

Rapport de construction d'ontologie sous protégé

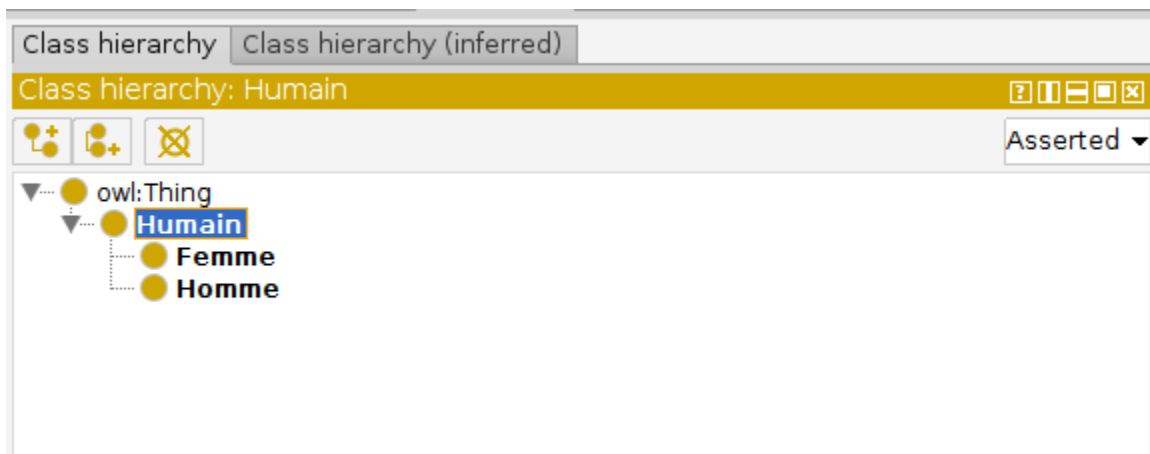
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Les étapes de construction de l'ontologie sous protégé:

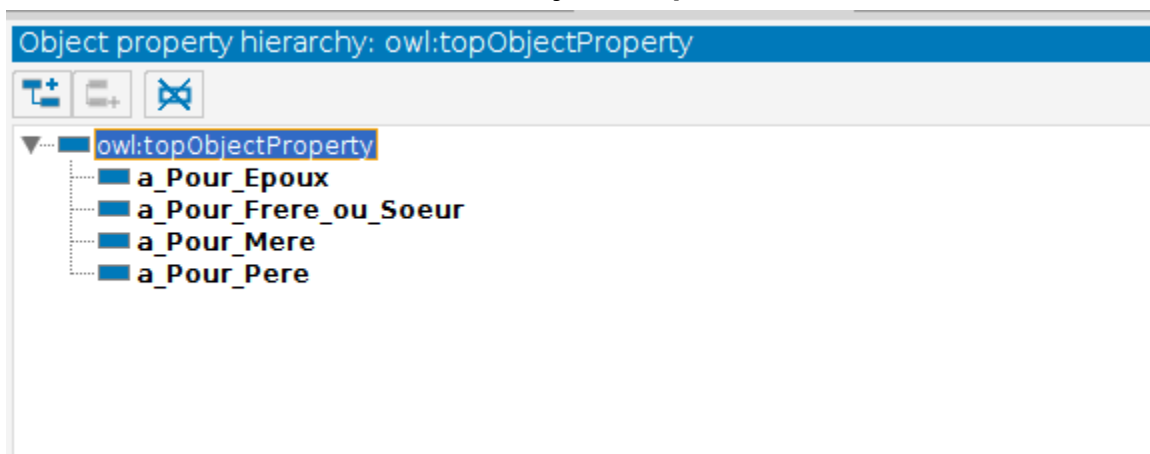
1- Créer classe **Humain**:



2- Créer les sous-classes **Femme** et **Homme**:



3- Créer les relations comme dans "**Object Properties**":



4- Ajouter les **domains** et **ranges** des relations :


Description: a_Pour_Epoux

Equivalent To 


SubProperty Of 


Inverse Of 

Domains (intersection) 

 **Femme**

Ranges (intersection) 

 **Homme**

Disjoint With 

SuperProperty Of (Chain) 


