

RUFES 2020 Annotation Guidelines (Draft)

Change logs:

- 2020.10.16: First draft (distributed to annotators)
- 2020.12.14: Second draft (improved based on annotation feedback and added annotation output for the sample news article; distributed to participants)

1. Introduction

RUFES (**R**ecognizing **U**ltra **F**ine-grained **E**ntities) is a continuation of Entity Discover and Linking (EDL) tasks, with focus on fine-grained (broader and deeper) entity types. While these annotation guidelines are developed primarily for NIST annotators with limited linguistic background, participants are encouraged to study them in conjunction with task specifications to ensure new features and requirements are implemented.

A sample Washington Post article is included in this document and references will be made to it for illustration. A table showing annotation output for this sample document can be found in Appendix II.

1.1 Annotation Objective

An EDL system under RUFES automatically detects entity mentions in a news article that refer to entities as defined in the ontology, assigns one or more entity types that can be determined from the context, and links mentions that refer to the same entity within the document. Annotators will perform the same task to create a gold reference on which system output can be evaluated for performance. Annotators must strive to achieve the highest possible accuracy. For quality assurance, a second pass will be performed on each document by a different annotator.

1.2 Basic Concepts

- **Entity** – a physical object or a conceptual reality that exists in some universe (typically the real world in which we live).
- **Word** (for written English) – a meaningful sequence of letters between two spaces or between a space and a punctuation.
- **Phrase** – a group of words (sometimes just one word) that function as a grammatical unit in a sentence (such as the subject, object, etc.).
- **Head** – the word in a phrase that determines the syntactic category of the phrase. For a noun phrase, the head is typically a noun.
- **Mention** – a noun phrase in a sentence that refers to an entity.
- **Reference** – a relationship between two objects such that one (in our case “mention”) designates the other (in our case “entity”).
- **Coreference/Linking** – a relationship between two or more mentions such that they refer to the same entity.
- **Ontology** – a model that organizes structured and unstructured information through entities, their properties, and the way they relate to one another.

What mentions refer to what entities in the first two paragraphs of the sample news article? Is there coreference?

- As James Comey takes over as the new FBI director, the American Civil Liberties Union is calling on the Obama administration and Congress to rein in the increasing power of the agency.

In a critical 63-page report that will be issued Tuesday, the ACLU says the powers of the FBI have expanded too dramatically over the past 12 years, transforming the Bureau into a "secret domestic intelligence agency."

1.3 Referentiality and Taggability

We describe reference as a relationship between a mention and an entity such that the mention denotes the entity in some way. Mentions are noun phrases (NP). But not all noun phrases are referential. Consider the following two sentences:

- Barack Obama is a former US president.
- Barack Obama was the 44th US president.

The noun phrase "a former US president" in the first sentence is an example of what is known as "predicational NP". It does not refer to a specific former president. Instead it ascribes some property to the individual that the subject NP "Barack Obama" refers to, namely, he was a US president at some point in the past. By contrast, the NP "the 44th US president" in the second sentence (known as specificational NP) refers to a specific president in the US history. The difference is amplified by reversing the order:

- ? A former US president is Barack Obama.
- The 44th US president was Barack Obama.

We reserve the notion of mention as a noun phrase that is referential (even though we may use mentions and noun phrases interchangeably). We only annotate entity mentions. While we do not tag non-referential NPs, they are helpful in determining the kind of entity a mention refers to, for example, Barack Obama being a former US president allows us to assign PER.Politician.HeadOfGovernment to the mention "Barack Obama".

There is a non-referential NP in the second paragraph of our sample article. Can you identify it?

Philosophers and linguists also recognize different kinds of reference. Mentions such as "James Comey", the FBI director, the ACLU, the Congress all refer to specific entities. Specific reference can be singular (such as the examples just shown) or plural (e.g., "these two lawmakers"). It can be definite (all examples mentioned in this paragraph so far), or indefinite ("A lawmaker stormed out of the room", "Two lawmakers are opposed to the bill", etc.).

Reference can also be generic – a mention makes a generic reference when it refers to a class of entities or any member of the class:

- Tigers are mammals.
- A tiger is a mammal.
- The tiger is a mammal.

While we do not make distinctions, knowing them will be helpful in understanding and performing the task, especially when annotating coreference.

Most previous entity detection tasks only focus on specific individual references. This limitation is no longer sufficient as we expand and deepen the ontology. For example, two airplane accidents involving the Boeing 737 Max led to the grounding of all 737 planes in service and an investigation into the series that has lasted more than a year. We will encounter both specific and generic references when reading news articles on this topic. If we only tag mentions referring to the failed airplanes, we will miss out a large amount of information. Or consider COVID 19. We cannot really single out a specific coronavirus protein responsible for someone's illness or death. Therefore, we will annotate all kinds of mentions including specific, generic, indefinite, etc. Being referential is the only criterion that makes an NP taggable.

2. Mention Types and Mention Extent Selection

We distinguish between three types of mentions – named mention, nominal mention, and pronominal mention. As we define and illustrate each mention type below, we will also show where the boundaries (the beginning and end) should be for each mention type. It is very crucial to select the correct boundaries.

2.1 Named Mention (NAM)

A named mention (NAM) is a noun phrase whose head is a proper name, or any of its variants such as acronym, nickname, abbreviation, alias, etc. that refers to an entity. In the above example, *James Comey*, *the FBI*, *the American Civil Liberties Union*, *the ACLU*, *Obama*, and *Congress* are all NAMs.

The taggable extent of a named mention is the entire proper name excluding any determiner (with exceptions – see below), or any modifier that appears before or after the proper name (premodifier or postmodifier) that is not an integral part of the name.

- the FBI -> the [FBI], ~~{the FBI}~~
- James Comey -> [James Comey], ~~{James} {Comey}~~
- the ACLU 's Washington Legislative Office -> the [ACLU] 's [Washington Legislative Office]

The second example shows that we should decompose a named mention even if each of the component is a proper noun by itself. In the third example, there are two entities referenced, the parent organization “ACLU” and one of its subordinate organizations, “Washington Legislative Office”.

Personal names may have titles, professional credentials, etc. They are not integral components of personal names and thus must be excluded from the mention extent:

- President [Obama]
- Dr. [Anthony Fauci]
- [Jane Doe], M.D.

Sometimes a determiner is an integral part of the name, for example, *The* in *The Limited* (a clothing company that is no longer in business) or in *The Hague* (a European city). In such special cases, the determiner must be included in the mention selection.

Note to BOTH participants and annotators: in terms of mention boundaries, mention nesting is not allowed, meaning a mention cannot be tagged inside another mention extent.

