# ACE (Automatic Content Extraction) Chinese Annotation Guidelines for Relations

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# 1 Introduction

The goal of the Relation task is to detect and characterize relations of the targeted Types between entities. Subtypes will be assigned to every relation further characterizing the identified relationships. For each Type, there is a set of possible Subtypes.

Every relation takes the two entities (arg1 and arg2) that it links as primary arguments. We will tag the syntactic extent for every relation identified and characterize the relation by assigning one of the syntactic categories. In most cases, the position of arg1 and arg2 can't be exchanged. The rule to identify arg1 and arg2 is:

> If there is one relation R between arg 1 and arg2, then arg1 is R of /about arg2. Please refer to Appendix for a complete table of allowable relations of arg1 and arg2. For example:

***PER-ORG***

| *微软公司执行总裁* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Employment* | *微软公司执行**总裁*** | ***微软公司*** |

微软公司执行总裁 is arg1, and 微软公司 is arg2, it is correct that arg1 (微软公司执行总裁) is R (Org-Aff.Employment) of arg2 (微软公司). But it is not right if arg2 (微软公司) is R (Org-Aff.Employment) of arg1 (微软公司执行总裁), because one orgnization can't be the employee of one person. Another example**,**

***PER-FAC***

| *我的房子* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Agent-Artifact.UOIM* | ***我*** | *我的**房子*** |

In this example, 我 is arg1, and 我的**房子** is arg2, arg1 (我) is the R (User-Owner-Inventor-Manufacturer) of arg2 (我的**房子**). It is wrong if we exchange the position of arg1 and arg2.

But in some other cases, especially in the releation between person and person, the position of arg1 and arg2 can be exchanged. In thefollowing example, either of them is correct.

***PER-PER***

| *参议员的父亲* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Family* | *参议员的**父亲*** | ***参议员*** |

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. For a complete description of the types and subtypes we will identify, please see Section 4 below.

We will tag the Syntactic Extent for every relation identified and characterize the Relation by assigning one of the five Syntactic Class types. The extent and syntactic class type definition are highly inter-dependant and will do a good deal of the work in constraining the taggability of timestamps (to be defined later). For a complete discussion of the rules for identifying Syntactic Classes and Relation Extents please see Section 2 below.

We will assign a Modality and Tense attribute to each relation identified. For a complete discussion of the rules for identifying Modality and Tense, please see Section 2.2 below.

We will timestamp all relations that contain temporal expressions within their extent. In the example below, the time *Thursday* would be associated with the Physical.Located relation. Please see Section 2.4 for a discussion of timestamping relations.

| *[George Bush traveled to France on Thursday for a summit.]* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument1*** | ***Argument2*** | ***Timestamp: Within*** |
| *Verbal*<br>*Asserted*<br>*Past* | *PHYS.Located* | ***George Bush*** | ***France*** | *Thursday* |

The examples included below are marked to indicate only those relations that illustrate the topic highlighted in that particular section. The extent of the relation is indicated with [extent string] when it is different from the extent of the example string in its entirety.

# 2 Taggability

### *2.1. Preliminary Definitions*

Unlike Entities and Events, relations have no actual anchor in the text. We will limit relations to only those that are expressed within a single sentence.

## Tagging for Meaning

We will only tag relations between entity mentions when the relationship is explicitly referenced in the sentence that contains the two mentions. Even if there is a relationship between two entities in the real world (or elsewhere in the document), there must be evidence for that relationship in the local context where it is tagged. For example,

*He and his brother worked for Comcast.*

In this sentence, there is explicit evidence of a familial relationship between *his* and *brother*.

*Frank and James worked for Comcast.*

Even if we know that *Frank* and *James* are brothers from elsewhere in the document, we will not tag a familial relation between them in this context.

## Reasonable Reader Rule

For all potential relations, we will only annotate those relations for which there is no reasonable interpretation of the sentence in which the relation does not hold. In other words, we will tag a relation only in case there is no reasonable interpretation of the sentence under which the relation does not hold.

To understand the application of the reasonable reader rule, we must also consider Relation Modality. A complete definition of Relation Modality is provided in Section 3 below.

### Entities are 'Blocking Categories':

Additionally, promotion through Taggable Entities is illegal. In other words, if a potential relation satisfies the Reasonable Reader Rule (and is expressed in a single sentence), but one of the Entity Mentions to be used as an argument is a promidifier of another Entity Mention, then that Entity Mention is not accessible and the potential Relation is not taggable. Suppose entity A is modifying B which is modfying C where B and C have a taggable relation and A and B have a taggable relation, the relation between A and C is blocked by B. Another pattern that the "blocking rule" applies is: when A is modifying B which has a relation with another entity C, the relation between A and C is also blocked.

So, in the embeded entities:

*中共中央政治局常委*

*中共* modifies *中央* which modifies *政治局* which modifies *常委*. We can't promote the relation between(*中共 or 中央, 常委*).

In the sentence:

*张三暂时住在上海的一家宾馆里。*

(*张三，宾馆*) is a taggable PHYS relation but (*张三，上海*) is not, because to get the second relationship, one would have to "promote" *上海* through *宾馆*.

On the other hand, in:

*张三出席了上海的一个国际会议*

(*张三，上海*) is a taggable PHYS relation, since it is acceptable to promote through a non-taggable entity (*conference*).

This principle holds even for "long distance" constructions. For instance, in

*星期六，武装分子袭击了印度首都新德里的历史古迹红堡，杀死了 3 个平民。*

(*平民, 红堡*) is taggable, but not (*平民, 首都*).

Note that relationships can distribute over conjunctions. So in:

*… 波士顿和纽约的银行 …*

There are two relations: (*银行*, *波士顿*) and (*银行*, *纽约*).

When the second half of a partitive-style construction is modified (e.g. *张三四个孩子中的两个*), we will tag the relationship between the modifier and both halves of the partitive (e.g. (两个, 张三) and (四个孩子, 张三)).

