Tweeting the Mind and Instagramming the Heart: Exploring Differentiated Content Sharing on Social Media

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Why Tweet & Instagram?

- Pew Research reports that 74% of online adults use social networking sites and many of them using multiple social media sites

  Instagram –24% of entire adult population
  Twitter – 20% of entire adult population

- An intriguing question is why do people use multiple sites, especially when their capabilities overlap.

Research question:

Given the overlapping capabilities of Twitter and Instagram, are these platforms being used in different ways by the users?

Our Approach:

Analyze the way users having accounts on both Twitter and Instagram use them differently.

Challenge:

We need an aligned data set of users who use both Twitter and Instagram.

> **To our Knowledge this is the first paper to extensively analyze differentiated content sharing on social media by the same user.**

Crawling Aligned Accounts

- Goal: To get a set of common users where each user actively maintains accounts on both Twitter and Instagram.
- We use a personal web hosting service called About.me (http://about.me/)

http://about.me API
me

Seed dataset: 10,000 Users

Twitter Posts: 1,035,840
Instagram Posts: 327,507

963 active users with both Twitter & Instagram accounts

No brands, organizations or spammers
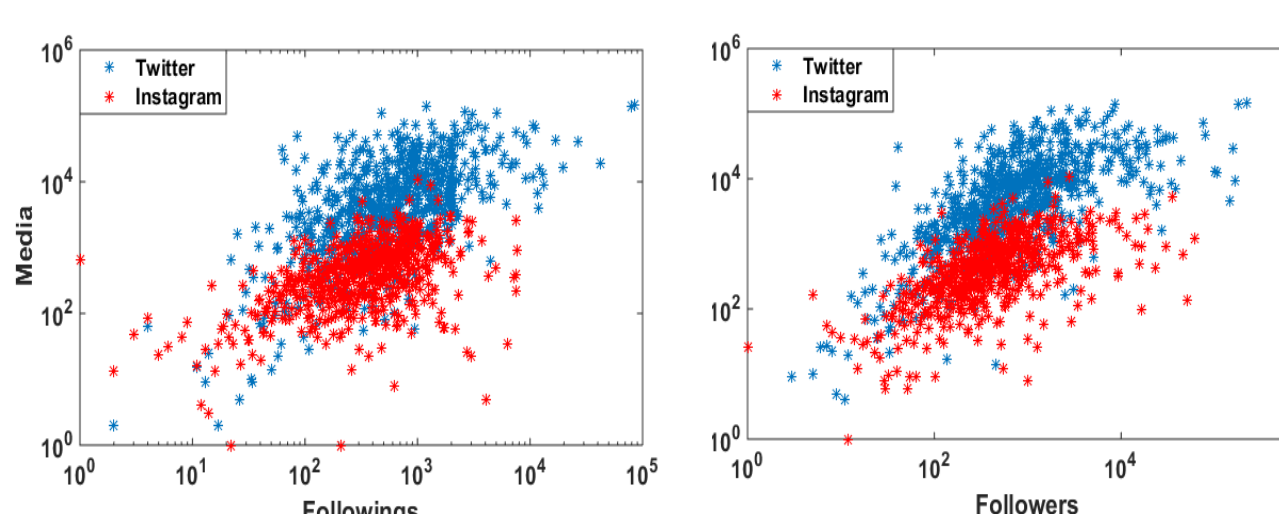
Analyzing Differential Use

We conduct our investigation using manual coding, computer vision, and machine learning from two different aspects – Linguistic & Visual:

Quantifying Linguistic Style

Latent Topic Analysis	Topic analysis is meaningful as it is pertinent to understand the reasons behind users joining the two platforms and actively making posts.
Social Engagement	It is the attention received by a user's post that describes how socially it is engaging the other users.
Linguistic Nature	Measures of attributes related to user behavior – • Emotionality – How people are reacting • Social relationships – Friends, family, other humans • Individual differences – Bio, gender, age, etc.

Visual Analysis

- Visual Categories – User photo content -- Involves image coding and clustering
- Visual Features – Grayscale histograms – Color palettes

Coding process

- Two coders categorize the photos based on their main themes and their descriptions and hashtags independently (kappa=0.75)
- Single category to each photo
- Third-party judges to view the unresolved photos

User type clustering

- 8-dimentisonal vector for each user. Each dimension represents the proportion of user's photos in the corresponding category
- Apply *k*-means clustering

Each point for an active user on Twitter (blue) or Instagram (red) with x-axis -- #friends or #followers and Y-axis -- #posts

