DEFT Rich ERE Annotation Guidelines: Relations V4.4

Linguistic Data Consortium

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Changes from V4.3:

- 6.1.1: Removed ORG as a permitted ARG1 for Physical.Located-Near relations
- 6.1.1: Two entities that are asserted to be same should not participate in a Physical.Located-Near relation (e.g. [Springfield County] is [the area of worst contamination]). Remove relevant note.
- 6.1.1: Edited 'The default category…' note to include General-Affiliation.MORE instead of Physical.ORG-Location-Origin
- 6.4.1: Updated triggers to include examples of adjectives ('Republican') and roles ('Secretary of State')
- 6.4.3: Listed PER as an allowable ARG under ORG-Affiliation.Investor-Shareholder
- 6.4.6: ORG-Affiliation.Founder allows ORG, GPE, and PER as ARG1

Changes from V4.2:

- 6.2.2: removed contradictory note about Part-Whole.Membership ARGs
- 6.1.2 (Physical.Resident): FAC example added
- 6.1.3 (Physical.ORG-Headquarters): FAC example added
- Section 6 Table: Physical.ORG-Location-Origin contains FAC as a valid ARG

Changes from V4.1:

- Removed remaining Light ERE language
- 2.3: Reordered examples and edited explanation
- Replaced Personal-Social.Role example that used "leaders" as a valid Title ARG with "presidents"
- Section 4: Edited realis attribute language
- 6.1.4 (Physical.ORG-Location-Origin): Added an ORG-FAC example
- Removed "cannot separate due to tokenization" language.

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1. Introduction

The purpose of this annotation project is to mark up texts for entities, coreference, events and relations. The primary purpose is for the annotations to describe the meaning of the text, as opposed to its syntactic or lexical aspects. The annotation is carried out level by level. This document describes the level of relation annotation.

The goal of the Relation Task is to detect and characterize relations of the tagged Types and Subtypes between tagged entities and argument fillers that are explicitly mentioned in the document. This means that the order of the arguments is important in the identification of Relations. To capture this idea, two different Argument slots (arg1 and arg2) are provided for each Relation. For example, in the sentence

George Bush traveled to France on Thursday for a summit.

There is a *Physical.Located-Near* relation between George Bush and France. In *Physical.Located-Near* relations, the Person that is located somewhere will always be assigned to arg1 and the place that the Person is located will always be assigned to arg2.

We will tag the trigger word/phrase that indicate the Relation Type and Subtype. Relations are not always introduced explicitly by linguistic forms, so trigger words are not always present. Details of how and when to tag trigger words are discussed in Section 3.

We will assign a realis attribute to each Relation identified by a two-way distinction: ASSERTED or OTHER. . For a complete discussion of the rules for identifying realis attribute of a relation, please see Section 3 below.

Types and Subtypes will be assigned to every Relation. For each Type, there is a set of possible Subtypes. Types and Subtypes are intended to categorize the Relations on the basis of their meaning. In the example above, the Type of the Relation is *Physical* and the Subtype is *Located-Near*. For a complete description of the types and subtypes and allowable entity/argument fillers as the arguments of each relation type and subtype, please see Section 6 below.

The complete annotation for the example above is represented below.

Trigger	Realis	Type.Subtype	Arg1	Arg2
Travelled	ASSERTED	Physical.Located-Near	George Bush	France

2. Taggability

2.1. General Rules

We will exhaustively annotate taggable relations. That is, if the same relation is

mentioned multiple times within the same document, it should be labeled each time.

For purposes of this annotation task, we limit ourselves to relations that are explicitly referenced within a **single sentence**.

2.2 Tag for Explicit Mention

As well as limiting relation mention scope to within a single sentence, we operate according to a "tag for explicit mention" guideline. Even if there is a relationship between two entities in the real world (or elsewhere in the document), there must be explicit evidence for that relationship within that particular sentence for that relation to be taggable. For example:

- Frank and his brother worked for Comcast.

In this sentence, there is explicit evidence of a familial relationship between *his* and *brother*. Contrast this with the following sentence:

- Frank and James worked for Comcast.

Even if we learn that *Frank* and *James* are brothers elsewhere in the document, we cannot tag a familial relation between them, because there is no evidence for the relation within this sentence.

2.3 Relations among Plural Entities and Multiple Entities

There are certain occasions when otherwise taggable relations should not be annotated, because doing so may register illogical possible relationships which are not actually indicated in the text. When plural entities appear alongside coordinated or listed entities, these restrictions come into play:

- [the banks in [Boston] and [New York]]

Although there appear to be two *Physical.ORG-Location-Origin* relations here, we cannot annotate that "the banks" are located both in Boston and New York. The two locations are nested within the nominal phrase, which points to the fact that some banks are in one location and some are in another location. If we tagged two relations, we'd be saying that all of the banks are located in both cities, which is incorrect.

- [the heads of the [NSA]$_{\text{ORG.NAM}}$, [CIA]$_{\text{ORG.NAM}}$, and [FBI]$_{\text{ORG.NAM}}$]$_{\text{PER.NOM}}$ met today.

Similarly, if three *ORG-Affiliation.Leadership* relations are tagged between "the heads…" and each organization, the annotations imply that all of "the heads…" are leaders of each organization, which is not true, so no relations are tagged here.