Description: a_Pour_Frere_ou_Soeur

Equivalent To 


SubProperty Of 


Inverse Of 

Domains (intersection) 

 **Humain**

Ranges (intersection) 

 **Humain**

Disjoint With 

SuperProperty Of (Chain) 


Description: a_Pour_Mere

Equivalent To 


SubProperty Of 


Inverse Of 

Domains (intersection) 

 **Humain**

Ranges (intersection) 

 **Femme**

Disjoint With 

SuperProperty Of (Chain) 


Description: a_Pour_Pere

Equivalent To 


SubProperty Of 

Inverse Of 

Domains (intersection) 

 **Humain**

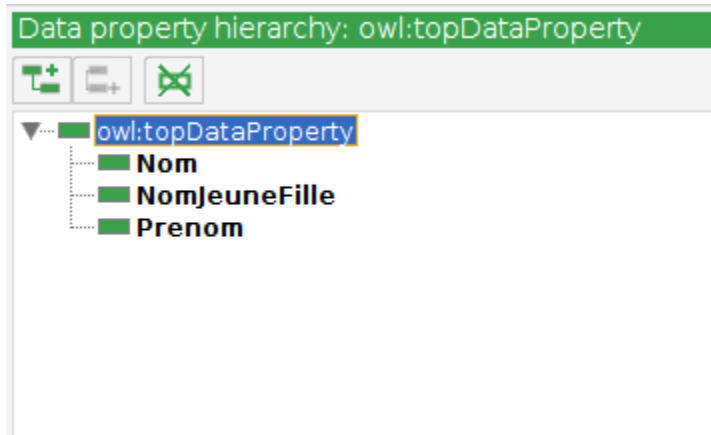
Ranges (intersection) 

 **Homme**

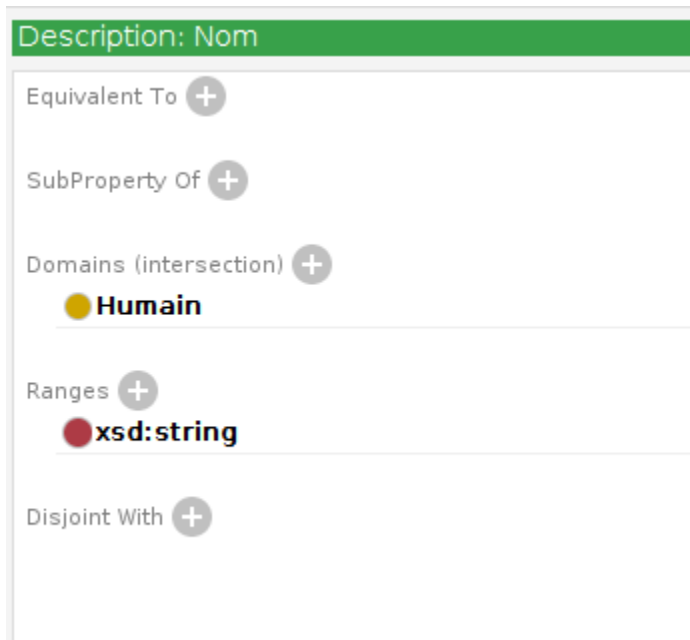
Disjoint With 

SuperProperty Of (Chain) 

5- Créer les attributs dans **Data Properties**:




6- Spécifier les **domains** et **ranges** des attributs:




Description: NomjeuneFille


Equivalent To 


SubProperty Of 

 **owl:topDataProperty**

Domains (intersection) 

 **Femme**

Ranges 

 **xsd:string**


Disjoint With 


Description: Prenom


Equivalent To 


SubProperty Of 

Domains (intersection) 

