

The Identity Discovery Challenge

*Discovering Non-Obvious Linkages
and Transitive Closure of Data*



Ground Truth - Person of Interest Narrative

The Clinic Contact

Tollman (Tom) F. Took is a **New York City** resident visiting the **Bethesda (MD)** area to meet with an old friend, **Melliot Hornblower**. He was travelling with his wife, **Gloriana (Gloria) D. Took-Brandybuck**.

The two traveled by air and had booked reservations (providing his ID number [298808448]) with a local hotel near the town center. The couple checked into the hotel and provided the registration information requested, which included **local contact information** (friend's address, Tom's cell phone [6318085343]).

The couple was shopping along Madison Avenue when Tom noticed the medical clinic. He had been experiencing severe stomach pains. He told his wife he would run and get it checked out when she reminded him they needed to be at their guests house within the next 90 minutes. He assured her he would meet up at a nearby store within an hour.

Tom entered the medical clinic noticed the sign-in sheet and recorded his name and **wife's cell phone [2129987506]**. Tom had left his cell phone in the hotel room to charge. Tom's stomach pains were sharp and agonizing – he sat quietly in his chair, crouched to ease the pain. He was attentive to his watch and noticed his deadline was rapidly approaching. He observed that more were waiting and he stood little chance of receiving attention before he was due to meet up with his wife. Tom left the clinic.

Tom and Gloria met up, hailed a taxi and headed for their friends house. They asked to be let off at a nearby bakery to pick-up some last minute goods. After a brief stop at the bakery [18 Wayback Road], Gloria paid by **credit card [5334856597493120]** and the couple departed for the friend's house a few blocks from the location. The couple arrived at the house (**322 Doe Meadow Drive**) by 10:30 am.

Shortly after arriving (10:48 am), a phone call [to **3018035414**] interrupted the friends discussion. The unexpected caller announced herself as an epidemic contact tracing investigator. "May I speak with Tollman Took please?" she asked.

The unidentified male is:

Tollman (Tom) Fredegar Took

He is located at the residence of:

Melliot Hornblower
322 Doe Meadow Drive
Bethesda, MD
(301) 803-5414

Ground Truth - Analyst Narrative

Analytic Response Team

Working with the limited information available, the analytic response team attempted to identify the individual through contact tracing - the team began the operation at **10:20 am** and set a **30 minute** window to urgently provide leads to field investigators.

Beginning with the partial phone number, initial database queries returned **130 candidates**. This information was provided to an engagement team to attempt confirming the identity through telephonic contact. Attempts at **telephonic contact failed** as some contacts were not reachable, and as it was later learned, the subject of interest did not have their phone turned on.

In parallel, the analytic team worked to exhaust its analysis of **all available data holdings**. Using the known information as “seeds” the analytic team employed sophisticated **path analysis methods** to identify best fit candidates for “deep dive” analysis. After configuring the parameters for their path discovery algorithms, the methods produced a set of **rank ordered paths** which fit the criteria for the scenario.

These paths were provided in a **visual form** which enabled the analysis to quickly evaluate the results. The team was divided to evaluate and validate the candidate paths connecting the seeds of known information. This involved:

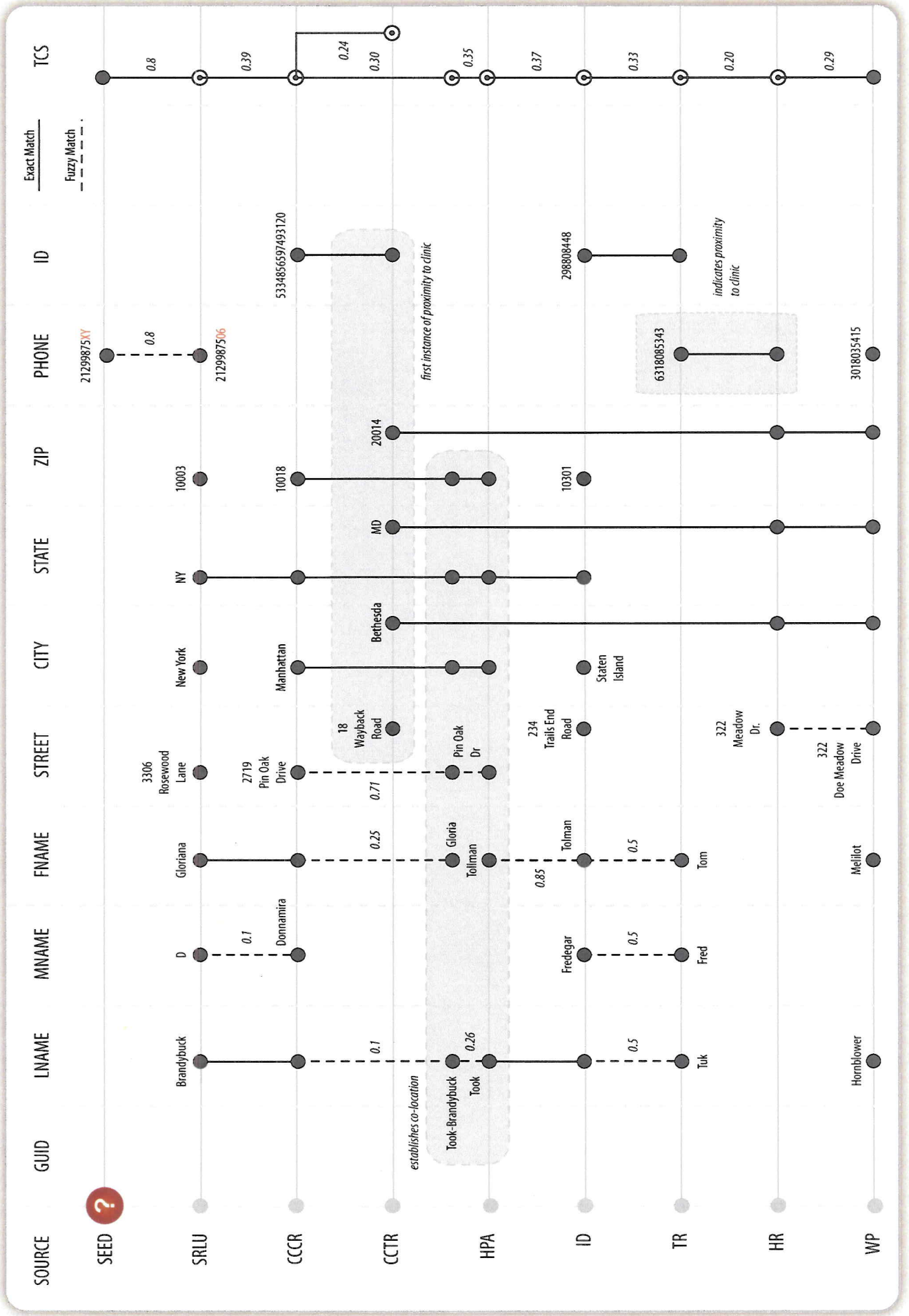
1. making judgements of whether or not entity resolution correlations were valid (match / non-match)
2. evaluating the effect of such judgements on given paths (e.g. false positives would nullify the path)
3. deep dive analysis of a given path to assess its plausibility for the scenario.

The results of this analysis are provided on the following page. Within the allotted time constraint, the team was able to successfully identify the unidentified subject.



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There is nothing like looking, if you want to find something.

— J.R.R. Tolkien
The Hobbit