on the day after the trial

> Why did u bring him back when he wanted to live under #Islam? http://t.co/uM-0SaCs6Sn #Woolwich [[http://news.sky.com/story/1185054/adebolajos-brother-refuses-to-condemn-murder]]

> Woolwich Murder: Muslim Leader Says the UK is a Battlefield. http://t.co/IBwzukbie0 #Kenya #Woolwich #NWO #Islam #Infowars [[http://youtu.be/Dy3R4tkeG4k]]

has positive strength 1 and negative strength -4
Approximate classification rationale: Woolwich Murder[-4] :Muslim Leader Says the UK is a Battlefield[-2] .[sentence: 1,-4] http ://t .[sentence: 1,-1] co /IBwzukbie0 #Kenya #Woolwich [sentence: 1,-1] [result: max + and - of any sentence][overall result = -1 as pos<-neg] (Detect Sentiment)

#Lee Rigby

> Deport all foreign #Muslims. Outlaw #Islam in the UK. Demolish all the #mosques. Religion of peace? My arse!! #LeeRigby #Woolwich

The text 'Deport all foreign #Muslims. Outlaw #Islam in the UK. Demolish all the #mosques. Religion of peace? '
has positive strength 1 and negative strength -2

Approximate classification rationale: Deport all foreign[-2] #Muslims .[sentence: 1,-2] Outlaw[-2] #Islam in the UK .[sentence: 1,-2] Demolish[-2] all the #mosques .[sentence: 1,-2] Religion of peace ?[sentence: 1,-1] [result: max + and - of any sentence][overall result = -1 as pos<-neg] (Detect Sentiment)

#Woolwich

> I'd like to strap Bakri and Adebolajo to a drone missile stuff bacon into their mouths and then fire it into a mosque #woolwich #islam

#HASHTAGS

#Islam

Comparison between Data Sets

Colour = Avg Sentiment

Size = Hashtag Frequency

22 May (Day of Murder)

19-20 December (Trial Verdict)

#HASHTAGS

#**muslimgroomers**

> #muslimgroomers
> RT @DefiantLionUK: #Islam has enriched #GB with #Muslim-Groomers honour killings #FGM ritual slaughter bombings & a public execution. Waâ€¦

The text 'RT @DefiantLionUK: #Islam has enriched #GB with #MuslimGroomers honour killings #FGM ritual slaughte'
has positive strength 1 and negative strength -2

Approximate classification rationale: RT @DefiantLionUK[-2] :#Islam has enriched #GB with #MuslimGroomers honour killings #FGM ritual slaughte [sentence: 1,-2] [result: max + and - of any sentence] [overall result = -1 as pos<-neg] (Detect Sentiment)

#zionism

> There is a difference! #Zionism<-> #Judaism #Islamists <-> #Islam #EDL <-> #England #woolwich

#palestine

@SamSmithEDL @JamalM_135 @TRobinsonNewEra #Palestine #EDL #HDL #myjihad #iSLam http://t.co/Xfgiv7kWe3

The text '@SamSmithEDL @JamalM_135 @TRobinsonNewEra #Palestine #EDL #HDL #myjihad #iSLam http://t.co/Xfgiv7kWe'
has positive strength 1 and negative strength -1

#police

> RT @PeddRaam: #EDL wearing balaclavas not a proper response to #Islamic #burka #jihad #bloody #attackers #London - let the #police work on â€¦

The text 'RT @PeddRaam: #EDL wearing balaclavas not a proper response to #Islamic #burka #jihad #bloody #attac'
has positive strength 1 and negative strength -2

Approximate classification rationale: RT @PeddRaam :#EDL wearing balaclavas not a proper response to #Islamic #burka #jihad #bloody[-2] #attac [sentence: 1,-2] [result: max + and - of any sentence][overall result = -1 as pos<-neg] (Detect Sentiment)

