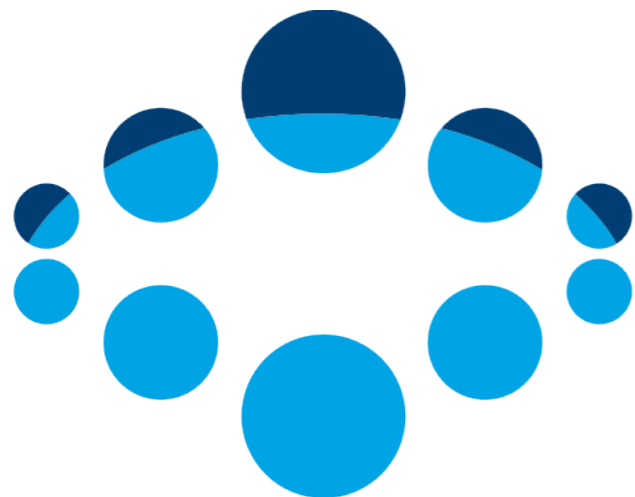


# CIMI - SIAMS

## 13606 Association Examples

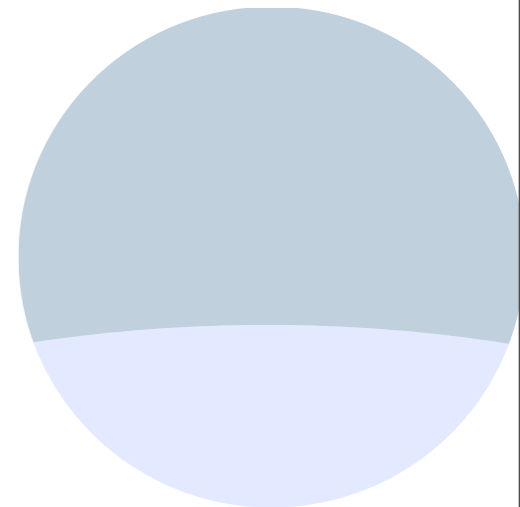
Gerard Freriks



**EN 13606**  
**ASSOCIATION**

# Agenda

- SIAMS: why
- SIAMS: what, generic pattern
- CIMI Information Models:
  - 1- Heart Rate
  - 2- BMI
  - 3- APGAR
  - 4- GTT
  - 5- Medication Order
  - 6- Problem List
  - 7- Reporting Nausea



# Introduction

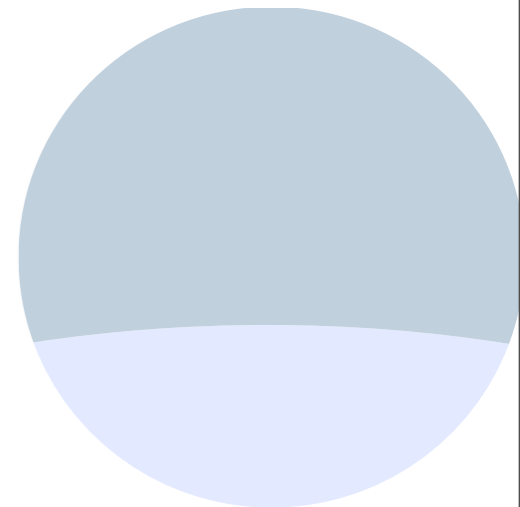
## SIAMS

- S**emantic
- I**nteroperability
- A**rtefact
- M**odeling
- S**tandard

Copyright: **ERS B.V.**

Published by **EN13606 Association** on the EN13606 WIKI:

[http://www.en13606.org/wiki/index.php?title=Detailed\\_Clinical\\_Models\\_and\\_Archetype\\_Modeling\\_-\\_PDF](http://www.en13606.org/wiki/index.php?title=Detailed_Clinical_Models_and_Archetype_Modeling_-_PDF)



# Introduction

## Why SIAMS

- Too many degrees of freedom
- Too many not well defined common concepts
- No integration with other CEN/ISO standards
- Too many implied semantics

