# **EWT** (basic)

trained on: en ewt-ud-train.iob2 + en ewt-ud-dev.iob2

tested on: lyrics\_test.iob2

recall: 0.7777076097252921 precision: 0.8295722465476592 span-f1: 0.8028031290743154

### unlabeled

ul\_recall: 0.8190716766656142 ul\_precision: 0.8736948467497474 ul\_span-f1: 0.8455019556714474

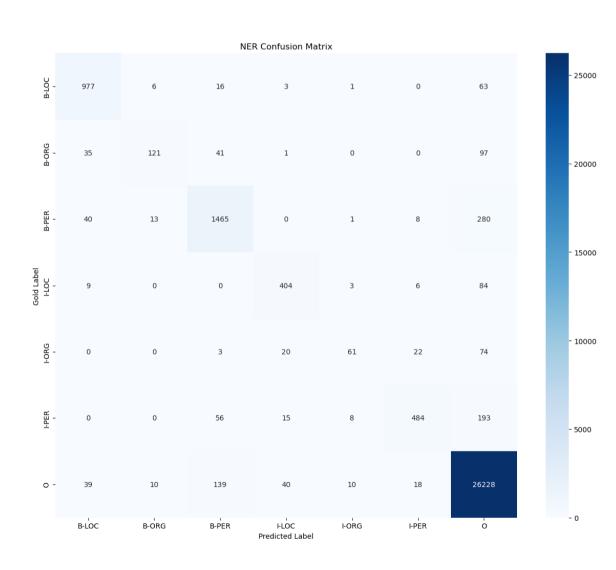
### loose (partial overlap with same label)

I\_recall: 0.8288601199873697
I\_precision: 0.8858201414617717
I\_span-f1: 0.8563940522867102

#### Mistake breakdown:

Correct 29740 Wrong\_label 307 Missed 791 Spurious 256 I-PER->B-PER 56 B-ORG->B-PER B-PER->B-LOC 40 B-ORG->B-LOC 35 I-ORG->I-PER 22 I-ORG->I-LOC 20 B-LOC->B-PER 16 I-PER->I-LOC 15 B-PER->B-ORG 13 I-LOC->B-LOC I-PER->I-ORG B-PER->I-PER B-LOC->B-ORG I-LOC->I-PER 6 I-ORG->B-PER B-LOC->I-LOC I-LOC->I-ORG B-LOC->I-ORG B-ORG->I-LOC

B-PER->I-ORG



# **EWT (DAPT)**

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2

tested on: lyrics\_test.iob2

recall: 0.7859172718661194 precision: 0.8434429007116232 span-f1: 0.813664596273292

unlabeled

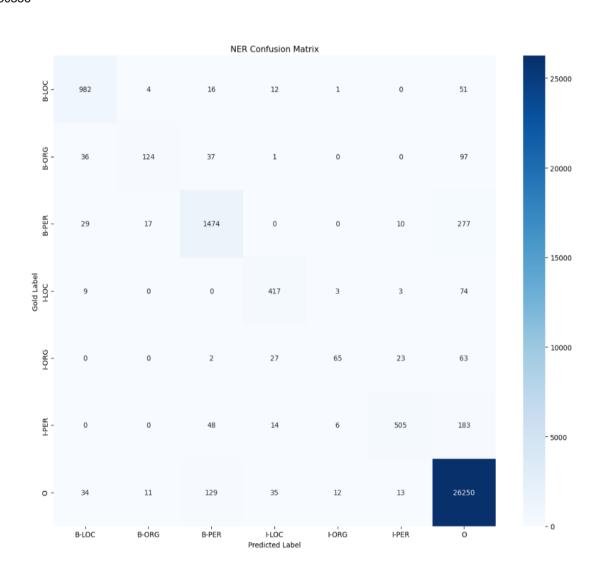
ul\_recall: 0.8228607514998422 ul\_precision: 0.8830904778041342 ul\_span-f1: 0.8519123896698266

