

Tinder of Disinformation

AKA Matchmaker

Le Chapeau, Nov 2023

Problems

Overcoming disinformation requires addressing two significant obstacles: excessive dependence on human expertise and inefficiency of manual processes. After running a series of quick interviews with fact-checking organizations and experts, we found out that

1. Narratives are hard to define and identify

- Long content and multiple channels to sift through - keyword matching is not enough
- Difficult with propaganda or ambiguous misinformation
- Fact-checking might require extensive research/verification

2. Hard to identify and prebunk new narratives

- React rapidly to new narratives or even prebunk
- Avoid manually handling resurfacing narratives in different streams
- Be aware of potential surfacing narratives

Potential Solutions

- Find efficient and accessible ways to define “narratives”, both human-readable and computationally effective
- Provide fact-checkers an ability to identify resurfacing narratives through narrative comparison and/or clustering
- Alert fact-checkers of emerging narratives from inner-channels, so they may look for them on popular media

This shortlist of potential solutions rely on the fact that a narrative can be described and identified, as premise for the future implementation of automated services/platforms. Therefore, we decided to focus on detection first, testing different approaches.

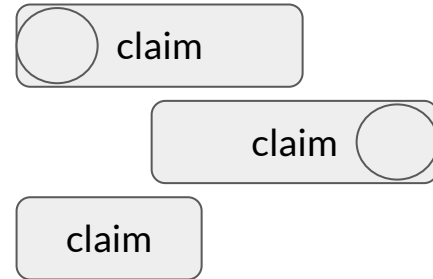
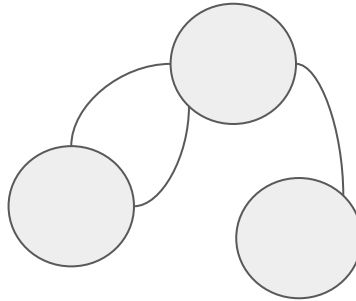
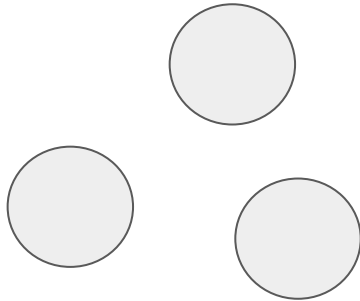
Narrative Identification

Existing narratives

Emerging narratives

What is a narrative?

- Propagated by one or more actors
- Collection of one or more claims
- Has a purpose
- Maybe a target or a beneficiary - although this can be depend on the reader of the narrative
- Is present over a period of time and can evolve



Data

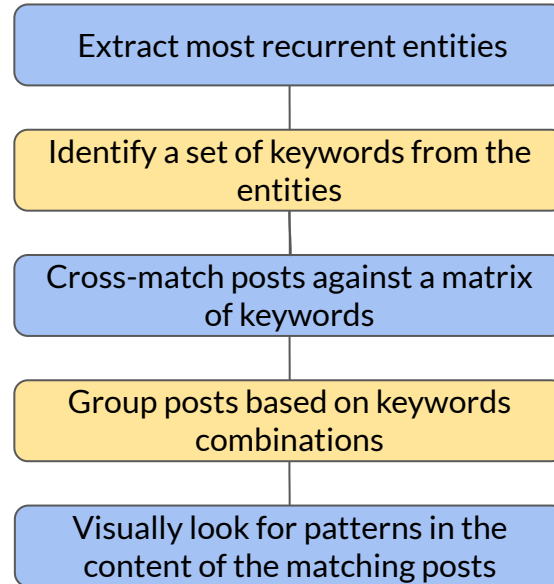
- Sample of 600 posts from the QAnon Bellingcat dataset
- Pre-filtered by “5G” keyword

**QAnon
in Europe**
Tracing a viral conspiracy

Approach 1: Manual

Hypothesis: A narrative can be identified by analyzing and reviewing multiple texts manually, given sufficient knowledge about domain and context.