# Introduction

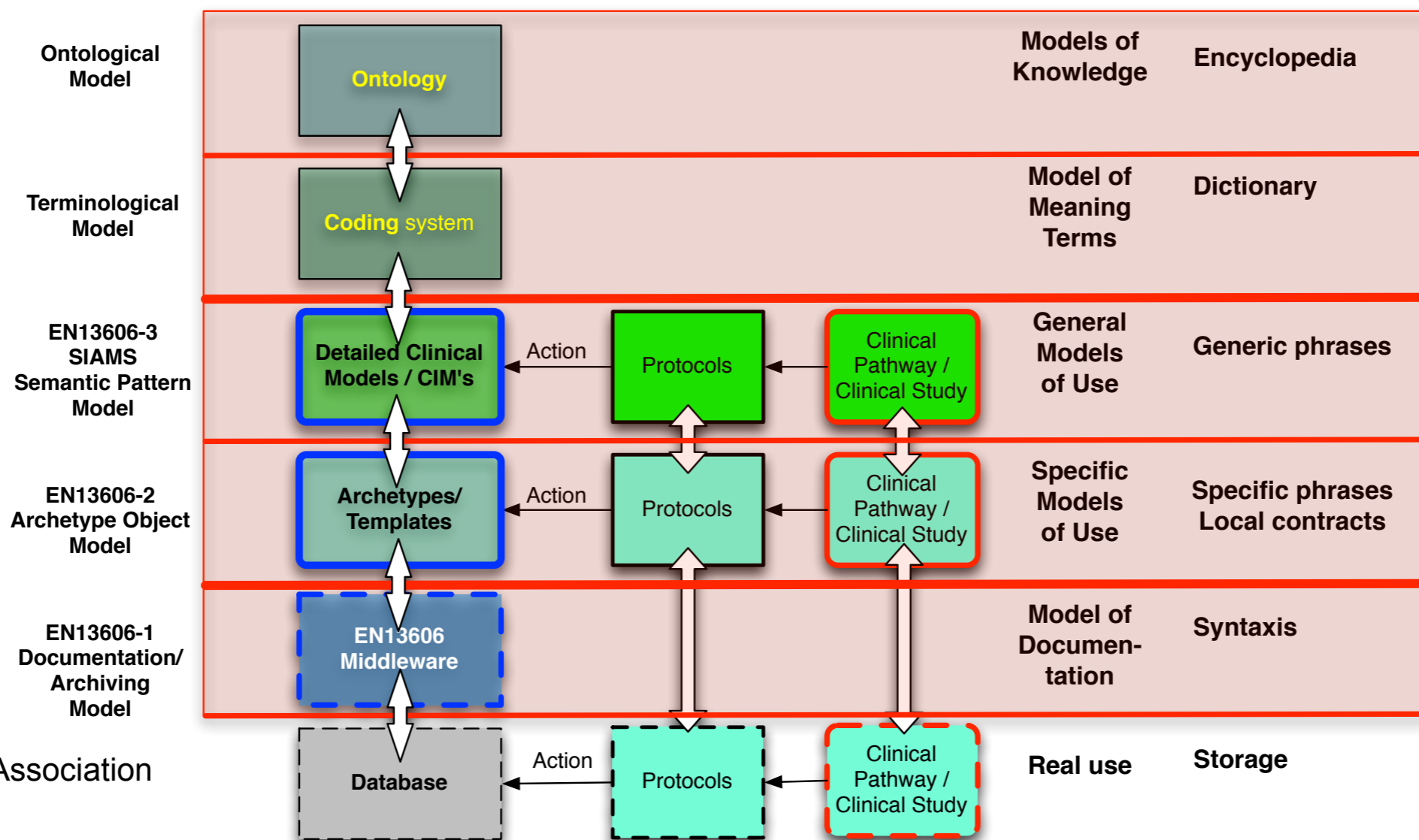
## What is SIAMS

- One Generic Semantic Pattern
- Common modeling concepts
- Integration with:
  - CEN/ISO System of Concepts for Continuity of Care
  - CEN/ISO Health Information Services Architecture
  - Coding systems (iso-semanticism)
  - Ontologies
- Deal with Rules, Protocols, Presentation