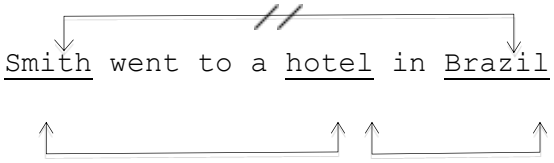
2.4 Relation Argument Proximity and "Nested Relations"

When selecting relation arguments, you must choose the two arguments that are in closest proximity to one another that express the relation. For instance, in 'Elizabeth and her sister' we would select 'her' as arg1, and 'sister' as arg2. We would not select 'Elizabeth' as arg1 since it is more distant from arg2 than 'her'.

In addition, we do not consider "nested relations" taggable. That is, if entity A is contained within entity B, and entity B is contained within entity C, we annotate a *Physical.Located-Near* relation between entity A and entity B, and between entity B and entity C. However, we do not annotate a *Physical.Located-Near* relation between entity A and entity C. This is because the *Physical.Located-Near* relation between A and C is implicit from the containment of A within B, and B within C. For instance, consider:

- [Smith] went to [a hotel in [Brazil]].

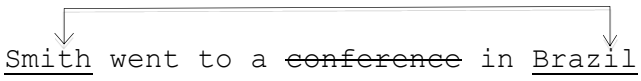
Using the above logic (Smith, a hotel in Brazil) is a taggable *Physical.Located-Near* relation, as is (a hotel in Brazil, Brazil), but (Smith, Brazil) is not considered taggable, because the relation between (Smith, Brazil) is implicit from the nesting of the relations we have already annotated:



On the other hand, in the following example:

- [Smith] went to a conference in [Brazil].

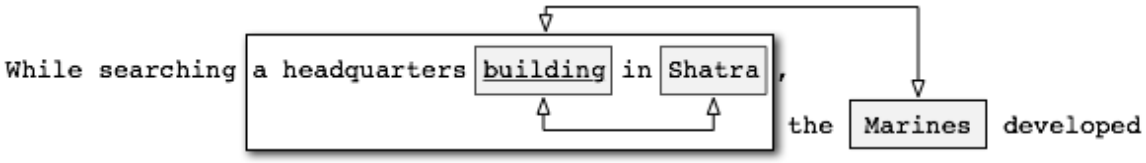
(Smith, Brazil) is a taggable physical relation, since conference is not a taggable entity type, and there are no other *Physical.Located-Near* relations annotated that would implicitly establish a *Physical.Located-Near* relation between (Smith, Brazil).



This principle holds even in "long-distance constructions" (i.e. sentences where the entities in the lowest-level *Physical.Located-Near* relation are not adjacent to each other). For instance, in the following sample

- While searching [a headquarters building in [Shatra]], [the Marines] developed...

There are taggable *Physical.Located-Near* relations between the lower level of containment (the Marines, a headquarters building in Shatra) is taggable, and between the upper level of containment (a headquarters building in Shatra, Shatra), but not between the (the Marines, Shatra), since this level of containment is implicit from the former two relations.



NOTE: The annotation of a *Physical.Located-Near* relation between (the Marines, a headquarters building in Shatra) might seem to go against the proximity guideline discussed earlier in this section, but in these cases, annotating based on nested levels of containment is preferred over annotating based on relation argument proximity:

- Smith went to a hotel in Brazil.
- ...a hotel in Brazil that Smith went to.

In accordance with this principle of "containment over proximity", both of the above examples would have the same set of physical relations tagged: (Smith, a hotel in Brazil) and (a hotel in Brazil, Brazil), despite the second example's lack of direct argument proximity for (Smith, a hotel in Brazil).

3 Triggers

A trigger is the smallest extent of text that indicates a relation type and subtype. Triggers can be phrases or a single word, whatever annotators judge to be the extent of text that indicates a particular relation type-subtype is present. For example, prepositions are often triggers for *Physical.Located-Near* relations, as in the example below:

- John is in Chicago.
    a. Rel: Physical.Located-Near
    b. Entity: 'John'
    c. Loc: 'Chicago'
    d. Trigger: 'in'

NOTE: An extent of text that has been annotated within a relation argument can also function and be annotated as a as a relation trigger, even when it is the head noun of a nominal phrase. For example:

- My wife is at home.

a. Rel: Personal-Social.Family
b. Entity: 'My'
c. Entity: 'my wife'
d. Trigger: 'wife'

- the president of the American League
    a. Rel: ORG-Affiliation.Leadership
    b. Leader: 'the president of the American League'
    c. Entity: 'American League'
    d. Trigger: 'president'

NOTE: It will sometimes be the case that there is no trigger text for a relation. Rather, only the syntax or configuration of the words in the sentence indicates the presence of a particular relation type/subtype, without any explicit indication of a relationship from the words themselves. "No trigger" cases are mainly limited to occurrences of entity+entity noun phrases with noun-noun constructions where an entity which is a head noun is being modified by another noun whose complete string is tagged as an entity itself. For entity+entity configurations where the modifying word (typically the first word) is not a noun, the modifying word may be tagged as a trigger.