## loose (partial overlap with same label)

I\_recall: 0.8320176823492264
I\_precision: 0.8952897322941376
I\_span-f1: 0.8624948654530336

### Mistake breakdown:

Correct 29817 Wrong\_label 298 Missed 745 234 Spurious I-PER->B-PER 48 B-ORG->B-PER 37 B-ORG->B-LOC 36 B-PER->B-LOC 29 I-ORG->I-LOC 27 I-ORG->I-PER 23 B-PER->B-ORG 17 B-LOC->B-PER 16 I-PER->I-LOC 14 B-LOC->I-LOC 12 B-PER->I-PER 10 I-LOC->B-LOC I-PER->I-ORG 6 B-LOC->B-ORG 4 I-LOC->I-ORG 3 I-LOC->I-PER 3 I-ORG->B-PER 2 B-LOC->I-ORG 1 B-ORG->I-LOC 1



# EWT (DAPT) + pop

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + pop-manual-1000-train.iob2

tested on: lyrics\_test.iob2

recall: 0.8575939374802652 precision: 0.8442648430214486 span-f1: 0.8508771929824562

### unlabeled

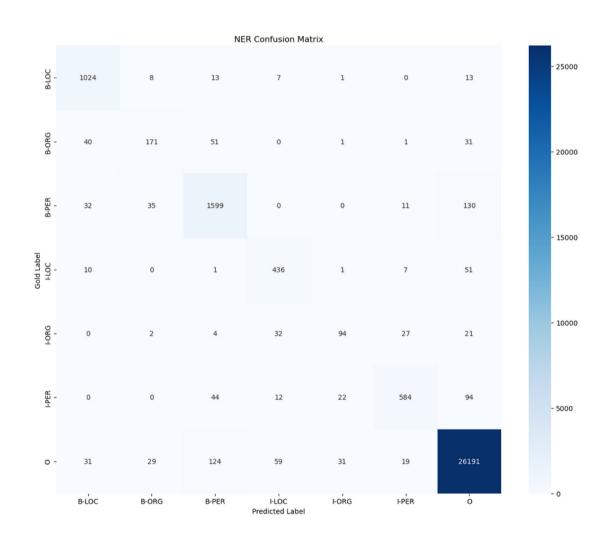
ul\_recall: 0.9081149352699716 ul\_precision: 0.8940006216972335 ul\_span-f1: 0.9010025062656642

### loose (partial overlap with same label)

I\_recall: 0.897379223239659
I\_precision: 0.887161952129313
I\_span-f1: 0.8922413385333924

## Mistake breakdown:

Correct 30099 Wrong\_label 362 Missed 340 Spurious 293 B-ORG->B-PER 51 I-PER->B-PER 44 B-ORG->B-LOC 40 B-PER->B-ORG 35 B-PER->B-LOC 32 I-ORG->I-LOC 32 I-ORG->I-PER 27 I-PER->I-ORG 22 B-LOC->B-PER 13 I-PER->I-LOC 12 B-PER->I-PER 11 I-LOC->B-LOC 10 B-LOC->B-ORG 8 B-LOC->I-LOC 7 I-LOC->I-PER 7 I-ORG->B-PER 4 I-ORG->B-ORG 2 I-LOC->I-ORG 1 B-LOC->I-ORG 1 B-ORG->I-ORG 1 I-LOC->B-PER 1 B-ORG->I-PER 1



# EWT (DAPT) + pop (cont.)

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + pop-manual-1000-train.iob2 + pop\_labeled\_no\_2000.iob2

tested on: lyrics\_test.iob2

recall: 0.8497000315756236 precision: 0.8605692356891589 span-f1: 0.8551000953288845

unlabeled

ul\_recall: 0.8958004420587307 ul\_precision: 0.9072593540134314 ul\_span-f1: 0.9014934858595487

