

Exercises for the book

Semantic Web Databases

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Solutions

Chapter 9 – Inference

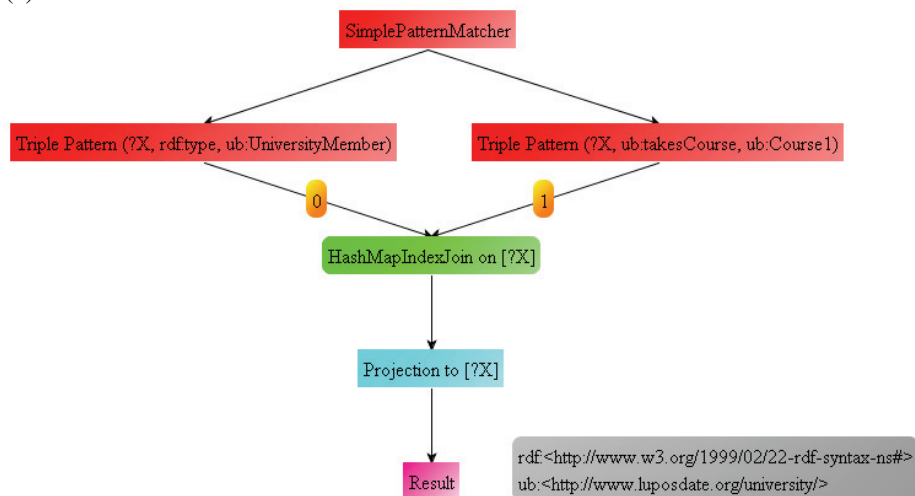
1. Only the rule (I) and (VIII) of [Gutierrez, Hurtado and Mendelzon, 2004] can be applied to the given data. The application of rule (I) infers the following triples:

```
ub:Student rdfs:subClassOf ub:Person .
ub:UndergraduateStudent rdfs:subClassOf ub:UniversityMember .
ub:UndergraduateStudent rdfs:subClassOf ub:Person .
ub:GraduateStudent rdfs:subClassOf ub:UniversityMember .
ub:GraduateStudent rdfs:subClassOf ub:Person .
```

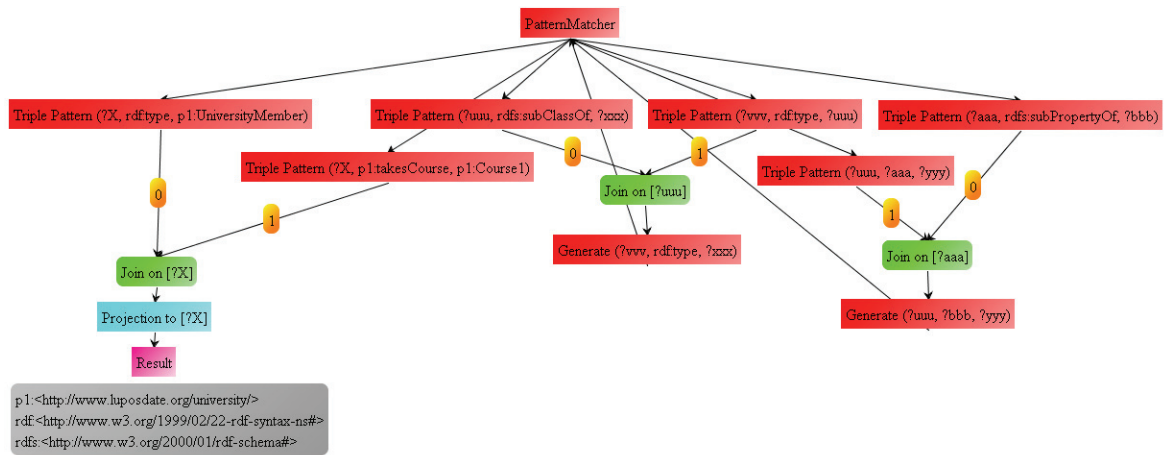
The application of rule (VIII) infers the following triples:

```
ub:Peter rdf:type ub:Student .
ub:Peter rdf:type ub:UniversityMember .
ub:Peter rdf:type ub:Person .
ub:Harald rdf:type ub:Student .
ub:Harald rdf:type ub:UniversityMember .
ub:Harald rdf:type ub:Person .
ub:Egon rdf:type ub:Person .
```

