Epoch 1/15

3363/3363 [==============================] - 10779s 3s/step - loss: 3.0964 - accuracy: 0.6526 - val\_loss: 0.8460 - val\_accuracy: 0.6891 - lr: 5.0000e-05

Epoch 2/15

3363/3363 [==============================] - 10731s 3s/step - loss: 0.5811 - accuracy: 0.7453 - val\_loss: 0.5325 - val\_accuracy: 0.6784 - lr: 5.0000e-05

Epoch 3/15

3363/3363 [==============================] - 11772s 4s/step - loss: 0.4371 - accuracy: 0.7969 - val\_loss: 0.5639 - val\_accuracy: 0.6614 - lr: 5.0000e-05

Epoch 4/15

3363/3363 [==============================] - 11144s 3s/step - loss: 0.3646 - accuracy: 0.8440 - val\_loss: 0.6179 - val\_accuracy: 0.6718 - lr: 5.0000e-05

Epoch 5/15

3363/3363 [==============================] - 10970s 3s/step - loss: 0.2653 - accuracy: 0.8917 - val\_loss: 0.8062 - val\_accuracy: 0.6691 - lr: 2.5000e-05

2883/2883 [==============================] - 522s 181ms/step

Evaluation Metrics:

Precision: 0.7577

Recall: 0.5316

F1 Score: 0.6249

ROC AUC: 0.7943

PR AUC: 0.8226

MCC: 0.3789

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: 0.9108

Recall: 0.4674

F1 Score: 0.6178

ROC AUC: 0.7943

PR AUC: 0.8226

MCC: 0.4827

In [15]: 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: 0.9542

Recall: 0.4474

F1 Score: 0.6092

ROC AUC: 0.7943

PR AUC: 0.8226

MCC: 0.5027

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, γραμμή, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, γραμμή, γράφημα

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Εικόνα που περιέχει κείμενο, διάγραμμα, γραμμή, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (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 [==============================] - 28s 175ms/step

Intercept 0.4514569680348961

Prediction\_local [0.1362187]

Right: 0.10885809

Feature Importances (Coefficients):

Predicate: -0.425078529964557

Object: 0.09793905778097607

Subject: 0.011901200951317921

Triplet 2 (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 [==============================] - 27s 172ms/step

Intercept 0.47632545730367404

Prediction\_local [0.02582046]

Right: 0.4589623

Feature Importances (Coefficients):

Predicate: -0.41864258647669034

Object: -0.025462133193812325

Subject: -0.006400281156039567

Triplet 3 (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 [==============================] - 27s 171ms/step

Intercept 0.1616192281400834

Prediction\_local [0.48005951]

Right: 0.5269955

Feature Importances (Coefficients):

Predicate: 0.3416174777598226

Object: -0.024792533011192976

Subject: 0.0016153409796607055

Triplet 4 (Original):

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

157/157 [==============================] - 27s 171ms/step

Intercept 0.16949805496170173

Prediction\_local [0.42449308]

Right: 0.40480986

Feature Importances (Coefficients):

Predicate: 0.2896593416504941

Object: -0.01996728985653683

Subject: -0.014697024688980579

Triplet 5 (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 [==============================] - 27s 170ms/step

Intercept 0.4795093097586483

Prediction\_local [0.03891653]

Right: 0.49276048

Feature Importances (Coefficients):

Predicate: -0.4198771854687605

Object: -0.03320986360935553

Subject: 0.01249427266195924