Table 3: Performance comparison between concatenation-based (MGCNN and SLCNN) and matching-based neural network models (MGMNN, MGANN and SLMNN) on Quora-QP corpus.

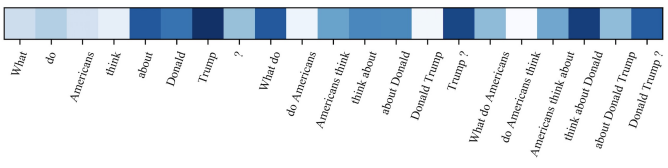
MODELS	PRECISION	RECALL	F1-SCORE	ACCURACY
MGCNN	62.32%	73.27%	67.35%	73.62%
MGMNN	63.43%	73.88%	68.26%	74.69%
MGANN	67.47%	69.17%	**68.31%***	**76.36%***
SLCNN / ARC-I [9]	64.82%	71.96%	68.20%	75.28%
SLMNN	70.05%	73.32%	**71.65%***	**78.62%***

Table 4: Performance comparison between multi-granular matching neural network with attention (MGANN) and without attention (MGMNN) processed by different sizes of filters on Quora-QP corpus.

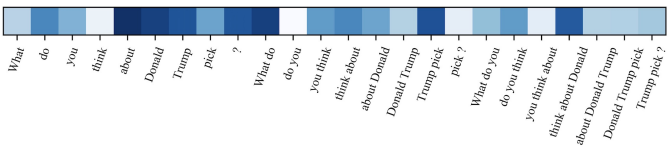
MODELS	PRECISION	RECALL	F1-SCORE	ACCURACY
MGMNN (Unigrams)	61.52%	71.85%	66.29%	73.08%
MGANN (Unigrams)	62.60%	73.29%	67.52%	74.03%
MGMNN (Unigrams & Bigrams)	62.92%	73.86%	67.95%	74.34%
MGANN (Unigrams & Bigrams)	63.87%	72.20%	67.78%	74.71%
MGMNN (Unigrams & Bigrams & Trigrams)	63.43%	73.88%	68.26%	74.69%
MGANN (Unigrams& Bigrams & Trigrams)	67.47%	69.17%	**68.31%***	**76.36%***

Table 5: Performance comparison between multi-granular matching neural network (MGMNN) and ABCNN processed by different sizes of filters on Quora-QP corpus.

MODELS	PRECISION	RECALL	F1-SCORE	ACCURACY
ABCNN (Unigrams)	60.79%	71.41%	65.67%	72.61%
MGMNN (Unigrams)	61.52%	71.85%	66.29%	73.08%
ABCNN (Unigrams; Bigrams)	62.13%	73.99%	67.54%	73.81%
MGMNN (Unigrams & Bigrams)	62.92%	73.86%	67.95%	74.34%
ABCNN (Unigrams; Bigrams; Trigrams)	62.38 %	73.97%	67.68%	73.98%
MGMNN (Unigrams & Bigrams & Trigrams)	63.43%	73.88%	**68.26%***	**74.69%***



(a) Visualization of multi-granular embeddings for sentence **P5**.



(b) Visualization of multi-granular embeddings for sentence **Q5**.

Figure 2: Visualizations of multi-granular (unigrams & bigrams & trigrams) embeddings (to be concatenated) in MGCNN for P5 & Q5.

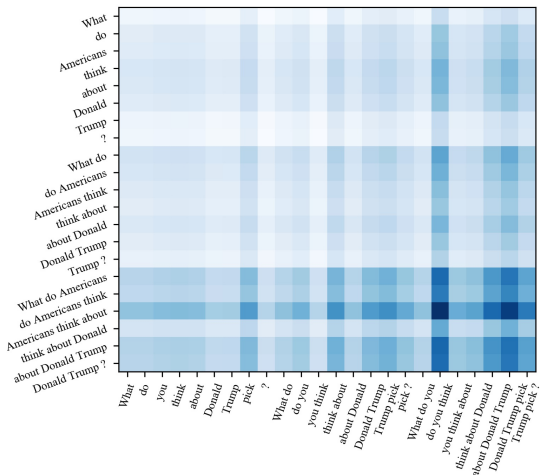


Figure 3: Visualization of the multi-granular matching matrix in MGMNN for paraphrastic sentences P5 & Q5.