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Exploring the Synergy of Dual-path Encoder and Alignment Module for Better Graph-to-Text Generation

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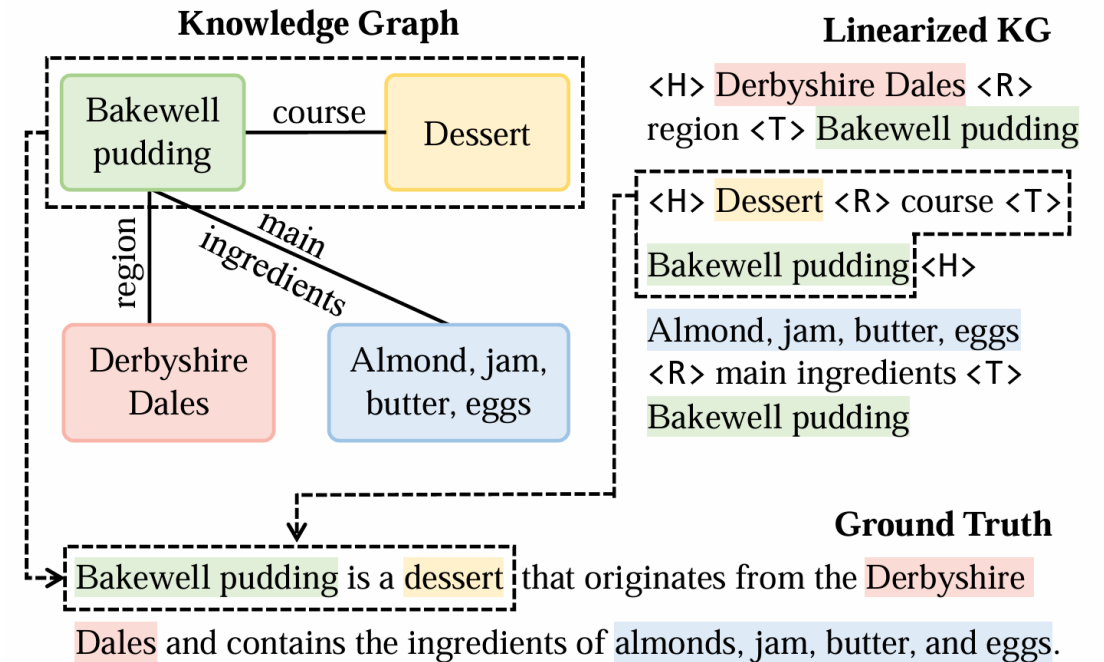
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Background and Significant

- **Knowledge graph (KG)** is a graph-structured knowledge base to store real-world entities and the relationships between them.
- **The KG-to-text generation task** aims to generate high-quality texts that are consistent with input knowledge graphs.
- KG-to-text can further **enhance the capability of Natural Language Processing systems** to understand better and utilize knowledge graphs.

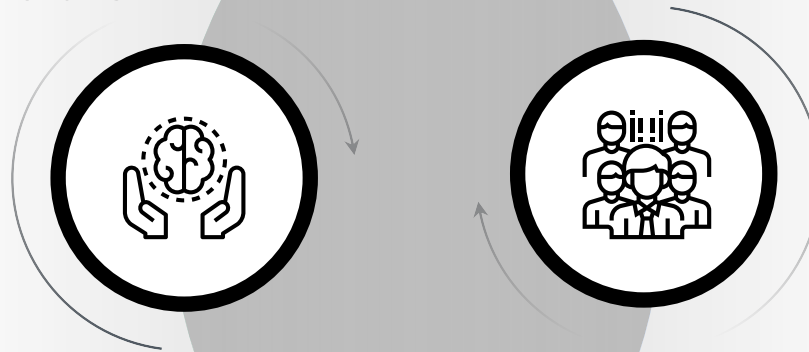


Typical generation models

The sparseness of the available
KG-to-text datasets.



Fine-tuning PLMs



- Firstly, existing methods lose a significant amount of graph structure information.
- Secondly, PLMs lack explicit graph-text alignment