Finally, it should be remembered that we operate according to a "tag for meaning" guideline. Even if there is a relationship between two entities in the real world (or elsewhere in the document), there must be evidence for that relationship where it is tagged. So, there is no taggable Soc.Family relationship in the phrase "*a woman* who demanded hush money from *a popular entertainer*," despite the fact that it is later revealed that the woman is allegedly the entertainer's daughter. This was the source of several sets of errors.

### *2.2. Syntactic Classes*

It is important to note that the accurate identification of the Syntactic Class and the Relation Extent for each Relation will have significant effects on other decisions, such as taggability and timestamp accessibility.

**Note:** For the ACE Relations task, Syntactic Class is used synonymously with LEXICALCONDITION. The latter is the official property name in APF format, the former a more descriptive nomenclature intended to make the task more accessible to annotators.

The six relation classes discussed below are intended to provide justification for the tagging of each relation. Recall that the Reasonable Reader Rule and the restriction of taggable Relations to those that occur within a single sentence do the majority of work in constraining Relation Taggability. The Syntactic Classes are used to provide an additional sanity check on taggabilty. Relation Extent is used for similar purposes and also to constrain the accessibility of TIMEX2 objects for use in Relation timestamping.

The accessibility of Arguments and Timestamps to Relations will both be constrained by the extent of the Relation Mention under consideration. For Timestamps, this constraint is definitive to the issue of accessibility: if the TIMEX2 object does not fall within the extent of the Relation Mention, then the object cannot be indicated as a Timestamp of the Relation in question.

For Arguments, the decision will usually run the other way: the relation will be justified by the Reasonable Reader Rule and the Syntactic Class and Relation Extent will be defined in such a way: that both arg1 and arg2 are included in the Relation Extent; and that the Syntactic Class felicitously describes that extent (and the syntactic connection between the two arguments).

One direct implication of this approach is that many potential relations will satisfy the Reasonable Reader Rule but will not fit into one of the five explicitly defined Syntactic Classes (all but the *Other* class). These cases should be considered more carefully than the others, and their identification as *Other* should motivate this attention.

### 2.2.1. PreMod

Pre-modification is the predominant type of modification for any type of phrases in Chinese and it's safe to say that pre-modification is the only of modification that a head noun can have in Chinese. When a mention directly modifies another mention, we tag their relation if there is a taggable relation between them.

***PER-PER***

| *英国外交大臣库克的发言人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Business* | *英国外交大臣库克的发言人* | *英国外交大臣库克* |

***PER-GPE***

| *英国外交大臣* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Employment* | *英国外交大臣* | *英国* |

Note while we do not annotate how attributive mentions and what they are attributive of, attributive mentions can relate to their own modifiers as shown in the second relation above and in the following examples. (Note the first example, we don't build the relation of 局长, 总设计师 independently with 俄罗斯"红宝石"中央海军兵器设计局, as 局长兼总设计师 is tagged as MWH with 俄罗斯"红宝石"中央海军兵器设计局 modifying it.)

***PER-ORG***

| *俄罗斯"红宝石"中央海军兵器设计局局长兼总设计师斯帕斯基院士* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Employment* | ***局长兼总设计师*** | *俄罗斯**"红宝石"中央海军兵器设计局*** |

***ORG-GPE***

| *俄罗斯"红宝石"中央海军兵器设计局* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Subsidiary* | *俄罗斯**"红宝石"中央海军兵器设计局*** | ***俄罗斯*** |

For modification, one mention is always contained in the extent of the other. In addition, we only annotate relations exhibited between a mention that is an immediate modifier of the other. The only exception to this is conjunctions that together modify a head. Conjunctions are transparent to relations, which means that if two mentions that conjoined together modify a head, there is a relation between each conjoined mention and the head. For example:

***PER-PER***

| *张三和李四的家人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *PER-SOC.Family* | *张三和李四的**家人*** | ***张三*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *PER-SOC.Family* | *张三和李四的**家人*** | ***李四*** |

In Chinese we do not distinguish between possessive and non-possessive due to the many functions of the morpheme 的. However, the annotator should be careful to distinguish between "phrasal 的" and "relative clause 的" – in the latter case, 的 is a

marker for nominalization (Refer to Event Guidelines 2.1.2) which should be treated as Participial (2.4.3) if there is a relation.

### 2.2.2. Coordination

As discussed in ENTITY guidelines 5.5, NPs can be in conjunction without any common component and the conjunction is not tagged in ENTITY task. If there is a relation for the conjoined mentions, we should tag them in the RELATION task as coordinations.

***PER-PER***

| [张三和李四]一直保持着密切的关系。 | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Coordination Asserted Unspecified* | *Per-Soc Lasting-Personal* | *张三* | *李四* |

**Exception:** This construction is not preferred and should not be used in cases where there is a possessive relation found in the close context. For example, in "*张三和他的妻子*", we will tag only the possessive relation "*他的妻子*" as that construction holds the meaningful relation.

### 2.2.3. Formulaic

There are a number of constructions that are commonly used in news stories. For these standard constructions, we will use the Syntactic Class *Formulaic*. The following Formulaic Relations will be annotated

#### 2.2.3.1 Reporter sign-off

| *[新华社北京]电* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Formulaic Asserted Present* | *GENERAL-AFF. Loc-Origin* | ***新华社*** | ***北京*** |

| *[记者联合国瑞士]报道* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Formulaic* | *Physical.Located* | ***记者*** | ***瑞士*** |
| *Formulaic Asserted Present* | *GEN-AFF.Org-Location* | ***联合国*** | ***瑞士*** |

#### 2.2.3.2 Address

| *被告：昆明市五华保安公司。地址：云南省昆明市五华区西坝路。* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Formulaic* | *GEN-AFF.Org-* | *昆明市**五华保安公司*** | *云南省昆明市五* |

| | | | |
|---|---|---|---|
| *Asserted Unspecified* | *Location* | | *华区**西坝路*** |

| *被告：荷兰皇家飞利浦电子股份有限公司(Koninklijke Philips Electronics N．V．)，住所地：荷兰爱恩德霍芬市格鲁内沃德斯路(Groenewoudseweg，Eindhoven，The Netherlands)。* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Formulaic Asserted Unspecified* | *GEN-AFF.Org-Location* | *荷兰**皇家飞利浦电子股份有限公司*** | *荷兰爱恩德霍芬市**格鲁内沃德斯路*** |

### 2.2.4 Participial

Participial relations are those motivated by a taggable relation between a head noun and an entity which is in a relative clause that modifies it. The head noun actually is a missing argument of the relative clause that modifies it, as shown in the following example:

*他访问过得的一个国家*

in which 一个国家 is the missing object argument of 他访问过__.