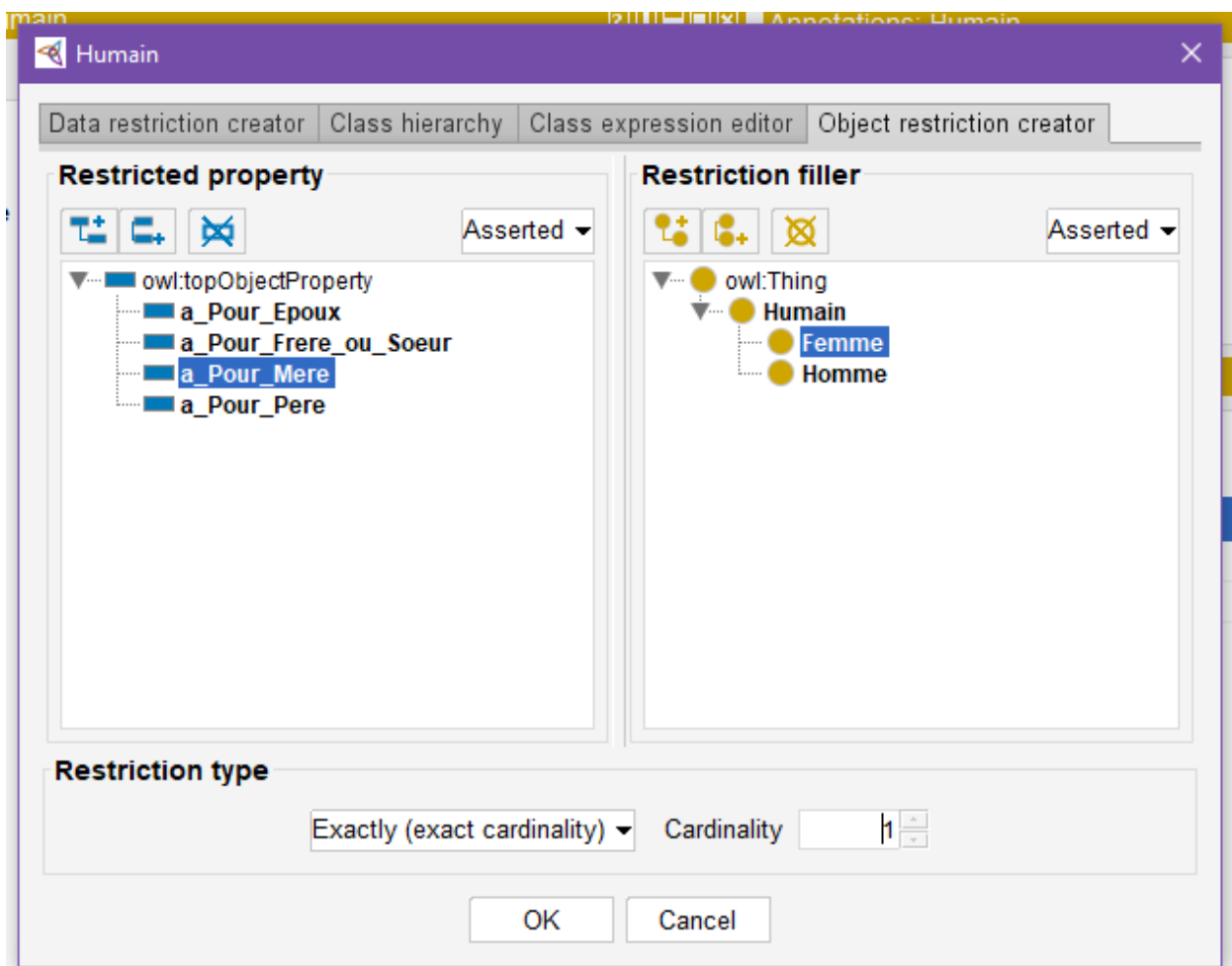
 **Humain**

Ranges 

 **xsd:string**


Disjoint With 


7- Ajouter les cardinalités :




Description: Humain

Equivalent To 

SubClass Of 

 **a_Pour_Mere exactly 1 Femme**

 **a_Pour_Pere exactly 1 Homme**

General class axioms 

SubClass Of (Anonymous Ancestor)

Instances 


Target for Key 


Disjoint With 

Disjoint Union Of 

Description: Femme


Equivalent To 


SubClass Of 

 **a_Pour_Epoux** **max** 1 Homme


 **a_Pour_Epoux** **min** 0 Homme


 **a_Pour_Mere** **min** 0 Humain

 **Humain**

General class axioms 

SubClass Of (Anonymous Ancestor)