- the ACLU 's Washington Legislative Office -> ~~{the [ACLU] 's Washington Legislative Office}, {the [ACLU] 's [Washington] Legislative Office}, the [ACLU] 's [[Washington] Legislative Office}~~

Just as we cannot separate a given name from a surname and treat them as two mentions, we must not decompose a full name for other kinds of entity mentions either. For example, in *University of Maryland*, we do not have a separate mention of *Maryland*:

- the University of Maryland -> the [University of Maryland], ~~the [University of [Maryland]], the [University] of [Maryland]~~
- the United States Department of State -> the [United States Department of State], ~~the [[United States] Department of State], the [United States] [Department of State]~~

But

- the University of Maryland at College Park -> the [University of Maryland] at [College Park]

Also, compare the following examples:

- the Chinese Foreign Ministry -> the [Chinese Foreign Ministry]
- China's Foreign Ministry -> [China]'s [Foreign Ministry]

Note to annotators: the text displayed by the annotation tool does not look the same as you would normally read the article online or on paper. The text has been tokenized such that (among other things) punctuations are usually separated with a space from the neighboring words. For example, a name such as *O'Brien* would be rendered as O ' Brien. Your selection must include all the tokens in its extent, including punctuations that are part of a name: [O ' Brien], the [U.S.]. However tokenization keeps a sequence of punctuations as a single string, for example "U . S .- war". In such cases, do not include the punctuation cluster at the end of the mention.

Generational suffixes

Some people may have a generational suffix such Jr., Sr, II, etc. in their names when they share the same given name with a parent or a grandparent. These generational suffixes are an integral part of their names and must be included in the mention selection.

- Donald Trump Jr. -> [Donald Trump Jr.], ~~[Donald Trump] Jr.~~

Certain adjectives

In English, certain proper nouns such as those referring to countries, cities, sometimes mountains, etc. have adjectival forms, for example, *America vs American, China vs Chinese, Himalayas vs Himalayan*, and so on. These adjectives are taggable and will be treated as NAM.

- the [U.S.] [Ambassador] to [Japan]
- the [Chinese] [Ambassador] to [Japan]
- an [American] hero

- [Russian] - made

2.2 Nominal Mention (NOM)

A nominal mention is a noun phrase (typically) with a common noun head. In the first paragraph of our sample article, there are two nominal mentions: *the new FBI director* and *the Obama administration*.

2.2.1 Extent Selection

For nominal mentions, only the head of the noun phrase is selected to represent the mention.

- In its [report], the ACLU asks Congress, the [president] and the [attorney] general to conduct a comprehensive evaluation of the FBI's policies and programs, and makes 15 recommendations for reform of the agency.

We previously mentioned that a tagged mention cannot be imbedded within another tagged mention. However, because we only select the head of a NOM, taggable mentions within the boundaries of the full nominal mention extent can and must be annotated.

- the new FBI director -> the new [FBI]_{NAM} [director]_{NOM}
- the Obama administration -> the [Obama]_{NAM} [administration]_{NOM}

But the head of a nominal mention is not always as easily determined as shown in the above examples. Sometimes, the head is not even a common noun. Below we will explore some complicated patterns.

2.2.2 Compound Nouns

There are three written styles of compounds in English:

- Closed (solid) compounds: *marketplace, supermarket, cowboy, firefighter*
- Hyphenated compounds: *editor-in-chief, court-martial, hunter-gatherer, bar-restaurant*
- Open compounds: *vice president, assistant professor, attending nurse, chief justice, attorney general, editor in chief*

A closed compound noun is always treated as one word. For both open and hyphenated compound nouns, only the head of the compound head is selected even though some hyphenated compounds may be written as open compounds (e.g. "editor-in-chief" and "editor in chief"). In the annotation tool, tokenization separates the hyphen from the surrounding words, making it possible to select the head only.

Note that while most compound heads in English are the right side (right-headed), some may be left sided (with modifiers on the right side), for example, "attorney general", "editor in chief". Here "attorney" and "editor" should be selected as the head.

Yet in some non-closed compound nouns such as "hunter-gatherer" and "bar-restaurant" above, neither component word seems to carry more weight. For simplicity, the last word of such compounds is treated as the head. In general, we select the last word of a hyphenated or open compound as the head except for head-initial compounds.

2.2.3 Nominalized Adjective

Some adjectives can be used directly as the head of a noun phrase, for example, *the rich*, *the poor*, etc. In such cases, we select the adjective as the mention head.

2.2.4 Numbers

Numbers can function as the head of an NP when the “missing” noun appears in a previous clause or sentence:

- There were five [survivors]; [two] were children.

They can also be used as the head in a partial-whole construction:

- [Two] of the five [survivors] were children.

Note the above example has two mentions, one with a number as the head and one with a common noun as the head.

2.2.5 “Missing Noun” after a Possessive NP

When a head noun follows a possessive noun phrase, for example, “car” as in “John’s car”, it may be omitted when the noun appears in a previous phrase/clause/sentence. In this case, we select “s” as the mention head:

- John ’ s [car] is black; his wife ’ [s] is red.

If the possessive NP is a plural that ends in “s”, the apostrophe is selected as the mention head.

- John ’ s house is next to his kids [’].

2.2.6 Prop-word/Pro-noun

In English, the word *one* and its plural form *ones* can be used instead of a noun given the right context, for example, *the green one*, *the poor ones*, *the one you picked out*, etc. We select the pro-noun as the mention head. Note the difference between prop-words/pro-nouns and pronouns. The word *one* can be used as a pronoun as well, as in “One should not steal”. But pro-nouns can have premodifiers and determines just like common nouns. Pronouns on the other hand do not usually take premodifiers. We might be careful to determine the correct mention type.

2.2.7 Proper Noun as Nominal Mention Head

Traditionally boats and ships have names. Although some people (almost 25% of Americans according to a survey) also give nicknames to their cars, this information is rarely available to the public. Often automobiles are referred to by their make and/or model name in addition to common nouns such as car, pickup, etc.:

- Austin said the initial investigation has determined that a 2011 GMC Canyon pick-up [truck], operated by a 63-year-old Havertown, PA man, was traveling I-495 northbound in the right lane, just north of Philadelphia Pike. A 2015 Infiniti [GX60], operated by a 20-year-old, Philadelphia woman, was following directly behind the [GMC] and a 2002 Ford [Explorer], operated by a 39-year-old Wilmington man, was directly behind the [Infiniti]. All three vehicles were slowing in traffic due to a temporary lane closure which was further to the north.

