Epoch 1/30

1682/1682 [==============================] - ETA: 0s - loss: 17.8718 - accuracy: 0.50412024-05-27 04:16:12.688334: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 10509312000 exceeds 10% of free system memory.

2024-05-27 04:16:30.214150: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

1682/1682 [==============================] - 797s 472ms/step - loss: 17.8718 - accuracy: 0.5041 - val\_loss: 12.0182 - val\_accuracy: 0.5252 - lr: 1.0000e-05

Epoch 2/30

1682/1682 [==============================] - ETA: 0s - loss: 8.0875 - accuracy: 0.50992024-05-27 04:29:39.927123: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 10509312000 exceeds 10% of free system memory.

2024-05-27 04:29:48.908570: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 2463498240 exceeds 10% of free system memory.

1682/1682 [==============================] - 799s 475ms/step - loss: 8.0875 - accuracy: 0.5099 - val\_loss: 4.9871 - val\_accuracy: 0.5213 - lr: 1.0000e-05

Epoch 3/30

1682/1682 [==============================] - ETA: 0s - loss: 3.2312 - accuracy: 0.52042024-05-27 04:42:34.932075: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:83] Allocation of 10509312000 exceeds 10% of free system memory.

1682/1682 [==============================] - 775s 461ms/step - loss: 3.2312 - accuracy: 0.5204 - val\_loss: 1.9684 - val\_accuracy: 0.5237 - lr: 1.0000e-05

Epoch 4/30

1682/1682 [==============================] - 744s 442ms/step - loss: 1.3835 - accuracy: 0.5303 - val\_loss: 1.0004 - val\_accuracy: 0.5314 - lr: 1.0000e-05

Epoch 5/30

1682/1682 [==============================] - 751s 446ms/step - loss: 0.8443 - accuracy: 0.5587 - val\_loss: 0.7466 - val\_accuracy: 0.5600 - lr: 1.0000e-05

Epoch 6/30

1682/1682 [==============================] - 760s 452ms/step - loss: 0.7042 - accuracy: 0.5909 - val\_loss: 0.6903 - val\_accuracy: 0.5551 - lr: 1.0000e-05

Epoch 7/30

1682/1682 [==============================] - 778s 463ms/step - loss: 0.6626 - accuracy: 0.6185 - val\_loss: 0.6857 - val\_accuracy: 0.5523 - lr: 1.0000e-05

Epoch 8/30

1682/1682 [==============================] - 989s 588ms/step - loss: 0.6355 - accuracy: 0.6494 - val\_loss: 0.6952 - val\_accuracy: 0.5547 - lr: 1.0000e-05

Epoch 9/30

1682/1682 [==============================] - 1153s 685ms/step - loss: 0.6053 - accuracy: 0.6808 - val\_loss: 0.7107 - val\_accuracy: 0.5565 - lr: 1.0000e-05

Epoch 10/30

1682/1682 [==============================] - 1105s 657ms/step - loss: 0.5708 - accuracy: 0.7152 - val\_loss: 0.7399 - val\_accuracy: 0.5595 - lr: 1.0000e-05

Epoch 11/30

1682/1682 [==============================] - 1132s 673ms/step - loss: 0.5344 - accuracy: 0.7454 - val\_loss: 0.7712 - val\_accuracy: 0.5612 - lr: 1.0000e-05

Epoch 12/30

1682/1682 [==============================] - ETA: 0s - loss: 0.4979 - accuracy: 0.7735

Epoch 12: ReduceLROnPlateau reducing learning rate to 5.999999848427251e-06.

1682/1682 [==============================] - 1124s 668ms/step - loss: 0.4979 - accuracy: 0.7735 - val\_loss: 0.8097 - val\_accuracy: 0.5640 - lr: 1.0000e-05

2883/2883 [==============================] - 55s 18ms/step

Evaluation Metrics:

Precision: 0.5363

Recall: 0.8043

F1 Score: 0.6435

ROC AUC: 0.6029

PR AUC: 0.5922

MCC: 0.1259

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)

...:

...: # Confusion Matrix

...: conf\_matrix = confusion\_matrix(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)

...:

...: # Confusion Matrix

...: conf\_matrix = confusion\_matrix(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: 0.6009

Recall: 0.3900

F1 Score: 0.4730

ROC AUC: 0.6029

PR AUC: 0.5922

MCC: 0.1399

Evaluation Metrics:

Precision: 0.6797

Recall: 0.0677

F1 Score: 0.1232

ROC AUC: 0.6029

PR AUC: 0.5922

MCC: 0.0823

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, πολυχρωμία, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, οθόνη

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει διάγραμμα, γράφημα, γραμμή, κείμενο

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, σχεδίαση

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

157/157 [==============================] - 2s 11ms/step

Intercept 0.4099608098340176

Prediction\_local [0.49938885]

Right: 0.5207635

Feature Importances (Coefficients):

Object: 0.07664847194914041

Predicate: 0.03370264575540303

Subject: -0.020923081115366265

Triplet 2 (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 10ms/step

Intercept 0.4470405936683464

Prediction\_local [0.45207377]

Right: 0.4586974

Feature Importances (Coefficients):

Predicate: -0.06471471950261745

Subject: 0.04507783441858775

Object: 0.024670060883392252

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 [==============================] - 2s 10ms/step

Intercept 0.4424938453456436

Prediction\_local [0.41902354]

Right: 0.4163052

Feature Importances (Coefficients):

Object: -0.05497071537530262

Predicate: 0.04366226539211894

Subject: -0.012161852064819012

Triplet 4 (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 11ms/step

Intercept 0.47519301642210793

Prediction\_local [0.36660051]

Right: 0.3697874

Feature Importances (Coefficients):

Predicate: -0.06284446098031203

Object: -0.03266493719289781

Subject: -0.01308310614071627

Triplet 5 (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 12ms/step

Intercept 0.439240982507302

Prediction\_local [0.42685202]

Right: 0.41692764

Feature Importances (Coefficients):

Object: -0.03792985168095651

Predicate: 0.03388602840377392

Subject: -0.008345143146583056