

Federated Knowledge Graph Completion with the Client-Wise Relation Graph

1 SUPPLEMENTARY EXPERIMENTS

Table 1: Experiment results on NELL-995-Fed3. The **bold** figures denote the best results, and the underline figures denotes the best results in corresponding settings.

KGE	Setting	Methods	NELL-995-Fed3			
			MRR	Hits@1	Hits@5	Hits@10
TransE	w/o Ens	FedE	0.3519	0.2146	0.5079	0.6145
		FedEC	0.3570	0.2216	0.5115	0.6188
		FedG	<u>0.3730</u>	<u>0.2295</u>	<u>0.5387</u>	<u>0.6413</u>
	w/ Ens	FedE*	0.3671	0.2196	0.5374	0.6417
		FedEC(DE)	0.3720	0.2249	0.5429	0.6461
		FedEC(AE)	0.3727	0.2284	0.5427	0.6469
		FedG*	0.3768	0.2315	0.5447	0.6487
RotatE	w/o Ens	FedE	0.4326	0.3108	0.5748	0.6672
		FedEC	0.4411	0.3249	0.5746	0.6670
		FedG	<u>0.4439</u>	<u>0.3304</u>	<u>0.5752</u>	<u>0.6674</u>
	w/ Ens	FedE*	0.4436	0.3217	0.5860	0.6785
		FedEC(DE)	0.4481	0.3323	0.5833	0.6753
		FedEC(AE)	0.4485	0.3346	0.5840	0.6755
		FedG*	0.4518	0.3385	0.5858	0.6758
R-GCN	w/o Ens	FedE	0.2929	0.1797	0.4164	0.5169
		FedEC	0.2966	0.1824	0.4224	0.5202
		FedG	<u>0.3009</u>	<u>0.1876</u>	<u>0.4252</u>	<u>0.5274</u>
	w/ Ens	FedE*	0.3172	0.1945	0.4532	0.5564
		FedEC(DE)	0.3216	0.1978	0.4579	0.5606
		FedEC(AE)	0.3221	0.1985	0.4593	0.5597
		FedG*	0.3496	0.2260	0.4870	0.5932

Note: The settings 'w/o Ens' and 'w/ Ens' correspond to the models without and with using embedding ensemble, respectively.

Table 2: Comparison of experiment results between C-FedG and FedG* on FB15k-237-Fed3, FB15k-237-Fed5 and FB15k-237-Fed10. The **bold** figures denote the best results

KGE	Methods	FB15k-237-Fed3				FB15k-237-Fed5				FB15k-237-Fed10			
		MRR	Hits@1	Hits@5	Hits@10	MRR	Hits@1	Hits@5	Hits@10	MRR	Hits@1	Hits@5	Hits@10
TransE	C-FedG	0.4388	0.3104	0.5947	0.6845	0.4323	0.2996	0.5933	0.6849	0.4272	0.2910	0.5937	0.6882
	FedG*	0.4444	0.3150	0.6023	0.6914	0.4384	0.3048	0.6002	0.6933	0.4340	0.2960	0.6030	0.6975
RotatE	C-FedG	0.4541	0.3288	0.6056	0.6912	0.4534	0.3261	0.6071	0.6953	0.4470	0.3129	0.6117	0.7001
	FedG*	0.4622	0.3358	0.6164	0.7012	0.4549	0.3273	0.6100	0.6995	0.4585	0.3250	0.6230	0.7112
R-GCN	C-FedG	0.3752	0.2636	0.5040	0.5923	0.3689	0.2526	0.5034	0.5943	0.3566	0.2355	0.4995	0.5884
	FedG*	0.4092	0.2886	0.5516	0.6398	0.3931	0.2695	0.5383	0.6309	0.3751	0.2493	0.5227	0.6144