## **Utilizing More Data**

- 多实例学习降噪
- 引入知识图谱和降噪的数据集
- 使用强化学习和对抗学习

## **Performing More Efficient Learning**

few-shot learning

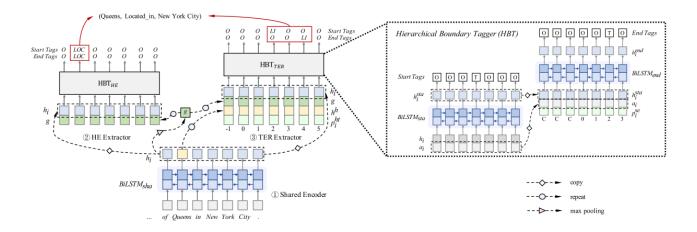
- · metric learning
- · meta learning

## **Handling More Complicated Context**

处理文本级别的语料

- 语法方法 依存树解析、共指关系
- 在inter-sentence的基础上利用多跳关系推测出正确的实体关系
- 利用图神经网络

## 复现的模型



Model	NYT-single			NYT-multi			WebNLG		
	Precision	Recall	F1	Precision	Recall	F1	Precision	Recall	F1
CoType <sup>‡</sup> [17]	42.3%	51.1%	46.3%	_	_	_	_	_	_
NovelTagging <sup>†</sup> [29]	61.5%	41.4%	49.5%	32.8%	30.6%	31.7%	52.5%	19.3%	28.3%
MultiDecoder <sup>‡</sup> [26]	_	_	_	61.0%	56.6%	58.7%	37.7%	36.4%	37.1%
MultiHead* [2]	51.5%	52.8%	52.1%	60.7%	58.6%	59.6%	57.5%	54.1%	55.7%
PA-LSTM <sup>‡</sup> [3]	49.4%	59.1%	53.8%	_	_	_	_	_	_
GraphRel <sup>‡</sup> [4]	_	_	_	63.9%	60.0%	61.9%	44.7%	41.1%	42.9%
OrderRL <sup>‡</sup> [25]	_	-	_	77.9%	67.2%	72.1%	63.3%	59.9%	61.6%
ETL-BIES	51.1%	64.6%	57.2%	84.4%	71.5%	77.4%	83.5%	81.1%	82.3%
ETL-Span	53.8%	65.1%	59.0%	85.5%	71.7%	78.0%	84.3 %	82.0%	83.1%