Epoch 1/15

1682/1682 [==============================] - 911s 539ms/step - loss: 3.6263 - accuracy: 0.5292 - val\_loss: 2.1143 - val\_accuracy: 0.5906 - lr: 5.0000e-05

Epoch 2/15

1682/1682 [==============================] - 907s 539ms/step - loss: 1.4635 - accuracy: 0.6023 - val\_loss: 0.9795 - val\_accuracy: 0.6387 - lr: 5.0000e-05

Epoch 3/15

1682/1682 [==============================] - 937s 557ms/step - loss: 0.7434 - accuracy: 0.6771 - val\_loss: 0.5962 - val\_accuracy: 0.6699 - lr: 5.0000e-05

Epoch 4/15

1682/1682 [==============================] - 925s 550ms/step - loss: 0.4470 - accuracy: 0.7948 - val\_loss: 0.5364 - val\_accuracy: 0.6756 - lr: 5.0000e-05

Epoch 5/15

1682/1682 [==============================] - 939s 558ms/step - loss: 0.2409 - accuracy: 0.9037 - val\_loss: 0.6666 - val\_accuracy: 0.6803 - lr: 5.0000e-05

Epoch 6/15

1682/1682 [==============================] - 925s 550ms/step - loss: 0.1127 - accuracy: 0.9610 - val\_loss: 0.9052 - val\_accuracy: 0.6723 - lr: 5.0000e-05

Epoch 7/15

1682/1682 [==============================] - 925s 550ms/step - loss: 0.0603 - accuracy: 0.9813 - val\_loss: 1.1074 - val\_accuracy: 0.6816 - lr: 2.5000e-05

2883/2883 [==============================] - 5s 2ms/step

Evaluation Metrics:

Precision: 0.6902

Recall: 0.6535

F1 Score: 0.6713

ROC AUC: 0.7873

PR AUC: 0.8216

MCC: 0.3607

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: 0.7017

Recall: 0.6359

F1 Score: 0.6672

ROC AUC: 0.7873

PR AUC: 0.8216

MCC: 0.3672

In [11]: 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: 0.7158

Recall: 0.6175

F1 Score: 0.6630

ROC AUC: 0.7873

PR AUC: 0.8216

MCC: 0.3758

Εικόνα που περιέχει κείμενο, διάγραμμα, γραμμή, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, γραμμή, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, οθόνη, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, γραμμή, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει διάγραμμα, γράφημα, κείμενο, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, ορθογώνιο παραλληλόγραμμο

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

157/157 [==============================] - 0s 2ms/step

Intercept 0.35284515426776036

Prediction\_local [0.49498971]

Right: 0.30093542

Feature Importances (Coefficients):

Predicate: 0.36086260448340773

Object: -0.29460385712435244

Subject: 0.07588580883167896

Triplet 2 (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 [==============================] - 0s 2ms/step

Intercept 0.5179399281882613

Prediction\_local [0.24847702]

Right: 0.92924225

Feature Importances (Coefficients):

Predicate: -0.2885583463196125

Subject: 0.2314072368366559

Object: -0.21231180083905352

Triplet 3 (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 [==============================] - 0s 2ms/step

Intercept 0.4392201215377082

Prediction\_local [0.48381308]

Right: 0.59430575

Feature Importances (Coefficients):

Object: 0.273306670989464

Predicate: -0.18071299614114913

Subject: -0.04800071549609041

Triplet 4 (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 [==============================] - 0s 2ms/step

Intercept 0.44071419078547575

Prediction\_local [0.51575734]

Right: 0.005180988

Feature Importances (Coefficients):

Object: 0.2551287473416709

Predicate: -0.19425277137432498

Subject: 0.014167171905925662

Triplet 5 (Original):

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

157/157 [==============================] - 0s 2ms/step

Intercept 0.3265762041423422

Prediction\_local [0.59645904]

Right: 0.010522113

Feature Importances (Coefficients):

Predicate: 0.42322618717397337

Subject: -0.19588956777901523

Object: 0.04254621779319611