### loose (partial overlap with same label)

I\_recall: 0.8866435112093464 I\_precision: 0.9021426287176207 I\_span-f1: 0.8943259231318492

|  | NER Confusion Matrix |       |       |       |                          |       |       |       |         |
|--|----------------------|-------|-------|-------|--------------------------|-------|-------|-------|---------|
| Mistake breakdown:   |                      |       |       |       |                          |       |       |       |         |
| Missed 423 Spurious 210 B-ORG->B-PER 53 I-PER->B-PER 49 I-ORG->I-PER 31 B-ORG->B-LOC 31 B-PER->B-ORG 25 I-ORG->I-LOC 22 B-PER->B-LOC 21 B-LOC->B-PER 18 I-PER->I-ORG 18 B-LOC->B-ORG 11 B-PER->I-PER 11 I-LOC->B-LOC 9 I-LOC->I-PER 8 I-PER->I-DC 7 I-ORG->B-DC 7 I-ORG->B-DC 1 B-LOC->I-LOC 7 I-ORG->B-DC 1 B-LOC->I-DC 7 I-ORG->B-DC 1 B-LOC->I-DC 7 I-ORG->B-DC 1 B-LOC->I-DC 1 B-LOC->I-DC 1 B-LOC->I-DC 1 B-LOC->I-DC 1 | B-LOC                | 1006  | 11    | 18    | 7                        | 1     | 0     | 23    | - 25000 |
|  | B-ORG                | 31    | 165   | 53    | 0                        | 0     | 0     | 46    | - 20000 |
|  | B-PER<br>-           | 21    | 25    | 1591  | 0                        | 0     | 11    | 159   | - 15000 |
|  | Gold Label<br>FLOC   | 9     | 0     | 1     | 431                      | 1     | 8     | 56    | 13000   |
|  | l-ORG                | 0     | 2     | 4     | 22                       | 89    | 31    | 32    | - 10000 |
|  | PER -                | 0     | 0     | 49    | 7                        | 18    | 575   | 107   | - 5000  |
|  | 0 -                  | 25    | 21    | 96    | 31                       | 22    | 15    | 26274 |         |
|  |                      | B-LOC | B-ORG | B-PER | I-LOC<br>Predicted Label | l-ORG | I-PER | Ó     | - 0     |

# **EWT (DAPT) + country**

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + country-manual-1000-train.iob2

tested on: lyrics\_test.iob2

recall: 0.8680138932743922 precision: 0.8260216346153846 span-f1: 0.8464973056197074

#### unlabeled

ul\_recall: 0.9163245974107989 ul\_precision: 0.8719951923076923 ul\_span-f1: 0.8936104695919939

### loose (partial overlap with same label)

I\_recall: 0.905904641616672
I\_precision: 0.8620793269230769
I\_span-f1: 0.8834488067744418

#### Mistake breakdown: **NER Confusion Matrix** Correct 30030 25000 Wrong\_label 353 13 1005 28 10 1 0 Missed 210 Spurious 501 B-ORG->B-PER 64 I-ORG->I-PER 48 B-ORG->B-LOC 39 156 0 1 64 0 35 - 20000 B-LOC->B-PER 28 B-PER->I-PER 28 I-ORG->I-LOC I-PER->B-PER 19 1672 B-PER->B-ORG 19 I-LOC->I-PER 18 15000 B-PER->B-LOC 15 B-LOC->I-LOC 10 B-LOC->B-ORG 9 0 447 I-PER->I-ORG 8 I-LOC->I-ORG 7 I-PER->I-LOC 4 10000 I-LOC->B-LOC 3 27 I-ORG->B-PER 2 I-ORG->B-ORG 2 B-LOC->I-ORG 1 B-ORG->I-PER 1 I-LOC->B-PER 1 691 0 19 34 5000 27 232 41 135 25983 30 B-ORG B-LOC B-PER I-ORG I-PER ò I-LOC Predicted Label