Pipeline:



Results for Manual

Narrative	Number of posts
The EBS (Emergency Broadcast System) is a covert plan by the NWO to activate mind-controlling chips implanted through the vaccination programs.	5
Vaccines contain a highly toxic substance called 'Graphene Oxide' which interacts with magnets.	10
The 5G grid is part of a larger surveillance agenda enabled by AI.	7
The spread of radio towers and electrification causes viral sickness, such as the Spanish Flu in 1918.	6
5G and Wifi signals are harmful for the human body.	15
5G towers will be used to transmit a signal to control people through chips implanted with the Covid19 vaccines.	11

6 narratives have been identified and linked to 54 posts in around 180 minutes.

Manual detection of narratives can provide highly qualitative results, and it's particularly effective in recognizing fine-grained differences between similar, yet not equal, narratives.

However, it relies on the assumption that the analyst possesses specific expertise in the domain (expensive training), and it's massively slower when compared to other approaches (low computational capacity).

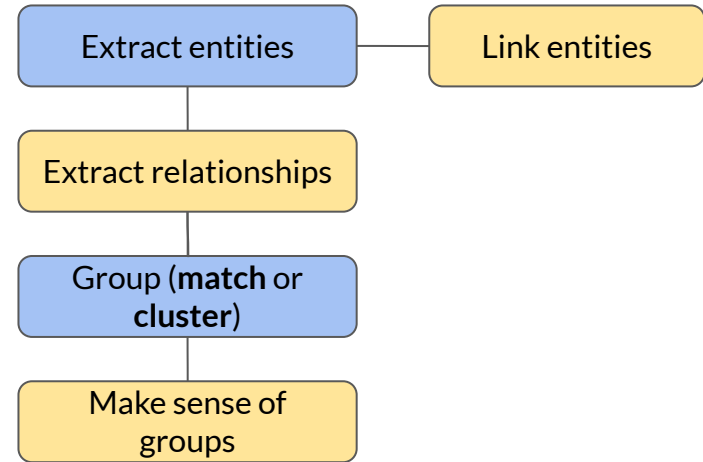
These two aspects are strong limiting factors, as they prevent the scaling up of resources in response to the ever growing volume of disinformation.

Approach 2: Entity extraction

Hypothesis: A narrative can be defined as a collection of entities and relationships between them.

We can try to match entities or cluster entities based on co occurrence.

Pipeline:



Results

Able to identify similar posts based on entity co-occurrence!

Small dataset

```
In [4]: res = matcher.match_post(post)
Original post:
```

NOT 1 PERSON DIED FROM COVID EVER COVID WAS NEVER ISOLATED THE COMMON COLD, FLU ALONG WITH 5G WAS THE CAUSE OF HEALTH CONDITIONS ASYMPTOMATIC WENT FOR TEST SWABS THAT INFECTED THEM WITH SYMPTOMS FORCED DEATHS BY VENTILATORS APPROXIMATELY 45-65k DIE EVERY YEAR FROM THE FLU THOSE WITH PRE-EXISTING CONDITIONS AND THE ELDERLY CAN DIE FROM THE FLU NORMAL COLD SYMPTOMS AND THE FU WAS REBRANDED AND REMARKETING AS COVID 19 LAB LEAK: THERE ISN'T A VIRUS THAT WAS LEAKED THERE WAS: THE LEAK OF INFORMATION THE TAINTED SWABS THE VACCINE CREATED YEARS AGO THE VACCINATED ARE BECOMING THE VIRUS

Found total 3 intersecting posts.
Biggest intersection: 6 entities.
Highest intersection ranking: 1.0/1.