Note that this also covers the phrases headed by so-called coverbs, such as 在, 距 which function very similar as prepositions in English. Historically those coverbs are verbs and they are still used as verbs in modern Chinese, as shown in: 他在美国. So in the following example:

*在土耳其南部的一个美国空军基地的美国军队*

the head 军队 is the missing subject argument of __在土耳其南部的一个美国空军基地.

We are going to treat both of these two cases are participial.

***ORG-FAC***

| *在土耳其南部的一个美国空军基地的美国军队* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial Asserted Unspecified* | *General-AFF.Org-Location* | *在土耳其南部的一个美国空军基地的美国**军队*** | *土耳其南部的一个美国空军**基地*** |

***PER-GPE***

| *在美国旅游的中国游客* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial Asserted Unspecified* | *Physical.Located* | *在美国旅游的中国**游客*** | ***美国*** |

***ORG-GPE***

| *中国驻美大使馆* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *GEN-AFF.Org-Location* | *中国驻美**大使馆*** | ***美*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Subsidiary* | *中国驻美**大使馆*** | ***中国*** |

***GPE-GPE***

| *距纽约不远的费城* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Physical.Near* | *距纽约不远的**费城*** | ***纽约*** |

***PER-PER***

| *跟我关系不错的一个男生* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Per-Social.Lasting* | *跟我关系不错的一个**男生*** | ***我*** |

For EAP construction, if the apposition as a whole is missing argument in the relative clause, we may mandatorily assign the SPC mention as one of the arguments in the relation. For example:

***PER-GPE***

| *在美国旅游的中国游客张三* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Physical.Located* | ***张三*** | ***美国*** |

### 2.2.5 Verbal

The Verbal Class of relations are those motivated by a taggable mention of a relation between two entities where the relation is directly expressed by a verb tying the two together into a sentence or a clause. (**The two entities in the relation are subject and object respectively**.)

#### 2.2.5.1 Stative or Habitual Constructions

Mentions of two entities can often be linked by stative predicates, where one mention is in the subject position while the other may be a direct object of a stative verb, an object of a so-called coverb such as “在”.

| *青海位于青藏高原上* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Geo* | ***青海*** | ***青藏高原*** |

| *华西金塔矗立在苏南平原* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Geo* | ***华西金塔*** | ***苏南平原*** |

#### 2.2.5.2 Event Argument Constructions

Mentions of two entities can also be linked by non-stative predicates. If there is a relation between two entities expressed by the verb, we should tag it, even though some inforamation has already been captured in EVENT task.

| *他曾经效力于中央电视台。* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal*<br>*Asserted*<br>*Past* | *Org-Aff.Employment* | *他* | *中央电视台* | *Within-曾经* |

| *新加坡航空公司新近购得 7 架波音 777 飞机。* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Agent-Artifact.UOIM* | ***新加坡航空公司*** | *7 架波音 777 **飞机*** | *Within-新近* |

#### 2.2.6 Other

The Other Class of relations is reserved for those that do not strictly satisfy the syntactic requirements of one of the other classes, but still satisfies the ‘Reasonable Reader Rule’:

> **Do not tag a relation if there is a reasonable interpretation under which relation does not hold.**

In other words, any taggable relation between two arguments in a sentence should be captured.

| *在西岸，一辆以色列巴士着火，导致一名乘客受伤。* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Other Asserted Past* | *Physical.Located* | *一名**乘客*** | ***西岸*** |
| *Other Asserted Past* | *Physical.Located* | *一辆以色列**巴士*** | ***西岸*** |
| *Other Asserted Past* | *ART.UIOM* | *一名**乘客*** | *一辆以色列**巴士*** |

| *四个中山医学院的毕业生借住在同学家。* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Other Asserted Unspecified* | *Person-Social.Lasting* | *四个中山医学院的**毕业生*** | ***同学*** |
| *Verbal Asserted Past* | *Physical.Located* | *四个中山医学院的**毕业生*** | *同学**家*** |
| *Premod Asserted Unspecified* | *ART.UIOM* | ***同学*** | *同学**家*** |

### *2.3. Relation Extent*

It is important to note that the accurate identification of the Syntactic Class and the Relation Extent for each Relation will have significant effects on other decisions, such as taggability and timestamp accessibility.

The six relation classes are intended to provide justification for the tagging of each relation. Recall that the Reasonable Reader Rule and the restriction of taggable Relations to those that occur within a single sentence do the majority of work in constraining Relation Taggability. The Syntactic Classes are used to provide an additional sanity check on taggabilty. Relation Extent is used for similar purposes and also to constrain the accessibility of TIMEX2 objects for use in Relation timestamping.

The accessibility of Arguments and Timestamps to Relations will both be constrained by the extent of the Relation Mention under consideration. For Timestamps, this constraint is definitive to the issue of accessibility: if the TIMEX2 object does not fall within the extent of the Relation Mention, then the object cannot be indicated as a Timestamp of the Relation in question.

For Arguments, the decision will usually run the other way: the relation will be justified by the Reasonable Reader Rule and the Syntactic Class. Relation Extent

will be defined in such a way: that both arg1 and arg2 are included in the Relation Extent; and that the Syntactic Class felicitously describes that extent (and the syntactic connection between the two arguments).

