

CO7216 Semantic Web

Surgery

Exercises

Question 1 – OWL Property Characteristic

Property Characteristics: Symmetric, Transitive, Functional, Reflexive, Irreflexive, Asymmetric, Inverse Functional, Disjointed

Identify the characteristics of the following properties

1. *hasFriend*
2. *hasBrother*
3. *love*
4. *hasMother*
5. *hasDescendent*
6. *knows*
7. *hasMaleSibling*
8. *hasEmail*
9. *hasDateOfBirth*
10. *isOlderThan*
11. *hasDNAFingerprint*

Find two properties from the above list that are disjointed.

Find two properties from the above list that are equivalent.

Note: *You only need to define a property as Symmetric, Transitive, Asymmetric, Reflexive or Irreflexive if its domain and range are the same class.*

Question 2 – Which of the following statement is true?

- (a) A Functional Property must be an Object Property.
- (b) If property A is inverseOf property B, if property A is InverseFunctional then B must be Functional.
- (c) DataTypeProperty and ObjectProperty are disjointed.
- (d) isAFatherOf property is a transitive property.
- (e) A DataType property cannot be transitive.
- (f) owl:inverseOf is a subclass of owl:ObjectProperty
- (g) A sub property of a transitive property is also a transitive property
- (h) For a specific instance, it cannot have two disjointed property values.
- (i) The minimum driving age in England is 17 - this constraint can be specified using owl:minCardinality.
- (j) MINI Cooper can carry a maximum of 5 passengers – this constraint can be specified using owl:maxCardinality.

Question 3 –Write the following OWL restrictions in RDF/XML syntax

- (a) An ontology designer should know some ontology languages.
- (b) The veggie sandwiches only contain meat-free ingredients.
- (c) UK price tags must have currency type “GBP”.
- (d) A bicycle must have at least 2 wheels.
- (e) A mother is a woman that has at least one child.

