

# AI Project Latex Ontology Translation

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## Classes

### **AmericanSocietyForTestingAndMaterials**

AmericanSocietyForTestingAndMaterials  $\sqsubseteq$  associatedInstitute

### **GELLO**

GELLO  $\sqsubseteq$  HL7

### **HL7**

HL7  $\sqsubseteq$  clinicalStandard

### **Hepaxpert**

Hepaxpert  $\sqsubseteq \forall$  Detects hepatitis

Hepaxpert  $\sqsubseteq$  clinicalDecisionSupportSystem

### **IDE**

IDE  $\sqsubseteq$  softwareProduct

IDE  $\sqsubseteq \forall$  Develops medicalLogicModule

### **J**

J  $\sqsubseteq$  ardenSyntaxCompiler

### **MLMmanager**

MLMmanager  $\sqsubseteq$  softwareProduct

### **Moni-ICU**

Moni-ICU  $\sqsubseteq$  clinicalDecisionSupportSystem

Moni-ICU  $\sqsubseteq \forall$  Detects nosocomialInfection

### **RHEUMexpert**

RHEUMexpert  $\sqsubseteq$  clinicalDecisionSupportSystem

RHEUMexpert  $\sqsubseteq \forall$  Detects rheumatism

### **RheumaDiff**

RheumaDiff  $\sqsubseteq \forall$  Detects rheumatism

RheumaDiff  $\sqsubseteq$  clinicalDecisionSupportSystem

### **Thyrexpert**

Thyrexpert  $\sqsubseteq$  clinicalDecisionSupportSystem

Thyrexpert  $\sqsubseteq \forall$  Detects thyroiditis

### **Toxopert**

Toxopert  $\sqsubseteq$  clinicalDecisionSupportSystem

Toxopert  $\sqsubseteq \forall$  Detects toxoplasmosis

### **actionSlot**

actionSlot  $\sqsubseteq$  knowledgeCategory

### **arden2ByteCode**

arden2ByteCode  $\sqsubseteq$  ardenSyntaxCompiler

### **ardenSyntax**

ardenSyntax  $\sqsubseteq$  HL7

### **ardenSyntaxCompiler**

ardenSyntaxCompiler  $\sqsubseteq$  softwareProduct

### **ardenSyntaxHostInterface**

ardenSyntaxHostInterface  $\sqsubseteq$  softwareProduct

### **ardenSyntaxIDE**

ardenSyntaxIDE  $\sqsubseteq$  IDE

### **ardenSyntaxRuleEngine**

ardenSyntaxRuleEngine  $\sqsubseteq$  ruleEngine

**ardenSyntaxServer**

ardenSyntaxServer  $\sqsubseteq$  softwareProduct

**ardenSyntaxServerProtocol**

ardenSyntaxServerProtocol  $\sqsubseteq$  softwareProduct

**ardenSyntaxWorkingGroup****associatedInstitute**

associatedInstitute  $\sqsubseteq \forall$  Develops clinicalDecisionSupportSystem

**clinicalDecisionSupportSystem**

clinicalDecisionSupportSystem  $\sqsubseteq \forall$  ComposedBy medicalLogicModule

clinicalDecisionSupportSystem  $\sqsubseteq \exists$  DevelopedBy associatedInstitute

