CLAIMS

What is claimed is:

1. A knowledge graph data fusion method, comprising:

obtaining a target entity field and a target relationship description, the target entity field and the target relationship description being selected from ontology definition data of two or more knowledge graphs, and the ontology definition data of a knowledge graph including an entity field used to indicate an entity and a relationship description used to indicate a relationship between entities;

determining one or more graph operators used to perform fusion processing on the target entity field and the target relationship description; and

obtaining data instances corresponding to the target entity field and the target relationship description from the two or more knowledge graphs, and processing the data instances by using the one or more graph operators to generate a fused knowledge graph, wherein the obtaining and processing comprise:

determining a target entity field and a target relationship description that are related to the graph operator, as an entity field and a relationship description of a minimal sub-graph;

obtaining, from each knowledge graph, data instances corresponding to the entity field and the relationship description of the minimal sub-graph;

processing, by using the graph operator, the data instances corresponding to the entity field and the relationship description of the minimal sub-graph, to obtain the minimal sub-graph; and

obtaining, from each knowledge graph, data instances corresponding to a target entity field and the target relationship description other than the entity field and the relationship description of the minimal sub-graph, to obtain a sub-graph other than the minimal sub-graph of the fused knowledge graph.

2. The method according to claim 1, wherein the target entity field and the target

relationship description are specified by a user.

3. The method according to claim 1, wherein the one or more graph operators are provided by a user or are self-generated.

4. The method according to claim 1, further comprising: obtaining ontology definition data of the fused knowledge graph based on the target entity field, the target relationship description, and the one or more graph operators, and expressing the ontology definition data of the fused knowledge graph in an image form of a knowledge graph.

5. The method according to claim 1, wherein the entity field corresponds to one or more attribute fields, and a graph operator is used to implement one or more of the following operations:

performing expression standardization processing on an instance value of an attribute field corresponding to the target entity field;

fusing two or more target entity fields to obtain a fused entity field, an attribute field corresponding to the fused entity field being obtained based on an attribute field corresponding to at least one of the two or more target entity fields, and a relationship description related to the fused entity field including a target relationship description related to each of the two or more target entity fields;

establishing a relationship description for two target entities based on an attribute field corresponding to at least one of two target entity fields corresponding to the two target entities; or

invoking a natural language processing model to determine similar instances in the data instances, to fuse the similar instances in the data instances.

6. The method according to claim 1, wherein the obtaining the data instances corresponding to the target entity field and the target relationship description from the two or more knowledge graphs, and processing the data instances by using the graph

operator to generate the fused knowledge graph is executed in a trusted environment.

7. The method according to claim 6, further comprising: executing in the trusted environment:

processing the fused knowledge graph by using a target task algorithm to obtain and output a target task result, the target task algorithm including one or more of a graph rule reasoning algorithm or a graph-based machine learning model prediction algorithm.

8. The method according to claim 7, wherein the target task algorithm is specified by a user.

9. The method according to claim 1, wherein the two or more knowledge graphs are received from one or more knowledge graph providers.

10. A knowledge graph data fusion system, comprising:

a target data acquisition module, configured to obtain a target entity field and a target relationship description, the target entity field and the target relationship description being selected from ontology definition data of two or more knowledge graphs, and the ontology definition data of a knowledge graph including an entity field used to indicate an entity and a relationship description used to indicate a relationship between entities;

a graph operator determining module, configured to determine one or more graph operators used to perform fusion processing on the target entity field and the target relationship description; and

a fused graph generation module, configured to: obtain data instances corresponding to the target entity field and the target relationship description from the two or more knowledge graphs, and process the data instances by using the one or more graph operators to generate a fused knowledge graph, wherein the fused graph generation module is further configured to:

determine a target entity field and a target relationship description that are related

to the graph operator, as an entity field and a relationship description of a minimal sub-graph;

obtain, from each knowledge graph, data instances corresponding to the entity field and the relationship description of the minimal sub-graph;

process, by using the graph operator, the data instances corresponding to the entity field and the relationship description of the minimal sub-graph, to obtain the minimal sub-graph; and

obtain, from each knowledge graph, data instances corresponding to a target entity field and the target relationship description other than the entity field and the relationship description of the minimal sub-graph, to obtain a sub-graph other than the minimal sub-graph of the fused knowledge graph.

11. A knowledge graph data fusion apparatus, comprising at least one storage medium and at least one processor, the at least one storage medium being configured to store computer instructions, and the at least one processor being configured to execute the computer instructions to implement the knowledge graph data fusion method according to any one of claims 1 to 9.