# Introduction

## What is SIAMS

- Missing link
- Next phase input for CEN/ISO 13606 part 3

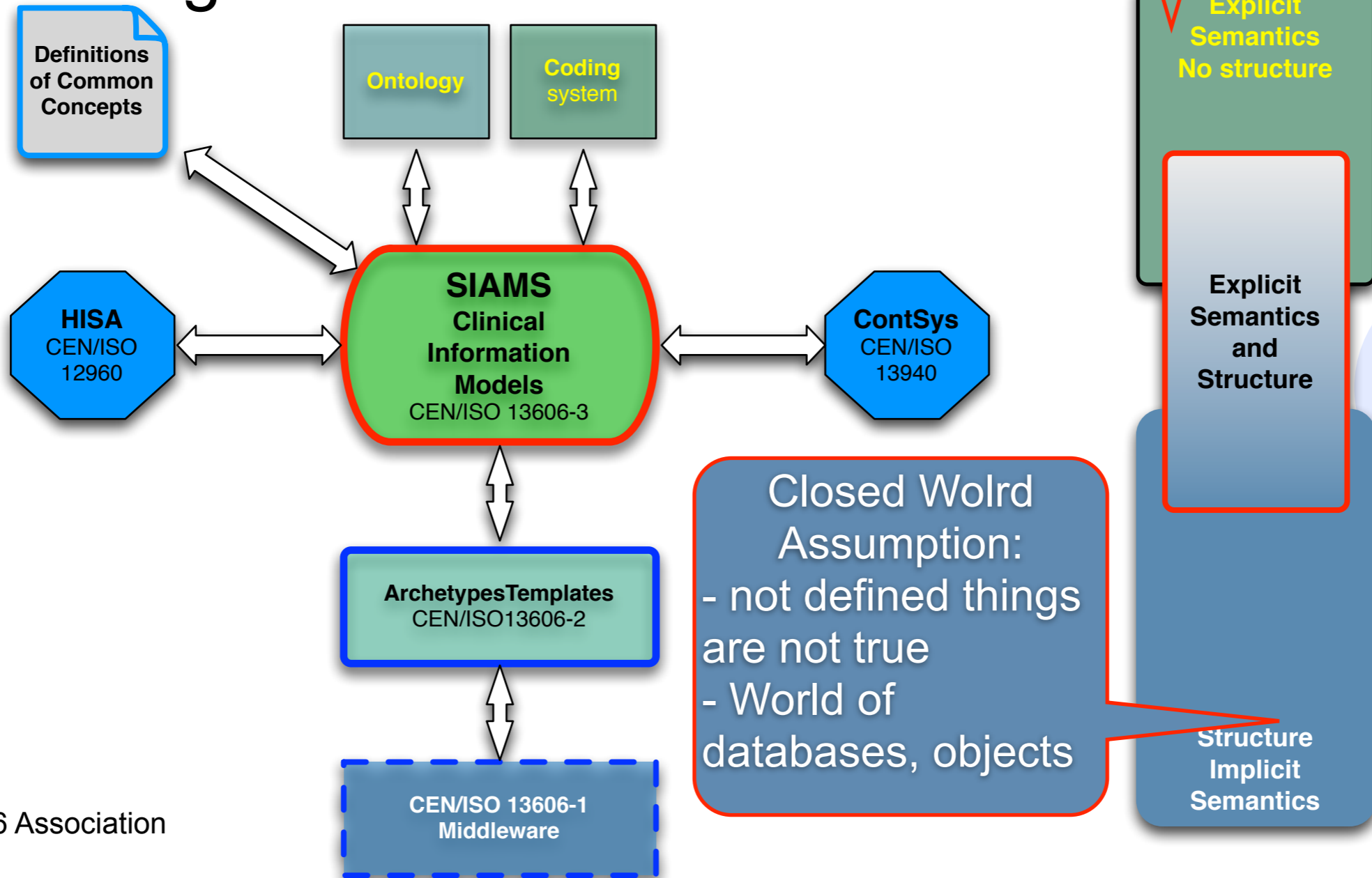


# Introduction

## What is SIAMS

**Open World Assumption:**  
- not defined things can be true and inferred  
- world of ontologies

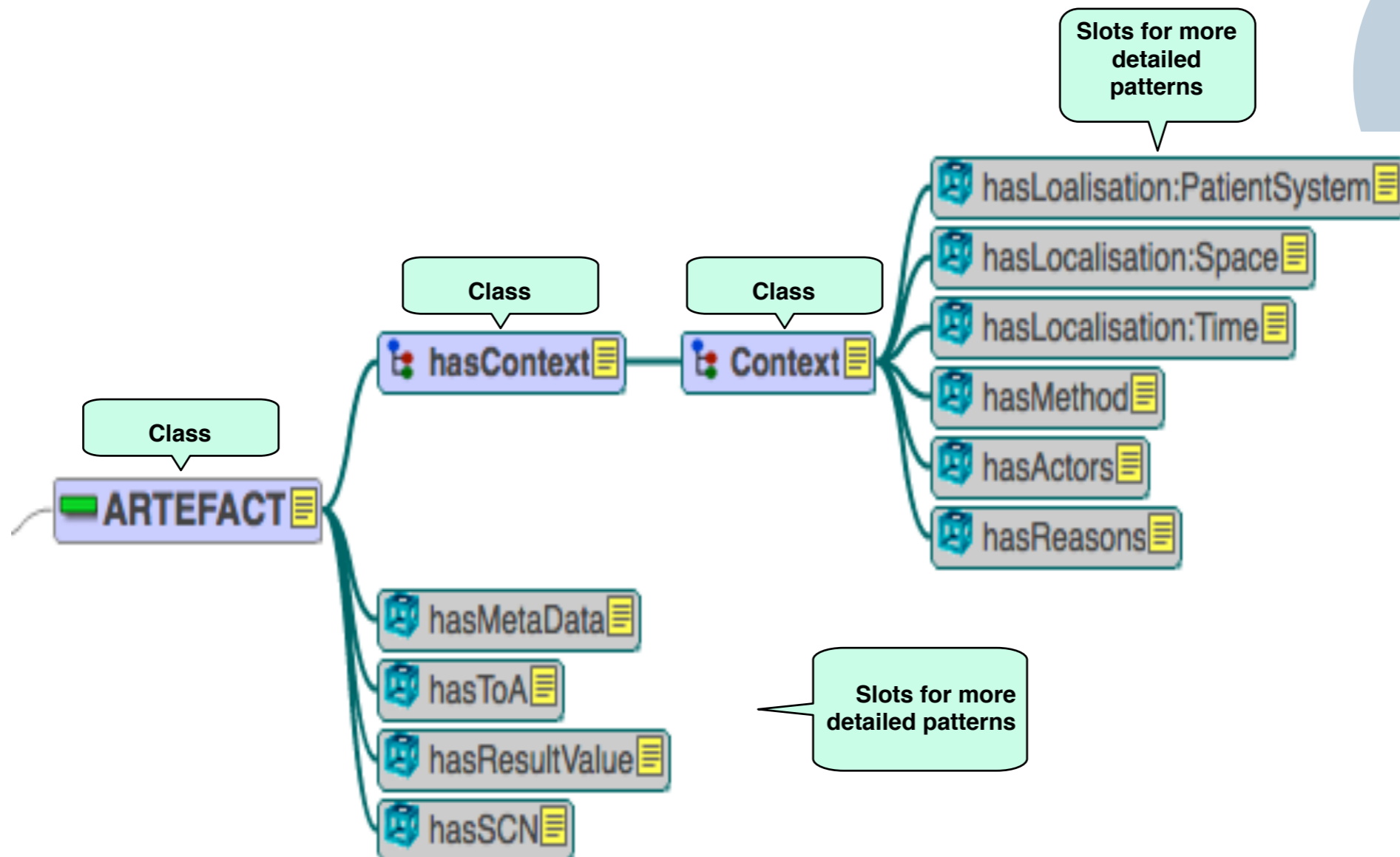
### – Missing link



# SIAMS Generic Pattern

**ENTRY Class**

**CLUSTER Classes**

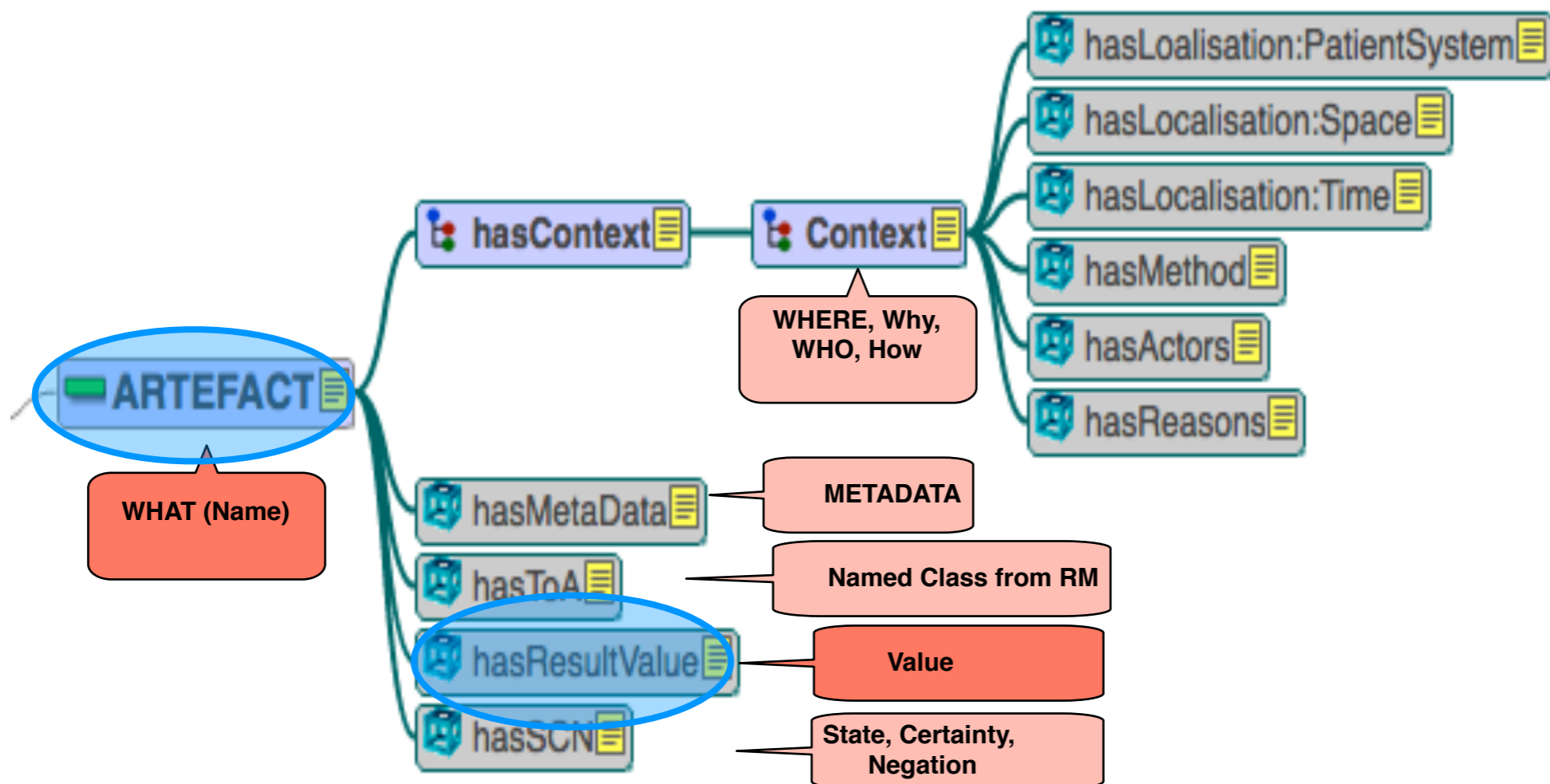




# SIAMS Generic Pattern

**ENTRY Class**

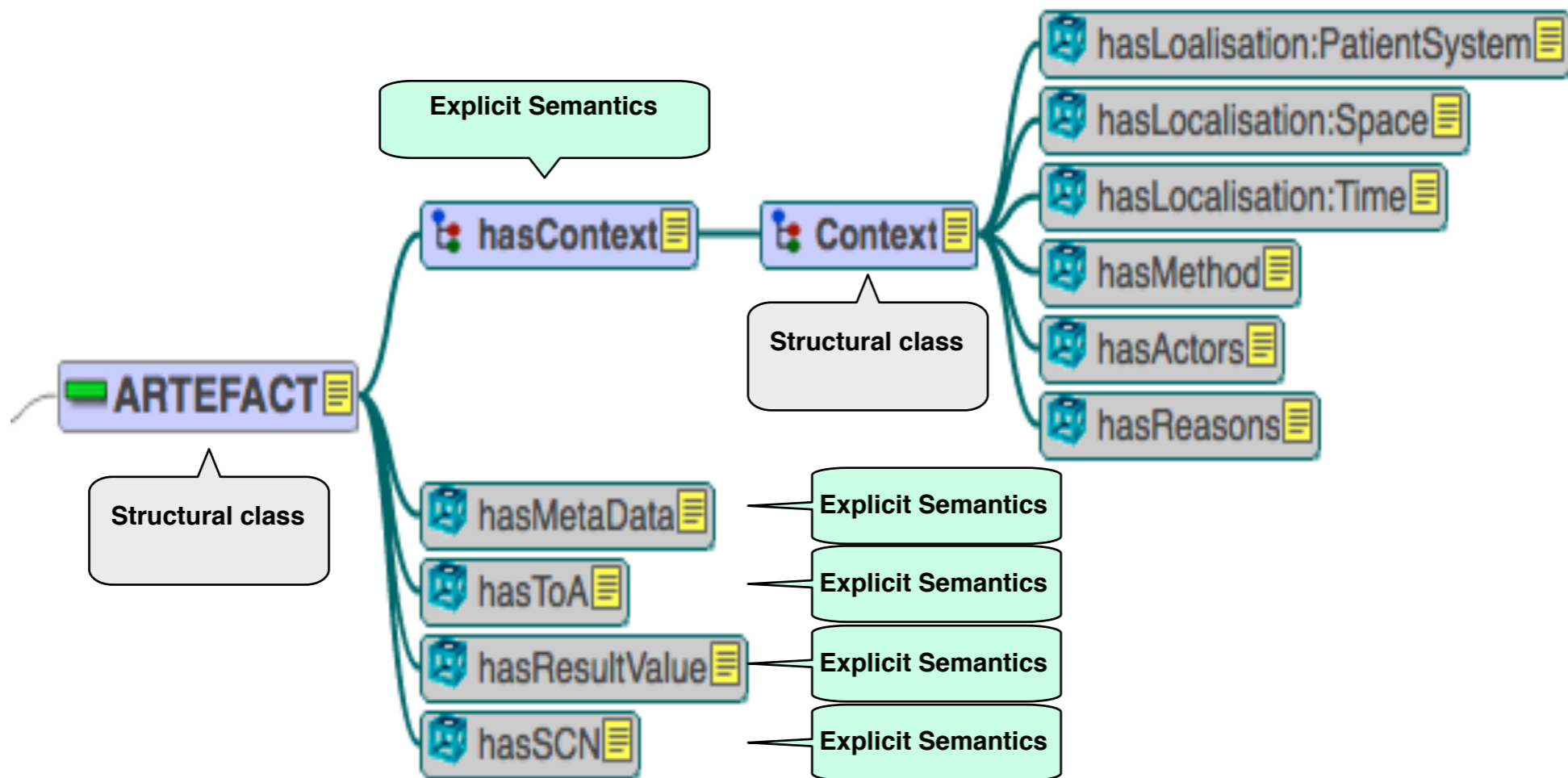
**CLUSTER Classes**



# SIAMS Generic Pattern

**ENTRY Class**

**CLUSTER Classes**



# SIAMS Generic Pattern

<b>LeftHandClass=SystolicBloodPressure</b>
Primary Artefact Type: ENTRY
Secondary Artefact Type: Observation:Finding
Attribute
Attribute

<b>RightHandClass=Result/Value</b>
Primary Artefact Type: CLUSTER
Secondary Artefact Type: Finding
Attribute
Attribute

<b>Semantic Association: hasResult</b>
<b>DoAo</b>
Attribute
Attribute
<b>ArtefactStructure</b>
Attribute
Attribute
...
<b>Ref Ontology</b>
Attribute
Attribute
<b>Ref Terminology</b>
Attribute
Attribute
<b>Alternative ontology</b>
Attribute
Attribute
<b>Alternative coding system</b>
Attribute
Attribute
<b>Rules/Presentation</b>
Attribute
Attribute

# SIAMS Generic Pattern

Primary Type= **ENTRY**  
Secondary Type= **Observation:Finding**  
ArtefactName= **SystolicBloodPressure**

Name= **'hasContext'**

**Structure Section:**

ENTRY subClassOf some/one CLUSTER

*Observation:Finding:SystolicBloodPressure 'hasContext' Context*

**Ref Ontology section:**

Reference Ontology= uri/url/...