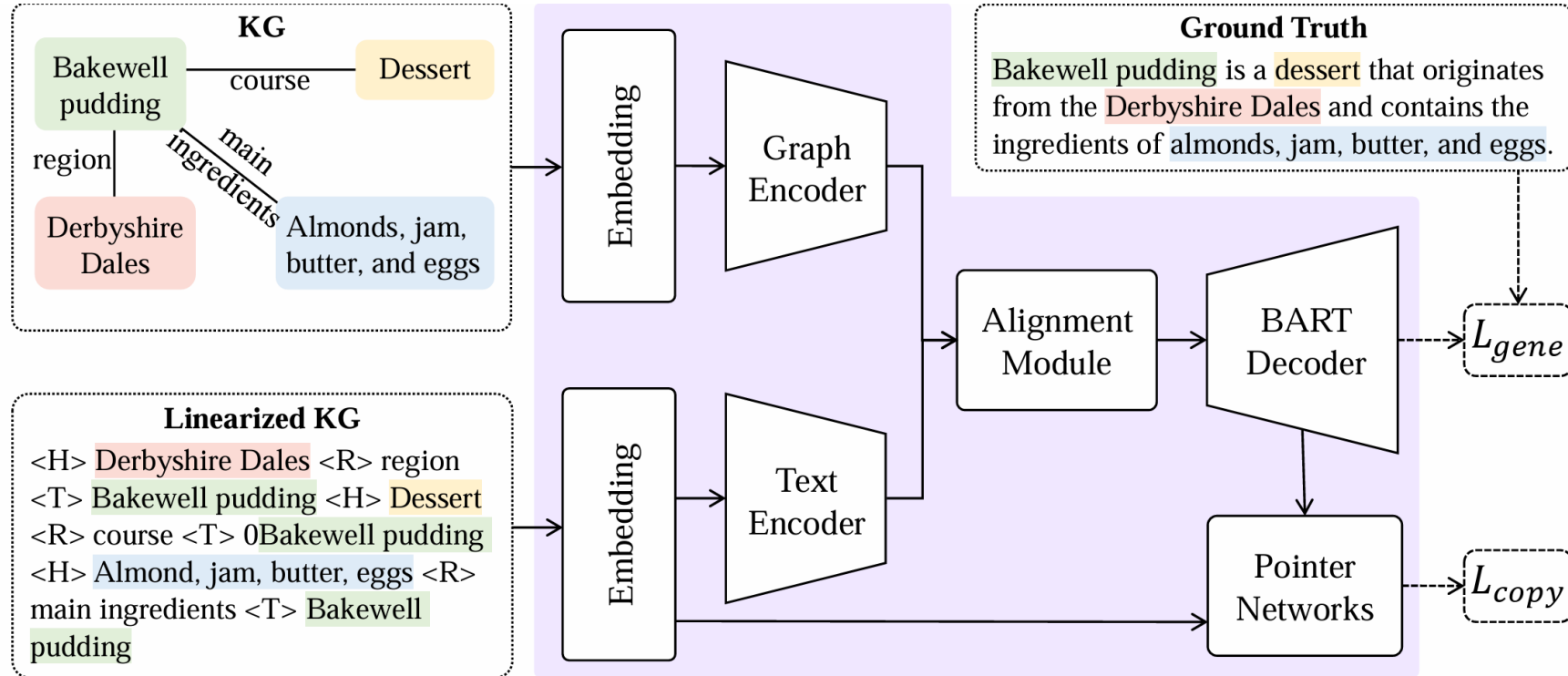


Figure 1. Our model

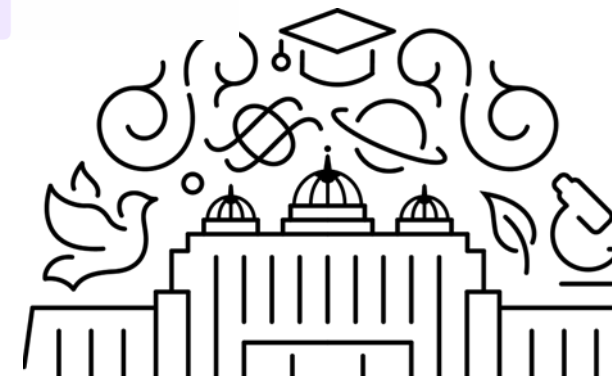




Table 1 . Performance comparison on PathQuestions, WebNLG(U) and webNLG(C) .

	PathQuestions			WEBNLG(C)			WEBNLG(U)		
	B-4	M	R-L	B-4	M	R-L	B-4	M	R-L
NPT [†]	61.48	44.57	77.72	48.00	36.00	65.00	61.00	42.00	71.00
KGPT [†]	-	-	-	-	-	-	64.11	46.30	74.57
BART [†]	63.74	47.23	77.76	56.65	44.51	70.94	64.55	46.51	75.13
T5 [†]	58.95	44.72	76.58	<u>58.66</u>	46.04	<u>73.06</u>	64.42	46.58	74.77
JointGT [†]	65.89	<u>48.25</u>	<u>78.87</u>	58.55	<u>45.01</u>	72.31	65.92	<u>47.15</u>	76.10
GAP [‡]	<u>66.18</u>	48.12	76.38	-	-	-	<u>66.20</u>	46.77	76.36
Ours	67.20	48.56	79.62	59.33	44.92	73.14	66.41	47.38	<u>76.18</u>

- The symbols † and ‡ indicate that the data are from JointGT and GAP, respectively. Bold and underline fonts indicate the best-performing and second-best-performing results, respectively.
- We also used the abbreviations of the evaluation metrics: B-4 is BLEU-4, M is METEOR, and R-L is ROUGE-L.



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