clinicalDecisionSupportSystem  $\sqsubseteq$  softwareProduct

**clinicalStandard****dataBasedEvent**

dataBasedEvent  $\sqsubseteq$  triggeringCause

**desease****directCall**

directCall  $\sqsubseteq$  triggeringCause

**evokeSlot**

evokeSlot  $\sqsubseteq$  knowledgeCategory

**fuzzyArdenSyntax**

fuzzyArdenSyntax  $\sqsubseteq$  ardenSyntax

**fuzzyArdenSyntaxIDE**

fuzzyArdenSyntaxIDE  $\sqsubseteq$  IDE

**fuzzyArdenSyntaxRuleEngine**

fuzzyArdenSyntaxRuleEngine  $\sqsubseteq$  ruleEngine

**guidelineInterchangeFormat**

guidelineInterchangeFormat  $\sqsubseteq$  HL7

### **healthCareInstitute**

healthCareInstitute  $\sqsubseteq$  associatedInstitute

### **hepatitis**

hepatitis  $\sqsubseteq$  disease

hepatitis  $\sqsubseteq \forall$  DetectedBy Hepaxpert

### **hepatitisA**

hepatitisA  $\sqsubseteq$  hepatitis

### **hepatitisB**

hepatitisB  $\sqsubseteq$  hepatitis

### **hepatitisC**

hepatitisC  $\sqsubseteq$  hepatitis

### **hospital**

hospital  $\sqsubseteq$  healthCareInstitute

### **knowledgeCategory**

knowledgeCategory  $\sqsubseteq$  medicalLogicModuleContent

### **libraryCategory**

libraryCategory  $\sqsubseteq$  medicalLogicModuleContent

### **logicSlot**

logicSlot  $\sqsubseteq$  knowledgeCategory

### **maintenanceCategory**

maintenanceCategory  $\sqsubseteq$  medicalLogicModuleContent

### **medicalLogicModule**

medicalLogicModule  $\sqsubseteq \forall$  Composes clinicalDecisionSupportSystem

medicalLogicModule  $\sqsubseteq$  softwareProduct

medicalLogicModule  $\sqsubseteq \forall$  ComposedBy medicalLogicModuleContent

medicalLogicModule  $\sqsubseteq \forall$  DevelopedBy IDE

### **medicalLogicModuleContent**

medicalLogicModuleContent  $\sqsubseteq \forall$  Composes medicalLogicModule

### **melanoma**

melanoma  $\sqsubseteq \forall$  DetectedBy predictionMetastaticEvents  
melanoma  $\sqsubseteq$  disease

### **nosocomialInfection**

nosocomialInfection  $\sqsubseteq \forall$  DetectedBy Moni-ICU  
nosocomialInfection  $\sqsubseteq$  disease

### **predictionMetastaticEvents**

predictionMetastaticEvents  $\sqsubseteq$  clinicalDecisionSupportSystem  
predictionMetastaticEvents  $\sqsubseteq \forall$  Detects melanoma

### **rheumatism**

rheumatism  $\sqsubseteq$  disease  
rheumatism  $\sqsubseteq \exists$  DetectedBy RheumaDiff  
rheumatism  $\sqsubseteq \exists$  DetectedBy RHEUMexpert

### **ruleEngine**

ruleEngine  $\sqsubseteq$  softwareProduct

### **softwareProduct**

### **thyroiditis**

thyroiditis  $\sqsubseteq$  disease  
thyroiditis  $\sqsubseteq \forall$  DetectedBy Thyrexpert

### **timeBasedEvent**

timeBasedEvent  $\sqsubseteq$  triggeringCause

### **toxoplasmosis**

toxoplasmosis  $\sqsubseteq$  disease  
toxoplasmosis  $\sqsubseteq \forall$  DetectedBy Toxopert

triggeringCause

## Object properties

### CompiledBy

$\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#CompiledBy} \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#CompiledBy}^-$   
AsymmetricPropertyCompiledBy  
TransitivePropertyCompiledBy  
IrreflexiveObjectPropertyCompiledBy  
 $\exists \text{CompiledBy Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{CompiledBy ardenSyntaxCompiler}$

### Compiles

$\sqsubseteq \text{topObjectProperty}$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#Compiles} \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#CompiledBy}^-$   
AsymmetricPropertyCompiles  
TransitivePropertyCompiles  
IrreflexiveObjectPropertyCompiles  
 $\exists \text{Compiles Thing} \sqsubseteq \text{ardenSyntaxCompiler}$   
 $\top \sqsubseteq \forall \text{Compiles medicalLogicModule}$

### ComposedBy

$\sqsubseteq \text{topObjectProperty}$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#ComposedBy} \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#Composes}^-$   
AsymmetricPropertyComposedBy  
TransitivePropertyComposedBy  
IrreflexiveObjectPropertyComposedBy  
 $\exists \text{ComposedBy Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\exists \text{ComposedBy Thing} \sqsubseteq \text{clinicalDecisionSupportSystem}$   
 $\top \sqsubseteq \forall \text{ComposedBy medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ComposedBy medicalLogicModuleContent}$

### Composes

$\sqsubseteq \text{topObjectProperty}$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#ComposedBy} \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontology\#Composes}^-$   
AsymmetricPropertyComposes  
TransitivePropertyComposes  
IrreflexiveObjectPropertyComposes  
 $\exists \text{Composes Thing} \sqsubseteq \text{medicalLogicModule}$

