Incorporating Contextual Evidence to Improve Implicit Discourse Relation Recognition in Chinese

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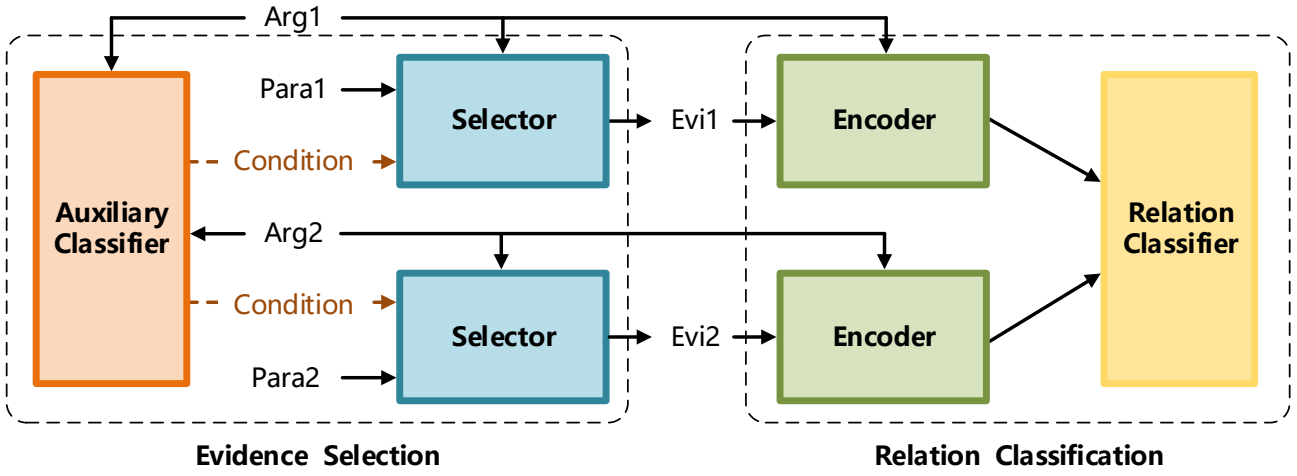
Problems & Ideas

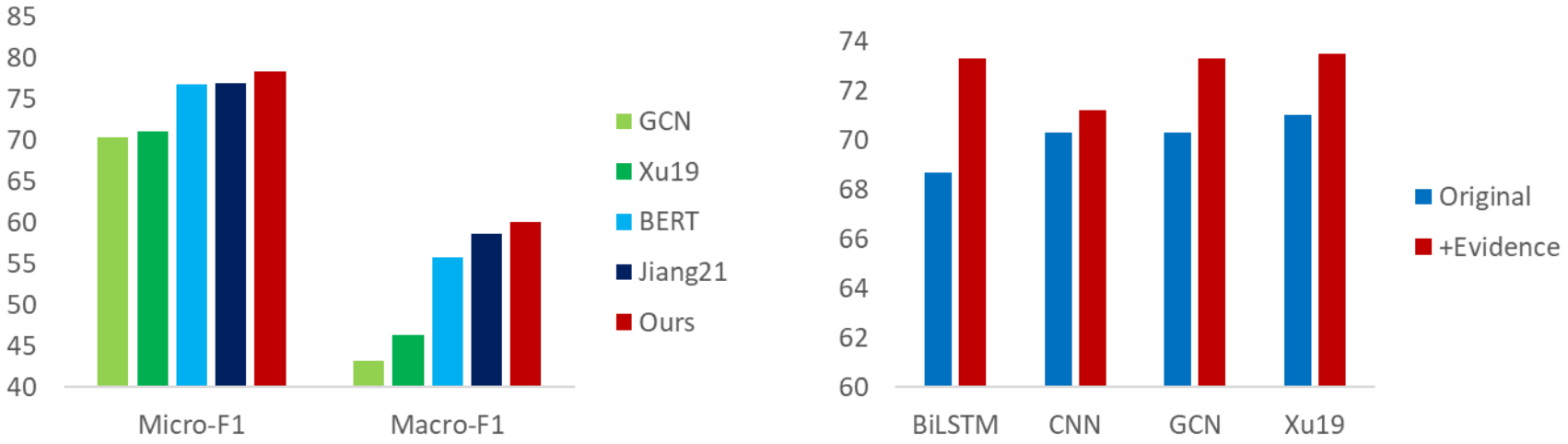
- Problems of previous discourse relation recognition studies:
  - Most current work focuses only on the two relevant arguments when recognizing discourse relations.
  - Information hidden in the context is necessary to recognize discourse relations, while previous work ignores these contextual clues.
- Ideas: Build a neural selector on dependency-based discourse trees to pick critical textual information from the context for arguments to assist in discriminating their relations.



Formally, for the two input arguments Arg1 and Arg2, the evidence selector first chooses text spans Evi1 and Evi2 from paragraphs in which the arguments are located as corresponding critical contextual. Then the relation classifier combines the two arguments and corresponding contextual evidence to recognize implicit discourse relations. In addition, contextual evidence selection and other auxiliary classification tasks are modeled jointly to provide guidance conditions.

Main Contributions

- Contributions:
  - A conversion method to transform RST-style discourse trees into dependency-based trees, representing the dependencies (i.e., parent-child relations) among all the discourse units;
  - A Seq2Seq evidence selector that can automatically pick critical contextual clues for arguments to enhance their interactions and improve the discourse relation recognition;
  - Applying a simple classifier can achieve state-of-the-art performance by incorporating additional contextual clues.



Experimental results of the baselines and our model. Left: the IDRR performances of models in micro and macro F1-scores; Right: micro F1-scores of non-Transformer baselines after incorporating contextual evidence.