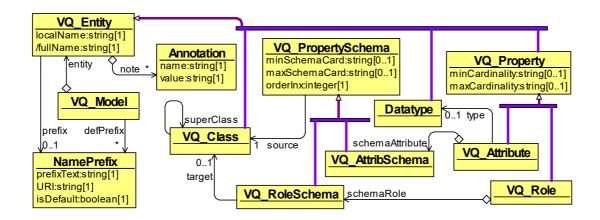
ViziQuer Data Schema outline



The figure shows abstract syntax of ViziQuer schema information.

There are entities: classes, properties and data-types in the data model, identified by their full names (URIs) and equipped with local names, optionally with prefixes. Every role comes with a list of its applicability contexts ("schema roles"), consisting of source and target classes, for every attribute there is a datatype and a list of applicability contexts. The minimum and maximum cardinalities can be specified both at the property level and at the level of its applicability context; the strongest of the cardinalities are considered. The entities can be annotated.

Note. The semantics of RDFS/OWL domain and range assertions does not make them directly suitable for encoding the assertions of a property applicability within the context of a particular class. Therefore, a custom knowledge-graph style format has been chosen for data meta-schema organization; the interchange with OWL/RDF format is organized by means of data import and export (e.g. the schema can be retrieved from and OWL ontology, as well as the working tool data schema can be saved into OWL format).

The following JSON structure is recognized by the ViziQuer tool as an exchange format for schema import and export.

Namespace:	default namespace
Prefixes:	extra namespace prefixes
Prefix(*):	
prefix	
namespace	
Classes:	
Class(*):	
localName	
prefix(01)	
fullName(01)	
SuperClasses	
SuperClass(*):	
[prefix ':'] localName fullName	
Attributes:	

```
Attribute(*):
  localName
  prefix(0..1)
  fullName(0..1)
  type(0..1)
  minCardinality(0..1)
  maxCardinality(0..1)
  SourceClasses:
   Class(*):
    [prefix ':'] localName | fullName
Associations:
 Association(*):
  localName
  prefix(0..1)
  fullName(0..1)
  minCardinality(0..1)
  maxCardinality(0..1)
  ClassPairs:
   ClassPair(*):
    SourceClass:
     [prefix ':'] localName | fullName
    TargetClass:
     [ prefix ':' ] localName | fullName
    inverseRole(0..1):
     [ prefix ':' ] localName | fullName
    minCardinality(0..1)
    maxCardinality(0..1)
```

An entity has to be specified either by its full name, or by a local name and an optional prefix (a missing prefix indicates that the entity is from the default namespace).

Should a matching prefix for an entity specified by full URI be missing from the prefix table, an auto-generated prefix would be introduced into the tool environment.

The inverse role specification applies for the both roles in the specified class name pair contexts only.

The cardinality information may be used in SPARQL query composition optimisation, as well as by the query environment.

We have minimised reliance on cardinalities in query generation, however, we have plans to exploit cardinalities by the query environment.

If cardinality is not specified, then maxCardinality is assumed to be 1 for an attribute and unlimited for an association; minCardinality is assumed to be 0 in both cases. To specify unlimited maxCardinality cardinality for an attribute, set its value to be -1.