Ranking: 0.9473684210526315/1

REPOSTING I keep adding to this with my notes since last year The FLU HAS ALWAYS BEEN FROM FREQUENCIES NOT 1 PERSON DIED FROM COVID EVER COVID WAS NEVER ISOLATED THE COMMON COLD, FLU ALONG WITH 5G WAS THE CAUSE OF HEALTH CONDITIONS ASYMPTOMATIC WENT FOR TEST SWABS THAT INFECTED THEM WITH SYMPTOMS FORCED DEATHS BY VENTILATORS APPROXIMATELY 45-65k DIE EVERY YEAR FROM THE FLU THOSE WITH PRE-EXISTING CONDITIONS AND THE ELDERLY CAN DIE FROM THE FLU NORMAL COLD SYMPTOMS AND THE FU WAS REBRANDED AND REMARKETING AS COVID 19 LAB LEAK: THERE ISN'T A VIRUS THAT WAS LEAKED THERE WAS: THE LEAK OF INFORMATION THE TAINTED SWABS INFECTED YOU WITH A VIRUS (FLU) THE VACCINE CREATED YEARS AGO THE VACCINATED ARE BECOMING THE VIRUS It is from 5G - Radiation from the cells. There isn't a leak from Wuhan. It's a cover-up 3 Pandemics in the last 120 Years In 1918 - They implemented radio waves globally and increased the electrification of our universe causing the Spanish Flu - Most deaths during WW1 WW2 implantation of Radar by Rolling out Satellites - Van Allen belt - Flu Pandemic 1968 Hong Kong Flu - Rolled out another level of 100,000 satellites in the Transmitting Radar signals pushing telecommunications again in the Van Allen Belt 5G - Takes about 6 months after exposure - If you were born with Frequencies , You are mostly likely not affected. The youngest were born into this. They are covering their tracks as the continue to roll out towers. - Ends Results - Flu again and we are in WW3 They are pushing AI Technology now - Driverless cars run off 5G, Everything runs off 5G Who else sees the patterns here? Frequencies - Flu - War THE FLU HAS ALWAYS BEEN A FREQUENCY COVER-UP COVID IS A 5G COVER-UP

Ranking: 0.47368421052631576/1

3 Pandemics in the last 120 Years In 1918 - They implemented radio waves globally and increased the electrification of our universe causing the Spanish Flu - Most deaths during WW1 WW2 implantation of Radar by Rolling out Satellites - Van Allen belt - Flu Pandemic 1968 Hong Kong Flu - Rolled out another level of 100,000 satellites in the Transmitting Radar signals pushing telecommunications again in the Van Allen Belt 5G - Takes about 6 months after exposure

Large dataset

Ranking: 0.07309941520467836/1

If the FBI and CIA are already giving Biden transition of power briefings, how much risk does that put the country and current administration in, should the election fraud be exposed and any recounts tabulate d to show that Trump is the true winner? Will Biden have been clued in to anything that he can go on and blab to China or any other foreign power who could use anything against us?

Ranking: 0.07017543859649122/1

They made sure Biden won the election because Biden will surrender to China if Trump had won America would win the war. Trump has been hiding in his bunker ever since.

Ranking: 0.07017543859649122/1

This is who they're declaring the leader of the free world, no wonder China is laughing, Trump must battle on, Biden will destroy America!