Linguistic Topics & Distributions

Words corresponding to the 5 latent topics from Twitter and Instagram

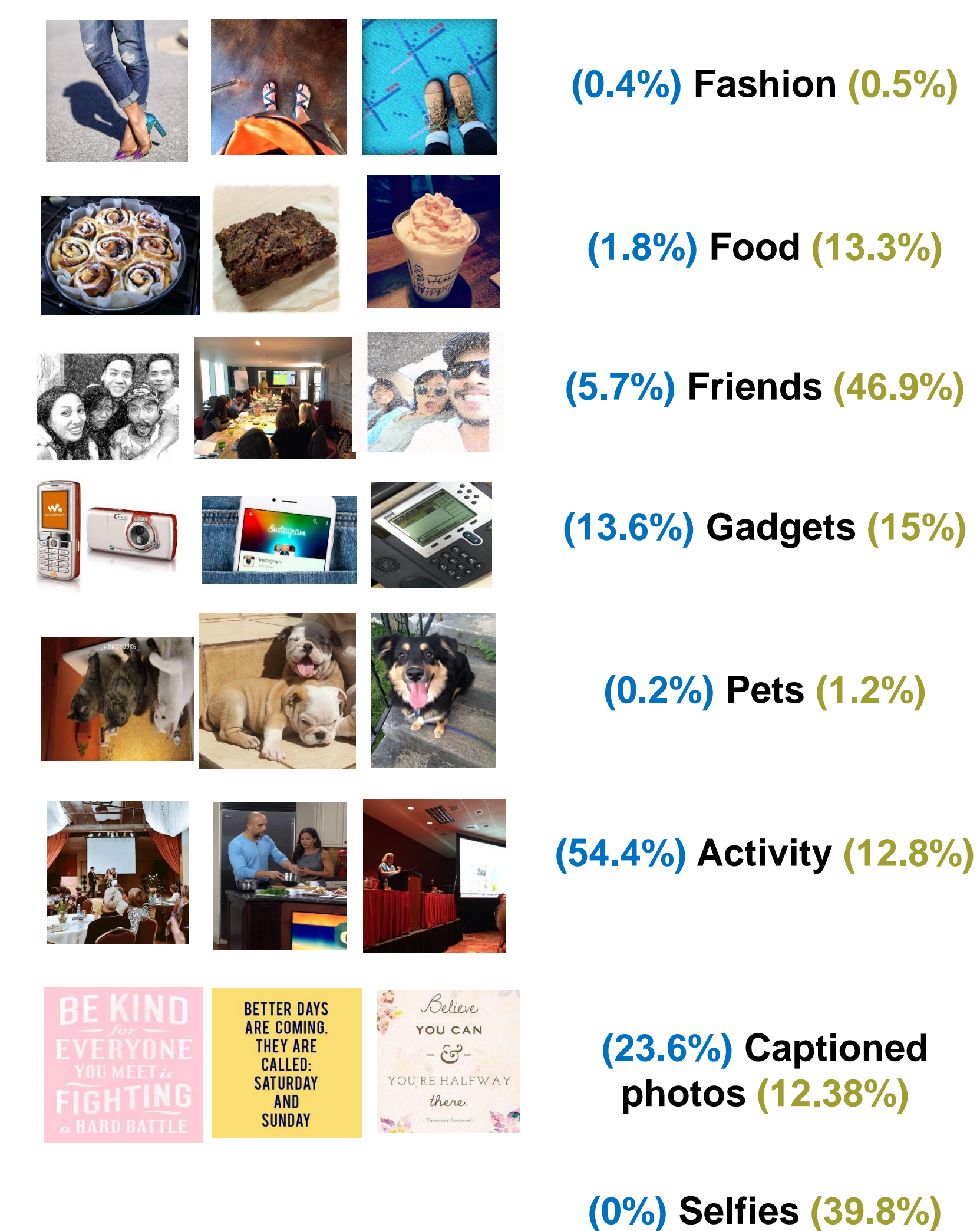| ID	Terms from Twitter	%
0	Stories, international, food, web, angelo	22%
1	Time, people, work, world, social, life	13%
2	Happy, love, home, birthday, weekend, beautiful, park	5%
3	Mas, dia, via, gracias, mi, si, las	9%
4	**#football, #sports, #news, #art, facebook, google, iphone**	51%

ID	Terms from Instagram	%
0	#food, delicious, coffee, sunset, beautiful, happy, #wedding	5%
1	#streetart, #brightongraffiti, #belize, #Sussex, #hipstamatic, #urbanart, #Lawton	29%
2	#fashion, #hair, #makeup, #health, #workout, #vegan, #fit	14%
3	#instagood, #photooftheday, #menswear, #style, #travel, #beach, #summer	3%
4	Birthday, beautiful, love, Christmas, friends, fun, home	49%

Twitter hosts a significantly higher percentage of posts on *sports, news and business.*