One direct implication of this approach is that many potential relations will satisfy the Reasonable Reader Rule but will not fit into one of the 7 explicitly defined Syntactic Classes (all but the *Other* class). These cases should be considered more carefully than the others, and their identification as *Other* should motivate this attention.

Relation Extent is defined relative to each of the proposed Syntactic Classes.

If the Lexical Condition is '***Other***' or '***Verbal***', the extent is the whole sentence that contains the entity mentions which will act as Arg-1 and Arg-2, no matter how long the sentence is. Several criterea for cutting sentence boundary are:

1. If the subject of a clause is dropped, but can be traced back to the previous clause, we treat these clauses as a single sentence. For example:

> [以色列士兵和巴勒斯坦示威群众在犹太人定居点发生激烈冲突，导致多人受伤]。
>
> 美国总统布什今天下午乘专机抵达伦敦，预计明天前往巴黎和法国总统举行会谈。

2. If the subject of a clause is not dropped, but is connected with adjacent clause by overt connetives, such as 虽然，但是，因为，所以，如果，就，etc, treat the connected clauses as a single sentence. If the two clauses are related via discourse markers, we treat them as two sentences. For example:

> [而巴拉克已经返回以色列，但发言人并没有否认巴拉克前往埃及参加会谈的可能性]。

3. If the subject of a clause is not dropped, and there is either discourse marker or no overt connectives to connect the clause with adjacent clauses, we treat each clause itself as a single sentence. For example:

> [美国总统布什今天下午乘专机抵达伦敦]，[他明天将前往巴黎和法国总统举行会谈]。
>
> [在巴黎会谈没有达到预期效果，奥尔布赖特，阿拉法特，穆巴拉克继续前往埃及进行商谈]，[而巴拉克已经返回以色列，但发言人并没有否认巴拉克前往埃及参加会谈的可能性]。

If the lexical condition is ***Participial***, the extent is the head noun with the modifying relative clause.

*这颗威力巨大的炸弹星期一，在靠近犹太人定居点大哥姆附近[一个接送犹太学生和他们的父母及老师的校车]附近爆炸.*

***All remaining Syntactic Classes*:** Otherwise, the extent is the maximal projection of the lowest NP containing the two entity mentions which will act as Arg-1 and Arg-2. For the Coordination Syntactic class, the extent will be the coordinated NP containing both arguments.

*[[英国外交大臣]库克的发言人]*
*[在美国旅游的中国游客]*
*[张三和李四]关系一直密切.*

### *2.4 Relation Timestamping*

If a relation is associated with a temporal expression which is in the scope of that relation, the relation should be timestamped with the temporal expression. For taggable temporal expression, refer to "TIDES 2003 Standard for the Annotation of Temporal Expressions". For detailed discussion on timestamping, refer to "Timestamping of ACE Relations and Events".

Here are some examples of timestamping of relation:

| *他是[60 年代的美国特使]* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal Asserted Past* | *Org-Aff.Employment* | *60 年代的美国**特使*** | *美国* | *Within-60 年代* |

| *他曾经住在巴黎* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal Asserted Past* | *GENERAL-AFF.CRRE* | *他* | *巴黎* | *Within-曾经* |

| *美国前总统* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Premod Asserted Past* | *Org-Aff.Employment* | *美国前**总统*** | *美国* | *Within-前* |

A lot of cases there is a temporal expression in the extent of a relation, but it is not a direct adjunct of the relation/event mention, instead it is rather implicitly related to the relation/event mention, we must use our intuition to judge whether the temporal expression should be stamped on the relation. If there is reasonable interpretation of

the sentence in which the relation holds referring to the temporal expression, it then should be stamped with the time. In cases of confusion, we apply the "***Locality***" rule:

> Whenever the TIMESTAMP might apply to several Relations equally well, we will assume that the TIMEX2 mention attaches only to the most syntactically local Relation, unless there is clear evidence to the contrary from the context.

Note that in Chinese, the temporal expression usually does not appear at the end of a sentence.

| *周六晚上，布什总统离开华盛顿前往巴黎同欧盟领导会谈。* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal Asserted Past* | *PHYSICAL-located* | *布什* | *华盛顿* | *Within-周六晚上* |
| *Verbal Asserted Unspecified* | *PHYSICAL-located* | *布什* | *巴黎* | |

| *布什总统周六晚上离开华盛顿前往巴黎同欧盟领导会谈。* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal Asserted Past* | *PHYSICAL-located* | *布什* | *华盛顿* | *Within-周六晚上* |
| *Verbal Asserted Unspecified* | *PHYSICAL-located* | *布什* | *巴黎* | |

| *布什总统离开华盛顿前往巴黎，准备周六晚上同欧盟领导会谈。* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Verbal Verbal Asserted Unspecified* | *PHYSICAL-located* | *布什* | *华盛顿* |
| *Verbal Asserted Unspecified* | *PHYSICAL-located* | *布什* | *巴黎* |

# 3 Modality and Tense

In addition to their type and subtype, relations will have a number of properties related to, e.g., when and if the relation really holds.

Currently we will tag the features *MODALITY* and *TENSE*. The full lists of values for each feature and brief definitions of each are provided in the subsections which follow.

### *3.1 Modality*

*The Modality attribute of Relations will be defined as:*

> *Asserted* --- when the Reasonable Reader Rule is interpreted relative to the 'Real' world;
>
> *Other* --- when the Reasonable Reader Rule is taken to hold in a particular couterfactual world.

Negtively defined relations (e.g. "John is not in the house") will not be annotated.

When the entities are hypothetical, then the Relation is still understood as *Asserted*, but hypothetical Relations are annotated as *Other*. For example:

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

gives two Relations. The ORG-Aff.Membership relation between *terrorists* and *Al-Qaeda* will be annotated as *Asserted*. The relation Physical.Located relation between *terrorists* and *Baghdad* will be annotated as *Other.*

If we think of the situations described by sentences as pertaining to possible descriptions of the world (or as 'possible worlds') then we can think of *ASSERTED* relations as pertaining to situations in 'the real world' and we can think of *OTHER* relations as pertaining to situations in 'some other world defined by counterfactual constraints elsewhere in the context'.