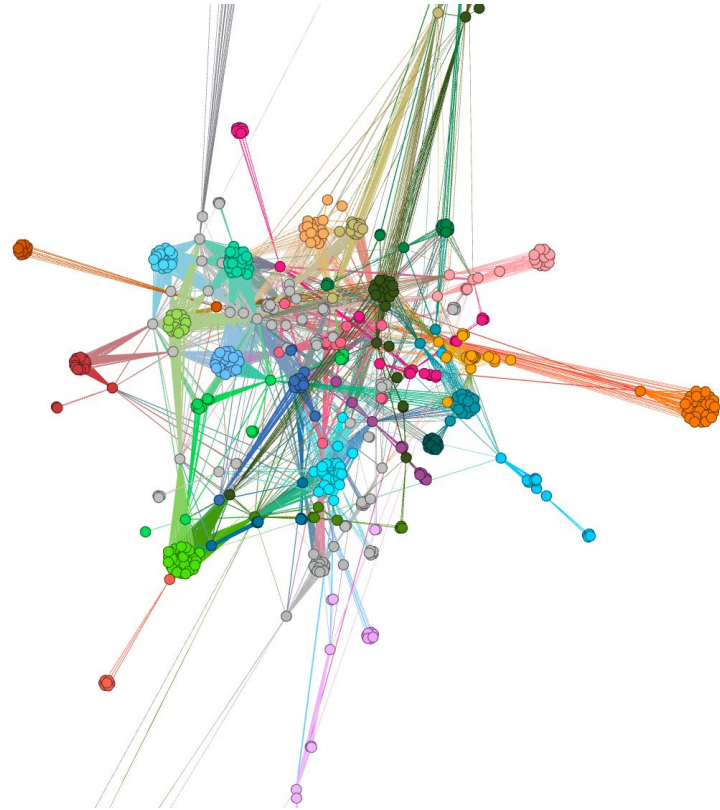
Results

- Very accurately matches reposts or reused text
- Matches posts discussing approximately the same content
- A big database is very helpful—but a small one is not so much

Usability: detect reposts or resurfacing narratives; if no matches found, consider that post might represent a new narrative

Approach 3: Entity clustering

- Clustered entities with a **community detection algorithm** facilitated by gephi.
- Match posts to cluster if they contain at least one entity in a cluster



Disclaimer: this is a real visualization of clusters from the 5G dataset.


Results

Narrative	Recall	Main cluster found for narrative
The EBS (Emergency Broadcast System) is a covert plan by the NWO to activate mind-controlling chips implanted through the vaccination programs.	3/5	always, emergency broadcast, fema, graphine oxide, unvaccinated nn, ebs
Vaccines contain a highly toxic substance called 'Graphene Oxide' which interacts with magnets.	8/10	vaccines, graphene, european union, barcelona, spain, covid quackccines - a report, fifth column, graphene flagship, graphene oxide, nanotech, pcr, quackccines, quinta columna, covid vaccines - a, fifth columnnngraphene oxide, martin geddes, nac, pangolin, yep wuhan, mms, spike protein
The 5G grid is part of a larger surveillance agenda enabled by AI.	2/7	wuhan, ai technology, conditions, flu, g - takes, hong kong, leaked, radar, russia, spanish, transmitting radar, virus, tainted, iran, northern italy
The spread of radio towers and electrification causes viral sickness, such as the Spanish Flu in 1918.	4/6	wuhan, ai technology, conditions, flu, g - takes, hong kong, leaked, radar, russia, spanish, transmitting radar, virus, tainted, iran, northern italy
5G and Wifi signals are harmful for the human body.	8/15	aulterra, cbd, court, emf, henry lai, patrick king, penn state university, university of washington, usb house protection, beobachten sie, g & the iot, graphine, ihre zellen, ihrem inneren, ihren blutkreislauf, impfung, infrastruktur, schaden, sie, stellen sie, und, verbindung, orgone energy
5G towers will be used to transmit a signal to control people through chips implanted with the Covid19 vaccines.	4/11	europe, anglo, gustavo rol, gustavo roln, earth, nwo, brexit, christchurch, collection of information, content, download, e.u, great awakening film collab, great awakening film collab majesticn- q anonnn- deepstate, notre dame terror attack, original creators, plain, qanon, series, storm is here, thanq, united kingdom, united states of america, emfs, q+anons chatroom

Approach 4: LLM

Hypothesis: An LLM can find narratives in multiple posts with few-shot learning.

Few-shot example **not** related to QAnon



Prompt:

You're an expert in narratology.
Narrative is a series of claims that make up a story that serves a specific purpose. Below is an example of a narrative:

```
{  
  "Title": "The West controls Ukraine and uses it to its advantage",  
  "Characters": {  
    "West": "Potentially referring to Western countries or alliances like NATO",  
    "Ukraine": "The nation caught in the implied manipulation or control"  
  },  
  "Plot": "A suggestion that Ukraine is not acting independently but is being manipulated or controlled by Western powers",  
  "Point_of_View": "The narrative may be presented from a perspective that is critical of the West and sympathetic to others who oppose Western influence"  
}
```

Extract narratives for each of the paragraphs below.
For each narrative, attribute post ids that talk about it.
Generate a JSON with one narrative per line, with columns "Title", "Characters", "Plot", "Point of View".