These mentions look exactly like nominal mentions and will be treated as nominal mentions even though they are headed by a proper noun. We reserve model names as NAM only when it refers to the product line. This practice will also apply to other manufactured commercial and consumer products such as airplanes, personal electronics, etc. as well as weapons.

Note a passenger airplane may also be referenced by a flight number even though different airplanes may be flown on different days for the same flight number (or the same airplane may assume different flight numbers). We currently do not have flights in the ontology. But if an airplane is referenced by the flight number, the flight number (for example, the ill-fated MH370) will be treated as NAM for the airplane.

2.2.8 Bare Noun as Modifier, in Idiomatic Expressions, etc.

A bare noun that modifies another noun or appears in some idiomatic expressions are not noun phrases and should NOT be tagged:

- car manufacturers, furniture maker...
- go to school, in hospital...

2.3 Pronominal Mention (PRO)

A pronominal mention is a noun phrase consisting of a pronoun. Pronouns can be anaphoric (referring to an antecedent or postcedent, that is, an NP that appears before or after the pronoun) or deictic (referring to someone or something in the immediate physical context of the speaker).

- John walked inside. He is Mary's brother.
- (*Speaker pointing to John*) He is Mary's brother.

Regardless of whether a pronoun is anaphoric or deictic, the interpretation of the pronoun is context dependent. So, whether a pronoun should be annotated depends on the entity it refers to, anaphorically or deictically.

Caution: the notion of parts of speech is syntactic, that is, parts of speech categorize words according to how they are used in a sentence. Many words can have different parts of speech and a dictionary may list multiple parts of speech for a word. For example, the word *those* can be a demonstrative pronoun or a determiner. It is taggable only when it is used as a pronoun.

- Those [people] [whose] names are on the list will go to camp.
- [Those] [whose] names are on the list will go to camp.

In the first sentence above, *those* is a determiner (some grammarians call it “demonstrative adjective”) and is not taggable. We would be tagging the noun *people*, the head of the subject NP. But it is taggable in the second sentence because it is used as a pronoun (with a relative clause modifying it). Similarly, words such as “this”, “that” and “some” as in *this person*, *that building*, and *some lawmakers* are determiners, which are not taggable.

While we will a list of taggable pronouns and a list of non-taggable pronouns below, it should be understood the taggability is determined by how they are used, not by the forms they appear.

2.3.1 Taggable pronouns

Here is a list of taggable English pronouns.

- Personal pronouns
 - Subjective: *I, we, you, he, she, they, it*
 - Objective: *me, us, you, him, her, them, it*
 - Possessive
 - Possessive determiners: *my, our, your, his, her, their, its*
 - Possessive pronouns: *mine, ours, yours, his, hers, theirs, its*
- Demonstrative pronouns: *this, that, these, those*
- Reflexive pronouns: *myself, ourselves, yourself, yourselves, himself, herself, themselves, itself, oneself*
- Reciprocal pronouns: *each other, one another* (both words are selected as the head)
- Positive indefinite pronouns: *all, some, one, many, everything, everybody*
- Relative pronouns: *who, whom, whose, which, that, whoever, whomever*
- Relative adverb: *where*

The last entry on the list is not technically a pronoun, but when it is used, it means the same as “preposition + which”:

- This is the city where I grew up.
- This is the city in which I grew up.

Since we have several entity types with a location aspect, it makes a sense to treat as a taggable “pronoun” when the antecedent is taggable.

As with nominal mentions, a relative pronoun is not taggable if the antecedent is nonreferential:

- I have a new doctor, [who] is very patient.
- I bought a book last week, [which] I haven't read.
- My sister has a very patient doctor, ~~[which]~~ my doctor isn't.

2.3.2 Non-tagable pronouns

Here is a list of some pronouns that are usually non-referential.

- Interrogative pronouns (used in questions): *who, whom, whose, what, which*
- Negative indefinite pronouns: *none, neither, nobody, nothing*

2.3.3 Extent of pronominal mentions

The extent to be selected for a taggable pronominal mention is simply the pronoun itself. Pronouns usually don't take premodifiers, though some (usually for generic reference) may have a relative clause as a postmodifier, which will not be included in the extent selection.

- [He] [who] can no longer pause to wonder and stand rapt in awe is as good as dead.
- [Those] [who] do not complain are never pitied.

2.4 Appositives

An appositive is a noun phrase following another noun phrase to provide more information about the first noun phrase:

- My sister, Alice Smith, likes jellybeans.
- Alice Smith, my sister, likes jellybeans.
- My sister, a doctor, likes jellybeans.

Apposition is similar to the “A is B” sentence structure. Assuming the first noun phrase is a taggable mention, whether the appositive is also taggable depends on its referentiality. In our third example above, “a doctor”, a predicational NP, ascribes a property to the entity referred by “my sister” and is thus not taggable. A simple test is to exchange the position:

- ?A doctor, my sister, likes jellybeans.

However, the distinction between specification and predication is not always clear. You should use your best judgement when it is vague and try to be consistent in your annotation.

2.5 Titles (and False Titles)

A title is a noun phrase placed before (or sometimes after) a personal name to signify their social rank, qualification, etc. Content words in a title are usually capitalized.

- Mr., Mrs., Miss...
- Senator, Congressman, President, Secretary, Ambassador...
- Professor, Doctor...

Titles are **NOT** taggable for RUFES2020.

(Note though, the name of a congressman or congresswoman often has the party affiliation and/or the state they represent in parentheses after their name, for example, *Senator John McCain (R-AZ)*. Both *R* and *AZ* are taggable.)

There is this notion of “false titles” that is widely used in (American) journalist writings. They look like titles (e.g., without a determiner) but the meaning is more like a preposed appositive:

- cellist Yo-Yo Ma
- famed New Left philosopher Herbert Marcuse
- convicted bomber Timothy McVeigh

We will treat them the same way as we do with appositives and so, only those that are referential (specificational) are taggable. In the above three examples, only “famed New Left philosopher” in the second example appears specificational.

2.6 Conjoined Mentions

When two or more mentions are conjoined, they must be selected separately:

- Boeing and Lockheed Martin -> [Boeing] and [Lockheed Martin]

Mention selection must be continuous. We cannot skip a word and select two discontinuous words to form a single mention.

- Barack and Michelle Obama -> [Barack] and [Michelle Obama]

In this case, we can only select *Barack* as a mention referring to the former president.

The opposite also holds true – we cannot break a word and select a portion of it as a mention:

- Obamacare -> ~~[Obama]care~~

(Fortunately, the annotation tool does not allow us to perform either action. In fact, we cannot rearrange the text at all in the tool. You may see mark-ups added to the text on the screen while annotation progresses, but the underlying text itself is not changed. Note also if there is any “error”, be it a grammatical error, a typo, etc., intentional or unintentional, we must accept the “error” as is.)