For example, in the sentence:

> *我们担心阿凯达恐怖分子已经进入巴格达。*

The relation between Al-Qaeda and terrorists pertains in the real world and is tagged as ASSERTED. The presence of Al-Qaeda terrosists in Baghdad is a situation being described as holding in the counterfactual world defined by 'our' fear and hence is tagged as OTHER. And in:

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

The inspectors (*they*) are in Baghdad only in the world where they get plane tickets today. So the relation between inspector and Baghdad is treated as OTHER.

### *3.2 Tense*

*TENSE* will be defined relative to the time of speech. The potential values for this attribute will be defined as follows:

> *Past* --- the relation is taken to hold only for some span prior to the time of speech;
>
> *Future* --- the relation is taken to hold only for some span after the time of speech;
>
> *Present* --- the relation is taken to hold for a limited time overlapping with the time of speech;
>
> *Unspecified* --- the relation is 'static' or the span of time for which it holds cannot be determined with certainty;

TENSE will **only** be taggable for Relations in case the evidence for it can be found within the extent of the relation mention. For the majority of Relation mentions with NP extent, this will mean that their TENSE is '**Unspecified**.'

Note many of the Relations we annotate will be expressed by noun phrases, for exampe: *American president*. Most of the type it will be difficult to determine the TENSE of the Relation expressed. For all such cases, we will use the value *Unspecified*. Some notable exceptions might be:

> *下届美国总统* (*Future*)
> *美国前总统* *(Past)*

Formulaic Relations such as:

> "Wolf Blitzer, CNN, Baghdad."

will be annotated with TENSE="Present" by FIAT.

R1: "Wolf Blitzer" "CNN" (ORG-Aff.Employment Asserted Present)
R2: "Wolf Blitzer" "Baghdad" (PHYSICAL.Located Asserted Present)

# 4 Types and Subtypes

In addition to the constraints discussed above, there will be one additional constraint on the taggability of Relations. Namely, a potential Relation Mention will only be taggable in case it expresses a taggable Relation Type and Subtype.

We will tag only a limited inventory of Types and Subtypes. The following subsections define these Types and Subtypes and describe the Entity Type constraints on their possible Arguments.

In each subsection, the potential types of the arguments will be expressed as:

**Permitted Relation Arguments:**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| *TYPE.SUBTYPE* | *ENTITY TYPES* | *ENTITY TYPES* |

This definition will be followed by a set of examples of the form:

**Examples:**

***ARG1_TYPE-ARG2_TYPE***

| *EXAMPLE TEXT* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *SYNTACTIC CLASS*<br>*MODALITY*<br>*TENSE* | *TYPE.SUBTYPE* | *MENTION* ***HEAD*** | *MENTION* ***HEAD*** |

## *4.1. Physical*

### 4.1.1 Located

The Location relation captures the physical location of an entity. This relation is restricted to entities whose location can theoretically vary. Persons, Vehicles, Weapons can and do tend to move around (or be moved around) frequently.

For locations of Facilities, Locations, and GPEs, use Part-Whole.Geographical instead.

We **do not** tag a PHYSICAL.Located relation when someone is *sentenced to prison* or *handed a jail sentence*. There is no taggable PHYSICAL relation in these constructions.

The default category for a relation indicated by a GPE premodifier is GENERAL-AFF.Citizen-Resident-Ethnicity (e.g. “Chicago gangs”), not PHYSICAL.Located. [This follows the same reasoning that dictates GPE premodifiers defaulting to role GPE.]

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Physical.Located | PER | FAC, LOC, GPE |

**Examples**

***PER-FAC***

| *在土耳其南部的一个美国空军基地的美国军队* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Physical.Located* | *在土耳其南部的一个美国空军基地的美国**军队*** | *土耳其南部的一个美国空军**基地*** |

**PER-GPE**

| *在美国旅游的中国游客* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Physical.Located* | *在美国旅游的中国**游客*** | ***美国*** |

***PER-GPE***

| *国家主席江泽民今天抵达莫斯科开始对俄罗斯进行为期三天的国事访问。* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal*<br>*Asserted*<br>*Present* | *Physical.Located* | ***江泽民*** | ***莫斯科*** | *Starting-今天* |
| *Other*<br>*Asserted*<br>*Unspecified* | *Physical.Located* | ***江泽民*** | ***俄罗斯*** | *Holds-三天* |

### 4.1.2 Near

Near indicates that an entity is explicitly near another entity, but neither entity is a part of the other or located in/at the other.

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Physical.Near | PER, FAC, LOC, GPE | FAC, LOC, GPE |

**Examples**

***GPE-LOC***

| *海峡两岸* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Physical.Near* | *海峡**两岸*** | ***海峡*** |

***GPE-GPE***

| *江宁县以南20公里的小镇* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Physical.Near* | *江宁县以南20公里的**小镇*** | ***江宁县*** |

***GPE-GPE***

| *距纽约不远的费城* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Physical.Near* | *距纽约不远的**费城*** | ***纽约*** |

### *4.2. Part-whole*

#### 4.2.1 Geographical

The Geographical relation captures the location of a Facility, Location, or GPE in or at or as a part of another Facility, Location, or GPE. Geographical relationships are the sorts of things one might find in a gazetteer or on a map or building plan, though this is not a requirement per se. Similarly, these are typically permanent relationships, though there are obviously exceptions (a tent might be put up in a certain location for a special event, for example).

