Epoch 1/15

1682/1682 [==============================] - 1794s 1s/step - loss: 4.6956 - accuracy: 0.5004 - val\_loss: 1.4264 - val\_accuracy: 0.4999 - lr: 5.0000e-05

Epoch 2/15

1682/1682 [==============================] - 1801s 1s/step - loss: 0.8873 - accuracy: 0.5660 - val\_loss: 0.7178 - val\_accuracy: 0.5182 - lr: 5.0000e-05

Epoch 3/15

1682/1682 [==============================] - 1807s 1s/step - loss: 0.3541 - accuracy: 0.8723 - val\_loss: 1.1569 - val\_accuracy: 0.5079 - lr: 5.0000e-05

Epoch 4/15

1682/1682 [==============================] - 1806s 1s/step - loss: 0.1288 - accuracy: 0.9690 - val\_loss: 1.7711 - val\_accuracy: 0.5228 - lr: 5.0000e-05

Epoch 5/15

1682/1682 [==============================] - 1810s 1s/step - loss: 0.0663 - accuracy: 0.9896 - val\_loss: 2.1126 - val\_accuracy: 0.5237 - lr: 2.5000e-05

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

Evaluation Metrics:

Precision: 0.5110

Recall: 0.6422

F1 Score: 0.5691

ROC AUC: 0.5177

PR AUC: 0.5116

MCC: 0.0286

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}')

C:\Users\skape\PycharmProjects\Thesis\_tensorflow\.venv\lib\site-packages\sklearn\metrics\\_classification.py:1471: UndefinedMetricWarning: Precision is ill-defined and being set to 0.0 due to no predicted samples. Use `zero\_division` parameter to control this behavior.

\_warn\_prf(average, modifier, msg\_start, len(result))

Evaluation Metrics:

Precision: 0.0000

Recall: 0.0000

F1 Score: 0.0000

ROC AUC: 0.5177

PR AUC: 0.5116

MCC: 0.0000

In [4]: 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}')

C:\Users\skape\PycharmProjects\Thesis\_tensorflow\.venv\lib\site-packages\sklearn\metrics\\_classification.py:1471: UndefinedMetricWarning: Precision is ill-defined and being set to 0.0 due to no predicted samples. Use `zero\_division` parameter to control this behavior.

\_warn\_prf(average, modifier, msg\_start, len(result))

Evaluation Metrics:

Precision: 0.0000

Recall: 0.0000

F1 Score: 0.0000

ROC AUC: 0.5177

PR AUC: 0.5116

MCC: 0.0000

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

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

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

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, γραμμή, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γραμμή, γράφημα, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, λογισμικό

Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (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 0.5364313901766579

Prediction\_local [0.43600872]

Right: 0.57285666

Feature Importances (Coefficients):

Object: -0.06330479775771695

Subject: -0.029062247953765174

Predicate: -0.008055627199209566

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 0.49811015202118414

Prediction\_local [0.54795528]

Right: 0.57292056

Feature Importances (Coefficients):

Predicate: 0.01967824664425146

Subject: 0.018520706947627395

Object: 0.011646173961532292

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 0.5005277874223866

Prediction\_local [0.54339548]

Right: 0.5723183

Feature Importances (Coefficients):

Object: 0.02741849737829751

Subject: 0.019228131770303872

Predicate: -0.003778931968647979

Triplet 4 (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 0.5144818220767772

Prediction\_local [0.51168645]

Right: 0.5140263

Feature Importances (Coefficients):

Predicate: -0.015956966919867224

Object: 0.010360042634938414

Subject: 0.0028015560404456527

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 0.5129065176285202

Prediction\_local [0.51158173]

Right: 0.5203539

Feature Importances (Coefficients):

Object: 0.012631245248727916

Subject: -0.008668158966252521

Predicate: -0.005287875595629931