 **a_Pour_Pere** **exactly** 1 Homme

 **a_Pour_Mere** **exactly** 1 Femme

Instances 

 **F1**

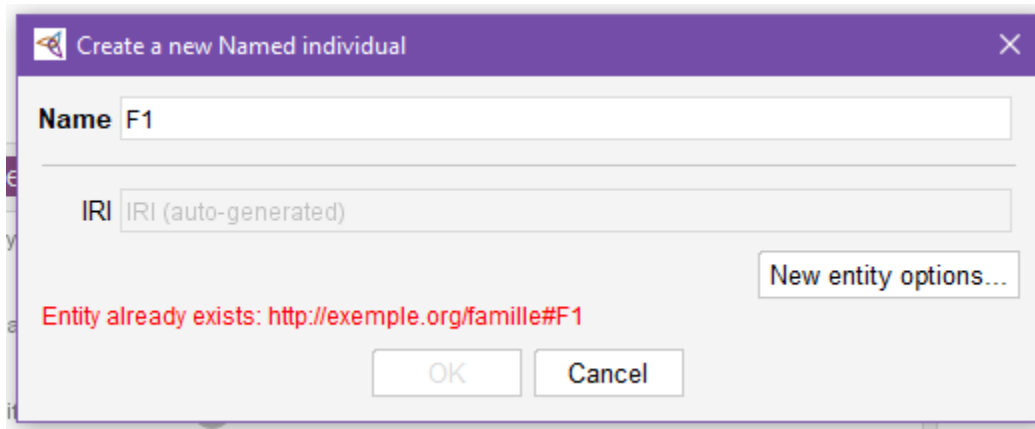
 **F2**

Target for Key 

Disjoint With 

 **Homme**

8-Créer les instances :



9-Ajouter les attributs pour les instances :

Class hierarchy: Homme Annotations Usage

Annotations: h4

owl:Thing

owl:topDataProperty

Nom

NomJeuneFille

Prenom

Direct instances

For: Homme

H1

H2

H3

h4

Data Property

Asserted

Benslimane

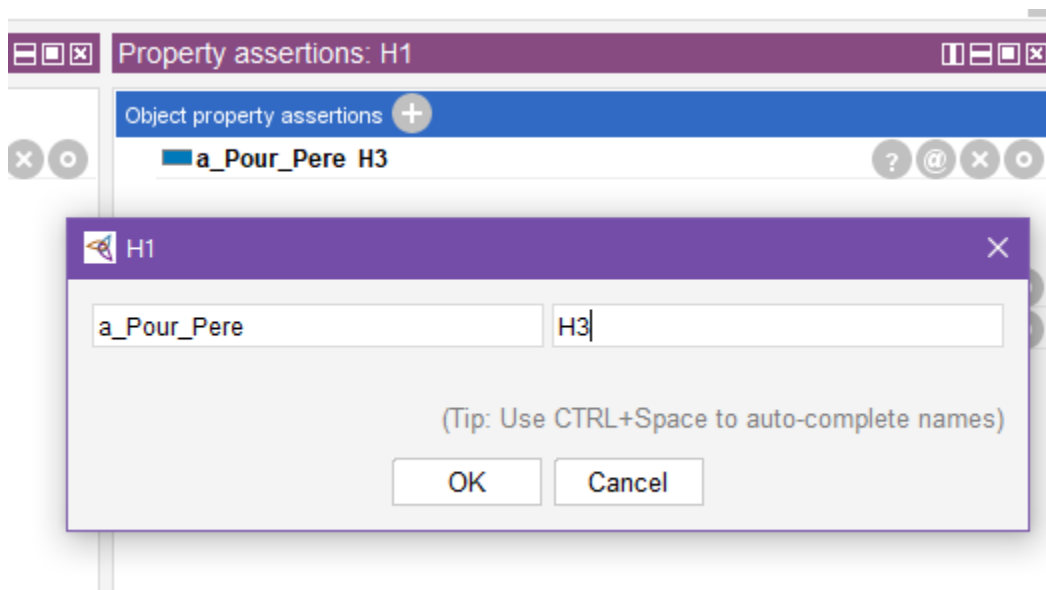
Data property assertions +

Nom	"Benslimane"^^xsd:string	? @ X O
Prenom	"Kamel"^^xsd:string	? @ X O

Negative object property assertions +

Negative data property assertions +

10-Ajouter les relations pour les instances :



L'ontologie owl:

```
<?xml version="1.0"?>
<rdf:RDF xmlns="http://exemple.org/famille#"
  xml:base="http://exemple.org/famille"
  xmlns:owl="http://www.w3.org/2002/07/owl#"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:xml="http://www.w3.org/XML/1998/namespace"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xmlns:famille="http://exemple.org/famille#">
<owl:Ontology rdf:about="http://exemple.org/famille"/>
```

```
////////////////////////////////////  
/////////////////  
    //  
    // Object Properties  
    //
```



```

        <rdfs:range rdf:resource="http://exemple.org/famille#Homme"/>
    </owl:ObjectProperty>

    <!--

////////////////////////////////////
////////////////////////////////////
    //
    // Data properties
    //

////////////////////////////////////
////////////////////////////////////
    -->

    <!-- http://exemple.org/famille#Nom -->

    <owl:DatatypeProperty rdf:about="http://exemple.org/famille#Nom">
        <rdfs:domain rdf:resource="http://exemple.org/famille#Humain"/>
        <rdfs:range rdf:resource="http://www.w3.org/2001/XMLSchema#string"/>
    </owl:DatatypeProperty>

    <!-- http://exemple.org/famille#NomJeuneFille -->

    <owl:DatatypeProperty
rdf:about="http://exemple.org/famille#NomJeuneFille">
        <rdfs:subPropertyOf
rdf:resource="http://www.w3.org/2002/07/owl#topDataProperty"/>
        <rdfs:domain rdf:resource="http://exemple.org/famille#Femme"/>
        <rdfs:range rdf:resource="http://www.w3.org/2001/XMLSchema#string"/>
    </owl:DatatypeProperty>

```

```

<!-- http://exemple.org/famille#Prenom -->

<owl:DatatypeProperty rdf:about="http://exemple.org/famille#Prenom">
  <rdfs:domain rdf:resource="http://exemple.org/famille#Humain"/>
  <rdfs:range rdf:resource="http://www.w3.org/2001/XMLSchema#string"/>
</owl:DatatypeProperty>

<!--

////////////////////////////////////
//////////
//
// Classes
//

////////////////////////////////////
//////////

-->

<!-- http://exemple.org/famille#Femme -->

<owl:Class rdf:about="http://exemple.org/famille#Femme">
  <rdfs:subClassOf rdf:resource="http://exemple.org/famille#Humain"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Epoux"/>
      <owl:minQualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">0</owl:mi
nQualifiedCardinality>
      <owl:onClass
rdf:resource="http://exemple.org/famille#Homme"/>
    </owl:Restriction>
  </rdfs:subClassOf>

```

```

        <rdfs:subClassOf>
            <owl:Restriction>
                <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Mere"/>
                <owl:minQualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">0</owl:mi
nQualifiedCardinality>
                <owl:onClass
rdf:resource="http://exemple.org/famille#Humain"/>
            </owl:Restriction>
        </rdfs:subClassOf>
        <rdfs:subClassOf>
            <owl:Restriction>
                <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Epoux"/>
                <owl:maxQualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:ma
xQualifiedCardinality>
                <owl:onClass
rdf:resource="http://exemple.org/famille#Homme"/>
            </owl:Restriction>
        </rdfs:subClassOf>
        <owl:disjointWith rdf:resource="http://exemple.org/famille#Homme"/>
    </owl:Class>

    <!-- http://exemple.org/famille#Homme -->

    <owl:Class rdf:about="http://exemple.org/famille#Homme">
        <rdfs:subClassOf rdf:resource="http://exemple.org/famille#Humain"/>
        <rdfs:subClassOf>
            <owl:Restriction>
                <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Epoux"/>
                <owl:minQualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">0</owl:mi
nQualifiedCardinality>
                <owl:onClass
rdf:resource="http://exemple.org/famille#Femme"/>

```



```

        </owl:Restriction>
    </rdfs:subClassOf>
    <rdfs:subClassOf>
        <owl:Restriction>
            <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Pere"/>
                <owl:minQualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">0</owl:mi
nQualifiedCardinality>
                <owl:onClass
rdf:resource="http://exemple.org/famille#Humain"/>
            </owl:Restriction>
        </rdfs:subClassOf>
    <rdfs:subClassOf>
        <owl:Restriction>
            <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Epoux"/>
                <owl:maxQualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:ma
xQualifiedCardinality>
                <owl:onClass
rdf:resource="http://exemple.org/famille#Femme"/>
            </owl:Restriction>
        </rdfs:subClassOf>
    </owl:Class>

    <!-- http://exemple.org/famille#Humain -->

    <owl:Class rdf:about="http://exemple.org/famille#Humain">
        <rdfs:subClassOf>
            <owl:Restriction>
                <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Mere"/>
                    <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qu
alifiedCardinality>
                    <owl:onClass
rdf:resource="http://exemple.org/famille#Femme"/>

```

```

        </owl:Restriction>
    </rdfs:subClassOf>
    <rdfs:subClassOf>
        <owl:Restriction>
            <owl:onProperty
rdf:resource="http://exemple.org/famille#a_Pour_Pere"/>
            <owl:qualifiedCardinality
rdf:datatype="http://www.w3.org/2001/XMLSchema#nonNegativeInteger">1</owl:qu
alifiedCardinality>
            <owl:onClass
rdf:resource="http://exemple.org/famille#Homme"/>
        </owl:Restriction>
    </rdfs:subClassOf>
</owl:Class>

<!--

////////////////////////////////////
////////////////////////////////////
//
//  Individuals
//

////////////////////////////////////
////////////////////////////////////
-->

<!-- http://exemple.org/famille#F1 -->

<owl:NamedIndividual rdf:about="http://exemple.org/famille#F1">
    <rdf:type rdf:resource="http://exemple.org/famille#Femme"/>
    <a_Pour_Frere_ou_Soeur
rdf:resource="http://exemple.org/famille#H3"/>
    <Nom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Hakmi</Nom>

```

```

        <NomJeuneFille
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Benslimane</NomJeuneF
ille>

        <Prenom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Wafaa</Prenom>
        </owl:NamedIndividual>


<!-- http://exemple.org/famille#F2 -->

        <owl:NamedIndividual rdf:about="http://exemple.org/famille#F2">
        <rdf:type rdf:resource="http://exemple.org/famille#Femme"/>
        <a_Pour_Epoux rdf:resource="http://exemple.org/famille#H3"/>
        <Nom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Benslimane</Nom>
        <NomJeuneFille
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Abed</NomJeuneFille>
        <Prenom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Malika</Prenom>
        </owl:NamedIndividual>


<!-- http://exemple.org/famille#H1 -->

        <owl:NamedIndividual rdf:about="http://exemple.org/famille#H1">
        <rdf:type rdf:resource="http://exemple.org/famille#Homme"/>
        <a_Pour_Pere rdf:resource="http://exemple.org/famille#H3"/>
        <Nom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Benslimane</Nom>
        <Prenom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Kamel</Prenom>
        </owl:NamedIndividual>


<!-- http://exemple.org/famille#H2 -->

        <owl:NamedIndividual rdf:about="http://exemple.org/famille#H2">

```

```
<rdf:type rdf:resource="http://exemple.org/famille#Homme"/>
<a_Pour_Mere rdf:resource="http://exemple.org/famille#F2"/>
<a_Pour_Pere rdf:resource="http://exemple.org/famille#H3"/>
<Nom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Benslimane</Nom>
  <Prenom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Omar</Prenom>
</owl:NamedIndividual>
```

```
<!-- http://exemple.org/famille#H3 -->

<owl:NamedIndividual rdf:about="http://exemple.org/famille#H3">
  <rdf:type rdf:resource="http://exemple.org/famille#Homme"/>
  <Nom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Benslimane</Nom>
  <Prenom
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Djamel</Prenom>
  </owl:NamedIndividual>
</rdf:RDF>
```

```
<!-- Generated by the OWL API (version 4.5.9.2019-02-01T07:24:44Z)
https://github.com/owlcs/owlapi -->
```

Les Graphs :