Type '*hasContext*' isequivalentWith xyz

**Ref CodingSystemSection:** uri/url/...

*SystolicBloodPressure* isequivalentWith ONE xxx

**Alternate Ontology Section:**

Ontology: uri/url/...

*SystolicBloodPressure* isequivalentWith ONE yyy

**Alternate CodingSystemSection:**

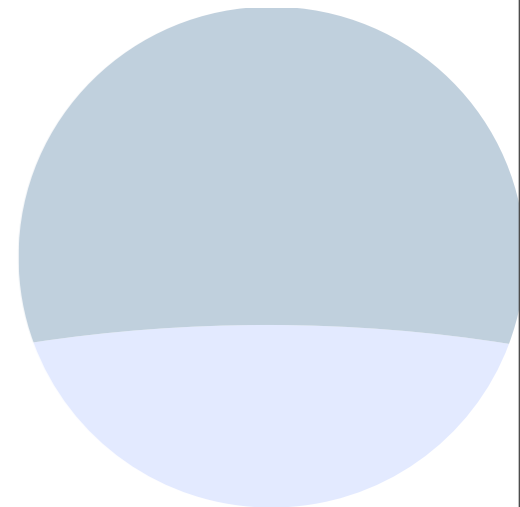
CodingSystemSection: uri/url/...

*SystolicBloodPressure* isequivalentWith ONE yyy

**Rules/Presentation section:**

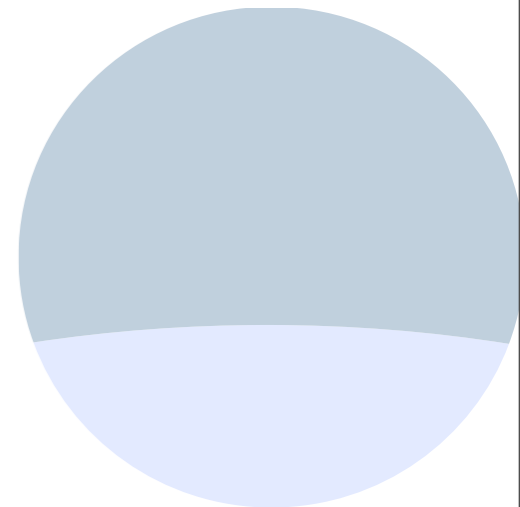
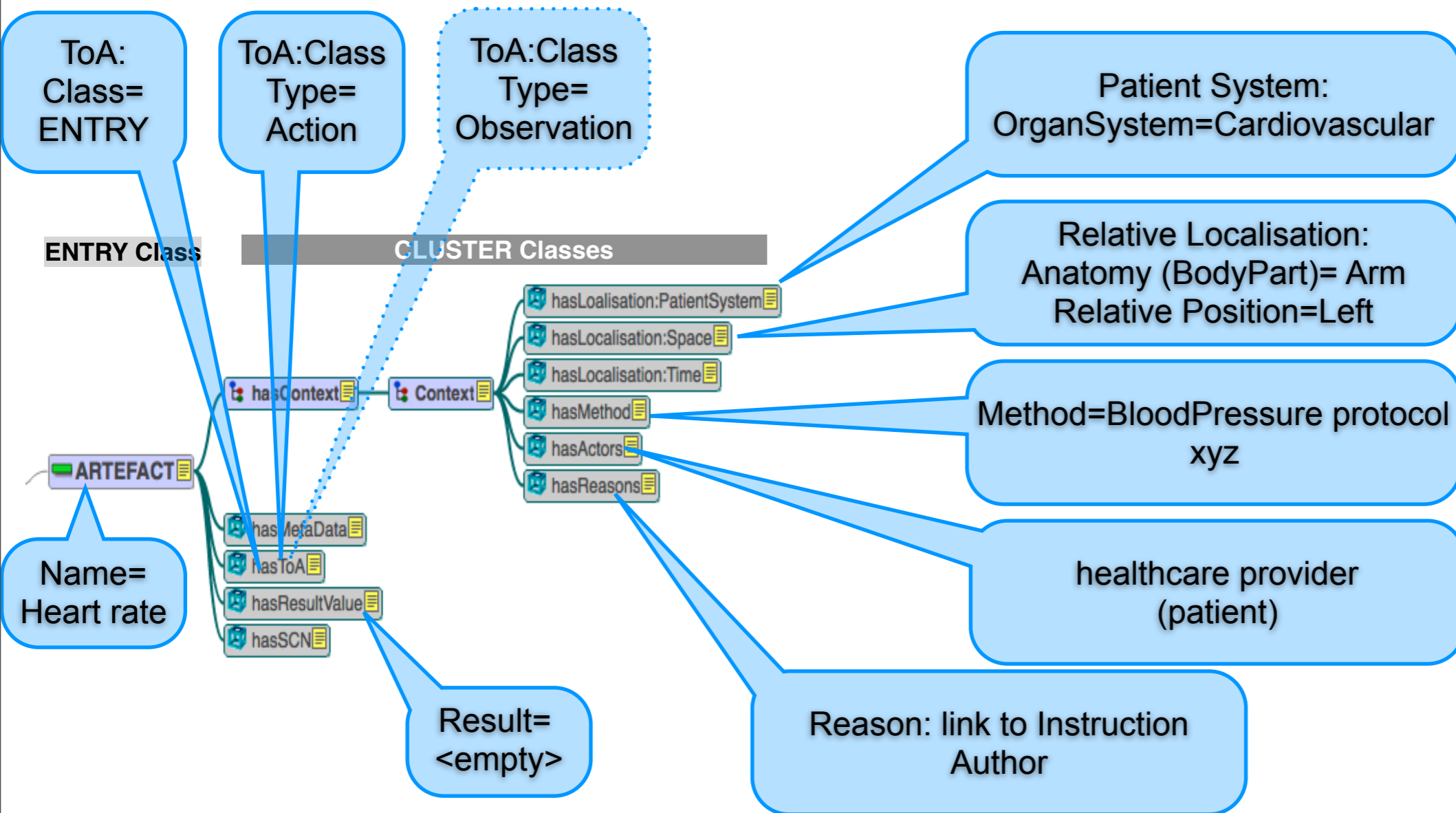
Primary Type= **CLUSTER**  
Secondary Type= **Context**

