Element relational graph-augmented multi-granularity contextualized encoding for document-level event role filler extraction

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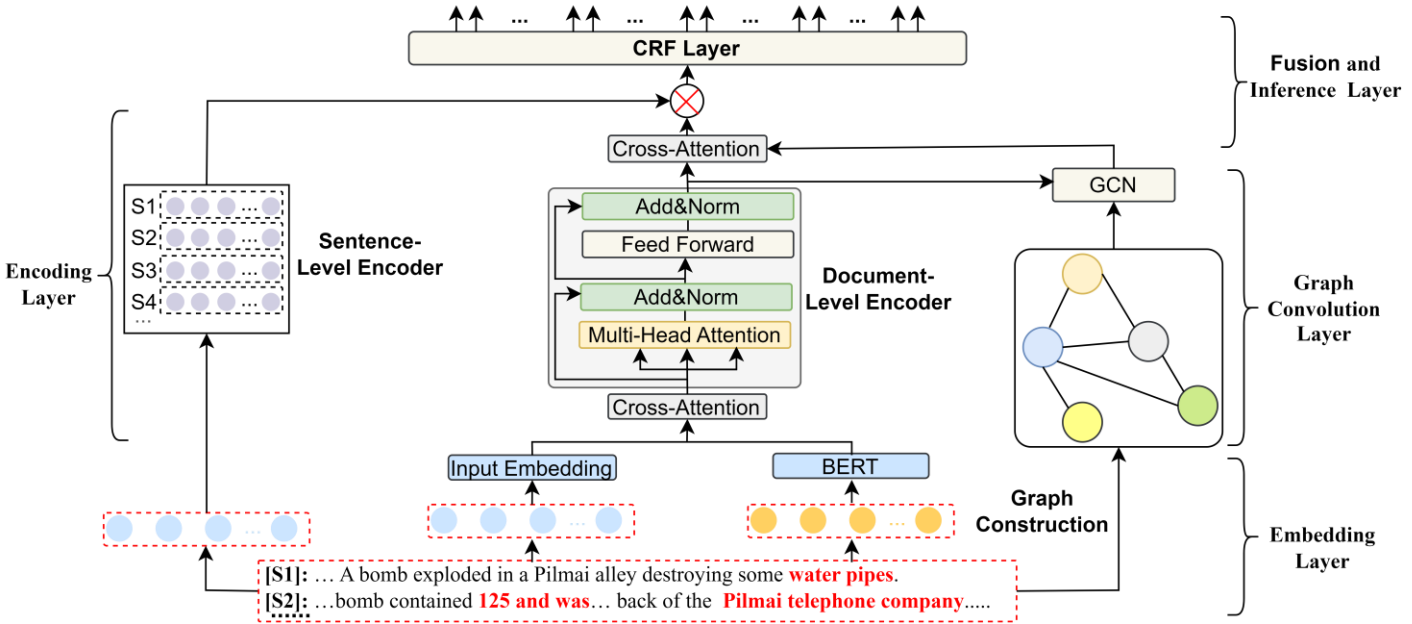
Problems & Ideas

- Problems of conventional document-level event role filler extraction approaches:
  - there are difficulties in contextual modeling of long text, which requires modeling and understanding coherence and connections across sentences and paragraphs.
  - there usually ignore the explicit dependency relationships between event elements displayed in long text.
- Ideas: ERGM dynamically incorporates structural and document representations to enhance the model's ability to capture global semantic information in long texts and the semantic dependencies between closely related roles.



Main Contributions

- Contributions:
  - We propose a novel element relational graph-augmented multi-granularity contextualized encoder (ERGM) method for document-level event role filler, which dynamically incorporates structural and document representations to enhance the model's ability to capture global semantic information in long texts and the semantic dependencies between closely related roles;
  - We have conducted extensive experiments on the MUC-4 benchmark. Empirically, our model outperforms substantially strong baseline models. We also demonstrate that the explicit graph-structured representation generated by the graph neural network can more effectively capture the dependency relationships between different event roles.

Method	p (%)	R (%)	F1 (%)
MGR[1]	57.10	49.31	52.92
DYGIE++[3]	57.42	46.91	51.64
GRIT[4]	64.87	47.65	54.93
TANL[5]	64.97	48.02	55.22
TEMPGEN[6]	68.68	50.17	57.98
ITERX[7]	68.97	50.82	85.52
ERGM (Ours)	**70.84**	**52.28**	**63.5**