Although conjoined mentions function as a single grammatical unit such as the subject or object of the sentence, we do not create another mention for the entire conjunction.

- Boeing and Lockheed Martin -> ~~[[Boeing] and [Lockheed Martin]]~~
- Barack and Michelle Obama -> ~~[[Barack] and [Michelle Obama]]~~

Because of this, coreference cannot be established between the conjunction and a pronominal (or nominal) mention that refers to the conjoined set of entities:

- [US] and [China] have been engaged in a trade war. The two [countries] have raised tariffs on [each other]’s exports.

We will tag *US* and *China* as two separate mentions, but we do not create a third mention of [US and China] to refer to both countries. Note the nominal and pronominal mentions in the second sentence of the paragraph. While both are taggable mentions by themselves and in fact they co-refer, they are not linkable either *US* or *China*. Therefore, they should have a separate entity ID (e.g., “US & China”).

The following is an example from the sample news article with two conjoined nominal mentions:

- The ACLU report lists examples of the FBI conducting surveillance on [protesters] and religious [groups] with “aggressive tactics that infringe on [their] free speech, religion and associational rights.”

Assigning the entity type to the pronominal mention may be tricky if the individual mentions of the conjunction are not of the same entity type. We will pick up the topic in the section of entity types below.

3. Assigning Entity Types

Our mind perceives the world structurally, and so part of an ontology is to categorize entities in a hierarchical structure. For example, there are cars (big or small), vans, SUV’s, trucks, etc., all of which are propelled by a motor and do not run rails. So, we group them as motor vehicles. Then there are all kinds of trains that run on rails. So, we say they are railed vehicles. We also have bicycles, tricycles, scooters, and they are powered by our own muscle. We call them human powered vehicles. All motor vehicles, trains and human powered vehicles run on wheels. So, together we call them wheeled vehicles. Wheeled vehicles, along with boats, ships, etc. that run in water (which we call watercrafts), and airplanes and helicopters that fly in the air (which we call aircrafts), are used to transport people or cargo. We simply call them vehicles.

That is how we categorize entities – based on their commonalities and by levels. Previous entity detection tasks mainly focused on top level entity types. Those “coarse” entity types have become less

and less sufficient for entity detection and other entity related technologies. So, entity detection is moving onto more and more refined entity types.

The RUFES 2020 ontology organizes entity types into three levels. In our vehicle example, vehicle is a level 1 entity type, wheeled vehicle is a level 2 entity type, and railed vehicle is at level 3.

RUFES2020 has a total of 266 entity types, 14 at the very top, 80 at the second level, and 172 at the third, ultra-fined level. For a complete list of entity types under RUFES, refer to Appendix III or the accompanying ontology spreadsheet.

We only tag a mention if the entity it refers belongs to one of the entity types in the ontology. There are two closely related restrictions when we decide what entity type label(s) to assign for an entity mention: context and usage.

3.1 Scope of Context

Entities may fall into different categories depending on the context. For this task, the context is defined as the paragraph in which the entity mention appears. We should only assign entity type(s) as can be determined from the paragraph. We do not “inherit” entity types that are assigned to mentions of the entity that appear in previous paragraphs, nor do we read beyond the current paragraph to find entity types applicable to later mentions that refer to the same entity. Avoid using information external to the news article to determine entity types except when you encounter an unfamiliar entity that you may need confirmation, for example, an unfamiliar location in a foreign country that you are not sure if it is a GPE or a LOC.

Consider the opening paragraph from a news report about Amy Coney Barrett’s Supreme Court Justice nomination hearings below:

- Senate Republicans moved swiftly Thursday toward confirming Supreme Court nominee [Amy Coney Barrett] before the Nov. 3 elections, as the hearings for President Trump’s third pick to the court concluded with her emerging largely unscathed.

What entity type should we assign to the mention “Amy Coney Barrett”? We might be tempted to tag it as PER.CivilServant.Judge since we already know, based on recent news reports, she has been a circuit judge since 2017. But the paragraph itself does not mention this information. If you are familiar with qualifications of a Supreme Court Justice nominee, being a current or even a lawyer is not one of them. Therefore, we should only label it as PER in this context (if we had some kind of Nominee as an entity type, that would be a more appropriate label).

If we keep on reading, in a later paragraph, we see a mention of her as “Judge Barrett”. So in this paragraph, PER.CivilServant.Judge should be assigned.

- “Judge [Barrett] as Justice [Barrett] may well cast the deciding vote to overturn the Affordable Care Act, with potentially disastrous consequences for a majority of Americans,” Sen. Christopher A. Coons (D-Del.) said Thursday.

A common mistake when annotating familiar entities is to assign entity types that we are familiar with in the real world but are not supported by the current paragraph or even the entire news article. For example, in a 2016 news article, Donald Trump should not be tagged as PER.Politician.HeadOfGovernment. It may be tagged as PER.Executive.BusinessExecutive or PER.Politician depending on the information available in the specific news article.

3.2 Tag for Usage/Meaning

While context defines the scope where we look for evidence to determine the entity type of a mention, the actual entity that entity is intended to refer to is what we should label. We shall call this the “tag for usage” or “tag for meaning” rule. In most cases, the entity a mention refers to is the one we tend to associate with in our mind. But that is not always the case.

A very common figure of speech in journalist writings is metonymy, where another name closely associated with the entity is used instead of its official name, for example, the *Pentagon* referring to the US military, the *White House* referring to the US government executive branch, etc. In such cases, the entity type we assign to the mention is determined by the intended entity being referred to. For example, in “The White House just announced ...”, we should label the *White House* as ORG.Government.Administration. On the other hand, in a sentence such as “The White House is currently not open to visitors”, we should assign FAC.Building.GovernmentBuilding to the *White House*.

Other common examples of metonymy include the capital city’s name referring to the country’s or state’s government, a city name referring to its sports team(s), etc.

Facilities are operated by organizations and more than often the same name may be used for both kinds of entities. For example, *McDonald's* may refer to the corporation (as in “McDonald's supports raising longtime \$7.25 floor”), which is ORG.CommercialOrganization, or one of its restaurants around the corner (as in “Jonny bought a kid’s meal at McDonald’s”), which is FAC.Building.StoreShop (we currently do not have restaurant as an entity type).

Sometimes, a generic reference to people is intended to refer to their organization or their country, for example, the *Democrats* referring to the *Democratic Party* (as in “The Democrats won the House”), or the *Americans* referring to the *United States* (as in “The Americans declared war on the Japanese on December 8, 1941”).