Name= **Context**



# CIMI model

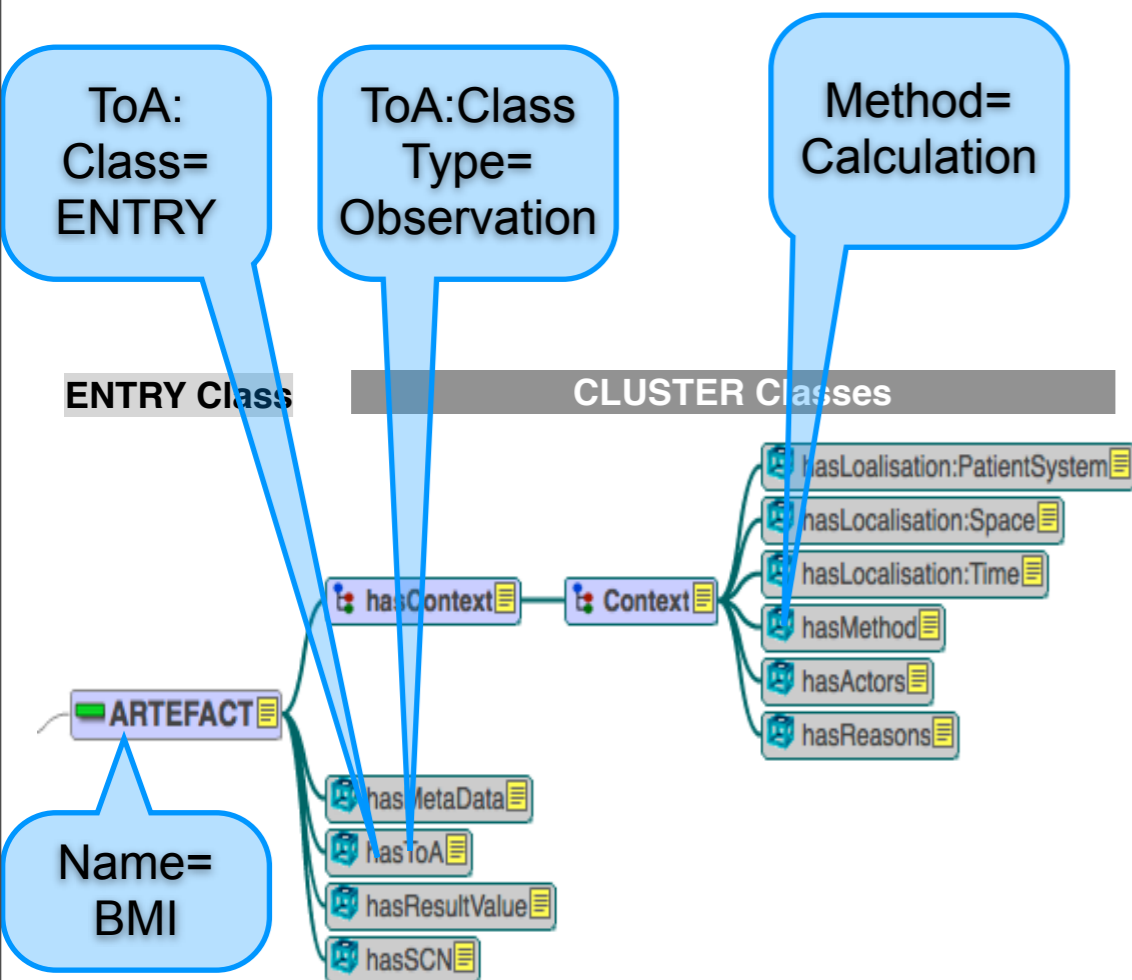
## Example I: Heart rate



# CIMI model

## Example 2: BMI

### Interesting case



–BMI entered by hand

–BMI Calculated - Weight and length entered by hand

