**Research Question:**

Question:

Model: gpt-4o

Trial 1: Zero Shot prompt 5x

Trial 2: One Shot Prompt 5x

**Standard for Relationship Identification:**

**1. Identification of Entities (Nodes)**

* For every paragraph in a legal document, identify and label all entities based on a pre-defined list of *Unique Evidence Types*. Each entity is assigned a label/type from the following categories:
  + **Person Name**
  + **Organization/Company Name**
  + **Date**
  + **URL**
  + **App/Website Name**
  + **Account Name**
  + **File Name**
  + **Phrase**
  + **Location Data**
  + **IP Address**
  + **Phone Number**
  + **Law/Contract Name**
  + **Email Address**
  + **Currency**
  + **Video Name**
  + **Role**

**2. Identification of Relationships (Edges)**

* Examine each paragraph to determine if any relationships exist between the identified entities. Relationships must match one of the specified types:
  + Owns [URL, App/Website Name, Organization/Company Name, IP Address, Phone Number, Video Name, etc]
  + Launched After [Date]
  + Registered On [App/Website Name, Date, etc]
  + Acts on [Date]
  + Comments on/Says [Phrase]
  + Lives in [Location Data]
  + Posts [Phrase]
  + Registers [Account Name, Organization/Company Name, Email Address, etc]
  + Deleted [Website Name, URL, etc]
  + Works with [Organization/Company Name, Person Name, etc]
  + Obliged to do [Law/Contract Name]
  + Violates [Law/Contract Name]
  + Signed [Law/Contract Name]
  + Regulates [Law/Contract Name]
  + Administers [Law/Contract Name]
  + Communicated with [Person Name, Organization/Company Name, Email Address, etc]
  + Is [Person Name]

**3. Relationship Filtering and Node Retention**

* **No Relationship Found:** If no relationship exists between entities within a paragraph, all entities in that paragraph should be discarded.
* **Single Relationship Found:** If a single valid relationship is identified, retain all entities within the paragraph, even if they lack a direct connection to the identified relationship. Label any unlinked entities within the paragraph as "lost nodes."

**4. Iterative Application**

* Repeat this identification and filtering process for each paragraph in the legal document, ensuring that all entities and relationships conform to the established definitions and criteria.

**Definitions**

* **Entity (Node):** A distinct piece of information categorized by a specific **Label/Type** (as per Unique Evidence Types).
* **Relationship (Edge):** A valid, defined connection between two entities that establishes a contextual linkage as per specified relationship types.

**Case Summaries:**

|  |  |  |
| --- | --- | --- |
| Case ID | name | Description |
| 1 | JasonGoodman121-CV-10878 | Jason Goodman, acting pro se, filed a lawsuit in the Southern District of New York against Christopher Bouzy, Bot Sentinel, Inc., and George Webb Sweigert, claiming defamation, libel, and conspiracy to defame. Goodman alleges that Bouzy, through Bot Sentinel, used social media platforms, particularly Twitter, to publish and promote false accusations, including rape allegations, to damage Goodman’s reputation and interfere with his business operations. According to Goodman, Bouzy’s defamatory statements were part of a coordinated effort with Sweigert to harm his credibility and disrupt his online business. Goodman seeks monetary damages for the harm to his reputation, lost income, and punitive damages. |
| 2 | JohnDoeVDamien217-CV-00234 | Plaintiff John Doe sues Damien Vazquez in the Central District of California, alleging privacy invasion, harassment, stalking, cyber exploitation, and interference with economic advantage. Doe claims Vazquez took unauthorized nude photos, distributed them to Doe’s contacts, harassed him with hundreds of daily calls and messages, and used spoofed numbers. Vazquez allegedly accessed Doe's phone without permission, threatened to share sensitive images online, and disrupted Doe’s professional opportunities by contacting his agents and colleagues. Doe seeks damages, injunctive relief, and a declaration to end Vazquez's harassment. |
| 3 | LisaLiberi811-CV-00485 | Plaintiffs Lisa Liberi, Philip J. Berg, his law office, Evelyn Adams, Lisa M. Ostella, and Go Excel Global filed a lawsuit seeking injunctive relief and damages against Orly Taitz, her associates, and various affiliated entities. The complaint alleges a campaign of harassment, defamation, and unauthorized disclosure of sensitive personal information, including Liberi's Social Security number and home address, circulated through mass emails and posted online. Plaintiffs claim the defendants, through targeted online and email campaigns, falsely accused them of illegal activities, including hacking and fraud. Additionally, the defendants allegedly filed false reports with law enforcement agencies, further harming the plaintiffs' reputations and personal safety. Plaintiffs argue these actions violated privacy laws and federal regulations, severely impacting their professional and personal lives. They seek damages and a court order to prevent further harassment and defamatory actions. |
| 4 | RachelDepalma522-CV-00091 | Rachel DePalma filed a lawsuit against Samantha Kerns, Tracy Korslund, and Laurinda Kirk, accusing them of defamation, false light invasion of privacy, and conspiracy. DePalma, a domestic abuse survivor and founder of the nonprofit "No Peace No Quiet," claims that the defendants launched a smear campaign on social media, spreading false statements about her and her organization. This campaign allegedly discouraged domestic abuse survivors from using her services and damaged her reputation. DePalma asserts that the defendants falsely accused her of mishandling survivor information, doxxing, and exploiting victims. She is seeking damages for reputational harm, emotional distress, and mental anguish caused by these actions, as well as an injunction to prevent further defamatory statements and removal of the false claims online. The lawsuit requests over $75,000 in damages and a jury trial. |
| 5 | RLIInsurance518-CV-00066 | RLI Insurance Company is suing Nexus Services, Inc. for breaching an indemnity agreement tied to over 2,400 immigration bonds issued by RLI at Nexus’s request for detainee releases. Nexus agreed to cover losses, reimburse claims, and allow RLI access to financial records but allegedly failed to do so. Nexus’s refusal to provide records, delayed payments, and lack of collateral have exposed RLI to significant financial and reputational risks. RLI seeks a court order to compel Nexus to fulfill its obligations, including indemnifying RLI, granting record access, and providing collateral, arguing that Nexus’s non-compliance endangers RLI’s financial and federal standing. |