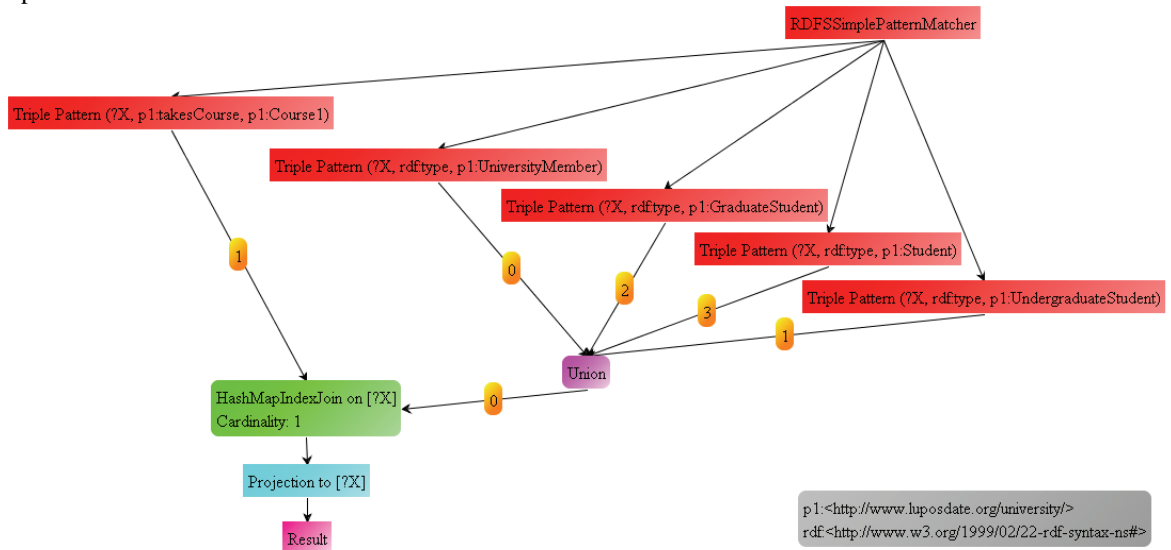
2. (a)



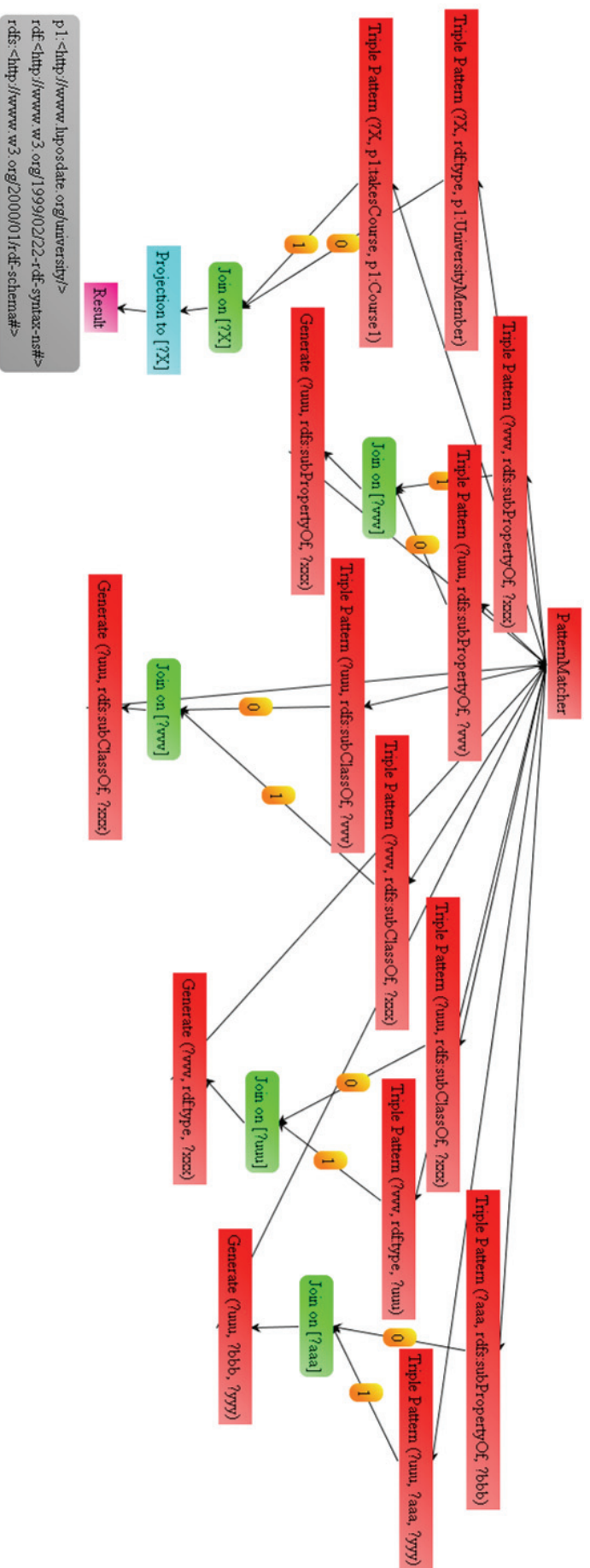
- (b) unoptimised:



optimised:



(c) unoptimised:



optimised:

