



Figure 5. An example of SKN

Figure 6 depicts part of serialization of the example SKN in Resource Description Framework (RDF/XML). In Figure 6, *Ontology_Model*, *Boolean_Model*, *Probability_Model*, *Vector_Space_Model* and *Information_Retrieval_Model* are instances of the class *Knowledge* while *Alice*, *Tom* and *Jack* are instances of the class *Person*.

```

<owl:NamedIndividual rdf:about="&skno;Alice">
  <rdf:type rdf:resource="&skno;Person"/>
  <create rdf:resource="&skno;Ontology_Model"/>
  <isCollaboratorOf rdf:resource="&skno;Tom"/>
</owl:NamedIndividual>
<owl:NamedIndividual rdf:about="&skno;Boolean_Model">
  <rdf:type rdf:resource="&skno;Knowledge"/>
  <isPartOf rdf:resource="&skno;Information_Retrieval_Model"/>
</owl:NamedIndividual>
<owl:NamedIndividual rdf:about="&skno;Information_Retrieval_Model">
  <rdf:type rdf:resource="&skno;Knowledge"/>
</owl:NamedIndividual>
<owl:NamedIndividual rdf:about="&skno;Jack">
  <rdf:type rdf:resource="&skno;Person"/>
  <create rdf:resource="&skno;Boolean_Model"/>
  <isCollaboratorOf rdf:resource="&skno;Tom"/>
</owl:NamedIndividual>
<owl:NamedIndividual rdf:about="&skno;Ontology_Model">
  <rdf:type rdf:resource="&skno;Knowledge"/>
  <isPartOf rdf:resource="&skno;Information_Retrieval_Model"/>
</owl:NamedIndividual>
<owl:NamedIndividual rdf:about="&skno;Probability_Model">
  <rdf:type rdf:resource="&skno;Knowledge"/>
  <isPartOf rdf:resource="&skno;Information_Retrieval_Model"/>
</owl:NamedIndividual>
<owl:NamedIndividual rdf:about="&skno;Tom">
  <rdf:type rdf:resource="&skno;Person"/>
  <create rdf:resource="&skno;Information_Retrieval_Model"/>
  <create rdf:resource="&skno;Probability_Model"/>
  <create rdf:resource="&skno;Vector_Space_Model"/>
</owl:NamedIndividual>
    
```

Figure 6. Serialization of the example of SKN

The representation of Right Persons (RPs) is the core function of the RPs Generator. In OKCs, person as an entity has many characteristics from what learning can offer. From the perspective of knowledge, RPs should have the higher degree of correlation in the specific domain knowledge. From the perspective of knowledge quality, RPs should have the higher degree of knowledge authority. Meanwhile, the availability and reputation of the RPs are the important factors for learners. The usability of the RPs is also the important characteristic. These characteristics are key factors that play the core role in the representation of RPs.

Taking into consideration of the above five characteristics of the RPs, we define five parameters (as shown in Table 2), to represent RPs including knowledge-related degree (KRD), knowledge-authority degree (KAD), social reputation degree (SRD), community availability degree (CAD), and community usability degree (CUD). According to five parameters model of RPs representation, five two-dimensional matrixes (KRD matrix, KAD matrix, SRD matrix, CAD matrix and CUD matrix) are created to represent RPs and relationships between RPs and knowledge.

Table 2. Five parameters definition

Number	Parameter	Description
1	KRD	knowledge-related degree
2	KAD	knowledge-authority degree
3	SRD	social reputation degree
4	CAD	community availability degree
5	CUD	community usability degree

5.2. RPs Generator

Considering the social interaction characteristic of OKCs, a novel SKN model is proposed to represent the integration space of social network and knowledge network using the ontologies and linked data technologies. Based on the SKN construction, functions and mechanism of the modules of RPs Generator, Query Semantic Parser, Semantic Matching, Semantic Reasoner, RPs Ranker and RPs Finding GUI are designed and expounded. The learning application scenarios of the intelligent framework will also be demonstrated in our future educational applications.

For future work, we will develop and realize the intelligent right persons finding system in our Learning Cell Knowledge Community to provide intelligent finding service for learners. The IRPFS will be implemented based on many open-source ontology editors and development tools such as Protégé, Jena, SWRLTab, Jena TDB and so on. By Comparing with the traditional search service, we will test and evaluate the RPFinder in different learning context using both qualitative and quantitative methods.

Acknowledgements

This research is funded by the program “Mobile Learning Platform Development and Application Demonstration”. More information about the project is available at: <http://mllab.bnu.edu.cn/>. We sincerely thank all reviewers and the Chief editor Minjuan Wang for her thorough editorial work. This paper is therefore also supported by the Oriental Scholar Program of Shanghai Municipal Education Committee (TPKY052WMJ).

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