Epoch 1/15

1682/1682 [==============================] - 797s 471ms/step - loss: 3.9389 - accuracy: 0.6231 - val\_loss: 0.5010 - val\_accuracy: 0.6860 - lr: 1.0000e-04

Epoch 2/15

1682/1682 [==============================] - 822s 489ms/step - loss: 0.4480 - accuracy: 0.7315 - val\_loss: 0.4912 - val\_accuracy: 0.6913 - lr: 1.0000e-04

Epoch 3/15

1682/1682 [==============================] - 812s 483ms/step - loss: 0.3596 - accuracy: 0.7960 - val\_loss: 0.6068 - val\_accuracy: 0.6693 - lr: 1.0000e-04

Epoch 4/15

1682/1682 [==============================] - 793s 471ms/step - loss: 0.2357 - accuracy: 0.8827 - val\_loss: 0.9065 - val\_accuracy: 0.6488 - lr: 1.0000e-04

Epoch 5/15

1682/1682 [==============================] - 794s 472ms/step - loss: 0.0917 - accuracy: 0.9623 - val\_loss: 1.8992 - val\_accuracy: 0.6375 - lr: 7.0000e-05

2883/2883 [==============================] - 31s 11ms/step

Evaluation Metrics:

Precision: 0.7668

Recall: 0.5506

F1 Score: 0.6409

ROC AUC: 0.8062

PR AUC: 0.8305

MCC: 0.3994

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}')

...: 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: 0.8570

Recall: 0.4858

F1 Score: 0.6201

ROC AUC: 0.8062

PR AUC: 0.8305

MCC: 0.4491

Evaluation Metrics:

Precision: 0.8918

Recall: 0.4714

F1 Score: 0.6168

ROC AUC: 0.8062

PR AUC: 0.8305

MCC: 0.4697

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 [==============================] - 11s 69ms/step

Intercept 0.3244748964026486

Prediction\_local [0.48575817]

Right: 0.49641538

Feature Importances (Coefficients):

Predicate: 0.14316123075356524

Subject: 0.01473214180323944

Object: 0.0033899033132536796

Triplet 2 (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 [==============================] - 2s 11ms/step

Intercept 0.3049612501081622

Prediction\_local [0.4799137]

Right: 0.47162113

Feature Importances (Coefficients):

Predicate: 0.18140476164423944

Object: -0.019221259783934394

Subject: 0.012768943882354151

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 [==============================] - 2s 11ms/step

Intercept 0.31541738582544254

Prediction\_local [0.51972779]

Right: 0.591827

Feature Importances (Coefficients):

Predicate: 0.14519024742914519

Object: 0.07575288975270666

Subject: -0.01663272923672262

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 [==============================] - 2s 12ms/step

Intercept 0.48877077298931104

Prediction\_local [-0.04294514]

Right: 1.694323e-05

Feature Importances (Coefficients):

Predicate: -0.4741777212040446

Object: -0.039509063740123355

Subject: -0.01802912778238937

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 [==============================] - 2s 11ms/step

Intercept 0.30512074323382093

Prediction\_local [0.49647474]

Right: 0.25987417

Feature Importances (Coefficients):

Predicate: 0.17572975302574495

Subject: 0.012954410660819024

Object: 0.002669829464600771