Instagram is predominantly about *art, food, fitness, fashion, travel, friends and family.*
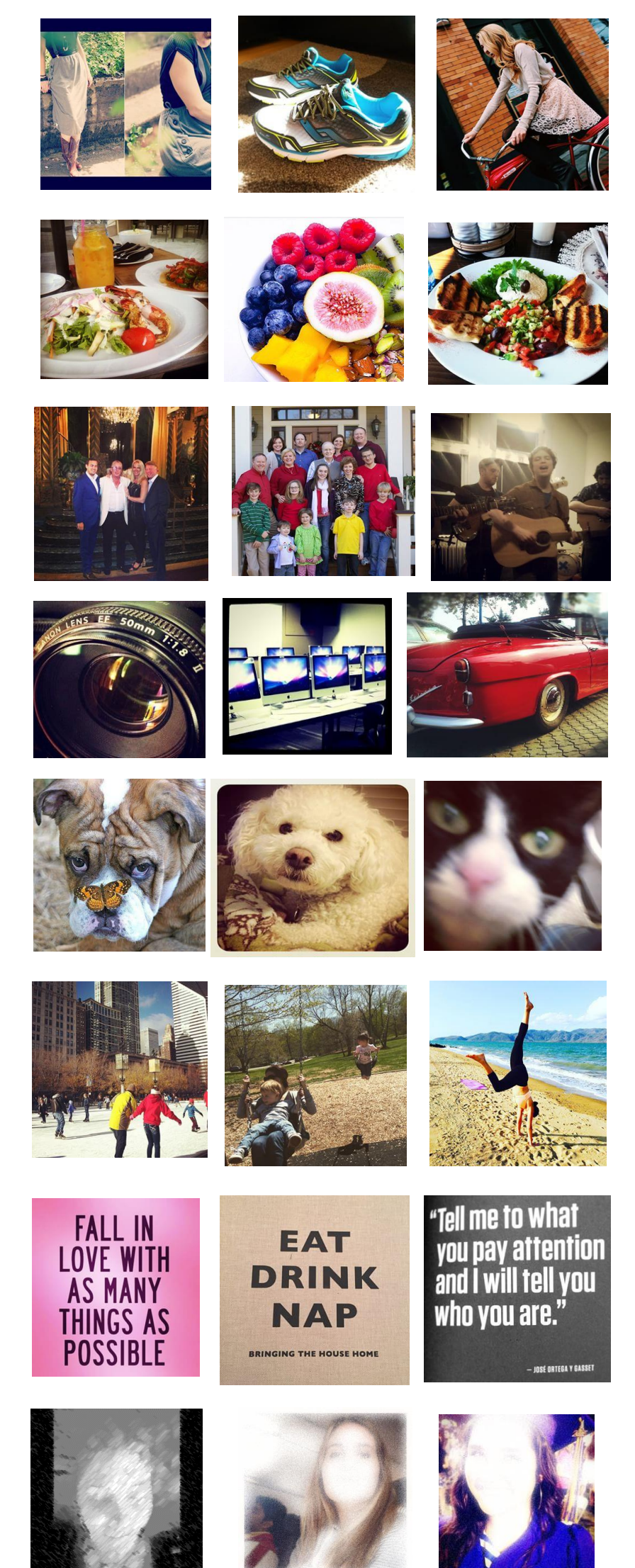
Visual Categories & Distributions

Twitter Categories   **Instagram Categories**

Twitter	Category	Instagram
(0.4%)	Fashion	(0.5%)
(1.8%)	Food	(13.3%)
(5.7%)	Friends	(46.9%)
(13.6%)	Gadgets	(15%)
(0.2%)	Pets	(1.2%)
(54.4%)	Activity	(12.8%)
(23.6%)	Captioned photos	(12.38%)
(0%)	Selfies	(39.8%)

Activities, captioned photos are the top-2 categories of Twitter photos

Friends, Selfies are the top-2 categories of Instagram Photos

Top subcategories of *activity* on Twitter: **Conferences, TV shows**
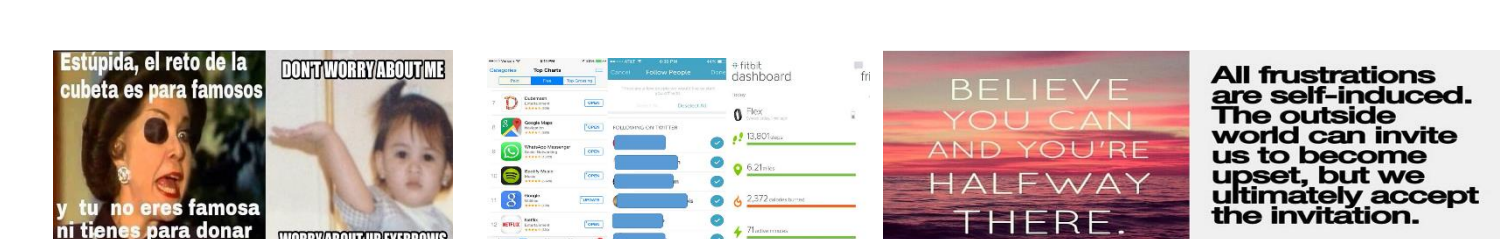
Top subcategories of *captioned photos* on Twitter: **Memes, Snapshots, Quotes**

Frequency of Hashtags & Bi/Tri-grams

30% more **hashtags** for a Twitter post compared to an Instagram posts (Pearson correlation coefficient = 0.34, p-value < 10^{-15})

N-gram analysis:
- Instagram: last night, good morning, right now, fashion design streetwear
- Twitter: stories via, just posted, @youtube video, just posted photo

Conclusions

- Our analysis suggests that
  - **Twitter** is a venue for **serious posts** about news, opinions and business life
  - **Instagram** serves as a host for **light-hearted personal moments** and posts on leisure activities.