The following two types of constructions will also be tagged as Part-Whole.Geographical:

1. GPEs and Regions under the control of some larger GPE:
   *.. the Indian controlled region …*

   Part-Whole.Geographical (*region*, *India*)

2. Areas defined by a central GPE:
   … the Atlanta area ..
   … the Los Angeles region …

Part-Whole.Geographical (*Atlanta*, area)
Part-Whole.Geographical (*Los Angeles*, *region*)

**Permitted Relation Arguments**

| Type | Argument 1 | Argument 2 |
|---|---|---|
| Part-Whole.Geo | FAC, LOC, GPE | FAC, LOC, GPE |

**Examples**

***FAC-FAC***

| *三楼的小屋* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Geo* | ***三楼的小屋*** | ***三楼*** |

***FAC-LOC***

| *山顶上的车站* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Geo* | *山顶上的****车站*** | ***山顶*** |

***GPE-GPE***

| *前苏联的一个州* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Past* | *Part-Whole.Geo* | *前苏联的一个****洲*** | ***前苏联*** |

***LOC-LOC***

| *青海省南部的一个湖泊* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Geo* | *青海省南部的一个****湖泊*** | *青海省****南部*** |

***LOC-LOC***

| *山的顶部* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Geo* | *山的****顶部*** | ***山*** |

### 4.2.2 Subsidiary

Subsidiary captures the ownership, administrative, and other hierarchical relationships between organizations and between organizations and GPEs. This includes relationships between a company and its parent company, as well as between a department of an organization and that organization. It also includes the relationship between organizations and the GPE's government of which they are a part.

We will also tag the relation between a GPE and the industries (ORGs) that they control as Part-Whole.Subsidiary:

… *state-controlled banks …*
Part-Whole.Geographical (*banks*, *state*)

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Part-Whole.Subsidiary | ORG | ORG, GPE |

**Examples**

***ORG-GPE***

| *纽约警局* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Subsidiary* | *纽约**警局*** | ***纽约*** |

***ORG-ORG***

| *微软公司的财务科* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Subsidiary* | *微软公司的**财务科*** | ***微软公司*** |

***ORG-GPE***

| *中国外交部* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Subsidiary* | *中国**外交部*** | ***中国*** |

### 4.2.3 Artifact

Artifact characterizes physical relationships between concrete physical objects and their parts. Both arguments must have the same entity type (though not subtype). This relation is restricted to Vehicles, and Weapons.

**Permitted Relation Arguments**

| Type | Argument 1 | Argument 2 |
|---|---|---|
| Part-Whole.Artifact | VEH | VEH |
| Part-Whole.Artifact | WEA | WEA |

**Examples**

***VEH-VEH***

| *火车的一节车厢* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Artifact* | *火车的一节**车厢*** | ***火车*** |

***WEA-WEA***

| *导弹携带的炸药* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Part-Whole.Artifact* | *导弹携带的**炸药*** | ***导弹*** |

### *4.3. Personal-Social*

Personal-Social relations describe the relationship between people. Both arguments must be entities of type PER.

Please note: The arguments of these relations are not ordered. The relations are symmetric.

#### 4.3.1 Business

The Business relation captures the connection between two entities in any professional relationship. This includes boss-employee, lawyer-client, student-teacher, co-workers, political relationships on a personal level, etc. This does not include relationships implied from interaction between two entities (e.g. “President Clinton met with Yasser Arafat last week”).

The PER-SOC.Business relation will be used whenever a reporter is embedded with a military unit (which is annotated as a PERSON entity).

**Permitted Relation Arguments**

| Type | Argument 1 | Argument 2 |
|---|---|---|
| Per-Social.Business | PER | PER |

**Examples**

***PER-PER***

| *他们的同事* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Business* | *他们的**同事*** | ***他们*** |

***PER-PER***

| *他的律师* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Business* | *他的**律师*** | ***他*** |

***PER-PER***

| *议员的发言人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Business* | *议员的**发言人*** | ***议员*** |

### 4.3.2 Family

The 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** |
|---|---|---|
| Per-Social.Family | PER | PER |

**Examples**

***PER-PER***

| *死者的亲属* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Family* | *死者的**亲属*** | ***死者*** |

***PER-PER***

| *他的妻子* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted* | *Per-Social.Family* | *他的**妻子*** | ***他*** |

| | | | |
|---|---|---|---|
| *Unspecified* | | | |

***PER-PER***

| *他有病在身的父亲* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Family* | *他有病在身的**父亲*** | ***他*** |

### 4.3.3 Lasting-Personal

Lasting-Personal captures relationships 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.

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 “his visitors,” “his victims,” or “his 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.”).

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Per-Social.Lasting | PER | PER |

**Examples**

***PER-PER***

| *他的邻居* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted* | *Per-Social.Lasting* | *他的**邻居*** | ***他*** |

| | | | |
|---|---|---|---|
| *Unspecified* | | | |

***PER-PER***

| *张三的同班同学* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Per-Social.Lasting* | *张三的同班**同学*** | ***张三*** |

***PER-PER***

| *张三和李四关系一直比较密切* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Coordination*<br>*Asserted*<br>*Present* | *Per-Social.Lasting* | *张三* | *李四* |

***PER-PER***

| *和王妃亲近的人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *Per-Social.Lasting* | *和王妃亲近的**人*** | ***王妃*** |

### *4.4. ORG-Affiliation*

#### 4.4.1 Employment

Employment captures the relationship between Persons and their employers. This relation is only taggable when it can be reasonably assumed that the PER is paid by the ORG or GPE. This relation includes the relationship between an elected representative and the GPE he represents, for example, "***John Kerry** (D-**Massachusetts**).*"

Note that this relation trumps ethnicity or citizenship: "*American troops*" and "*Russian President Vladimir Putin*" should both be annotated as Employment rather than Citizen-Resident-Ethnicity.

In instances where the Person is a member of some government body (*the Senate, the Knesset, the Supreme Court*, etc.), we will tag this relationship as Membership rather than Employment.

Whenever it is unclear whether an ORG-AFF relation should be annotated as subtype Employment or subtype Membership, we will choose Membership and move on.

