

# AI Planning—Week 7

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# Automated Reasoner

- Used Jena 2.6.0

```
public class Example {
    public static void main (String [] args) {
        Model schema = FileManager.get().loadModel(
            "full-example.rdf");

        Reasoner reasoner = ReasonerRegistry.getOWLReasoner();
        reasoner = reasoner.bindSchema(schema);
        reasoner.setDerivationLogging(true);

        InfModel infmodel = ModelFactory.createInfModel(reasoner,
            schema);
    }
}
```

# Prove MSG1134 is type Message

```
Resource msg = infmodel.getResource(  
    "http://ontonet.org/message.owl#Message");  
Resource msg1134 = infmodel.getResource(  
    "http://ontonet.org/full-example.rdf#MSG1134");  
Statement statement = infmodel.createStatement(  
    msg1134, RDF.type, msg);  
System.out.println("Is MSG1134 a type of Message? "  
    + infmodel.contains(statement));  
printDerivation(infmodel.getDerivation(statement));
```

- Is MSG1134 a type of Message? **true**
- Rule  $[(?a \text{ rdf:type cbr2:N4242Spectrometry}) \rightarrow (?a \text{ rdf:type msg:Message})]$ 
  - concluded (ex:MSG1134 rdf:type msg:Message)  $\leftarrow$  Fact (ex:MSG1134 rdf:type cbr2:N4242Spectrometry)

# Create new Message of format ANSI N4242

```
<msg:Message rdf:about="&ex;#MSG1337">  
  <msg:format rdf:resource="&nist-ansi-n4242xsd;#" />  
</msg:Message>
```

```
Resource msg1337 = infmodel.getResource(  
    "http://ontonet.org/full-example.rdf#MSG1337" );  
Resource spec = infmodel.getResource(  
    "http://ontonet.org/cbr2.owl#N4242Spectrometry" );  
  
statement = infmodel.createStatement(  
    msg1337, RDF.type, spec );  
System.out.println("Is MSG1337 a type of N4242Spectrometry?"  
    + infmodel.contains(statement));  
printDerivation(infmodel.getDerivation(statement));
```

- Is MSG1337 a type of N4242Spectrometry? **true**
- Rule intersectionRecognition concluded (ex:MSG1337 rdf:type cbr2:N4242Spectrometry) ←
  - Fact (ex:MSG1337 rdf:type msg:Message)
  - Rule [(?x msg:format nist-ansi-n4242xsd) → (?x rdf:type foo)] concluded (ex:MSG1337 rdf:type foo) ←
    - Fact (ex:MSG1337 msg:format nist-ansi-n4242xsd)
- foo = 596f8297:122e8e069f9:-7fff