Example of a narrative extracted by GPT3

```
{  
  "Title": "China's extensive ownership and control in the US",  
  "Characters": {  
    "China": "The Chinese government and its partners",  
    "US": "The United States"  
  },  
  "Plot": "China's ownership and control over various sectors in the  
US, including pharmaceuticals, agriculture, intellectual property, rare  
earth minerals, 5G networks, and media companies",  
  "Point_of_View": "The narrative highlights the extent of China's  
influence and the potential risks it poses to US national security and  
economy"  
},
```

Results

Manually detected narratives

The EBS (Emergency Broadcast System) is a covert plan by the NWO to activate mind-controlling chips implanted through the vaccination programs.

Vaccines contain a highly toxic substance called 'Graphene Oxide' which interacts with magnets.

The 5G grid is part of a larger surveillance agenda enabled by AI.

The spread of radio towers and electrification causes sickness, such as the Spanish Flu in 1918.

5G and wifi signals are harmful for the human body.

5G towers will be used to transmit a signal to control people through chips implanted with the Covid19 vaccines.

5 new narratives detected by GPT

GPT3-detected narratives

2/6 ground truth narratives were not detected by GPT

5G and Nanotechnology: Tracking Vaccinated People

5G as the cause of health conditions and cover-up

The Effect of 5G Radiation on Health

The Connection Between COVID and 5G

China's extensive ownership and control in the US

The Geopolitical Implications of 5G Technology

The Connection Between 5G, Chemtrails & Morgellons

FBI Investigating 5G Paranoia in Nashville Bombing

The West Controls Ukraine and Uses It to Its Advantage

Conclusions

Manual	Entity matching	LLM
+ Accurate	+ Simple	+ Works out-of-the-box + Qualitative analysis
- Expensive	- Requires large datasets - Not robust	- Expensive - Black box - Hallucinations

Approaches

Manual	Entity matching	Entity Clustering	LLM
<ul style="list-style-type: none">+ Accurate	<ul style="list-style-type: none">+ Simple+ Inexpensive+ Programmatically useful+ Very good at finding matching posts!	<ul style="list-style-type: none">+ Find links between posts (not just within posts) based on co occurrence	<ul style="list-style-type: none">+ Makes sense of long text without manual feature extraction+ Small to no dataset (zero-shot or few shot works well)+ Human-readable
<ul style="list-style-type: none">- Very time consuming- Dependent on human knowledge and bias- Not comprehensive	<ul style="list-style-type: none">- Relies on entity extraction and disambiguation- Needs large dataset for rich comparisons	<ul style="list-style-type: none">- Relies heavily on how good entity extraction & disambiguation is- Needs large dataset to find sensible clusters without overfitting	<ul style="list-style-type: none">- Expensive- Black box- Requires much contextual data- Might not be computationally useful

Future steps

- Create a platform solution to offer narrative detection to end users
- Integrating with [social] media sources
- New narrative detection
- Consider relationships between entities when clustering/matching
- Add disambiguation to entities

Bonus:

- Stop flooding Bellingcat's platform to avoid a network ban :)

Future Work for entity clustering

1. Data cleaning

- Other options:
 - Remove duplicate posts that can over inflate entity associations.

2. Entity Extraction

- Current approach: Spacy
- Future:
 - More complex NLP methods including LLMs

3. Entity Linking

- Current approach: simple processing to remove noise
- Future:
 - Knowledge bases like Wikipedia
 - Semantic embedding similarity (ie. BERT)

4. Relationships

- Current approach: co occurrence in a single post
- Future:
 - More complex relationships between entities (ie. [REBEL](#))

5. Entity Grouping

- Current approaches: matching, clustering