Contrast the following examples:

- [[US] companies] (**Physical.ORG-Location-Origin: no trigger**: 'US' is a noun)
- [[American] companies] (**Physical.ORG-Location-Origin: trigger** = American: 'American' is an adjective indicating an Origin relation)

- the [[IBM] R&D Department] (**Part-Whole.Subsidiary: no trigger**: 'IBM' is a noun)
- [[IBM]'s R&D Department] (**Part-Whole.Subsidiary: trigger** = 'IBM's' is a possessive noun indicating a Subsidiary relation)

- [Deputy Secretary] [William Burns] (**Personal-Social.Role: no trigger**: 'Deputy Secretary' is a noun-phrase and the side-by-side construction doesn't contain a trigger)

The most common cases of noun-noun entity+entity constructions occur for *Physical* (both subtypes), *Part-whole.Subsidiary*, and *Personal-Social.Role* relations, where there is often no extent of text explicitly indicating the relations. Rather, the relevant entity mention extents are simply juxtaposed, with no other syntactic or morphological indicators of connection. In these cases, the trigger slot is left empty, and the "no trigger" checkbox checked:

- President Obama
    a. Rel: Personal-Social.Role

b. Role: ‘President’
c. Per: ‘Obama’
d. Trigger: (N/A)

- US Congress
  a. Rel: Part-whole.Subsidiary
  b. Parent: ‘US’
  c. Suborg: ‘Congress’
  d. Trigger: : (N/A)

NOTE: In annotation, the tagging of some relation subtypes may take precedence over that of others – when the trigger and arguments are the same for more than one possible relation subtype, one will ‘trump’ the other(s) in order to avoid double-tagging. If one subtype ‘trumps’ another, the pertinent subsections will specify this.

However, it is possible that one text string may serve as the trigger for more than one relation, each with a different constellation of arguments – in these cases, we may tag each relation separately.

4 Relation Attributes

In Rich ERE Relation annotation, all taggable relations will be assigned with one of the two attributes: Asserted and Other.

Asserted relations are those that are positively expressed and are true in the past or at present in a document:

- YouTube now operates as a subsidiary of Google Inc.

In this example we would tag a *Part-Whole.Subsidiary* relation between YouTube and Google and mark it as Asserted.

NOTE: If a relation is asserted to be true by a source other than the author of the document, we still consider the relation to be taggable:

- According to the New York Times, he then worked for four years in the Hungarian finance ministry.
- Diplomatic officials have arrived in Moscow, NTV independent television reported.

We tag irrealis relations as Other. Irrealis relations include relation in modal, future, conditional, hypothetical, uncertain, question contexts. For example, in the sentence:

- We are afraid Al-Qaeda terrorists will be in Baghdad.

The presence of Al-Qaeda terrorists in Baghdad is expressed as a fear, rather than

being asserted as an existing relation. Therefore, we tag a relation between the 'terrorists' and 'Baghdad', but we mark the relation as Other rather than Asserted.

We also tag conditional relations as Other, as in:

- If the inspectors can get plane tickets today, then they will be in Baghdad on Tuesday

The presence of inspectors in Baghdad is a future possibility but it is not an asserted relation, and is therefore it is tagged as Other.

We do not tag negative relations (whether asserted or hypothetical). For instance, in the following sentence, we do not tag a relation between Coca-Cola and San Antonio.

- Coca-Cola is not based in San Antonio.
- He may not have joined the Whig Party at that time.

However, we do tag past and former relations, as in:

- The former CEO of Microsoft
- She left eBay to work at Amazon in 2008.

In these examples we label the relationship between 'the former CEO' and 'Microsoft', and 'she' and 'eBay'. [1]

5 Relation Arguments

Each relation mention has two arguments, which we call Arg1 and Arg2. Arguments are mostly entities that have been annotated during the entity annotation task and occasionally are Argument Fillers that need to be annotated during Relation annotation. For more information on argument fillers, see *Rich ERE English Annotation Guidelines for Argument Fillers*. The argument fillers that are relevant to Relation annotation are: AGE, URL, and TITLE. Because these are not annotated during the entity annotation stage, argument fillers for relations are annotated for the first time during relation annotation and be assigned with designated types.

The numerical ordering of arguments is important in the identification of relations. To capture this idea we use "templates" for each relation type/subtype. These templates specify the roles for each numbered argument.[2] For example, consider the

1 A later annotation stage may assign more sophisticated temporal attributes to relations, distinguishing current from prior relations.

2 Definitions of Relations, arg1 and arg2 are specific to this DEFT project task and not related to similar designations in Treebank, PropBank, etc., which refer to argument structure.

sentence:

- George Bush traveled to France on Thursday for a summit.

This sentence expresses a *Physical.Located-Near* relation between 'George Bush' and 'France'. In *Physical.Located-Near* relations, the person that is located somewhere will always be assigned to the first argument role (arg1), while the place where the person is located will always be assigned to the second argument role (arg2). We sometimes indicate a relationship between two arguments with the following shorthand: (arg1, arg2).

6 Relation Types and Subtypes

We will tag only a limited inventory of relation types and subtypes, described in detail below. For each relation type-subtype we also describe the restrictions on the entities that can hold the ARG1 and ARG2 roles. Note that two of the classes that can make up and argument (AGE and URL) are not otherwise annotated entities. Rather, they are Argument Fillers that are newly annotated during Relations annotation.