Can you identify any metonymy in the following paragraph? How should we tag the pronoun “they” in the second sentence?

- If Republican Dan Sullivan holds his lead in the Alaska Senate race and Cassidy wins, Republicans will have gained nine Senate seats. They needed six to win the majority.

3.3 Multiple Entity Types

A mention may be assigned more than one entity type:

- President [Donald Trump] arrived at Walter Reed Medical Center in Bethesda, Maryland, Friday evening after experiencing a low-grade fever, chills, nasal congestion and cough.

From the title “President”, we know Donald Trump is the US president. We will label it as PER.Politician.HeadOfGovernment. He was taken to a hospital for treatment of COVID 19 infection. As it happens, we also have Patient as an entity type. Therefore, we must assign PER.SituaiionRole.Patient to the mention “Donald Trump” in addition to PER.Politician.HeadOfGovernment.

Another scenario where an entity mention may be assigned more than one entity type is when a pronoun refers to a conjoined antecedent with two (or more) mentions that refer to entities of types. We had such an example in section 2.4.

- The ACLU report lists examples of the FBI conducting surveillance on [protesters]_{PER} and religious [groups]_{ORG} with “aggressive tactics that infringe on [their]_{PER,ORG} free speech, religion and associational rights.”

Here the pronoun *their*, via the mentions of *protesters* and *groups*, refers to entities of both PER and ORG. What entity type should we assign to the pronominal mention? For simplicity, the set of entity types for the pronominal mention with a conjoined antecedent is the union of all entity types applicable to the conjoined mentions.

The same rule will apply to some nominal mentions, for example, *couple* as in “John is a lawyer; Mary is a doctor. The couple met in college.”.

Since the context for determining the entity type of a mention is the whole paragraph where the mention occurs, the more sentences the paragraph contains, the more likely a mention may be assigned more than one entity type.

3.4 Levels of Entity Types

In the RUFES ontology hierarchy, every top-level entity type has child entity types, though some level 2 entity types do not have level 3 child types.

It should be noted that each list of child entity types (level 2 and level 3) under a given parent is non-exhaustive, meaning there are sister level 2 or sister level 3 entity types that our current ontology does not include.

That does not mean we only annotate mentions referring to entities that fall into one of the terminal entity types. For example, the US vice president is an elected official, but there is no such entity type under PER.Politician. In this case, we should select PER.Politician as the entity type. Likewise, if a news article talks about immigration and mentions an immigrant called Jane Doe without any further information about her, we simply label Jane Doe as PER.

In the ontology spreadsheet, you will notice that for each parent type, there is an empty cell after that parent at the top of its child type column. That empty cell should be interpreted as “everything else” under that parent type. This is reflected in the in the annotation tool by an empty line at the top of every child entity type drop down list. So, if you do not make a choice from the list and leave it blank instead, the parent type is applied.

The only exception is SituationalRole under PER. SituationalRole is a special entity type. All the entity types under it are specific to a situation or event. The 6 entity types, Patient, Protester, Survivor, Suspect, Victim and Voter are the only child types supported under SituationalRole. This is reflected by

the missing empty cell after PER.SituationalRole. However, due to the design, the annotation tool displays still has a blank line on top of the 6 entity types. Be sure NOT to select this empty line.

4. Coreference – Entity Linking

In addition to mention detection and entity type assignment, we must also link all the mentions referring to the same entity within the document. This is done by associating all the mentions of that entity to an “entity name” (formally known as an “entity ID”) that must be unique for that entity in the document being annotated. There is a cell on the tool where you can either select an existing “entity name” you have already entered or enter a new one. You must do so for every mention you select, or the tool will not allow you to continue.

Typically, you should use a named mention as the entity name wherever possible (the annotation tool has a copy button to let you paste the mention form over). For personal names, you would use the full name as the entity name. For longer organization names, an acronym or an abbreviation would be a better choice (the viewable cell is at a fixed length and may not display a long name completely on the screen). For entities with nominal mentions only, you may want to add a descriptive word to the mention head, especially if the news article contains several similar entities referred to by the same noun head but with different modifiers or in different paragraphs. Even for entities with named mentions, you may run into a situation where the same form is used for different entities. For example, if the news article mentions McDonald’s as restaurants in different locations, then it is better to use *McDonald’s at Tyson*, *McDonalds in Silver Spring*, etc. since they refer to different FAC entities. If McDonald’s also refers to the corporation in another context, use *McDonalds_Company* as the company’s entity name. These are just some general principles, but you can choose whatever form you like as long as it is easy for you to recognize.

You can change an entity name that you have already entered, but the tool does not allow you to delete an existing entity name. While unused entity names have no effect on the annotation quality, it can be annoying when the list has grown too long. Also, if you do change an entity name, you must go back to re-associate it with other mentions of the entity. Do not change an entity name simply because there is an extra space. You may be very confused if for example, “Barack Obama” and “Barack Obama” are both in the list. So try not to make too many changes.

Bear in mind that pronominal mentions in written language rarely refer to entities directly (deictically) unless they appear in a direct quote. You should look for their antecedent or postcedent for linking. Avoid using a pronoun as an entity name even if it refers to something in general. For example *you* as in “You shall not steal” refers to generic people. So, it is better to use something like “people generic” as the entity name instead of “you”.

In the event when a reporter puts themselves in the news article by using the first person pronoun “I” (or “we”) but nowhere in the article is the reporter’s name mentioned, use “article_reporter” as the entity name.

Be careful about non-specific references. Two mentions that look the same or similar may not refer to the same set of entities. So, to distinguish between different entities, some descriptive words should be added to the entity name.

5. Complete List of Entity Types, Definitions and Examples

(Refer to the ontology spreadsheet)

Appendix I: Sample Document

ACLU calls on Obama, Congress to rein in power of the FBI

Monday, September 16, 2013 20:01:18 GMT-05:00

As James Comey takes over as the new FBI director, the American Civil Liberties Union is calling on the Obama administration and Congress to rein in the increasing power of the agency.

In a critical 63-page report that will be issued Tuesday, the ACLU says the powers of the FBI have expanded too dramatically over the past 12 years, transforming the Bureau into a “secret domestic intelligence agency.”

“The excessive secrecy with which it cloaks these domestic intelligence gathering operations has crippled constitutional oversight mechanisms,” the report says. “Courts have been reticent to challenge government secrecy demands and, despite years of debate in Congress . . . it took unauthorized leaks by a whistleblower to finally reveal the government’s secret interpretation of these laws and the Orwellian scope of its domestic surveillance programs.”