# **EWT (DAPT) + country (cont.)**

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + country-manual-1000-train.iob2 + country\_labeled\_no\_2000.iob2

tested on: lyrics\_test.iob2

recall: 0.8572781812440796 precision: 0.8447417548226509 span-f1: 0.8509637987776212

unlabeled

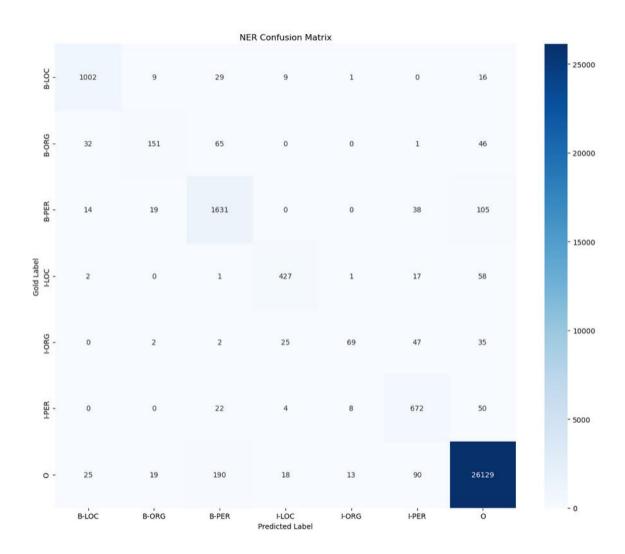
ul\_recall: 0.904957372908115

ul\_precision: 0.8917237087741132 ul\_span-f1: 0.8982918037925091

### loose (partial overlap with same label)

I\_recall: 0.8901168298073887 I\_precision: 0.8755444928438083 I\_span-f1: 0.8827705271985561

Mistake breakdown: Correct 30081 Wrong\_label 348 Missed 310 Spurious 355 B-ORG->B-PER 65 I-ORG->I-PER 47 B-PER->I-PER 38 B-ORG->B-LOC 32 B-LOC->B-PER 29 I-ORG->I-LOC 25 I-PER->B-PER 22 B-PER->B-ORG 19 I-LOC->I-PER 17 B-PER->B-LOC 14 B-LOC->I-LOC 9 B-LOC->B-ORG 9 I-PER->I-ORG 8 I-PER->I-LOC 4 I-LOC->B-LOC I-ORG->B-PER I-ORG->B-ORG 2 B-LOC->I-ORG I-LOC->I-ORG 1 B-ORG->I-PER I-LOC->B-PER 1



# EWT (DAPT) + rap/hip-hop

trained on: en ewt-ud-train.iob2 + en ewt-ud-dev.iob2 + rap-hip-hop-manual-1000-train.iob2

tested on: lyrics\_test.iob2

recall: 0.8711714556362489 precision: 0.8335347432024169 span-f1: 0.8519376254438784

### unlabeled

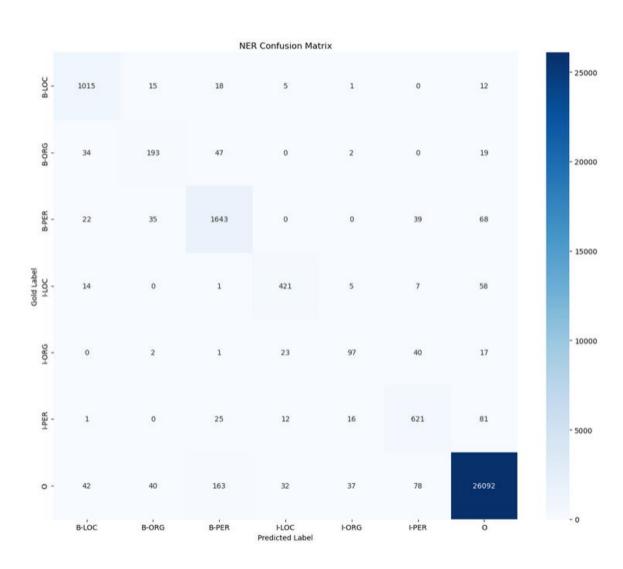
ul\_recall: 0.9216924534259552 ul\_precision: 0.8818731117824773 ul\_span-f1: 0.9013432144511347

