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	<div></div>		<div>authors</div>	<div><div><div></div></div><div>Yinyu Lan</div><div>Shizhu He</div><div>Xiangrong Zeng</div><div>Shengping Liu</div><div>Kang Liu</div><div>Jun Zhao</div></div>	DUPLICATES	217		
			<div>title</div>	Path-based knowledge reasoning with textual semantic information for medical knowledge graph completion				
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			<div>id</div>	id6449780272992623313				
			<div>abstract</div>	Background Knowledge graphs (KGs), especially medical knowledge graphs, are often significantly incomplete, so it necessitating a demand for medical knowledge graph completion (MedKGC). MedKGC can find new facts based on the exited knowledge in the KGs. The path-based knowledge reasoning algorithm is one of the most important approaches to this task. This type of method has received great attention in recent years because of its high performance and interpretability. In fact, traditional methods such as path ranking algorithm (PRA) take the paths between an entity pair as atomic features. However, the medical KGs are very sparse, which makes it difficult to model effective semantic representation for extremely sparse path features. The sparsity in the medical KGs is mainly reflected in the long-tailed distribution of entities and paths. Previous methods merely consider the context structure in the paths of the knowledge graph and ignore the textual semantics of the symbols in the path. Therefore, their performance cannot be further improved due to the two aspects of entity sparseness and path sparseness. To address the above issues, this paper proposes two novel path-based reasoning methods to solve the sparsity issues of entity and path respectively, which adopts the textual semantic information of entities and paths for MedKGC. By using the pre-trained model BERT, combining the textual semantic representations of the entities and the relationships, we model the task of symbolic reasoning in the medical KG as a numerical computing issue in textual semantic representation.				
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