Homework 3

Problem 1:

I got the following result:

S1: [Arg1 Sales of the company] to return [ArgM-PRP to normalcy].

S2: [Arg0 The new products and services] contributed [ArgM-PRP to increase] [Arg1 revenue].

S3: [Arg1 Dow] falls as [Arg0 recession indicator] flashed [Arg1 red] and [Arg0 economical worries] continue [ArgM-TMP through the month].

S4: [Arg0 Figure skater] lands [Arg1 historic quadruple jump] [ArgM-LOC in senior international competition] [ArgM-LOC at the 2019 World Figure Skating Championships] [ArgM-TMP on Day 3] [ArgM- DIS but] [ArgM-MOD could] [ArgM-ADV only] clinch [Arg1 a silver medal].

Problem 2:

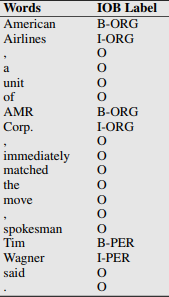
a/ Identify manually the Named Entities in the following short text.

[PER **Solange Knowles**] will not be performing at this year's [ENT **Coachella Music and Arts Festival**] after all. The [ENT **music festival**]'s official [ORG **Twitter**] account announced the news Sunday night. [PER **Knowles**] released her new album, "[ALB **When I Get Home**]," last month. An accomplished singer, songwriter, dancer, DJ and style guru, [PER **Knowles**] graced the [LOC **Coachella stage**] last year when she joined her big sister, [PER **Beyoncé**], during her historic, headlining tour. [PER **Ariana Grande**], [PER **Childish Gambino**], and [PER **Tame Impala**] are headlining the festival this year. [ENT **Coachella**] takes place annually over two weekends in April in [LOC **Indio**], [LOC **California**].

There are 15 Named entities in this sentence: 7 of them are PERSON(PER), 3 of them are LOCATION(LOC), 3 of them are ENTERTAINMENT-EVENT(ENT), 1 of them is ORGANIZATION(ORG), and 1 of them is ALBUM-TITLE(ALB).

b/ Use the IOB notation to indicate the labels that you would assign to the text from Problem 2.a.

format:



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 1 for sentence 1 | | Table 2 for sentence 2 | | Table 3 for sentence 3 | |
| Word | IOB Label | Word | IOB Label | Word | IOB Label |
| Solange | B-PER | The | O | Knowles | B-PER |
| Knowles | I-PER | music | B-ORG | released | O |
| will | O | festival | I-ORG | her | O |
| not | O | ‘s | I-ORG | new | O |
| be | O | official | I-ORG | album | O |
| performing | O | Twitter | I-ORG | , | O |
| at | O | account | I-ORG | “ | O |
| this | O | announced | O | When | B-ALB |
| year | O | the | O | I | I-ALB |
| ‘s | O | news | O | Get | I-ALB |
| Coachella | B-ENT | Sunday | O | Home | I-ALB |
| Music | I-ENT | night | O | , | O |
| and | I-ENT | . | O | “ | O |
| Arts | I-ENT |  |  | last | O |
| Festival | I-ENT |  |  | month | O |
| after | O |  |  | . | O |
| all | O |  |  |  |  |
| . | O |  |  |  |  |
| Table 4 for sentence 4 | | Table 5 for sentence 5 | | Table 6 for sentence 6 | |
| Word | IOB Label | Word | IOB Label | Word | IOB Label |
| An | O | Ariana | B-PER | Coachella | B-ENT |
| accomplished | O | Grande | I-PER | takes | O |
| singer | O | , | O | place | O |
| , | O | Childish | B-PER | annually | O |
| songwriter | O | Gambino | I-PER | over | O |
| , | O | , | O | two | O |
| dancer | O | and | O | weekends | O |
| , | O | Tame | B-PER | in | O |
| DJ | O | Impala | I-PER | April | O |
| and | O | are | O | in | O |
| style | O | headlining | O | Indio | B-LOC |
| guru | O | the | O | , | O |
| , | O | festival | B-ENT | California | B-LOC |
| Knowles | B-PER | this | O | . | O |
| graced | O | year | O |  |  |
| the | O | . | O |  |  |
| Coachella | B-LOC |  |  |  |  |
| stage | L-LOC |  |  |  |  |
| last | O |  |  |  |  |
| year | O |  |  |  |  |
| when | O |  |  |  |  |
| she | O |  |  |  |  |
| joined | O |  |  |  |  |
| her | O |  |  |  |  |
| big | O |  |  |  |  |
| sister | O |  |  |  |  |
| , | O |  |  |  |  |
| Beyoncé | B-PER |  |  |  |  |
| , | O |  |  |  |  |
| during | O |  |  |  |  |
| her | O |  |  |  |  |
| historic | O |  |  |  |  |
| , | O |  |  |  |  |
| headlining | O |  |  |  |  |
| tour | O |  |  |  |  |
| . | O |  |  |  |  |