12. A knowledge graph data processing method, comprising:

specifying a target entity field and a target relationship description for a service provider, the target entity field and the target relationship description being selected from ontology definition data of two or more knowledge graphs, and the ontology definition data of the knowledge graph including an entity field used to indicate an entity and a relationship description used to indicate a relationship between entities; and

obtaining one or more of a fused knowledge graph or a target task result from the service provider, the fused knowledge graph being generated by processing data instances by using a graph operator, the data instances being obtained from the two or more knowledge graphs based on the target entity field and the target relationship description, the target task result being obtained by processing the fused knowledge graph by using a target task algorithm, and the target task algorithm including a graph

rule reasoning algorithm or a graph-based machine learning model prediction algorithm, wherein the generating of the fused knowledge graph by the service provider includes:

determining a target entity field and a target relationship description that are related to the graph operator, as an entity field and a relationship description of a minimal sub-graph;

obtaining, from each knowledge graph, data instances corresponding to the entity field and the relationship description of the minimal sub-graph;

processing, by using the graph operator, the data instances corresponding to the entity field and the relationship description of the minimal sub-graph, to obtain the minimal sub-graph; and

obtaining, from each knowledge graph, data instances corresponding to a target entity field and the target relationship description other than the entity field and the relationship description of the minimal sub-graph, to obtain a sub-graph other than the minimal sub-graph of the fused knowledge graph.

13. The method according to claim 12, further comprising:

generating one or more graph operators used to perform fusion processing on the target entity field and the target relationship description; and

sending the one or more graph operators to the service provider.

14. The method according to claim 12, further comprising:

specifying a target task algorithm for the service provider.

15. The method according to claim 12, further comprising:

obtaining, from the service provider, ontology definition data of a fused knowledge graph expressed in an image form of a knowledge graph, the ontology definition data of the fused knowledge graph being obtained based on the target entity field, the target relationship description, and the one or more graph operators.

16. A knowledge graph data processing system, comprising:

a target data specifying module, configured to specify a target entity field and a target relationship description for a service provider, the target entity field and the target relationship description being selected from ontology definition data of two or more knowledge graphs, and the ontology definition data of a knowledge graph including an entity field used to indicate an entity and a relationship description used to indicate a relationship between entities; and

a result acquisition module, configured to obtain one or more of a fused knowledge graph or a target task result from the service provider, the fused knowledge graph being generated by processing data instances by using a graph operator, the data instances being obtained from the two or more knowledge graphs based on the target entity field and the target relationship description, the target task result being obtained by processing the fused knowledge graph by using a target task algorithm, and the target task algorithm including a graph rule reasoning algorithm or a graph-based machine learning model prediction algorithm, wherein generating the fused knowledge graph by the service provider includes:

determining a target entity field and a target relationship description that are related to the graph operator, as an entity field and a relationship description of a minimal sub-graph;

obtaining, from each knowledge graph, data instances corresponding to the entity field and the relationship description of the minimal sub-graph;

processing, by using the graph operator, the data instances corresponding to the entity field and the relationship description of the minimal sub-graph, to obtain the minimal sub-graph; and

obtaining, from each knowledge graph, data instances corresponding to a target entity field and the target relationship description other than the entity field and the relationship description of the minimal sub-graph, to obtain a sub-graph other than the minimal sub-graph of the fused knowledge graph.

17. A knowledge graph data processing apparatus, comprising at least one storage medium and at least one processor, the at least one storage medium being configured to

store computer instructions, and the at least one processor being configured to execute the computer instructions to implement the knowledge graph data processing method according to any one of claims 12 to 15.

18. A knowledge graph data fusion method, comprising:

obtaining ontology definition data of two or more knowledge graphs, the ontology definition data of a knowledge graph including an entity field used to indicate an entity and a relationship description used to indicate a relationship between entities;

separately selecting a target entity field and a target relationship description from ontology definition data of each knowledge graph, and determining one or more graph operators used to perform fusion processing on the target entity field and the target relationship description, to obtain ontology definition data of a fused knowledge graph; and

obtaining, from each knowledge graph, data instances corresponding to the target entity field and the target relationship description, and processing the data instances by using the graph operator, to generate the fused knowledge graph, wherein the obtaining and processing comprises:

determining a target entity field and a target relationship description that are related to the graph operator, as an entity field and a relationship description of a minimal sub-graph;

obtaining, from each knowledge graph, data instances corresponding to the entity field and the relationship description of the minimal sub-graph;

processing, by using the graph operator, the data instances corresponding to the entity field and the relationship description of the minimal sub-graph, to obtain the minimal sub-graph; and

obtaining, from each knowledge graph, data instances corresponding to a target entity field and the target relationship description other than the entity field and the relationship description of the minimal sub-graph, to obtain a sub-graph other than the minimal sub-graph of the fused knowledge graph.