**Permitted Relation Arguments**

| Type | Argument 1 | Argument 2 |
|---|---|---|
| Org-Aff.Employment | PER | ORG, GPE |

**Examples**

***PER-GPE***

| *美国总统* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Employment* | *美国**总统*** | ***美国*** |

***PER-ORG***

| *微软公司执行总裁* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Employment* | *微软公司执行**总裁*** | ***微软公司*** |

***PER-ORG***

| *他现在任职于一个国际公司* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal*<br>*Asserted*<br>*Present* | *Org-Aff.Employment* | ***他*** | *一个国际**公司*** | *Within-现在* |

**4.4.2 Ownership**

Ownership captures the relationship between a Person and an Organization owned by that Person. Sometimes it is hard to tell this relation apart from Employment. For example, when there are no explicit words of ownership, the phrase “boss” can either be understood as “owner” or “manager”. In this case, use Employment as the default relation.

Note: If the second argument is not an ORG, use the Agent-Artifact relation.

**Permitted Relation Arguments**

| Type | Argument 1 | Argument 2 |
|---|---|---|
| Org-Aff.Ownership | PER | ORG |

**Examples**

***PER-ORG***

| *五金店的老板* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Ownership* | *五金店的**老板*** | ***五金店*** |

### 4.4.3 Founder

Founder captures the relationship between an agent (Person, Organization, or GPE) and an Organization or GPE established or set up by that agent.

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Org-Aff.Founder | PER, ORG | ORG, GPE |

**Examples**

***PER-ORG***

| *波音公司的创始人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Founder* | *波音公司的**创始人*** | ***波音公司*** |

***PER-ORG***

| *张三和李四于80 年代共同创建了这个公司* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Founder* | ***张三*** | *这个**公司*** | *Starts-80 年代* |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Founder* | ***李四*** | *这个**公司*** | *Starts-80 年代* |

### 4.4.4 Student-Alum

Student-Alum captures the relationship between a Person and an educational institution the Person attends or attended. Please note that only attendance is required. It is not necessary for the person to have officially graduated from the institution.

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|

| | | |
|---|---|---|
| Org-Aff.Student-Alum | PER | ORG.Educational |

**Examples**

***PER-ORG***

| *西点军校的毕业生* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Student-Alum* | *西点军校的**毕业生*** | ***西点军校*** |

***PER-ORG***

| *他就读于美国名校* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Student-Alum* | ***他*** | *美国**名校*** |

### 4.4.5 Sports-Affiliation

Sports-Affiliation captures the relationship between a player, coach, manager, or assistant and his or her affiliation with a sports organization (including sports leagues or divisions as well as individual sports teams). This relation subtype exists because it often requires domain-specific world knowledge to determine whether a sports team is made up of paid or unpaid players (i.e. whether a relationship between a player and a team qualifies as Employment).

We will ***always*** use the Sports-Affiliation subtype for EMP-ORG relations between a PERSON entity and an ORGANIZATION entity with the subtype Sports.

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Org-Aff.Sports-Aff | PER | ORG |

**Examples**

***PER-ORG***

| *国家篮球队的队员* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Sports-Aff* | *国家篮球队的**队员*** | *国家**篮球队*** |

***PER-ORG***

| *姚明带领火箭队队员赢得了胜利* |
|---|

| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
|---|---|---|---|
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Sports-Aff* | *火箭队**队员*** | ***火箭队*** |

***NOTE:*** there is no taggable relation between ***姚明***和***火箭队***.

***PER-ORG***

| *他以前效力于纽约扬基队* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal*<br>*Asserted*<br>*Past* | *Org-Aff.Sports-Aff* | ***他*** | *纽约**扬基队*** | *Within-以前* |

### 4.4.6 Investor-Shareholder

Investor-Shareholder captures the relationship between an agent (Person, Organization, or GPE) and an Organization in which the agent has invested or in which the agent owns shares/stock. Please note that agents may invest in GPEs.

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Org-Aff.Shareholder | PER, ORG, GPE | ORG, GPE |

**Examples**

***PER-ORG***

| *该公司的股东* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Investor-Shareholder* | *该公司的**股东*** | *该**公司*** |

***ORG-ORG***

| *仅 1992 年, 摩托罗拉就在这家公司投资了 1.2 亿美元。* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Verbal*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Investor-Shareholder* | ***摩托罗拉*** | *这家**公司*** |

### 4.4.7 Membership

Membership captures the relationship between an agent and an organization of which the agent is a member. Organizations and GPEs can be members of other Organizations (such as *NATO* or *the UN*). As discussed above, instances where a Person is a member of some government body (*the Senate, the Knesset, the*

*Supreme Court*, etc.) will be tagged as Membership, even when the word “member” is not present (e.g. *Supreme Court justice*).

We will always tag the relation between members of terrorist Organizations and those organizations as ORG-AFF.Membership.

Whenever it is unclear whether an ORG-AFF relation should be annotated as subtype Employment or subtype Membership, we will choose Membership and move on.

**NOTE**: This does include political and religious affiliation, even if that affiliation is no more than an expression of voting trends or supporting attitude, such as 民主党的支持者, 伊斯兰极端组织的捐献人.

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| Org-Aff.Membership | PER, ORG, GPE | ORG |

**Examples**

***PER-ORG***

| *共产党党员* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Membership* | *共产党**党员*** | ***共产党*** |

***GPE-ORG***

| *三个联合国常任理事国,美国,英国和中国* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Membership* | *三个联合国常任**理事国*** | ***联合国*** |

***PER-ORG***

| *圣保罗天主教堂的教徒* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *Org-Aff.Membership* | *圣保罗天主教堂的**教徒*** | ***圣保罗天主教堂*** |

### *4.5. Agent-Artifact*

#### 4.5.1 User-Owner-Inventor-Manufacturer

This relation applies when an agent owns an artifact, has possession of an artifact, uses an artifact, or caused an artifact to come into being.

Note: if the second argument is an Organization, use ORG-Affiliation.Ownership (arg1=PER) or Part-Whole.Subsidiary (arg1=ORG or GPE).

We will tag the relation between a passenger (or a pilot or a driver) and the vehicle that they are using as ART.User-Owner-Inventer-Manufacturer.