**Abridged Case Summary:**

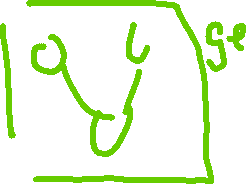
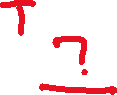
|  |  |  |
| --- | --- | --- |
| Case ID | name | Description |
| 1 | JasonGoodman121-CV-10878 | Jason Goodman, acting pro se, sues Christopher Bouzy, Bot Sentinel, Inc., and George Webb Sweigert for defamation and conspiracy to defame in New York. Goodman claims Bouzy used Twitter to spread false rape accusations, damaging his reputation and business. Goodman seeks damages for reputational harm and interference with his business. |
| 2 | JohnDoeVDamien217-CV-00234 | John Doe sues Damien Vazquez in California, alleging invasion of privacy, harassment, and cyber exploitation. Doe claims Vazquez took unauthorized nude photos, shared them, harassed him with daily calls, and disrupted his career. Doe seeks damages, an injunction, and a declaration to end Vazquez's conduct. |
| 3 | LisaLiberi811-CV-00485 | Lisa Liberi and others sue Orly Taitz and affiliates for harassment, defamation, and privacy invasion, claiming Taitz disclosed personal information online and falsely accused them of crimes. Plaintiffs seek damages and a court order to prevent further harassment and reputational harm. |
| 4 | RachelDepalma522-CV-00091 | Rachel DePalma sues Samantha Kerns and others for defamation and privacy invasion, alleging they spread false accusations about her nonprofit, damaging her reputation and deterring clients. DePalma seeks damages for reputational harm and an injunction to stop further defamatory actions. |
| 5 | RLIInsurance518-CV-00066 | RLI Insurance sues Nexus Services for breaching an indemnity agreement on immigration bonds. RLI claims Nexus failed to reimburse claims, provide financial records, and offer collateral, putting RLI at risk. RLI seeks a court order for Nexus to fulfill its obligations and protect RLI's financial interests. |

**Human Analysis:**

**Example:**

|  |  |  |
| --- | --- | --- |
| # Unique Evidence Type | # Unique Evidence Value Frequency | # Evidence Value Frequency |
| <person Name>  <Location Data>  Sum = 2 | Omar  Omar  Xu  Sum =2 | Omar  Omar  Xu  Sum =3 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Case ID | name | Description | # Unique Evidence Type | | # Unique Text Evidence Frequency | # Totals of | |
|  |  |  | Entity | Relation | Entity | Entity | Relation |
| 1 | JasonGoodman121-CV-10878 | Defamation and Business Interference | 10 | 7 | 36 | 103 | 32 |
| 2 | JohnDoeVDamien217-CV-00234 | Cyber Stalking and Privacy Invasion. | 12 | 11 | 48 | 115 | 47 |
| 3 | LisaLiberi811-CV-00485 | Harassment and Identity Theft | 10 | 11 | 176 | 546 | 170 |
| 4 | RachelDepalma522-CV-00091 | Defamation and Smear Campaign | 11 | 11 | 82 | 203 | 81 |
| 5 | RLIInsurance518-CV-00066 | Breach of Indemnity Agreement | 5 | 9 | 29 | 77 | 24 |



**GPT Prompt**

Claim\_extraction : default

Community\_extraction :default

Summarize\_description : default

Entity\_extraction :

{

Goal

Given a legal document that may be relevant to this activity, identify all evidence entities and their relationships, focusing on specified legal artifacts and connections.