Type	Subtype	Read	ARG1 Name	ARG1	ARG2 Name	ARG2
Physical	located-near	1 is located at or near 2	entity	PER, GPE, LOC, FAC	place	GPE, LOC, FAC
	resident	1 resides in 2	per	PER	place	GPE, LOC, FAC
	ORG-headquarter	1's headquarter is at 2	org	ORG	place	GPE, LOC, FAC
	ORG-location-origin	1 has an origin of 2	org	ORG	place	GPE, LOC, FAC
Part-Whole	subsidiary	1 is a subsidiary of 2	suborg	ORG	parent	GPE, ORG
	membership	1 is a member of 2	member	GPE, ORG	org	ORG
Personal-Social	business	1 and 2 has a business relationship	person	PER	person	PER
	family	1 and 3 has a family relationship	person	PER	person	PER

	unspecified	1 and 2 has an unspecified social relationship	person	PER	person	PER
	role	1 has a role of 2	person	PER	role	TTL
ORG-Affiliation	employment-membership	1 is employed or a member of 2	employee/ member	PER	employer	GPE, ORG
	leadership	1 is leader of 2	leader	PER	entity	GPE, ORG
	investor-shareholder	1 is investor or shareholder of 2	investor/ shareholder	PER, ORG, GPE	org	ORG
	student-alum	1 is student or alumni of 2	student/ alumni	PER	org	ORG
	ownership	1 is owner of 2	owner	PER	org	ORG
	founder	1 is founder of 2	founder	PER, GPE, ORG	org	ORG
General-Affiliation	member-origin-religion-ethnicity	1 has an origin or religion or ethnicity of 2	per	PER	entity	PER, GPE, LOC
	person-age	1 is of 2 old	per	PER	age	AGE
	ORG-website	1's website is 2	org	ORG	URL	URL
	ORG-political-religious-affiliation	1 is affiliated with 2	org	ORG	entity	PER, ORG

6.1 Physical Relations

The Physical relations captures the relationship between an entity and a place and have four subtype: Located-Near, Resident, ORG-Headquarter and ORG-Location-Origin.

6.1.1 Physical.Located-Near

The *Physical.Located-Near* relation captures the physical location of an entity. This can include persons being located somewhere, as well as the location of one geographical location as being part of another geographical location. These are typically permanent relationships, though there are obviously exceptions (a person might visit Madrid and then leave, a tent might be put up in a certain location for a special event, for example).

If two locations or a GPE and LOC are asserted to be the same or exactly contiguous

with each other, we will use *Physical.Located-Near* as well. As far as possible, when entering annotations for the two entities, make the "original" LOC/GPE the "Place" ARG and the corresponding (often ad hoc) LOC/GPE/FAC the "Entity" ARG. E.g.:

- [Springfield County] is [the area of worst contamination].
  = "Place" ARG = "Entity" ARG
- [The fifth voting district] corresponds to [Cheyenne County].
  = "Entity" ARG = "Place" ARG

NOTE: If an entity is explicitly stated to be next to or near another entity, we may also use the second entity as an argument for a *Physical.Located-Near* relation, absent a more exact containing location. For this task, we do not necessarily distinguish between being "located near" and being "located in".

The following will also be tagged as *Physical.Located-Near*:

- Regions under the control of some larger political entity: 'the Indian controlled region'
- Areas centered on or otherwise surrounding a geo-political entity: 'the Los Angeles region', 'the Atlanta area' (note that for these situations, the physically larger surrounding region is the "Entity" ARG, while the GPE on which it focuses is the "Place" ARG)
- The relationship between a geo-political entity and its border: 'the Israeli border'

NOTE: For all locations for formal operations of organizations (including all official business activities), use *Physical.ORG-Location-Origin* instead of *Physical.Located-Near*.

NOTE: The default category for a relation between a PER and a GPE premodifier is *General-Affiliation.Member-Origin-Religion-Ethnicity* (e.g. "Chicago gangs"), not *Physical.Located-Near*.

Permitted Relation Arguments

Type	**Argument 1 ("Entity" – the entity that's located somewhere)**	**Argument 2 "Place"**
Physical.Located-Near	PER, GPE, LOC, FAC	GPE, LOC, FAC

Examples

PER-FAC

thousands of Palestinians rushed the Israeli checkpoint	***Trigger**: rushed*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*thousands of Palestinians*	*the Israeli checkpoint*

PER-LOC

the Calgary area	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*the Calgary area*	*Calgary*

PER-GPE

He was campaigning in his home state of Tennessee	***Trigger**: in*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*his*	*his home **state***

PER-LOC

in the West Bank, a passenger was wounded when an Israeli bus came under fire	***Trigger**: in*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*a passenger*	*West Bank*

LOC-GPE

The fifth voting district will correspond to Cheyenne County	***Trigger**: corresponds to*	***Realis**: Other*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*The fifth voting district*	*Cheyenne County*

FAC-FAC

St. Vartan's Cathedral, on Second Avenue	***Trigger**: on*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*St. Vartan's Cathedral*	*Second Avenue*

LOC-GPE

the region under Israeli control	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*the region under Israeli control*	*Israeli*

GPE-GPE

Moscow, Russia	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*Moscow*	*Russia*

LOC-GPE

the Thai border	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Located-Near	*the Thai border*	*Thai*

6.1.2 Physical.Resident

All GPE, LOC, and FAC entities in which a person entity has lived.

Permitted Relation Arguments

Type	**Argument 1**	**Argument 2**
Physical.Resident	PER	GPE, LOC, FAC

Examples

PER-LOC

She's always lived in the Midwest	***Trigger:*** *lived*	***Realis:*** *Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Resident	*She*	*Midwest*

PER-GPE

Titi will never leave Buffalo – he's a lifelong resident!	***Trigger:*** *resident*	***Realis:*** *Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Resident	*Titi*	*Buffalo*

PER-FAC

I'm not sure if she lives in that apartment building.	***Trigger:*** *lives*	***Realis:*** *Other*
Type	***Argument 1***	***Argument 2***
Physical.Resident	*she*	*that apartment building*

6.1.3 Physical.ORG-Headquarters

This relation captures the GPE, LOC, or FAC entity in which the headquarters of an organization are located.

