Epoch 1/15

1682/1682 [==============================] - 808s 478ms/step - loss: 3.9237 - accuracy: 0.6348 - val\_loss: 0.4878 - val\_accuracy: 0.6965 - lr: 1.0000e-04

Epoch 2/15

1682/1682 [==============================] - 1230s 732ms/step - loss: 0.4346 - accuracy: 0.7351 - val\_loss: 0.4766 - val\_accuracy: 0.7008 - lr: 1.0000e-04

Epoch 3/15

1682/1682 [==============================] - 1340s 796ms/step - loss: 0.3591 - accuracy: 0.7842 - val\_loss: 0.5554 - val\_accuracy: 0.6842 - lr: 1.0000e-04

Epoch 4/15

1682/1682 [==============================] - 1343s 799ms/step - loss: 0.2918 - accuracy: 0.8336 - val\_loss: 0.7338 - val\_accuracy: 0.6972 - lr: 1.0000e-04

Epoch 5/15

1682/1682 [==============================] - 1319s 784ms/step - loss: 0.1926 - accuracy: 0.9119 - val\_loss: 1.2205 - val\_accuracy: 0.7021 - lr: 7.0000e-05

2883/2883 [==============================] - 56s 19ms/step

Evaluation Metrics:

Precision: 0.6454

Recall: 0.8760

F1 Score: 0.7432

ROC AUC: 0.8103

PR AUC: 0.8335

MCC: 0.4225

In [3]: 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: 0.8685

Recall: 0.4869

F1 Score: 0.6240

ROC AUC: 0.8103

PR AUC: 0.8335

MCC: 0.4600

Evaluation Metrics:

Precision: 0.8989

Recall: 0.4716

F1 Score: 0.6186

ROC AUC: 0.8103

PR AUC: 0.8335

MCC: 0.4757

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 [==============================] - 2s 13ms/step

Intercept 0.5081056201619798

Prediction\_local [0.44786602]

Right: 0.18410441

Feature Importances (Coefficients):

Object: -0.033581789426469284

Predicate: -0.029721828092048888

Subject: 0.003064021470477877

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

Intercept 0.47583871331397715

Prediction\_local [0.51490109]

Right: 0.50113994

Feature Importances (Coefficients):

Predicate: 0.02921663221720387

Object: 0.00980463043008805

Subject: 4.111078550336163e-05

Triplet 3 (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 12ms/step

Intercept 0.484369366425766

Prediction\_local [0.49273995]

Right: 0.035103798

Feature Importances (Coefficients):

Predicate: 0.037225026236618816

Object: -0.026492088146739548

Subject: -0.0023623496925713823

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

Intercept 0.4902057513438743

Prediction\_local [0.49602795]

Right: 0.501118

Feature Importances (Coefficients):

Object: 0.01940222916743014

Predicate: -0.009088713011017048

Subject: -0.004491313924144748

Triplet 5 (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 [==============================] - 2s 12ms/step

Intercept 0.4904667388739485

Prediction\_local [0.49519295]

Right: 0.50092113

Feature Importances (Coefficients):

Object: 0.014504251440254

Predicate: -0.012128271008474974

Subject: 0.0023502355397606407