$\exists \text{ Composes Thing} \sqsubseteq \text{medicalLogicModuleContent}$   
 $\top \sqsubseteq \forall \text{ Composes medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ Composes clinicalDecisionSupportSystem}$

### DetectedBy

$\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#DetectedBy}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Detects}_i^-$   
 $\text{AsymmetricPropertyDetectedBy}$   
 $\text{TransitivePropertyDetectedBy}$   
 $\text{IrreflexiveObjectPropertyDetectedBy}$   
 $\exists \text{ DetectedBy Thing} \sqsubseteq \text{desease}$   
 $\top \sqsubseteq \forall \text{ DetectedBy clinicalDecisionSupportSystem}$

### Detects

$\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#DetectedBy}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Detects}_i^-$   
 $\top \sqsubseteq \leq 1 \text{ Detects Thing}$   
 $\text{AsymmetricPropertyDetects}$   
 $\text{TransitivePropertyDetects}$   
 $\text{IrreflexiveObjectPropertyDetects}$   
 $\exists \text{ Detects Thing} \sqsubseteq \text{clinicalDecisionSupportSystem}$   
 $\top \sqsubseteq \forall \text{ Detects desease}$

### DevelopedBy

$\sqsubseteq \text{topObjectProperty}$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Develops}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#DevelopedBy}_i^-$   
 $\text{AsymmetricPropertyDevelopedBy}$   
 $\text{TransitivePropertyDevelopedBy}$   
 $\text{IrreflexiveObjectPropertyDevelopedBy}$   
 $\exists \text{ DevelopedBy Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\exists \text{ DevelopedBy Thing} \sqsubseteq \text{clinicalDecisionSupportSystem}$   
 $\top \sqsubseteq \forall \text{ DevelopedBy IDE}$   
 $\top \sqsubseteq \forall \text{ DevelopedBy associatedInstitute}$

### Develops

$\sqsubseteq \text{topObjectProperty}$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Develops}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#DevelopedBy}_i^-$   
 $\text{AsymmetricPropertyDevelops}$   
 $\text{TransitivePropertyDevelops}$   
 $\text{IrreflexiveObjectPropertyDevelops}$   
 $\exists \text{ Develops Thing} \sqsubseteq \text{IDE}$

$\exists \text{ Develops Thing} \sqsubseteq \text{associatedInstitute}$   
 $\top \sqsubseteq \forall \text{ Develops medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ Develops clinicalDecisionSupportSystem}$

### ExecutedWith

$\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#UsedToExecute}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#ExecutedWith}_i^-$   
 $\top \sqsubseteq \leq 1 \text{ ExecutedWith Thing}$   
 $\text{AsymmetricPropertyExecutedWith}$   
 $\text{TransitivePropertyExecutedWith}$   
 $\text{IrreflexiveObjectPropertyExecutedWith}$   
 $\exists \text{ ExecutedWith Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ ExecutedWith ruleEngine}$

### ImplementedBy

$\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Implements}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#ImplementedBy}_i^-$   
 $\text{AsymmetricPropertyImplementedBy}$   
 $\text{TransitivePropertyImplementedBy}$   
 $\text{IrreflexiveObjectPropertyImplementedBy}$   
 $\exists \text{ ImplementedBy Thing} \sqsubseteq \text{ardenSyntax}$   
 $\top \sqsubseteq \forall \text{ ImplementedBy clinicalDecisionSupportSystem}$

### Implements

$\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Implements}_i \equiv$   
 $\text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#ImplementedBy}_i^-$   
 $\text{AsymmetricPropertyImplements}$   
 $\text{TransitivePropertyImplements}$   
 $\text{IrreflexiveObjectPropertyImplements}$   
 $\exists \text{ Implements Thing} \sqsubseteq \text{clinicalDecisionSupportSystem}$   
 $\top \sqsubseteq \forall \text{ Implements ardenSyntax}$

### Invoke

$\sqsubseteq \text{topObjectProperty}$   
 $\text{AsymmetricPropertyInvoke}$   
 $\text{TransitivePropertyInvoke}$   
 $\text{ReflexivePropertyInvoke}$   
 $\exists \text{ Invoke Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ Invoke medicalLogicModule}$