**Permitted Relation Arguments**

| Type | Argument 1 | Argument 2 |
|---|---|---|
| Agent-Artifact.UOIM | PER, ORG, GPE | WEA, VEH, FAC |

**Examples**

***PER-VEH***

| *阿拉法特乘飞机抵达巴黎* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Verbal Asserted Past* | *Agent-Artifact.UOIM* | *阿拉法特* | *飞机* |

***GPE-VEH***

| *美国直升机飞过伊拉克北部* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod Asserted ??* | *Agent-Artifact.UOIM* | ***美国*** | *美国**直升机*** |

***ORG-VEH, ORG-VEH***

| *英国航空公司最近购得 7 架波音飞机。* | | | | |
|---|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** | ***Time*** |
| *Verbal Asserted Unspecified* | *Agent-Artifact.UOIM* | ***英国航空公司*** | *7 架波音**飞机*** | *Starts-最近* |
| *PreMod Asserted* | *Agent-Artifact.UOIM* | ***波音*** | *7 架波音**飞机*** | |

| | | | | |
|---|---|---|---|---|
| *Unspecified* | | | | |

### *4.6. General-Affiliation*

#### 4.6.1 Citizen-Resident-Religion-Ethnicity

Citizen-Resident-Religion-Ethnicity describes the relation between a PER and the GPE in which they have citizenship, the GPE or Location in which they live, or the GPE or PER entity that indicates their ethnicity, or the Per and Per/GPE that indicates their religious background. We consider a person's birthplace as a place of residence for this purpose (e.g. "the Russian-born athlete" or "he was born in San Francisco").

The default category for a relation indicated by a GPE premodifier is GENERAL-AFF.Citizen-Resident-Ethnicity (e.g. "Chicago gangs"), not PHYSICAL.Located. (This follows the same reasoning that dictates GPE premodifiers defaulting to role GPE.)

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| General-AFF.CRRE | PER | PER (collective PERs only), LOC, GPE |

**Examples**

**PER-GPE**

| *美国商人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *General-AFF.CRRE* | *美国**商人*** | ***美国*** |

***PER-GPE***

| *我的祖国* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Premod*<br>*Asserted*<br>*Unspecified* | *General-AFF.CRRE* | ***我*** | *我的**祖国*** |

***PER-GPE***

| *居住在纽约的中国人* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *General-AFF.CRRE* | *居住在纽约的**中国人*** | ***纽约*** |

***PER-GPE***

| *忠于梵蒂冈的信徒* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *General-AFF.CRRE* | *忠于梵蒂冈的**信徒*** | *梵蒂冈* |

### 4.6.2 Org-Location-Origin

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

Note: Subsidiary trumps this relation for government organizations. For instance, “the U.S. Army” should be marked as 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:

… *state-controlled banks …*

Part-Whole.Geographical (*banks*, *state*)

**Permitted Relation Arguments**

| **Type** | **Argument 1** | **Argument 2** |
|---|---|---|
| GEN-AFF.Org-Location | ORG | LOC, GPE |

**Examples**

***ORG-GPE***

| *位于天津的摩托罗拉公司* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *Participial*<br>*Asserted*<br>*Unspecified* | *GEN-AFF.Org-Location* | ***摩托罗拉公司*** | ***天津*** |

***ORG-GPE***

| *中国的汽车公司* | | | |
|---|---|---|---|
| ***Class*** | ***Type*** | ***Argument 1*** | ***Argument 2*** |
| *PreMod*<br>*Asserted*<br>*Unspecified* | *GEN-AFF.Org-Location* | *中国的汽车**公司*** | ***中国*** |

# 5 Appendix Possible relations between ARG1 and ARG2

| | PER | ORG | GPE | LOC | FAC | WEA | VEH |
|---|---|---|---|---|---|---|---|
| PER | Per_Social.Bus<br>Per_Social.Family,<br>Per_Social.Lasting,<br>Gen_Aff.Ideology,<br>Gen_Aff.CRRE | Org_Aff.Employment,<br>Org_Aff.Ownership,<br>Org_Aff.Student/Alum,<br>Org_Aff.Sports_Affiliation,<br>Org_Aff.Investor/Shareholder,<br>Org_Aff.Membership,<br>Org_Aff.Founder,<br>Gen_Aff.CRRE | Physical.Located,<br>Physical.Near,<br>Org_Aff.Employment,<br>Org_Aff.Investor/Shareholder,<br>Org_Aff.Founder,<br>Gen_Aff.CRRE | Physical.Located,<br>Physical.Near,<br>Gen_Aff.CRRE | Physical.Located<br>Physical.Near,<br>Agent/Artifact.UOIM | Agent/Artifact.UOIM | Agent/Artifact.UOIM |
| ORG | | Part_Whole.Subsidiary,<br>Org_Aff.Investor/Shareholder,<br>Org_Aff.Membership | Part_Whole.Subsidiary,<br>Org_Aff.Investor/Shareholder,<br>Gen_Aff.Loc/Origin | Gen_Aff.Loc/Origin | Agent/Artifact.UOIM | Agent/Artifact.UOIM | Agent/Artifact.UOIM |
| GPE | | Org_Aff.Investor/Shareholder,Org_Aff.Membership, | Physical.Near,<br>Part_Whole.Geographical<br>Org_Aff.Investor/Shareholder | Physical.Near,<br>Part_Whole.Geographical | Agent/Artifact.UOIM | Agent/Artifact.UOIM | Agent/Artifact.UOIM |
| LOC | | | Physical.Near,<br>Part_Whole.Geographical | Physical.Near,<br>Part_Whole.Geographical | Physical.Near,<br>Part_Whole.Geographical | | |
| FAC | | | Physical.Near,<br>Part_Whole.Geographical | Physical.Near,<br>Part_Whole.Geographical | Physical.Near,<br>Part_Whole.Geographical | | |
| WEA | | | | | | Part_Whole.Artifact | |
| VEH | | | | | | | Part_Whole.Artifact |