The ACLU report, entitled “Unleashed and Unaccountable: The FBI’s Unchecked Abuse of Authority,” compiles examples of the changes of law and policy since the Sept. 11, 2001, attacks on the United States, which the group says “unleashed the FBI from its traditional restraints and opened the door to abuse.”

A spokesman for the FBI said he could not comment on the report because FBI officials had not yet seen it.

The changes highlighted in the report include the FBI’s racial and ethnic mapping program, which allows the FBI to collect demographic information to map American communities by race and ethnicity; the use of secret National Security Letters, which asked for account information from telecommunications companies, financial institutions and credit agencies and required no judicial approval; warrantless wiretapping; and the recent revelations about the government’s use of Section 215 of the Patriot Act to track all U.S. telephone calls.

In its report, the ACLU asks Congress, the president and the attorney general to conduct a comprehensive evaluation of the FBI’s policies and programs, and makes 15 recommendations for reform of the agency.

“The list of abuses is long and demonstrates that Congress must do a top-to-bottom review of FBI politics and practices to identify and curtail any activities that are unconstitutional or easily misused,” said Hina Shamsi, director of the ACLU’s National Security Project. “The time for wholesale reform has come.”

The ACLU report lists examples of the FBI conducting surveillance on protesters and religious groups with “aggressive tactics that infringe on their free speech, religion and associational rights.”

The FBI's increased intelligence collection powers have led to a data explosion that agents cannot keep up with, making it harder for the agency to focus on suspects and groups that should be investigated, the ACLU concluded in its report.

"Rather than aiding its terrorism prevention efforts, the FBI's expanded investigative and intelligence powers have overwhelmed agents with a flood of irrelevant information and false alarms," said Michael German, senior policy counsel at the ACLU's Washington Legislative Office and a former FBI agent.

As an example, the report cites the unanswered questions surrounding the FBI's three-month investigation of Tamerlan Tsarnaev, one of the Boston Marathon bombing suspects before the deadly attacks.

"FBI agents cannot be expected to be fortune tellers," the report said. "But reviewing the facts of this matter is important to determine whether current FBI practices are effective. Its investigation of Tsarnaev was one of over 1,000 assessments the Boston Joint Terrorism Task Force completed in 2011. . . . This torrid pace may have diminished the quality of the Tsarnaev assessment."

Appendix II: Sample Document Annotation Output (Selected Fields)

Mention String	Offsets	Entity ID	Entity Types	Mention Type
ACLU	0-3	ACLU	ORG;ORG.AdvocacyGroup	NAM
Obama	14-18	Obama	PER;PER.Politician;PER.Politician.HeadOfGovernment	NAM
Congress	21-28	Congress	ORG;ORG.Government;ORG.Government.Legislature	NAM
FBI	54-56	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
James Comey	107-117	James Comey	PER;PER.CivilServant	NAM
FBI	141-143	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
director	145-152	James Comey	PER;PER.CivilServant	NOM
American Civil Liberties Union	159-188	ACLU	ORG;ORG.AdvocacyGroup	NAM
Obama	208-212	Obama	PER;PER.Politician;PER.Politician.HeadOfGovernment	NAM
administration	214-227	Obama administration	ORG;ORG.Government;ORG.Government.Administration	NOM
Congress	233-240	Congress	ORG;ORG.Government;ORG.Government.Legislature	NAM
agency	281-286	FBI	ORG;ORG.Government;ORG.Government.Agency	NOM
report	311-316	ACLU report	Document;Document.Report	NOM
ACLU	351-354	ACLU	ORG;ORG.AdvocacyGroup	NAM
FBI	379-381	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
Bureau	455-460	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
it	542-543	FBI	ORG;ORG.Government;ORG.Government.Agency	PRO
report	656-661	ACLU report	Document;Document.Report	NOM
Courts	670-675	Courts_general	ORG;ORG.Court	NAM
Congress	768-775	Congress	ORG;ORG.Government;ORG.Government.Legislature	NAM
whistleblower	815-827	whistleblower	PER;PER.CivilServant	NOM
government	851-860	US government	ORG;ORG.Government	NOM

laws	895-898	laws	LAW	NOM
its	927-929	US government	ORG;ORG.Government	PRO
ACLU	968-971	ACLU	ORG;ORG.AdvocacyGroup	NAM
report	973-978	ACLU report	Document;Document.Report	NOM
Unleashed and Unaccountable : The FBI's Unchecked Abuse of Authority	991-1057	ACLU report	Document;Document.Report	NAM
United States	1153-1165	United States	GPE;GPE.Country	NAM
group	1178-1182	ACLU	ORG;ORG.AdvocacyGroup	NOM
FBI	1204-1206	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
its	1213-1215	FBI	ORG;ORG.Government;ORG.Government.Agency	PRO
spokesman	1273-1281	FBI spokesman	PER;PER.CivilServant;PER.CivilServant.Spokesperson	NOM
FBI	1291-1293	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
he	1300-1301	FBI spokesman	PER;PER.CivilServant;PER.CivilServant.Spokesperson	PRO
report	1328-1333	ACLU report	Document;Document.Report	NOM
FBI	1343-1345	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
officials	1347-1355	FBI officials	PER;PER.CivilServant	NOM
it	1374-1375	ACLU report	Document;Document.Report	PRO
report	1409-1414	ACLU report	Document;Document.Report	NOM
FBI	1428-1430	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
FBI	1486-1488	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
American	1532-1539	United States	GPE;GPE.Country	NAM
communities	1541-1551	American people	PER	NOM

National Security Letters	1594-1618	NSL	LAW	NAM
companies	1681-1689	tele companies	ORG;ORG.CommercialOrganization	NOM
institutions	1702-1713	financial institutions	ORG;ORG.CommercialOrganization;ORG.CommercialOrganization.FinancialInstitution	NOM
agencies	1726-1733	credit agencies	ORG;ORG.CommercialOrganization;ORG.CommercialOrganization.FinancialInstitution	NOM
government	1832-1841	US government	ORG;ORG.Government	NOM
Section 215	1852-1862	Section 215	LAW	NAM
Patriot Act	1871-1881	Patriot Act	LAW;LAW.Bill	NAM
U.S.	1896-1899	United States	GPE;GPE.Country	NAM
its	1921-1923	ACLU	ORG;ORG.AdvocacyGroup	PRO
report	1925-1930	ACLU report	Document;Document.Report	NOM
ACLU	1937-1940	ACLU	ORG;ORG.AdvocacyGroup	NAM
Congress	1947-1954	Congress	ORG;ORG.Government;ORG.Government.Legislature	NAM
president	1961-1969	Obama	PER;PER.Politician;PER.Politician.HeadOfGovernment	NOM
attorney	1979-1986	attorney general	PER;PER.CivilServant;PER.CivilServant.Minister	NOM
FBI	2041-2043	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
agency	2117-2122	FBI	ORG;ORG.Government;ORG.Government.Agency	NOM
Congress	2175-2182	Congress	ORG;ORG.Government;ORG.Government.Legislature	NAM
FBI	2218-2220	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
Hina Shamsi	2335-2345	Hina Shamsi	PER;PER.Executive	NAM
director	2348-2355	Hina Shamsi	PER;PER.Executive	NOM
ACLU	2364-2367	ACLU	ORG;ORG.AdvocacyGroup	NAM

