

Locality-Convolution Kernel and Its Application to Dependency Parse Ranking

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Abstract. We propose a Locality-Convolution (LC) kernel in application to dependency parse ranking. The LC kernel measures parse similarities locally, within a small window constructed around each matching feature. Inside the window it makes use of a position sensitive function to take into account the order of the feature appearance. The similarity between two windows is calculated by computing product of their common attributes and the kernel value is the sum of the window similarities. We applied the introduced kernel together with Regularized Least-Squares (RLS) algorithm to a dataset containing dependency parses obtained from manually annotated biomedical corpus of 1100 sentences. Our experiments show that RLS with LC kernel performs better than the baseline method. The results outline the importance of local correlations and the order of feature appearance within the parse. Final validation demonstrates statistically significant increase in parse ranking performance.