

## COMP 872 Social Semantic Web Fall 2014 Assignment 3—Solutions

Due Monday, September 29 by 11:00 PM

1 (3.5 pts.). Encode the following in the N3 serialization of RDF.

*The sequence of documents entitled “Trust” and “Links” was made (in that order) by Ed, Fred, and Al together.*

Use `rdf:Bag`, `rdf:Seq`, `foaf:Document`, `foaf:Person`, `foaf:maker`, `foaf:name`, and `dc:title`.

Answer

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
[ a rdf:Seq;
  rdf:li [ a foaf:Document; dc:title "Trust" ],
          [ a foaf:Document; dc:title "Links" ]
]
foaf:maker
[ a rdf:Bag;
  rdf:li [ a foaf:Person; foaf:name "Ed" ],
          [ a foaf:Person; foaf:name "Fred" ],
          [ a foaf:Person; foaf:name "Al" ]
] .
```

2 (3.5 pts.). The Ideas Group uses the URI `http://www.group.org/id/` (with conventional QName prefix `id`) for ids for its group members; Ed has id 8, Fred has id 10, Al has id 11, and Pat has id 14. Encode the following in RDF/XML. Use `foaf:knows`.

*Fred knows at least one of Ed, Al, or Pat*

Answer

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:foaf="http://example.org/packages/vocab#"
         xmlns:id="http://www.group.org/id/">
  <rdf:Description rdf:about="http://www.group.org/id/10">
    <foaf:knows>
      <rdf:Alt>
        <rdf:li rdf:resource="http://www.group.org/id/8"/>
        <rdf:li rdf:resource="http://www.group.org/id/11"/>
        <rdf:li rdf:resource="http://www.group.org/id/114"/>
      </rdf:Alt>
    </foaf:knows>
  </rdf:Description>
</rdf:RDF>
```

**3** (3.5 pts.). Encode the following in N3 using whatever abbreviations are possible. Use the URI and ids for members that were used in Problem 2.

*The document entitled "The Future of Computing" was written by Al and Fred (and no one else).*

**Answer**

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix id: <http://www.group.org/id/> .
[ a foaf:Document;
  dc:title "The Future of Computing";
  dc:creator ( id:11 id:10 ) ] .
```

**4** (6 pts.). Encode the following in N3 and RDF/XML. For RDF/XML, use the abbreviated form that is possible when one uses `rdf:ID` appropriately. Use the ids for group members as before, and use the XSchema `date` data type.

*On September 18, 2013, Fred said that Al knows Ed.*

**Answer**

N3

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema> .
@prefix id: <http://www.group.org/id/> .
id:11 foaf:knows id:8 .
id:triple12 a rdf:Statement;
  rdf:subject id:11;
  rdf:predicate foaf:knows;
  rdf:object id:8;
  rdf:creator id:10;
  dc:date "2013-09-18"^^xsd:date .
```

RDF/XML

```
<?xml version="1.0"?>
<!DOCTYPE rdf:RDF [<!ENTITY xsd "http://www.w3.org/2001/XMLSchema#">]>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://example.org/packages/vocab#"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:id="http://www.group.org/id/">
  <rdf:Description rdf:about="http://www.group.org/id/11">
    <foaf:knows rdf:ID="triple12" rdf:resource="http://www.group.org/id/8"/>
  </rdf:Description>
  <rdf:Description rdf:about="#triple12">
    <dc:creator rdf:resource="http://www.group.org/id/10"/>
    <dc:date rdf:datatype="&xsd:date">2013-09-18</dc:date>
  </rdf:Description>
</rdf:RDF>
```

**5** (3.5 pts.). Encode the following in N3, specifying the units along with the height. Suppose that the group uses the URI `http://www.group.org/units/` (conventional QName prefix `gunits`) for the units (including `meters`) it defines and the URI `http://www.group.org/terms/` (conventional QName prefix `gterms`) for the terms (including `unit` and `height`) it defines.

*Fred is 1.8 meters tall.*

**Answer**

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema> .
@prefix id: <http://www.group.org/id/> .
@prefix gunits: <http://www.group.org/units/> .
@prefix gterms: <http://www.group.org/terms/> .
id:10 gterms:height [ rdf:value "100.5"^^xsd:decimal;
                      gterms:unit gunits:meters ] .
```