### loose (partial overlap with same label)

I\_recall: 0.9172718661193558
I\_precision: 0.8824773413897281
I\_span-f1: 0.8995382627393301

## Mistake breakdown:

Correct 30082 Wrong\_label 365 Missed 255 Spurious 392 B-ORG->B-PER 47 I-ORG->I-PER 40 B-PER->I-PER B-PER->B-ORG 35 B-ORG->B-LOC 34 I-PER->B-PER 25 I-ORG->I-LOC 23 B-PER->B-LOC 22 B-LOC->B-PER 18 I-PER->I-ORG 16 B-LOC->B-ORG 15 I-LOC->B-LOC 14 I-PER->I-LOC 12 I-LOC->I-PER 7 B-LOC->I-LOC 5 I-LOC->I-ORG 5 B-ORG->I-ORG 2 I-ORG->B-ORG 2 B-LOC->I-ORG 1 I-PER->B-LOC 1 I-LOC->B-PER 1 I-ORG->B-PER 1



# **EWT (DAPT) + rap/hip-hop (cont.)**

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + rap-hip-hop-manual-1000-train.iob2 + rap-hip-

hop\_labeled\_no\_2000.iob2 **tested on:** lyrics\_test.iob2

recall: 0.8746447742342911

precision: 0.8429701765063907 span-f1: 0.8585154191848752

### unlabeled

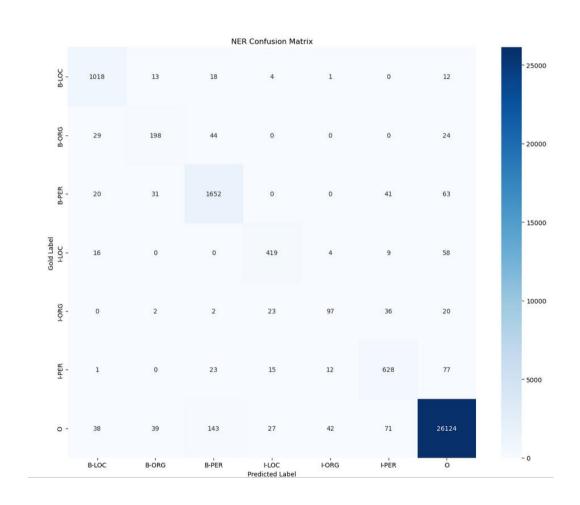
ul\_recall: 0.9210609409535838 ul\_precision: 0.8877054169202678 ul\_span-f1: 0.9040756237408957

### loose (partial overlap with same label)

I\_recall: 0.9204294284812125
I\_precision: 0.8919659160073037
I\_span-f1: 0.9059741637407696

### Mistake breakdown:

30136 Correct Wrong\_label :344 Missed 254 Spurious 360 B-ORG->B-PER 44 B-PER->I-PER 41 I-ORG->I-PER B-PER->B-ORG 31 B-ORG->B-LOC 29 I-ORG->I-LOC 23 I-PER->B-PER 23 B-PER->B-LOC 20 B-LOC->B-PER 18 I-LOC->B-LOC 16 I-PER->I-LOC 15 B-LOC->B-ORG 13 I-PER->I-ORG 12 I-LOC->I-PER 9 B-LOC->I-LOC 4 I-LOC->I-ORG 4 I-ORG->B-PER 2 I-ORG->B-ORG 2 B-LOC->I-ORG 1 I-PER->B-LOC 1



