Entity Labels

- Green: Correct extraction.
- Grey: Incorrect extraction.

Age

Rule: Numbers should be extracted along with expressions such as“years old” or “age of”. Ages expressed in terms of decades should also be extracted.

Examples:

a) The patient presents as a 66-year-old Caucasian female in stable health.

b) He was diagnosed with obesity at the age of 25.

Gender

Rule: The gender label should be used for gender specific nouns, except for family members such as “father” or “sister”. Pronouns (such as “his” or “her” should not be extracted).

Examples:

a) She was treated with tamoxifen.

b) His father was diagnosed with dementia at 55 years old.

Employment

Rule: Extract terms that are related to any specific jobs or employment,whether related to the patient or not. Do not extract words such as "works", "working" or "employed".

Examples:

a) She will also see a nutritionist and a social worker.

b) He works as a financial officer.

Date

Rule: Months can be expressed as numbers or in words. All the partsof the date should be included in the same extraction (i.e., day, month and year that refer to the same date should not be split if they appear together in the text).Do not extract relative dates i.e., today, tomorrow, yesterday, etc.

Examples:

a) On 05/04/2015, the patient started chemotherapy.

b) It should be administered in the morning.

Disease_Syndrome_Disorder

Rule: Extract all mentions of medical conditions and diseases, including those related to the patient or to a family member. Do not include in the extraction modifiers such as “chronic”, “mild” or “severe” (this kind of words should be extracted using the label Modifier).

Examples:

a) The patient has Alzheimer diagnosed back in 2012.

b) A diagnosis of chronic kidney disease was established in the past.

Modifier

Rule: Extract words that indicate severity (such as “mild” or “severe”),duration (such as “chronic” or “acute”) or any other feature of the entities.

Examples:

a) He has been experiencing chronic back pain for five years.

b) Patient with history of type II diabetes.

VS_Finding

Rule: It only include the names of the vital signs, such as “Blood pressure” (or “BP”), “Pulse”, “Respiratory Rate” (or “RR”), “Temperature”, etc. Donot extract vital sign measurements.

Examples:

a) VITAL SIGNS: Stable blood pressure and respiratory rate.

b) He has a blood pressure of 120/88mmhg.

Test_Result

Rule: Extract together the numerical values and the units of measurement (such as “mmHg” or “bpm”) of the vital signs. Do not extract the name of the vital signs, as they are to be extracted under VS_Finding.

Examples:

a) VITAL SIGNS: The patient’s heart rate is slightly high, 105bpm.

b) He has a fever with a temperature of 101.6°F.

Drug_Ingredient

Rules: Only generic names should be extracted using this label. No other posology/drug brand names information should be labeled as Drug.

Examples:

a) Acetaminophen 500mg every day.

b) He was taking his medication as intended.

Assertion Labels

The following are considerations when adding assertions:

- entities should only be assigned one assertion label only
- assertions are applied based on one sentence sentiment.

Present

Rule: Use this assertion label only for entities extracted asDisease_Syndrome_Disorder.

Example:

a) He is a 60 years old gentleman with diabetes **Present** **Disease_Syndrome_Disorder**.
(Disease_Syndrome_Disorder + Present Assertion).

Absent

Rule: Absent entities are found in phrases that include words suchas *no, without, lack,* etc.

Example:

a) The ultrasound showed that the patient does not have psoriasis **Absent** **Disease_Syndrome_Disorder**.

(Disease_Syndrome_Disorder Entity + Absent Assertion).

Possible

Rules: Possible entities are found in phrases that include words such as *maybe, perhaps, could, likely, unlikely, to rule out*, etc.

Example:

a) The patient requires further evaluation to rule out cancer **Possible** **Disease_Syndrome_Disorder**.

(Disease_Syndrome_Disorder Entity + Possible Assertion).

Family

Rules: If a medical problem referring to a family member is negated in the text, and both the **Family** assertion and the **Absent** assertion can be applied. Use only the assertion label **Absent,** in that case.

Examples:

a) His father died from colon cancer **Family** **Disease_Syndrome_Disorder**. (Disease_Syndrome_Disorder Entity + FamilyAssertion).

Assertions Table

	Present	**Absent**	**Possible**	**Family**
Age	No	No	No	No
Gender	No	No	No	No

Employment	No	No	No	No
Date	No	No	No	No
Disease_Syndrome_Disorder	**Yes**	**Yes**	**Yes**	**Yes**
Modifier	No	No	No	No
VS_Finding	No	No	No	No
Test_Result	No	No	No	No
Drug_Ingredient	No	No	No	No

Relations

Relations are used to link two related entities.

- relations are NOT created for entities present in different sentences
- some relations require a relation label
- some relations require assignation of direction

Is_diagnosis_date_of

Rules: The Disease_Syndrome_Disorder entity and the relevant date associatedwith it are extracted and related using the relation label is_diagnosis_date_of only when the date refers to the diagnosis of the medical problem.

Examples:
a) She was diagnosed with Parkinsons in 1987.

Parkinsons (Disease_Syndrome_Disorder entity) and **1978** (Date entity) are related.

Is_modifier_of

Rules: The Disease_Syndrome_Disorder and the relevant modifier are extracted and related using the relation label is_modifier_of.

Examples:
a) He has been experiencing chronic migraine for five years.

Migraine (Disease_Syndrome_Disorder entity) and **Chronic** (Modifier entity) are related.

Is_cause_of

Rules: First, extract both Disease_Syndrome_Disorder. Then, create the relation selecting first the cause and then the consequence, and use the label is_cause_of.

Examples:
a) He has esophageal varices secondary to liver cirrhosis.

Esophageal Varices (Disease_Syndrome_Disorder Entity) and **Liver Cirrhosis** are related.

Is_result_of

Rules: The VS_Finding entity and the relevant Test_Result areextracted and related with the is_result_of label.

Examples:

a) He is febrile with a temperature of 101.6°F.

Temperature (VS_Finding) and **101.6°F** (Test_Result Entity) are related.

Relations Table

	Entity 1	Entity 2	Label Needed	Direction Needed
Is_diagnosis_date_of	Disease_Syndrome_Disorder	Date	Yes	No
Is_modifier_of	Disease_Syndrome_Disorder	Modifier	Yes	No
Is_cause_of	Disease_Syndrome_Disorder	Disease_Syndrome_Disorder	Yes	Yes
Is_result_of	VS_Finding	Test_Result	Yes	No