Epoch 1/15

1682/1682 [==============================] - 6690s 4s/step - loss: 4.6582 - accuracy: 0.6376 - val\_loss: 1.6028 - val\_accuracy: 0.5482 - lr: 5.0000e-05

Epoch 2/15

1682/1682 [==============================] - 5809s 3s/step - loss: 1.0421 - accuracy: 0.7013 - val\_loss: 1.8009 - val\_accuracy: 0.5190 - lr: 5.0000e-05

Epoch 3/15

1682/1682 [==============================] - 5810s 3s/step - loss: 0.7430 - accuracy: 0.7484 - val\_loss: 1.1192 - val\_accuracy: 0.6170 - lr: 5.0000e-05

Epoch 4/15

1682/1682 [==============================] - 5777s 3s/step - loss: 0.5580 - accuracy: 0.7966 - val\_loss: 1.0409 - val\_accuracy: 0.6479 - lr: 5.0000e-05

Epoch 5/15

1682/1682 [==============================] - 6023s 4s/step - loss: 0.4273 - accuracy: 0.8496 - val\_loss: 1.2160 - val\_accuracy: 0.6358 - lr: 5.0000e-05

Epoch 6/15

1682/1682 [==============================] - 5906s 4s/step - loss: 0.3383 - accuracy: 0.8860 - val\_loss: 1.1452 - val\_accuracy: 0.6467 - lr: 5.0000e-05

Epoch 7/15

1682/1682 [==============================] - 5684s 3s/step - loss: 0.2476 - accuracy: 0.9164 - val\_loss: 1.1003 - val\_accuracy: 0.6590 - lr: 2.5000e-05

2883/2883 [==============================] - 365s 126ms/step

Evaluation Metrics:

Precision: 0.7169

Recall: 0.5207

F1 Score: 0.6033

ROC AUC: 0.7717

PR AUC: 0.7788

MCC: 0.3276

y\_pred = (test\_scores > 0.6).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

...:

Evaluation Metrics:

Precision: 0.7431

Recall: 0.4679

F1 Score: 0.5742

ROC AUC: 0.7717

PR AUC: 0.7788

MCC: 0.3296

In [10]: y\_pred = (test\_scores > 0.7).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

...:

Evaluation Metrics:

Precision: 0.7822

Recall: 0.4075

F1 Score: 0.5359

ROC AUC: 0.7717

PR AUC: 0.7788

MCC: 0.3350

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, πολυχρωμία

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, πολυχρωμία

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γράφημα

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Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει διάγραμμα, κείμενο, γράφημα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, σχεδίαση

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, διάγραμμα, γραμμή, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/ei\_qna, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/StatisticalData

157/157 [==============================] - 21s 135ms/step

Intercept 0.252192049299561

Prediction\_local [0.02907947]

Right: 2.8071838e-05

Feature Importances (Coefficients):

Predicate: -0.2735994593765996

Object: 0.08079973233156632

Subject: -0.03031284953275768

Triplet 2 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/fats\_08, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/level, Object: 4

157/157 [==============================] - 21s 136ms/step

Intercept 0.07445646028865521

Prediction\_local [0.55466074]

Right: 0.56019163

Feature Importances (Coefficients):

Predicate: 0.42939193481953614

Subject: 0.04500090169506794

Object: 0.005811439168588641

Triplet 3 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/paragraph9574\_3455, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/Paragraph

157/157 [==============================] - 21s 136ms/step

Intercept 0.2553387201522471

Prediction\_local [0.04039431]

Right: 0.0002442144

Feature Importances (Coefficients):

Predicate: -0.2771294640450389

Object: 0.07084429142252359

Subject: -0.008659236889489864

Triplet 4 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/glossaryArticle118, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/hasReference, Object: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/referenceSource59

157/157 [==============================] - 31s 196ms/step

Intercept 0.1909012162503172

Prediction\_local [0.11556103]

Right: 0.002445887

Feature Importances (Coefficients):

Object: -0.09137449488884412

Predicate: 0.028600290393354228

Subject: -0.012565979440700573

Triplet 5 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/hlth\_ehis\_aw1u, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/term, Object: hlth\_ehis\_aw1u

157/157 [==============================] - 32s 202ms/step

Intercept 0.1923685614298331

Prediction\_local [0.0596052]

Right: 0.00022524297

Feature Importances (Coefficients):

Predicate: -0.06758545853968076

Object: -0.06749823142875512

Subject: 0.0023203252842880074