

Supplementary Materials: Generalize to Fully Unseen Graphs: Learn Transferable Hyper-Relation Structures for Inductive Link Prediction

Anonymous Authors

A THE HYPERPARAMETERS OF HYREL

Due to the limited pages of the main body, we introduce some details of HyRel in the following sections. The proposed HyRel is implemented in PyTorch with a single GeForce RTX 3090 GPU. During training, we set the validation frequency to every 200 epochs, with a total of 10,000 epochs. In the loss \mathcal{L}_g , the number of negative samples is 10. Other hyperparameters include number of layers for relations and entities $L = 1$, $\tilde{L} \in \{2, 3, 4\}$, learning rate $\in \{0.0005, 0.001\}$, $\gamma \in \{1.0, 2.0, 2.5\}$, hidden dimensions of relations $dr' \in \{64, 128, 256\}$, hidden dimensions of entities $de' \in \{64, 128, 256\}$. In both Section 4.2 and Section 4.4, the multi-head attention mechanism utilizes either 8 or 16 heads. To maintain consistency with all baseline models, we set the final embedding dimensions of entities and relations in our model to 32, i.e., $de = dr = 32$.

B THE DETAILED INFORMATION OF THE DATASETS

Table 1 displays detailed information about the datasets, showing the specific numbers of entities, relations, and triples in both the training and testing graphs.

Table 1: Detailed information of the 12 datasets used for inductive link prediction.

Datasets	$\widetilde{\mathcal{G}}_{\text{tra}}$			$\widetilde{\mathcal{G}}_{\text{inf}}$		
	\mathcal{E}_{tra}	\mathcal{R}_{tra}	\mathcal{F}_{tra}	\mathcal{E}_{inf}	\mathcal{R}_{inf}	\mathcal{T}_{inf}
NL-100	1,258	55	7,832	1,709	53	3,964
NL-75	2,607	96	11,058	1,578	116	3,031
NL-50	4,396	106	17,578	2,335	119	4,294
NL-25	4,396	106	17,578	2,146	120	3,717
FB-100	4,659	134	62,809	2,624	77	11,645
FB-75	4,659	134	62,809	2,792	186	15,528
FB-50	5,190	153	85,375	4,445	205	19,394
FB-25	5,190	163	91,571	4,097	216	28,579
WK-100	9,784	67	49,875	12,136	37	22,479
WK-75	6,853	52	28,741	2,722	65	5,717
WK-50	12,022	72	82,481	9,328	93	16,121
WK-25	12,659	47	41,873	3,228	74	5,652