### IsMadeIndependent

$\sqsubseteq \text{topObjectProperty}$



$\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#MakesIndependent} \}_i \equiv$   
 $\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#IsMadeIndependent} \}_i^-$   
 $\top \sqsubseteq \leq 1 \text{ IsMadeIndependent Thing}$   
 $\text{AsymmetricPropertyIsMadeIndependent}$   
 $\text{TransitivePropertyIsMadeIndependent}$   
 $\text{IrreflexiveObjectPropertyIsMadeIndependent}$   
 $\exists \text{ IsMadeIndependent Thing} \sqsubseteq \text{ruleEngine}$   
 $\top \sqsubseteq \forall \text{ IsMadeIndependent ardenSyntaxServer}$

### **MakesIndependent**

$\sqsubseteq \text{topObjectProperty}$   
 $\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#MakesIndependent} \}_i \equiv$   
 $\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#IsMadeIndependent} \}_i^-$   
 $\top \sqsubseteq \leq 1 \text{ MakesIndependent Thing}$   
 $\text{AsymmetricPropertyMakesIndependent}$   
 $\text{TransitivePropertyMakesIndependent}$   
 $\text{IrreflexiveObjectPropertyMakesIndependent}$   
 $\exists \text{ MakesIndependent Thing} \sqsubseteq \text{ardenSyntaxServer}$   
 $\top \sqsubseteq \forall \text{ MakesIndependent ruleEngine}$

### **ManagedBy**

$\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Manages} \}_i \equiv$   
 $\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#ManagedBy} \}_i^-$   
 $\top \sqsubseteq \leq 1 \text{ ManagedBy Thing}$   
 $\text{AsymmetricPropertyManagedBy}$   
 $\text{TransitivePropertyManagedBy}$   
 $\text{IrreflexiveObjectPropertyManagedBy}$   
 $\exists \text{ ManagedBy Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ ManagedBy MLMmanager}$

### **Manages**

$\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Manages} \}_i \equiv$   
 $\{ \text{http://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#ManagedBy} \}_i^-$   
 $\text{AsymmetricPropertyManages}$   
 $\text{TransitivePropertyManages}$   
 $\text{IrreflexiveObjectPropertyManages}$   
 $\exists \text{ Manages Thing} \sqsubseteq \text{MLMmanager}$   
 $\top \sqsubseteq \forall \text{ Manages medicalLogicModule}$

### **ResponsibleOf**

$\text{AsymmetricPropertyResponsibleOf}$   
 $\text{TransitivePropertyResponsibleOf}$   
 $\text{IrreflexiveObjectPropertyResponsibleOf}$

$\exists \text{ ResponsibleOf Thing} \sqsubseteq \text{ardenSyntaxWorkingGroup}$   
 $\top \sqsubseteq \forall \text{ ResponsibleOf ardenSyntax}$

### TriggeredBy

$\text{jhttp://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#TriggeredBy}_i \equiv$   
 $\text{jhttp://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Triggers}_i^-$   
 $\text{AsymmetricPropertyTriggeredBy}$   
 $\text{TransitivePropertyTriggeredBy}$   
 $\text{IrreflexiveObjectPropertyTriggeredBy}$   
 $\exists \text{ TriggeredBy Thing} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall \text{ TriggeredBy triggeringCause}$

### Triggers

$\text{jhttp://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#TriggeredBy}_i \equiv$   
 $\text{jhttp://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#Triggers}_i^-$   
 $\text{AsymmetricPropertyTriggers}$   
 $\text{TransitivePropertyTriggers}$   
 $\text{IrreflexiveObjectPropertyTriggers}$   
 $\exists \text{ Triggers Thing} \sqsubseteq \text{triggeringCause}$   
 $\top \sqsubseteq \forall \text{ Triggers medicalLogicModule}$

### UsedToExecute

$\sqsubseteq \text{topObjectProperty}$   
 $\text{jhttp://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#UsedToExecute}_i \equiv$   
 $\text{jhttp://www.semanticweb.org/itama/ontologies/2021/4/ontologia\#ExecutedWith}_i^-$   
 $\text{AsymmetricPropertyUsedToExecute}$   
 $\text{TransitivePropertyUsedToExecute}$   
 $\text{IrreflexiveObjectPropertyUsedToExecute}$   
 $\exists \text{ UsedToExecute Thing} \sqsubseteq \text{ruleEngine}$   
 $\top \sqsubseteq \forall \text{ UsedToExecute medicalLogicModule}$