> RT @PeddRaam: #EDL wearing balaclavas not a proper response to #Islamic #burka #jihad #bloody #attackers #London - let the #police work on â€¦
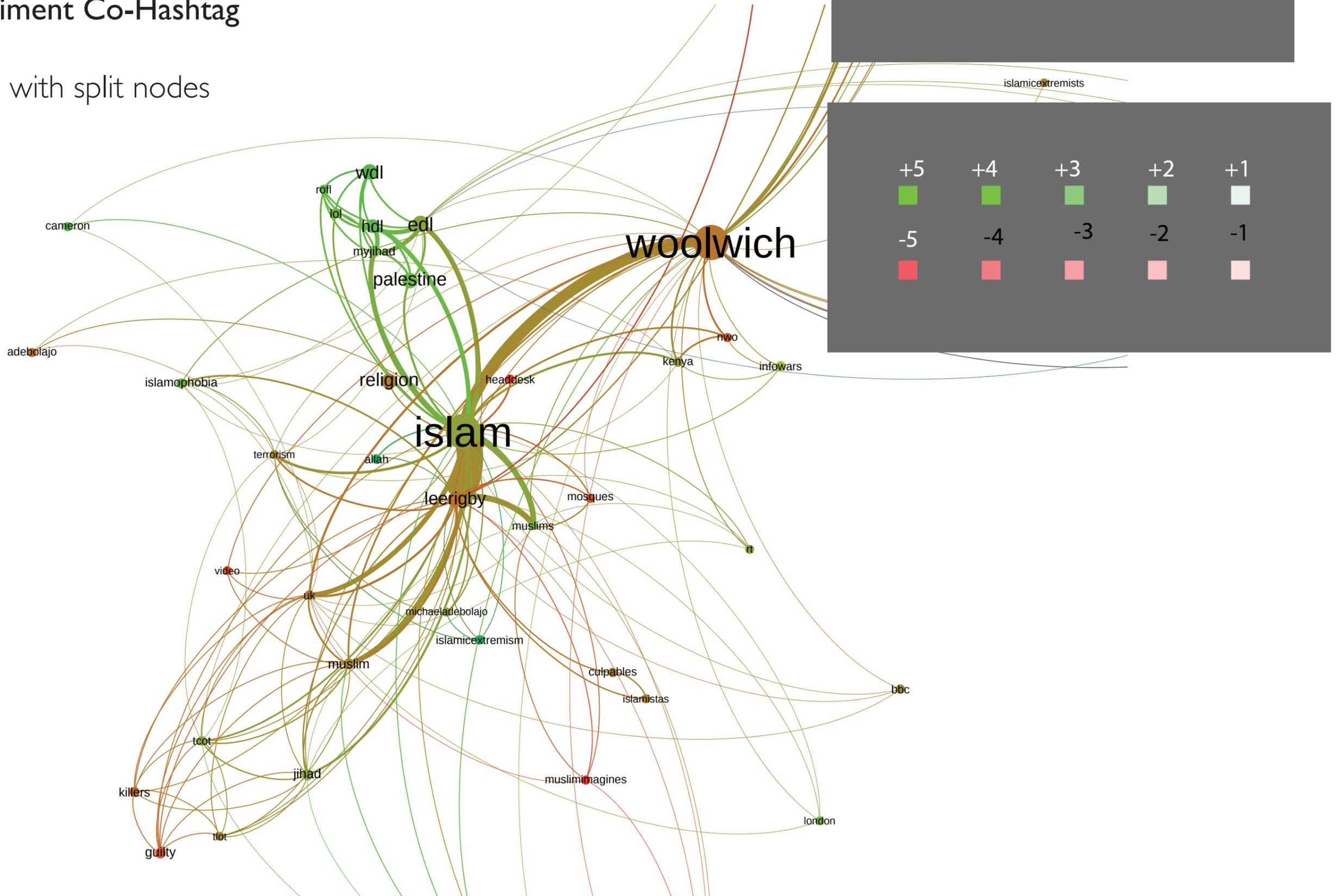
The text 'RT @PeddRaam: #EDL wearing balaclavas not a proper response to #Islamic #burka #jihad #bloody #attac'
has positive strength 1 and negative strength -2

Approximate classification rationale: RT @PeddRaam :#EDL wearing balaclavas not a proper response to #Islamic #burka #jihad #bloody[-2] #attac [sentence: 1,-2] [result: max + and - of any sentence][overall result = -1 as pos<-neg] (Detect Sentiment)

#HASHTAGS

Concept: Sentiment Co-Hashtag

Replace nodes with split nodes

+5	+4	+3	+2	+1
-5	-4	-3	-2	-1

@ACTORS

HYPERLINK (VIDEO)

Map Sentiment of a URL over time
> Blue = +
> Red = -

Would allow us to view shift in average sentiment over time

Exclusive video: Man with bloodied hands speaks at Woolwich scene

Last updated Wed 29 May 2013

UK • London • Woolwich • Woolwich Attack

ITV News has obtained footage of a man with bloodied hands addressing a camera on a south London street.

He makes a series of political statements before walking towards the body of Drummer Lee Rigby, lying prone on the street.

He then talks calmly to another man stood nearby.

A warning that this video contains graphic images of a man with bloodied hands and holding a meat cleaver:

Get more on this story:

DISCUSSION

How does the specificity of Twitter affect sentiment analysis?

Sentiment of username?

Repeated Char@@@@@@

Retweet Chains?

Muddy when sentiment has only 10 possible values?

How does sentiment work with controversies?
Are controversies always negative e.g - murder?