National Security Project	2371-2395	National Security Project	ORG;ORG.AdvocacyGroup	NAM
ACLU	2444-2447	ACLU	ORG;ORG.AdvocacyGroup	NAM
report	2449-2454	ACLU report	Document;Document.Report	NOM
FBI	2478-2480	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
protesters	2509-2518	protesters generic	PER;PER.SituationalRole;PER.SituationalRole.Protester	NOM
groups	2534-2539	religious groups	ORG;ORG.ReligiousOrganization	NOM
their	2583-2587	protesters & religious groups	PER;PER.SituationalRole;PER.SituationalRole.Protester;ORG;ORG.ReligiousOrganization	PRO
FBI	2642-2644	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
agents	2723-2728	FBI agents	PER;PER.CivilServant	NOM
agency	2776-2781	FBI	ORG;ORG.Government;ORG.Government.Agency	NOM
suspects	2795-2802	suspects_generic	PER;PER.SituationalRole;PER.SituationalRole.Suspect	NOM
groups	2808-2813	groups_generic	ORG	NOM
ACLU	2848-2851	ACLU	ORG;ORG.AdvocacyGroup	NAM
its	2866-2868	ACLU	ORG;ORG.AdvocacyGroup	PRO
report	2870-2875	ACLU report	Document;Document.Report	NOM
its	2898-2900	FBI	ORG;ORG.Government;ORG.Government.Agency	PRO
FBI	2936-2938	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
agents	3006-3011	FBI agents	PER;PER.CivilServant	NOM
Michael German	3076-3089	Michael German	PER;PER.Professional;PER.CivilServant	NAM
counsel	3106-3112	Michael German	PER;PER.Professional;PER.CivilServant	NOM
ACLU	3121-3124	ACLU	ORG;ORG.AdvocacyGroup	NAM

Washington Legislative Office	3128-3156	WLO	ORG;ORG.AdvocacyGroup	NAM
FBI	3171-3173	FBI	ORG;ORG.AdvocacyGroup	NAM
report	3201-3206	ACLU report	Document;Document.Report	NOM
FBI	3255-3257	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
Tamerlan Tsarnaev	3290-3306	Tamerlan Tsarnaev	PER;PER.SituationalRole;PER.SituationalRole.Suspect;PER.Terrorist	NAM
one	3309-3311	Tamerlan Tsarnaev	PER;PER.SituationalRole;PER.SituationalRole.Suspect;PER.Terrorist	PRO
Boston	3320-3325	Boston	GPE;GPE.City	NAM
suspects	3344-3351	Boston bombing suspects	PER;PER.SituationalRole;PER.SituationalRole.Suspect;PER.Terrorist	NOM
FBI	3381-3383	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
agents	3385-3390	FBI agents	PER;PER.CivilServant	NOM
report	3439-3444	ACLU report	Document;Document.Report	NOM
FBI	3534-3536	FBI	ORG;ORG.Government;ORG.Government.Agency	NAM
Its	3563-3565	FBI	ORG;ORG.Government;ORG.Government.Agency	PRO
Tsarnaev	3584-3591	Tamerlan Tsarnaev	PER;PER.SituationalRole;PER.SituationalRole.Suspect	NAM
Boston Joint Terrorism Task Force	3631-3663	Boston Task Force	ORG;ORG.Government;ORG.Government.Agency	NAM
Tsarnaev	3746-3753	Tamerlan Tsarnaev	PER;PER.SituationalRole;PER.SituationalRole.Suspect	NAM

Appendix III: Entity Type Cheat Sheet

Level 1	Level 2	Level 3
APP		
APP	CommunicationSoftware	
APP	CommunicationSoftware	SocialMedia
ConsumerGoods		
ConsumerGoods	Clothing	
ConsumerGoods	Food	
ConsumerGoods	Furniture	
ConsumerGoods	Furniture	SeatingFurniture
ConsumerGoods	Furniture	SleepingFurniture
ConsumerGoods	Furniture	StorageFurniture
ConsumerGoods	Furniture	Table
ConsumerGoods	HomeAppliance	
ConsumerGoods	HomeAppliance	MajorAppliance
ConsumerGoods	HomeAppliance	SmallAppliance
Document		
Document	LegalDocument	
Document	LegalDocument	Certificate
Document	LegalDocument	PersonalIdentification
Document	Report	
FAC		
FAC	Building	
FAC	Building	ApartmentBuilding
FAC	Building	Clinic
FAC	Building	Courthouse
FAC	Building	GovernmentBuilding
FAC	Building	Hospital
FAC	Building	House
FAC	Building	Jail
FAC	Building	OfficeBuilding
FAC	Building	PlaceOfWorship
FAC	Building	PoliceStation
FAC	Building	School
FAC	Building	StoreShop
FAC	Building	VotingFacility
FAC	Building	Warehouse
FAC	Depository	
FAC	Depository	Bank
FAC	Depository	Library
FAC	Depository	Museum
FAC	GardenPark	
FAC	GardenPark	Garden

FAC	GardenPark	Park
FAC	GardenPark	Zoo
FAC	MilitaryInstallation	
FAC	Structure	
FAC	Structure	Barricade
FAC	Structure	Bridge
FAC	Structure	Monument
FAC	Structure	Plaza
FAC	Structure	Tower
FAC	TransportHub	
FAC	TransportHub	Airport
FAC	TransportHub	BusStation
FAC	TransportHub	Port
FAC	TransportHub	TrainStation
FAC	Way	
FAC	Way	Canal
FAC	Way	Highway
FAC	Way	Street
FAC	Way	Tunnel
GPE		
GPE	City	
GPE	Country	
GPE	County	
GPE	NonSovereignCountry	
GPE	ProvinceState	
GPE	Territory	
GPE	Town	
GPE	UnionOfCountries	
GPE	Village	
IIIHealth		
IIIHealth	Disease	
IIIHealth	Disease	CommunicableDisease
IIIHealth	Disease	NonCommunicableDisease
IIIHealth	Injury	
LAW		
LAW	Bill	
LAW	Referendum	
LAW	Treaty	
LOC		
LOC	AirSpace	
LOC	Border	
LOC	CrimeScene	
LOC	GeographicPoint	