# EWT (DAPT) + all genres

trained on: en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + pop-manual-1000-train.iob2 + country-manual-1000-train.iob2 +

rap-hip-hop-manual-1000-train.iob2 **tested on:** lyrics test.iob2

recall: 0.8853804862646037

precision: 0.8640986132511557

span-f1: 0.8746101060511541

unlabeled

ul\_recall: 0.9305336280391537 ul\_precision: 0.9081664098613251 ul\_span-f1: 0.9192139737991265

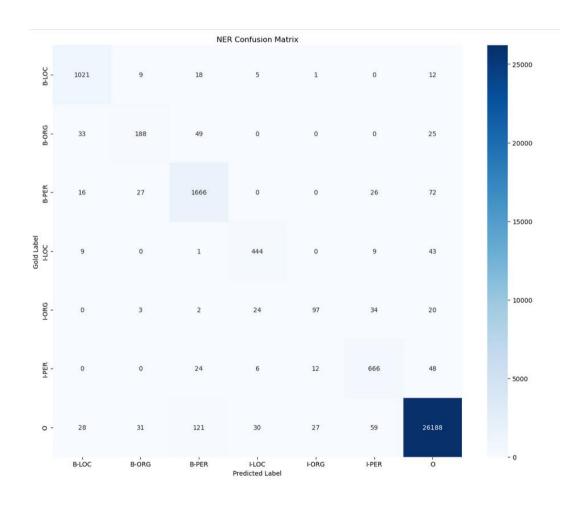
loose (partial overlap with same label)

I\_recall: 0.9210609409535838 I\_precision: 0.8983050847457628

I\_span-f1: 0.9095407025656412

### Mistake breakdown:

Correct 30270 Wrong\_label 308 Missed 220 **Spurious** 296 B-ORG->B-PER 49 I-ORG->I-PER 34 B-ORG->B-LOC 33 B-PER->B-ORG 27 B-PER->I-PER 26 I-PER->B-PER 24 I-ORG->I-LOC 24 B-LOC->B-PER 18 B-PER->B-LOC 16 I-PER->I-ORG 12 I-LOC->B-LOC 9 B-LOC->B-ORG 9 I-LOC->I-PER 9 I-PER->I-LOC B-LOC->I-LOC I-ORG->B-ORG 3 I-ORG->B-PER B-LOC->I-ORG I-LOC->B-PER 1



# **EWT (DAPT) + all genres (cont.)**

**trained on:** en\_ewt-ud-train.iob2 + en\_ewt-ud-dev.iob2 + pop-manual-1000-train.iob2 + pop\_labeled\_no\_2000.iob2 + country-manual-1000-train.iob2 + country\_labeled\_no\_2000.iob2 + rap-hip-hop-manual-1000-train.iob2 + rap-hip-hop-manual

hop\_labeled\_no\_2000.iob2 **tested on:** lyrics\_test.iob2

recall: 0.8828544363751184

precision: 0.8667079975201488 span-f1: 0.8747067104645706

unlabeled

ul\_recall: 0.9251657720239975 ul\_precision: 0.9082455052696838 ul\_span-f1: 0.9166275613952761

### loose (partial overlap with same label)

I\_recall: 0.9216924534259552
I\_precision: 0.9070055796652201
I\_span-f1: 0.9142900389951772

## Mistake breakdown:

Correct 30260 Wrong label 309 Missed 221 **Spurious** 304 B-ORG->B-PER 44 I-ORG->I-PER 35 B-ORG->B-LOC 30 B-PER->I-PER 29 I-ORG->I-LOC 28 B-PER->B-ORG 24 I-PER->B-PER 21 B-LOC->B-PER 18 B-PER->B-LOC 15 I-LOC->B-LOC 13 B-LOC->B-ORG 13 I-LOC->I-PER 10 I-PER->I-ORG 10 I-PER->I-LOC 7 I-ORG->B-ORG 4 B-LOC->I-LOC I-ORG->B-PER 2 B-PER->I-ORG 2 I-LOC->B-PER 1