Permitted Relation Arguments

Type	**Argument 1**	**Argument 2**
Physical.ORG-Headquarters	ORG	GPE, LOC, FAC

Examples

ORG-LOC

Zeno Records HQ will move to the Pacific Northwest	***Trigger**: move*	***Realis:** Other*
Type	***Argument 1***	***Argument 2***
Physical.ORG-Headquarters	*Zeno Records*	*Pacific Northwest*

ORG-GPE

The TriState headquarters has always been in Philadelphia	***Trigger**: in*	***Realis:** Asserted*
Type	***Argument 1***	***Argument 2***
Physical.ORG-Headquarters	*TriState*	*Philadelphia*

ORG-FAC

That company's headquarters is in that skyscraper	***Trigger:** in*	***Realis:** Asserted*
Type	***Argument 1***	***Argument 2***
Physical.Resident	*That company*	*that skyscraper*

6.1.4 Physical.ORG-Location-Origin

Physical.ORG-Location-Origin captures the relationship between an organization and the LOC, GPE, or FAC where it is located, based, or does business.

NOTE: *Part-Whole.Subsidiary* trumps this relation for government organizations. For instance, "the U.S. Army" should be marked as *Part-Whole.Subsidiary* rather than *ORG-Location-Origin*. We will also tag the Relation between a GPE and the industries (ORGs) that they control as *Part-Whole.Subsidiary* (e.g. state-controlled banks).

Permitted Relation Arguments

Type	Argument 1	Argument 2
Physical.ORG-Loc-Origin	ORG	LOC, GPE, FAC

Examples:

ORG-LOC

a small robotics company in a St. Louis suburb	***Trigger**: in*	***Realis:** Asserted*

Type	*Argument 1*	*Argument 2*
Physical.ORG-Loc-Origin	*a small robotics company in a St. Louis suburb*	*a St. Louis suburb*

ORG-LOC

the area's third-largest employer	***Trigger**: the area's*	***Realis:** Asserted*
Type	***Argument 1***	***Argument 2***
Physical.ORG-Loc-Origin	*the area's third-largest employer*	*the area*

ORG-GPE

a leading Chinese pharmaceutical company	***Trigger:** Chinese*	***Realis:** Asserted*
Type	***Argument 1***	***Argument 2***
Physical.ORG-Loc-Origin	*a leading Chinese pharmaceutical company*	*Chinese*

ORG-FAC

LDC is located at the Science Center	***Trigger:** at*	***Realis:** Asserted*
Type	***Argument 1***	***Argument 2***
Physical.ORG-Loc-Origin	*LDC*	*Science Center*

6.2 Part-Whole

6.2.1 Part-Whole.Subsidiary

Part-Whole.Subsidiary captures the ownership, administrative, and other hierarchical relationships between organizations and/or GPEs. This includes relationships between a department within an organization and the organization itself, between a company and its parent company, as well as between governmental organizations and their parent GPE.

Permitted Relation Arguments

Type	Argument 1 (the part)	Argument 2 (the whole)
Part-Whole.Subsidiary	ORG	ORG, GPE

Examples

ORG-ORG

Future parent company of ABC	***Trigger**: parent*	***Realis**: Other*
Type	***Argument 1***	***Argument 2***
Part-Whole.Subsidiary	*ABC*	*Future parent company of ABC*

ORG-ORG

Microsoft's accounting department	***Trigger**: Microsoft's*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Part-Whole.Subsidiary	*Microsoft's accounting department*	*Microsoft*

ORG-GPE

New York police	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Part-Whole.Subsidiary	*New York police*	*New York*

ORG-GPE

The U.S. Congress decided to veto the ecology bill.	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Part-Whole.Subsidiary	*U.S. Congress*	*U.S.*

NOTE: If there's some level of ambiguity in the text, annotators should default to the more general annotation of *Physical.ORG-Location-Origin* instead of *Part-Whole.Subsidiary* relations between ORGs and GPEs

6.2.2 Part-Whole.Membership

Organizations or geopolitical entities that are members of another assigned organization or geopolitical entity. While similar to *Part-Whole.Subsidiary*, *Part-Whole.Membership* is different because correct arguments are distinct entities that are generally capable of autonomously ending their membership with the assigned ORG or GPE.

Relation Type-Subtype	Argument 1 (the member)	Argument 2 (the org)
Part-Whole.Membership	GPE, ORG	GPE, ORG

Examples

GPE-ORG

three permanent UN member	***Trigger**: member*	***Realis**: Asserted*

countries		
Type	***Argument 1***	***Argument 2***
Part-Whole.Membership	*three permanent UN member* ***countries***	*UN*

ORG-ORG

Wind Currents, Inc. is a member of the Chamber of Commerce of Ulster County	***Trigger****: member*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
Part-Whole.Membership	*Wind Currents, Inc.*	*Chamber of Commerce of Ulster County*

GPE-GPE

France is a member of the EU	***Trigger****: member*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
Part-Whole.Membership	*France*	*EU*

6.3 Personal-Social Relations

Personal social relations describe the relationship between people. There are four primary subtypes for personal social relations: Business, Family, Unspecified and Role. For these relations, both arguments must be entities of type PER, except for *Personal-Social.Role*. Arguments of Social relations are NOT ordered: these relations are symmetric, with one exception: *Personal-Social.Role*, the arguments of which are asymmetric: arg1 is a Title while arg2 is a Person. See 6.3.4 for details.

6.3.1 Personal-Social.Business

The *Personal-Social.Business* relation captures the connection between two entities in any professional relationship. This includes boss-employee, lawyer-client, student-teacher, co-workers, etc.