Steps

1. Identify All Evidence Entities (Nodes)

Begin by identifying all distinct entities, which will serve as nodes in the relationship network. \*\*Only the following categories of entities may be selected as nodes\*\*—no other categories are permitted:

- Person Name

- Organization/Company Name

- Date

- URL

- App/Website Name

- Account Name

- File Name

- Phrase

- Location Data

- IP Address

- Phone Number

- Law/Contract Name

- Email Address

- Currency

- Video Name

- Role

For each identified entity, extract the following details:

- entity\_type: Type of the entity, selected strictly from the categories listed above

- entity\_name: Name or description of the entity

Format each entity as follows: ("entity"{tuple\_delimiter}<entity\_type>{tuple\_delimiter}<entity\_name>)

2. Identify All Pairs of Related Entities (Relationships)

Using \*\*only the entities (nodes) identified in Step 1\*\* as source and target nodes, determine all pairs of entities that exhibit a clear relationship. \*\*Relationships may only be selected from the specific types listed below\*\*—no additional types are permitted:

- Owns [URL, App/Website Name, Organization/Company Name, IP Address, Phone Number, Video Name, etc.]

- Launched After [Date]

- Registered On [App/Website Name, Date, etc.]

- Acts on [Date]

- Comments on/Says [Phrase]

- Lives in [Location Data]

- Posts [Phrase]

- Registers [Account Name, Organization/Company Name, Email Address, etc.]

- Deleted [Website Name, URL, etc.]

- Works with [Organization/Company Name, Person Name, etc.]

- Obliged to do [Law/Contract Name]

- Violates [Law/Contract Name]

- Signed [Law/Contract Name]

- Regulates [Law/Contract Name]

- Administers [Law/Contract Name]

- Communicated with [Person Name, Organization/Company Name, Email Address, etc.]

- Is [Person Name]

For each related pair, extract the following information:

- source\_entity: Name of the source entity, as identified in step 1

- target\_entity: Name of the target entity, as identified in step 1

- relationship\_type: Type of the relationship, strictly chosen from the list above

- relationship\_strength: Numeric score (1-10) representing the strength of the relationship

Format each relationship as follows: ("relationship"{tuple\_delimiter}<source\_entity>{tuple\_delimiter}<target\_entity>{tuple\_delimiter}<relationship\_type>{tuple\_delimiter}<relationship\_strength>)

3. Apply Filtering Criteria

- If no relationship is identified between any nodes in a paragraph, discard all entities within that paragraph.

- If at least one relationship is found, retain all nodes within the paragraph.

4. Return Output

Output a single list of all entities (nodes) and relationships identified across steps 1, 2, and 3, using \*\*{record\_delimiter}\*\* as the list delimiter.

5. Completion

At completion, output {completion\_delimiter}.

Real Data

- Entity\_types: {entity\_types}

- Text: {input\_text}

} -----------------------------------------------------------------END OF PROMPT

**Trial 1 :**

Model : gpt-4o

Everything else default graphrRAG.yaml file

Different ChatGPT version/temperature/default

Can Chatchpt constructure the graph?

Input: plaintext, untagged, only paragraphs contain evidence/relation

Design prompt: show entity and relation

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Truth | | Generated | | |  |  |  |
|  | Entity | Relation | Match Entity | Extra Entity | Missing Entity | Match Relation | Extra Relation | Missing Relation |
| Case 1 | 10 | 7 |  |  |  |  |  |  |
| Case 2 | 12 | 11 |  |  |  |  |  |  |
| Case 3 | 10 | 11 |  |  |  |  |  |  |
| Case 4 | 11 | 11 |  |  |  |  |  |  |
| Case 5 | 5 | 9 |  |  |  |  |  |  |

Input: plaintext, untagged, only paragraphs contain evidence/relation

Design prompt: show contains of type of entity and relations

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Truth | | Generated | | |  |  |  |
|  | Entity | Relation | Match Entity | Extra Entity | Missing Entity |  |  |  |
| Case 1 | 15 | 10 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Input: plaintext, untagged, only paragraphs contain evidence/relation

Design prompt: show (1) contains of type of entity and relations (2) one example of tagged paragraph

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Truth | | Generated | | |  |  |  |
|  | Entity | Relation | Match Entity | Extra Entity | Missing Entity |  |  |  |
| Case 1 | 15 | 10 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Different ChatGPT version/temperature