### topObjectProperty

$\exists \text{ topObjectProperty Thing} \sqsubseteq \text{triggeringCause}$

## Data properties

### ArdenSyntaxVersion

$\sqsubseteq \text{Version}$   
 $\top \sqsubseteq \leq 1 \text{ ArdenSyntaxVersion}$   
 $\exists \text{ ArdenSyntaxVersion Datatypehttp://www.w3.org/2000/01/rdf-schema\#Literal} \sqsubseteq \text{ardenSyntax}$   
 $\top \sqsubseteq \forall \text{ ArdenSyntaxVersion Datatypehttp://www.w3.org/2001/XMLSchema\#string}$

## Language

$\exists$  Language Datatype  $\text{http://www.w3.org/2000/01/rdf-schema\#Literal} \sqsubseteq \text{softwareProduct}$   
 $\top \sqsubseteq \forall$  Language Datatype  $\text{http://www.w3.org/2001/XMLSchema\#string}$

## Location

$\exists$  Location Datatype  $\text{http://www.w3.org/2000/01/rdf-schema\#Literal} \sqsubseteq \text{associatedInstitute}$   
 $\top \sqsubseteq \forall$  Location Datatype  $\text{http://www.w3.org/2001/XMLSchema\#string}$

## MedicalLogicModuleVersion

$\sqsubseteq$  Version  
 $\top \sqsubseteq \leq 1$  MedicalLogicModuleVersion  
 $\exists$  MedicalLogicModuleVersion Datatype  $\text{http://www.w3.org/2000/01/rdf-schema\#Literal} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall$  MedicalLogicModuleVersion Datatype  $\text{http://www.w3.org/2001/XMLSchema\#string}$

## Title

$\top \sqsubseteq \leq 1$  Title  
 $\exists$  Title Datatype  $\text{http://www.w3.org/2000/01/rdf-schema\#Literal} \sqsubseteq \text{medicalLogicModule}$   
 $\top \sqsubseteq \forall$  Title Datatype  $\text{http://www.w3.org/2001/XMLSchema\#string}$

## Version

$\sqsubseteq$  topDataProperty  
 $\top \sqsubseteq \forall$  Version Datatype  $\text{http://www.w3.org/2001/XMLSchema\#string}$

## topDataProperty

# Individuals

## AgfaHealthCare

AgfaHealthCare : healthCareInstitute  
Develops(AgfaHealthCare, ORBISExpert)

## AllScripts

AllScripts : healthCareInstitute

## BMIModuleCalculator

BMIModuleCalculator : medicalLogicModule  
Language (BMIModuleCalculator "Arden Syntax")  
MedicalLogicModuleVersion (BMIModuleCalculator "1.00")  
ArdenSyntaxVersion (BMIModuleCalculator "2.8")  
Title (BMIModuleCalculator "Simple body mass index")

### **CARESystem**

CARESystem : clinicalDecisionSupportSystem  
DevelopedBy(CARESystem, RegenstriefInstitute)

### **HepaxpertInWebInterface**

HepaxpertInWebInterface : Hepaxpert

### **HorizonCareAlerts**

HorizonCareAlerts : clinicalDecisionSupportSystem  
DevelopedBy(HorizonCareAlerts, McKesson)

### **McKesson**

McKesson : healthCareInstitute  
Develops(McKesson, HorizonCareAlerts)

### **MedexHealthCare**

MedexHealthCare : healthCareInstitute

### **ORBISExperter**

ORBISExperter : clinicalDecisionSupportSystem  
DevelopedBy(ORBISExperter, AgfaHealthCare)

### **RegenstriefInstitute**

RegenstriefInstitute : associatedInstitute  
Develops(RegenstriefInstitute, CARESystem)

### **Siemens**

Siemens : associatedInstitute  
Develops(Siemens, SoarianSystem)

### **SoarianSystem**

SoarianSystem : clinicalDecisionSupportSystem  
DevelopedBy(SoarianSystem, Siemens)

### **VeteransHealthAdministration**

VeteransHealthAdministration : healthCareInstitute  
Location (VeteransHealthAdministration "USA")

## **ViennaGeneral**

ViennaGeneral : hospital

Location (ViennaGeneral "Austria")