NOTE: This relation should not be used to capture relationships implied from interaction between two entities (e.g. “President Clinton met with Yasser Arafat last week”).

Permitted Relation Arguments

Type	Argument 1	Argument 2
Personal-Social.Business	PER	PER

Examples

PER-PER

their would-be colleagues	***Trigger**: colleagues*	***Realis**: Other*
Type	***Argument 1***	***Argument 2***
Personal-Social.Business	*their*	*their would-be colleagues*

PER-PER

a spokesman for the senator	***Trigger**: for*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Business	*a spokesman for the senator*	*the senator*

PER-PER

My doctor prescribed some great stuff	***Trigger**: doctor*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Business	*My*	*My doctor*

6.3.2 Personal-Social.Family

The *Personal-Social.Family* relation captures the connection between one entity and another with which it is in any familial relationship.

Permitted Relation Arguments

Type	Argument 1	Argument 2
Personal-Social.Family	PER	PER

Examples

PER-PER

His sister was in attendance	***Trigger**: sister*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Family	*His*	*His sister*

PER-PER

Jill's husband, Jack	***Trigger**: husband*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Family	*Jill*	*Jill's husband*

6.3.3 Personal-Social.Unspecified

Unspecified captures relationships between two person entities that meet the following conditions:

1) The relationship must involve personal contact (or a reasonable assumption thereof).
2) There must be some indication or expectation that the relationship exists outside of a particular cited interaction.
3) There is no evidence of a business or family relationship.

The first condition excludes relationships like "Gore's supporters," "her opponents," or "people who help Americans laugh," where there is no expectation that one party will have interacted personally with the other party (or, put another way, spent time with the other party). A reasonable expectation of personal interaction is sufficient: there are relationships that often but not always involve personal contact (like "classmate" or "neighbor") – these will be allowed in general, as long as their commonplace usage would tend to imply personal contact.

The second condition excludes relationships like "her visitors," "his victims," or "my successor," where there is no indication from the text that the relationship exists outside of the specific event being discussed (a visit, a crime, or a succession, here). In the same way, this excludes cases where one might try to infer a relationship from a description of an event involving both entities (e.g. "He visited her in the hospital."). Relationships must be explicitly mentioned in the text.

Type	**Argument 1**	**Argument 2**
Personal-Social.Unspecified	PER	PER

Examples

PER-PER

She began an affair in late 1995 with one of the hospital's security police	***Trigger**: affair*	**Realis**: Asserted
Type	***Argument 1***	***Argument 2***
Personal-Social.Unspecified	*She*	*one of the hospital's security police*

PER-PER

his imagined friendship with some right-wing mayors	***Trigger**: friendship*	**Realis**: Other
Type	***Argument 1***	***Argument 2***

Personal-Social.Unspecified	*His*	*some right-wing mayors*

PER-PER

those close to Princess Diana	***Trigger**: close to*	**Realis**: Asserted
Type	***Argument 1***	***Argument 2***
Personal-Social.Unspecified	*Those*	*Diana*

6.3.4 Personal-Social.Role

Use *Personal-Social.Role* for relationships between a person and their title, honorific, position, or occupation. Titles are not annotated as entity, but rather should be annotated as Argument Filler whenever there is a Personal-Social.Role relation. Refer to Argument Filler guidelines for more detail.

NOTE: Oftentimes there are no triggers for Personal-Social.Role relations. However, in copular "to be" constructions, the verb conjugation can serve as the trigger. For example, "she is the CEO", contains a Personal-Social.Role relation between "she" and the TTL "CEO" with "is" as the trigger. This goes for all forms of present constructions (am, are, is, become) as well as past (was, were, became) and perfect constructions (been).

Permitted Relation Arguments

Type	**Argument 1 (the title)**	**Argument 2 (the person who holds the role)**
Personal-Social.Role	TTL	PER

Examples

TTL-PER

U.S. Treasury Secretary Timothy Geithner called for forceful, coordinated action.	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Role	*Treasury Secretary*	*Timothy Geithner*

TTL-PER

Russian Mission Control chief Vladimir Solovyov said	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Role	*Chief*	*Vladimir Solovyov*

The Personal-Social.Role relationship also includes appositives:

TTL-PER

Michelle Obama, First Lady of the US, said	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Role	*First Lady*	*Michelle Obama*

Number agreement is not essential and a plural title may be associated with a singular PER where necessary:

TTL-PER

Presidents Obama and Clinton	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
Personal-Social.Role (1)	*Obama*	*Presidents*
Personal-Social.Role (2)	*Clinton*	*Presidents*

6.4 Organization Affiliation Relations

Organization affiliation relations describe the relationship between people and organizations. There are five primary subtypes for organization affiliation relations: employment-membership, leadership, investor-shareholder, student-alumni, and founder. For these relations, ARG1 must be entities of type PER, except for investor-shareholder, which can also be ORG or GPE; ARG2 must be entities of type ORG, except for employment-membership and leadership, which can also be GPE.

6.4.1 ORG-Affiliation.Employment-Membership

Employment-Membership captures the relationship between a person and the organization or GPE of which the agent is an employee/member, or with which the agent has a contractual business or service agreement.

Instances where a person is a member of an elected government body (the Senate, the Knesset, the Supreme Court, etc.) will be tagged as Employment-Membership, even when the word "member" is not present (e.g. Supreme Court justice). This includes the relationship between an elected representative and the GPE they represent, for example, 'John Kerry (D-Massachusetts).'

NOTE: We will tag the relation between members of terrorist organizations and those organizations as ORG-Affiliation.Employment-Membership.

NOTE: For a relationship between a person and a group of persons of type PER, even when such affiliation is with an established organization (i.e. "Catholic parishioners...") use the General-Afflication.Member-Origin-Religion-Ethnicity Relation instead of ORG-Affiliation.Employment-Membership.

NOTE: This relation trumps ethnicity or residency: 'American troops' should be annotated with an ORG-Affiliation.Employment-Membership relation rather than a

General-Affiliation.Member-Origin-Religion.Ethnicity relation.

NOTE: An entity being a student or an alumnus of a school or university is **not** annotated as an ORG-Affiliation.Employment-Membership relation.

Permitted Relation Arguments

Relation Type-Subtype	Argument 1 (the employee/member)	Argument 2 (the ORG or GPE with which the employee/member is affiliated)
ORG-Affiliation.Employment-Membership	PER	ORG, GPE

Examples

PER-GPE

John Kerry (D-Massachusetts)	***Trigger**: N/A*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*John Kerry*	*Massachusetts*

PER-GPE

Florida Secretary of State Katherine Harris	***Trigger**: Secretary of State*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*Katherine Harris*	*Florida*

PER-ORG

an interviewer from The Patriot Ledger	***Trigger**: interviewer*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*an **interviewer** from The Patriot Ledger*	*Patriot Ledger*

PER-ORG

He had previously worked at NBC Entertainment	***Trigger**: worked at*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*He*	*NBC Entertainment*

PER-ORG

an activist for Peace Now	***Trigger**: activist*	***Realis**: Asserted*

Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*an activist for Peace Now*	*Peace Now*

PER-ORG

a member of the Supreme Court	***Trigger**: member*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*a member of the Supreme Court*	*Supreme Court*

PER-ORG

John Jacob Jingleheimer-Schmidt of the Supreme Court	***Trigger**: of*	**Realis**: Asserted
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*John Jacob Jingleheimer-Schmidt*	*Supreme Court*

PER-ORG

GOP vice presidential nominee	***Trigger**: nominee*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*GOP vice presidential nominee*	*GOP*

PER-ORG

a popular Republican governor	***Trigger**: Republican*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*a popular Republican governor*	*Republican*

PER-ORG

Republican voters	***Trigger**: Republican*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Employment-Membership	*Republican voters*	*Republican*

6.4.2 ORG-Affiliation.Leadership

Leadership captures the relationship between a Person and an Organization or GPE led by that Person. If the leadership role is not explicit, use ORG-Affiliation.Employment-Membership instead.

Permitted Relation Arguments

Relation Type-Subtype	Argument 1 (the leader)	Argument 2 (the organization)
ORG-Affiliation.Leadership	PER	ORG, GPE

Examples

PER-GPE

the US president	***Trigger**: President*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Leadership	*the US president*	*US*

PER-ORG

the CEO of Microsoft	***Trigger**: CEO*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Leadership	*the CEO of Microsoft*	*Microsoft*

PER-ORG

Senate Leaders	***Trigger**: Leaders*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Leadership	*Senate Leaders*	*Senate*

6.4.3 ORG-Affiliation.Investor-Shareholder

Any organization, person, or geopolitical entity that holds shares (whether majority or not) of the organization in the past, at present or in the future.

Permitted Relation Arguments

Type	Argument 1	Argument 2
ORG-Affiliation.Investor-Shareholder	PER, GPE, ORG	ORG

Examples

ORG-ORG

Walmart holds 50% of McDonald's shares	***Trigger:** shares*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Investor-Shareholder	*Walmart*	*McDonald's*

6.4.4 ORG-Affiliation.Student-Alum

NOTE: This relation only exists between a PER and an ORG.

Any school (college, high school, university, etc.) that the assigned person has attended, is attending or will attend. There must be evidence in the document to indicate such relation.

Permitted Relation Arguments

Type	Argument 1	Argument 2
ORG-Affiliation.Student-Alum	PER	ORG

Examples

PER-ORG

Caroline graduated from Temple University in 2008.	***Trigger:*** *graduated*	***Realis:*** *Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Student-Alum	*Caroline*	*Temple University*

6.4.5 ORG-Affiliation.Ownership

NOTE: This relation only exists between a PER and an ORG

Organizations that are owned by a specific Person entity. An organization's founder should not automatically be considered that ORG's owner.

Permitted Relation Arguments

Type	Argument 1	Argument 2
ORG-Affiliation.Ownership	PER	ORG

Examples

Schwarzenbach has owned Jawbreaker LLC for 10 years	***Trigger:*** *owned*	***Realis:*** *Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Ownership	*Schwarzenbach*	*Jawbreaker LLC*

6.4.6 ORG-Affiliation.Founder

This relation captures a person entity and the organization founded by that person.

Permitted Relation Arguments

Type	Argument 1	Argument 2
ORG-Affiliation.Founder	PER, ORG, GPE	ORG

Example
PER-ORG

Steve Jobs founded Apple in his garage	***Trigger:*** *founded*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
ORG-Affiliation.Founder	*Steve Jobs*	*Apple*

6.5 General-Affiliation Relations

General Affiliation relations are used to capture a somewhat wide range of information. As the name suggests, it contrasts with ORG-Affiliation in that the first argument can be of a variety of entity types.

6.5.1 General-Affiliation.MORE (Member-Origin-Religion-Ethnicity)

This relation captures a person entity's physical origin as well as its membership in an ethnic or religious group. This relation only exists between a PER and a PER, GPE, or LOC.

Permitted Relation Arguments

Type	**Argument 1**	**Argument 2**
General-Affiliation.MORE	PER	PER, GPE, LOC

Examples

PER-GPE

Robespierre was most certainly French	***Trigger:*** *was*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.MORE	*Robespierre*	*French*

PER-PER

His uncle is a Christian man	***Trigger:*** *is*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***

General-Affiliation.MORE	*His uncle*	*Christian*

PER-PER

two Kurdish settlers	***Trigger:*** *N/A*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.MORE	*two Kurdish settlers*	*Kurdish*

PER-PER

20,000 illiterate Catholic workers	***Trigger:*** *N/A*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.MORE	*20,000 illiterate Catholic workers*	*Catholic*

PER-LOC

Bush is from Texas	***Trigger****: from*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.MORE	*Bush*	*Texas*

6.5.2 General-Affiliation.Per-Age

NOTE: AGE is not an Entity type. It must be annotated as an Argument Filler during Relation annotation. Please see Argument Filler guidelines for more information.

This relation captures a person entity's reported age. Age of the person at death is an acceptable answer, as are previous and approximate ages. For example, if a source document states that the assigned person was "about 50", then "50" would be a valid filler.

Permitted Relation Arguments

Type	**Argument 1**	**Argument 2**
General-Affiliation.Per-Age	PER	AGE

Examples

PER-AGE

At the time of his arrest, he was 19.	***Trigger:*** *was*	***Realis:*** *Asserted*

Type	*Argument 1*	*Argument 2*
General-Affiliation.Per-Age	*he*	*19*

6.5.3 General-Affiliation.ORG-Website

NOTE: URL is not an Entity type. It must be annotated as an Argument Filler during Relation annotation. Please see Argument Filler guidelines for more information

This relation captures an official top level URL for an ORG entity's website.

Permitted Relation Arguments

Type	**Argument 1**	**Argument 2**
General-Affiliation.ORG-Website	ORG	URL

Examples

ORG-URL

Mashedpotatoes dot com is Spuds website!	***Trigger:** is*	***Realis**: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.ORG-Website	*Spuds*	*Mashedpotatoes dot com*

6.5.4 General-Affiliation.ORG-Political-Religious-Affiliation

NOTE: This relation only exists between an ORG and a PER or ORG.

Ideological groups with which an organization entity is associated. If an organization is clearly a member of another political or religious organization, it is an appropriate answer for a *Part.Whole-Membership* relation and should not be used for *ORG-political-religious-affiliation*.

However, religions generally do not have an official central organization associated with them and so are usually appropriate for *ORG-political-religious-affiliation* and not *Part-Whole.Membership*. A relationship consisting solely of the two groups

interacting in a specific event context is not enough evidence to constitute a religious/political affiliation. Former political or religious affiliations are correct responses for this slot.

Permitted Relation Arguments

Type	**Argument 1**	**Argument 2**
General-Affiliation.ORG-Political-Religious-Affiliation	ORG	PER, ORG

Examples

ORG-PER

Hobby Lobby requested religious exemptions to the health care law, citing its Christian beliefs.	***Trigger:*** *beliefs*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.ORG-Political-Religious-Affiliation	*its*	*Christian*

ORG-ORG

She always talks about how Chik-Fil-A is a solid Republican fast food chain.	***Trigger:*** *is*	***Realis****: Asserted*
Type	***Argument 1***	***Argument 2***
General-Affiliation.ORG-Political-Religious-Affiliation	*Chiki-Fil-A*	*Republican*

7 Discussion Forums

When annotating discussion forum documents, you should expect to find more colloquial language, including spelling errors, interruptions, unclear expressions and missing punctuation. Annotate each document to the best of your understanding, trying to focus on the author's presumed intent.

7.1 Sentence Boundaries and Relations

Discussion Forum documents contain dialog text from multiple participants. When

annotating these documents, you should expect to find more colloquial language, including spelling errors, interruptions, unclear expressions and missing punctuation. Annotate each document to the best of your understanding, trying to focus on the author's presumed intent. In conversational text it is often hard to determine sentence boundaries, especially when end-of-sentence punctuation is missing. Relations should only be tagged within a single sentence so in the case of missing or incorrect punctuation use syntactic information to determine sentence boundaries. In the example below, the Physical.Located-Near relation between "family" and "ecuador" would not be taggable as the phrase "I saw a whole family on a bike" is a complete syntactic unit.

- … in ecuador like three people get on the back of a bike.. pretty crazy … I saw a whole family on a bike

7.2 Misspellings and Incorrect Punctuation

Annotate misspellings according to the intended meaning, as far as that can be deciphered. In the example below, "wroks" is a typo and we can assume that the author intended to write "works". We can therefore tag "wroks" as the trigger of an ORG-Affiliation.Employment-Membership relation.

- She wroks for Google.

Similarly, incorrect punctuation should be ignored and the text marked according to the author's presumed intent. Therefore, "work's" can be marked as a trigger in the following example:

- She work's for Google.

In the case of missing apostrophes, annotate the entire word, even if you would normally exclude the apostrophe from the trigger span. In the following, "husbands" would be marked as the trigger of a Personal-Social.Family relation.

- my husbands going on a trip to bermuda

In the case of missing spaces, annotate the entire span even if it includes text that you would normally not annotate. For example, in the following, "becameCEO" would be marked as the trigger of an ORG-Affiliation.Leadership relation.

John becameCEO of the company in 2006