Summary of related papers on graph construction

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2022_ACL_DARER_Dual-task Temporal Relational Recurrent Reasoning Network for Joint Dialog Sentiment Classification and Act Recognition

r_{ij}	1	2	3	4	5	6	7	8
$I_s(i)$	1	1	1	1	2	2	2	2
$I_s(j)$	1	1	2	2	1	1	2	2
$pos(i,j)$	$>$	$\leq$	$>$	$\leq$	$>$	$\leq$	$>$	$\leq$

Table 2: All relation types in SATG (assume there are two speakers). $I_s(i)$ indicates the speaker node i is from. $pos(i,j)$ indicates the relative position of node i and j.

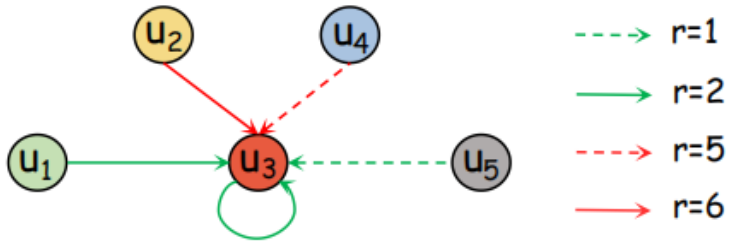

Figure 2: An example of SATG. u_1, u_3 and u_5 are from speaker 1 while u_2 and u_4 are from speaker 2. w.l.o.g, only the edges directed into u_3 node are illustrated.

r'_{ij}	1	2	3	4	5	6	7	8	9	10	11	12
$I_t(i)$	S	S	S	S	S	S	A	A	A	A	A	A
$I_t(j)$	S	S	S	A	A	A	S	S	S	A	A	A
$pos(i,j)$	$<$	$=$	$>$	$<$	$=$	$>$	$<$	$=$	$>$	$<$	$=$	$>$

Table 3: All relation types in DRTG. $I_t(i)$ indicates that node i is a sentiment (S) node or act (A) node.

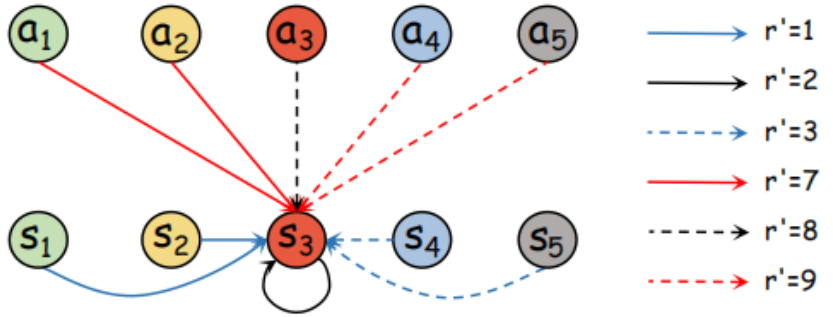

Figure 3: An example of DRTG. s_i and a_i respectively denote the node of DAC task and DAR task. w.l.o.g, only the edges directed into s_3 are illustrated.

2022_ACL_Multi Granularity Semantic Aware Graph Model for Reducing PositionBias in Emotion-Cause Pair Extraction

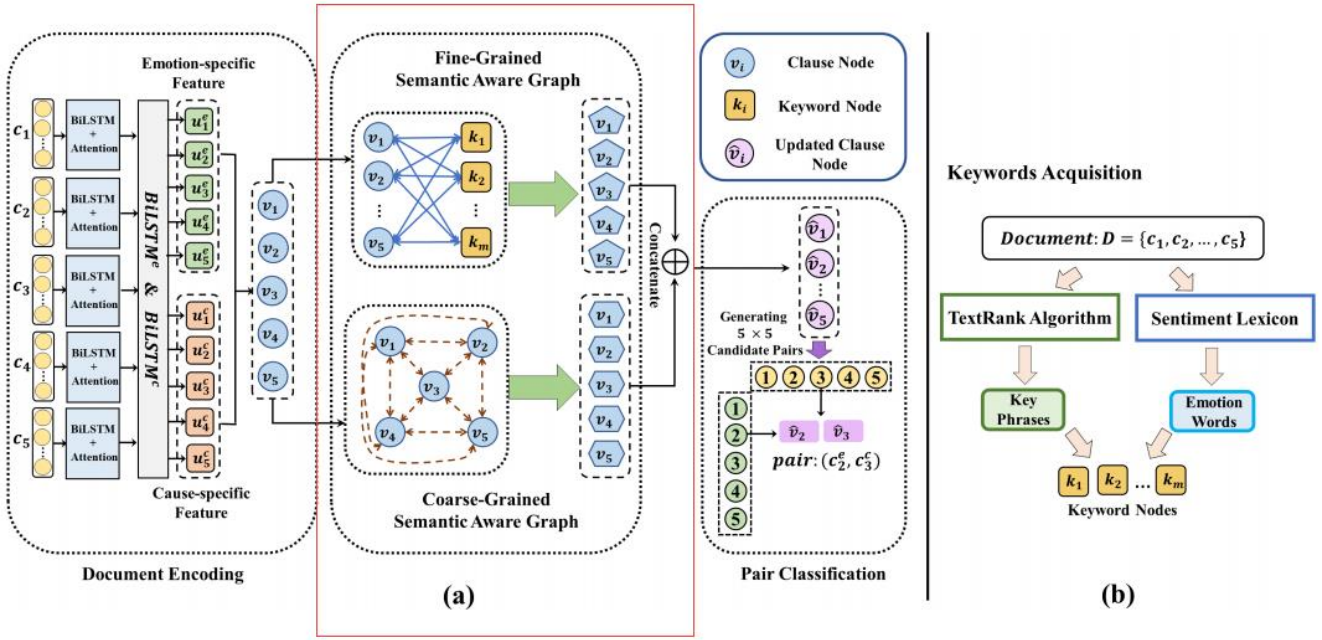

Figure 2: (a) shows an overview of MGSAG. (b) shows the process of keywords acquisition.

$$\alpha_{ij} = \frac{\exp(w^\top[\mathbf{W}_1\mathbf{v}_i; \mathbf{W}_2\mathbf{k}_j])}{\sum_{t=1}^{|D|}\exp(w^\top[\mathbf{W}_1\mathbf{v}_t; \mathbf{W}_2\mathbf{k}_j])}, \quad (4)$$

where $\mathbf{v}_i$ and $\mathbf{k}_j$ are features of clause c_i and keyword k_j respectively; $[\cdot;\cdot]$ is the concatenation operation; $\mathbf{W}_1, \mathbf{W}_2 \in \mathbb{R}^{d_w \times d_w}$ and $w \in \mathbb{R}^{2d_w \times 1}$ are trainable parameters.

Then, clause c_i is encoded as the fine-grained semantic enhanced representation $\mathbf{v}_i^b$ as follows:

$$\mathbf{v}_i^b = \tanh((\mathbf{v}_i + \sum_{j=1}^{m}(\alpha_{ij}(\sum_{t=1}^{|D|}\alpha_{tj}\mathbf{W}_3\mathbf{v}_t))) + \mathbf{b}), \quad (5)$$