c/ Annotate manually the temporal expressions in the text from Problem 2.a.

format:

Text, letter

Description automatically generated

Solange Knowles will not be performing at <TIMEX3>this year</TIMEX3> 's Coachella Music and Arts Festival after all. The music festival's official Twitter account announced the news <TIMEX3>Sunday night</TIMEX3>. Knowles released her new album, "When I Get Home," <TIMEX3>last month</TIMEX3>. An accomplished singer, songwriter, dancer, DJ and style guru, Knowles graced the Coachella stage <TIMEX3>last year</TIMEX3> when she joined her big sister, Beyoncé, during her historic, headlining tour. Ariana Grande, Childish Gambino, and Tame Impala are headlining the festival <TIMEX3>this year</TIMEX3>. Coachella takes place <TIMEX3>annually</TIMEX3> over <TIMEX3>two weekends</TIMEX3> in <TIMEX3>April</TIMEX3> in Indio, California.

d/ Perform temporal normalization of the temporal expressions you have identified in the text from Problem 2.a and produce an annotation of the normalized temporal expressions in the text.

The document was posted on April 14th, 2019.

Solange Knowles will not be performing at <TIMEX3 id=”t1” type=”DATE” value=”2019”>this year</TIMEX3> 's Coachella Music and Arts Festival after all. The music festival's official Twitter account announced the news <TIMEX3 id=”t2” type=”DATE” value=”2019-04-07” anchorTimeID=”t1”>Sunday night</TIMEX3>. Knowles released her new album, "When I Get Home," <TIMEX3 id=”t3” type=”DATE” value=”2019-03” anchorTimeID=”t1”>last month</TIMEX3>. An accomplished singer, songwriter, dancer, DJ and style guru, Knowles graced the Coachella stage <TIMEX3 id=”t4” type=”DATE” value=”2018” anchorTimeID=”t1”>last year</TIMEX3> when she joined her big sister, Beyoncé, during her historic, headlining tour. Ariana Grande, Childish Gambino, and Tame Impala are headlining the festival <TIMEX3 id=”t5” type=”DATE” value=”2019” anchorTimeID=”t1”>this year</TIMEX3>. Coachella takes place <TIMEX3 id=”t6” type=”EVERY” value=”P1Y”>annually</TIMEX3> over <TIMEX3 id=”t7” type=”DURATION” value=”P2WE” anchorTimeID=”t8”>two weekends</TIMEX3> in <TIMEX3 id=”t8” type=”DATE” value=”XXXX-04”>April</TIMEX3> in Indio, California.

e/ Identify in the text from Problem 2.a all the relations of the following types.

**TYPE 1**: PERSON → *Entertainer* → ENTERTAINMENT-EVENT (PER → *Entertainer* → ENT)

**TYPE 2**: PERSON → *Family* → PERSON (PER → *Family* → PER)

**TYPE 3**: PERSON → *Involved-in* → ALBUM-TITLE (PER → *Involved-in* → ALB)

**TYPE 4**: ENTERTAINMENT-EVENT → *Happens-in* → LOCATION (ENT → *Happens-in* → LOC)

**TYPE 5**: ENTERTAINMENT-EVENT → *Communicates-through* → ORGANIZATION (ENT → *Communicates-through* → ORG)

When presenting the relations that you manually discover, use the following format:

[Tim Warner]PER → Spokesman → [American Airlines]ORG

In a, I got:

[PER **Solange Knowles**] will not be performing at this year's [ENT **Coachella Music and Arts Festival**] after all. The [ENT **music festival**]'s official [ORG **Twitter**] account announced the news Sunday night. [PER **Knowles**] released her new album, "[ALB **When I Get Home**]," last month. An accomplished singer, songwriter, dancer, DJ and style guru, [PER **Knowles**] graced the [LOC **Coachella stage**] last year when she joined her big sister, [PER **Beyoncé**], during her historic, headlining tour. [PER **Ariana Grande**], [PER **Childish Gambino**], and [PER **Tame Impala**] are headlining the festival this year. [ENT **Coachella**] takes place annually over two weekends in April in [LOC **Indio**], [LOC **California**].

From this, I found 4 relations in Type 1, 1 in Type 2, 1 in Type 3, 2 in Type 4 and 1 in Type 5.

TYPE 1: [Knowles]PER → Entertainer → [Coachella Music and Arts Festival]ENT

TYPE 5: [Coachella Music and Arts Festival]ENT → Communicates-through → [ORG music festival's official Twitter account]ORG

TYPE 3: [Knowles]PER → Involved-in → [When I Get Home]ALB

TYPE 2: [Knowles]PER → Family → [Beyoncé]PER

TYPE 1: [Ariana Grande]PER → Entertainer → [festival]ENT

TYPE 1: [Childish Gambino]PER → Entertainer → [festival]ENT

TYPE 1: [Tame Impala]PER → Entertainer → [festival]ENT

TYPE 4: [Coachella]ENT → Happens-in → [Indio]LOC

TYPE 4: [Coachella]ENT → Happens-in → [California]LOC

f/

1) Provide examples of five classes of feature you would use to discover the five types of relations you have identified manually.

a) POSTag, b) POSChunk, c) ShortShape, d) IsPERGazetteer, e) IsLOCGazetteer.

2) Select one of your relations and show the feature values that you extract from the text from Problem 2.a

Select POSTag

Solange\_NNP Knowles\_NNP will\_MD not\_RB be\_VB performing\_VBG at\_IN this\_DT year\_NN 's\_POS Coachella\_NNP Music\_NNP and\_CC Arts\_NNP Festival\_NNP after\_IN all\_DT .\_. The\_DT music\_NN festival\_NN 's\_POS official\_JJ Twitter\_NNP account\_NN announced\_VBD the\_DT news\_NN Sunday\_NNP night\_NN .\_. Knowles\_NNP released\_VBD her\_PRP$ new\_JJ album\_NN ,\_, "\_'' When\_WRB I\_PRP Get\_VBP Home\_NNP ,\_, "\_'' last\_JJ month\_NN .\_. An\_DT accomplished\_JJ singer\_NN ,\_, songwriter\_NN ,\_, dancer\_NN ,\_, DJ\_NNP and\_CC style\_NN guru\_NN ,\_, Knowles\_NNP graced\_VBD the\_DT Coachella\_NNP stage\_NN last\_JJ year\_NN when\_WRB she\_PRP joined\_VBD her\_PRP$ big\_JJ sister\_NN ,\_, Beyoncé\_NNP ,\_, during\_IN her\_PRP$ historic\_JJ ,\_, headlining\_VBG tour\_NN .\_. Ariana\_NNP Grande\_NNP ,\_, Childish\_NNP Gambino\_NNP ,\_, and\_CC Tame\_NNP Impala\_NNP are\_VBP headlining\_VBG the\_DT festival\_NN this\_DT year\_NN .\_. Coachella\_NNP takes\_VBZ place\_NN annually\_RB over\_IN two\_CD weekends\_NNS in\_IN April\_NNP in\_IN Indio\_NNP ,\_, California\_NNP .\_.

3) For 2 of the five feature you selected. Discuss the classifier you would use for recognizing automatically these relations.

I would use classifier CRF for IsPERGazetteer and IsLOCGazetteer which are last 2 of the 5 I selected.