NonSpMiR-D NonSpMiR-GP SpMiR-D SpMiR-GP RE approaches R  $F_1$  $F_1$  $F_1$ 

| Co-occurrence  | 1.00 | 0.20 | 0.34 | 1.00 | 0.28 | 0.44 | 1.00 | 0.41 | 0.58 | 1.00 | 0.53 | 0.69 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Tri-occurrence | 1.00 | 0.35 | 0.51 | 1.00 | 0.41 | 0.58 | 1.00 | 0.50 | 0.66 | 1.00 | 0.58 | 0.73 |
| ProMiner NER   | 0.49 | 0.3  | 0.38 | 0.87 | 0.36 | 0.51 | 0.52 | 0.38 | 0.44 | 0.45 | 0.41 | 0.43 |

0.64

0.63

0.75

0.57

0.56

0.57

0.60

0.59

0.65

0.73

0.73

0.65

0.62

0.61

0.62

0.67

0.66

0.63

0.87

0.86

0.90

0.68

0.68

0.76

0.76

0.75

0.53

0.52

0.56

**Table D.** Comparison of different relation extraction approaches on test corpus.

0.51

0.49

0.60

0.55

Machine Learning Approaches

LIBLINEAR

Naive Bayes

SVM