LOC	GeographicPoint	Address
LOC	GeographicPoint	CheckPoint
LOC	Land	
LOC	Land	Archipelago
LOC	Land	Continent
LOC	Land	Field
LOC	Land	Island
LOC	Land	Mountain
LOC	Land	MountainRange
LOC	Land	Peninsula
LOC	Neighborhood	
LOC	Region	
LOC	Water	
LOC	Water	Lake
LOC	Water	Ocean
LOC	Water	River
LOC	Water	Sea
ORG		
ORG	AdvocacyGroup	
ORG	Association	
ORG	Association	Club
ORG	Association	GreekLife
ORG	Association	League
ORG	Association	ProfessionalAssociation
ORG	Association	SportsTeam
ORG	Association	TradeAssociation
ORG	Charity	
ORG	CommercialOrganization	
ORG	CommercialOrganization	BroadcastingCompany
ORG	CommercialOrganization	Carrier
ORG	CommercialOrganization	EnergyCompany
ORG	CommercialOrganization	FinancialInstitution
ORG	CommercialOrganization	Firm
ORG	CommercialOrganization	Manufacturer
ORG	CommercialOrganization	NewsAgency
ORG	CommercialOrganization	PharmaceuticalCompany
ORG	CommercialOrganization	Retailer
ORG	CommercialOrganization	TechCompany
ORG	CommercialOrganization	UtilityCompany
ORG	Court	
ORG	Court	InternationalCourt
ORG	Court	LocalCourt
ORG	Court	MilitaryCourt

ORG	Court	NationalCourt
ORG	Court	SupremeCourt
ORG	EducationalInstitution	
ORG	EducationalInstitution	College
ORG	EducationalInstitution	GradeSchool
ORG	EducationalInstitution	LanguageSchool
ORG	EducationalInstitution	Preschool
ORG	EducationalInstitution	SecondarySchool
ORG	EducationalInstitution	TrainingSchool
ORG	Government	
ORG	Government	Administration
ORG	Government	Agency
ORG	Government	ArmedForces
ORG	Government	LegislativeCommittee
ORG	Government	Legislature
ORG	Government	Ministry
ORG	Government	Police
ORG	HealthcareInstitution	
ORG	PoliticalOrganization	
ORG	PoliticalOrganization	LaborUnion
ORG	PoliticalOrganization	PAC
ORG	PoliticalOrganization	Party
ORG	ReligiousOrganization	
ORG	TerroristGroup	
ORG	WorldOrganization	
Pathogen		
Pathogen	Bacterium	
Pathogen	Virus	
Pathogen	Virus	Coronavirus
Pathogen	Virus	InfluenzaVirus
Pathogen	Virus	Rhinovirus
PER		
PER	Artist	
PER	Artist	Musician
PER	Artist	Painter
PER	Artist	Photographer
PER	CivilServant	
PER	CivilServant	Ambassador
PER	CivilServant	Judge
PER	CivilServant	Minister
PER	CivilServant	PolicyAdvisor
PER	CivilServant	Spokesperson
PER	Criminal	

PER	Executive	
PER	Executive	AcademicAdministrator
PER	Executive	BusinessExecutive
PER	Farmer	
PER	Laborer	
PER	Laborer	Farmworker
PER	Laborer	Miner
PER	Politician	
PER	Politician	Governor
PER	Politician	HeadOfGovernment
PER	Politician	HeadOfNation
PER	Politician	Legislator
PER	Politician	Mayor
PER	Professional	
PER	Professional	Athlete
PER	Professional	CampaignManager
PER	Professional	Firefighter
PER	Professional	HealthProfessional
PER	Professional	Journalist
PER	Professional	Lawyer
PER	Professional	Professor
PER	Professional	SchoolTeacher
PER	Professional	Scientist
PER	ReligiousLeader	
PER	Serviceman	
PER	Serviceman	MilitaryOfficer
PER	Serviceman	Veteran
PER	SituationalRole	
PER	SituationalRole	Patient
PER	SituationalRole	Protester
PER	SituationalRole	Survivor
PER	SituationalRole	Suspect
PER	SituationalRole	Victim
PER	SituationalRole	Voter
PER	Student	
PER	Terrorist	
PER	Writer	
PER	Writer	Author
PER	Writer	Speechwriter
Publication		
Publication	Book	
Publication	Magazine	
Publication	Magazine	NewsMagazine

Publication	Magazine	PopularMagazine
Publication	Magazine	ReligiousMagazine
Publication	Magazine	ScholarlyJournal
Publication	Magazine	TradeMagazine
Publication	Newspaper	
VEH		
VEH	Aircraft	
VEH	Aircraft	CivilAircraft
VEH	Aircraft	MilitaryAircraft
VEH	Rocket	
VEH	Spacecraft	
VEH	Spacecraft	Satellite
VEH	Spacecraft	SpaceStation
VEH	Watercraft	
VEH	Watercraft	Boat
VEH	Watercraft	CargoShip
VEH	Watercraft	CruiseShip
VEH	Watercraft	Warship
VEH	Watercraft	Yacht
VEH	WheeledVehicle	
VEH	WheeledVehicle	ArmoredVehicle
VEH	WheeledVehicle	HumanPoweredVehicle
VEH	WheeledVehicle	MotorVehicle
VEH	WheeledVehicle	RailedVehicle
WEA		
WEA	CloseCombatWeapon	
WEA	CloseCombatWeapon	BladedWeapon
WEA	CloseCombatWeapon	PoleWeapon
WEA	Cyberweapon	
WEA	ExplosiveDevice	
WEA	ExplosiveDevice	Bomb
WEA	Gun	
WEA	Gun	Pistol
WEA	Gun	Rifle
WEA	Gun	Shotgun
WEA	Missile	
WEA	Missile	AirToAirMissile
WEA	Missile	AirToGroundMissile
WEA	Missile	ICBM
WEA	Missile	SurfaceToAirMissile
WEA	NonLethalWeapon	
WEA	NonLethalWeapon	Baton
WEA	NonLethalWeapon	BatonRound

WEA	NonLethalWeapon	DirectedEnergyWeapon
WEA	NonLethalWeapon	ElectroshockWeapon
WEA	NonLethalWeapon	GasSpray
WEA	Projectile	
WEA	Projectile	Bullet
WEA	Projectile	Shell
WEA	WMD	
WEA	WMD	Bioweapon
WEA	WMD	ChemicalWeapon
WEA	WMD	NuclearWeapon