–BMI Calculated - Weight and length queried

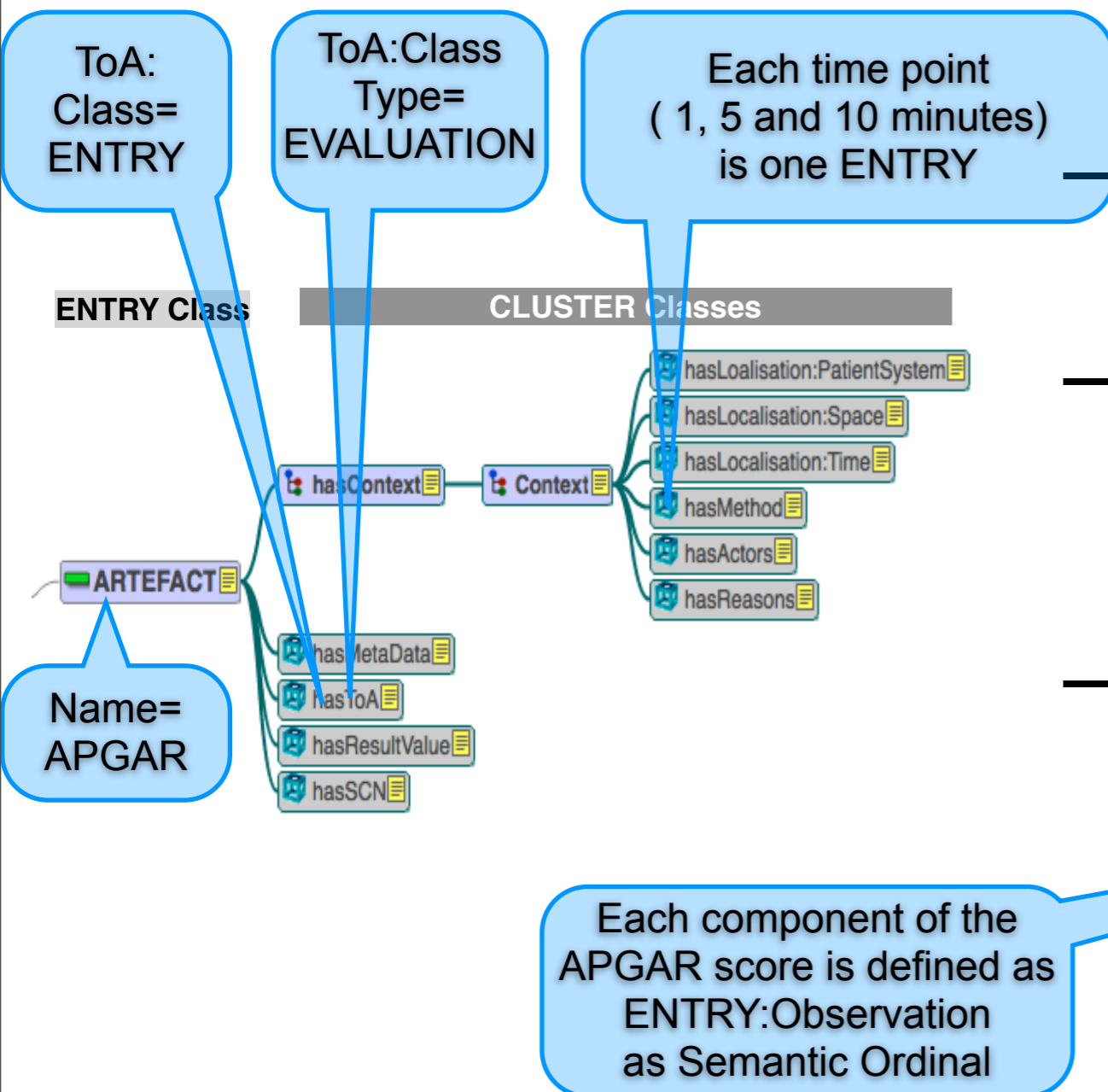
Two ENTRY: Observations with ToA:Function: Query With a predefined Time validity (e.g. last 3 months)



# CIMI model

## Example 3: APGAR

### Interesting case



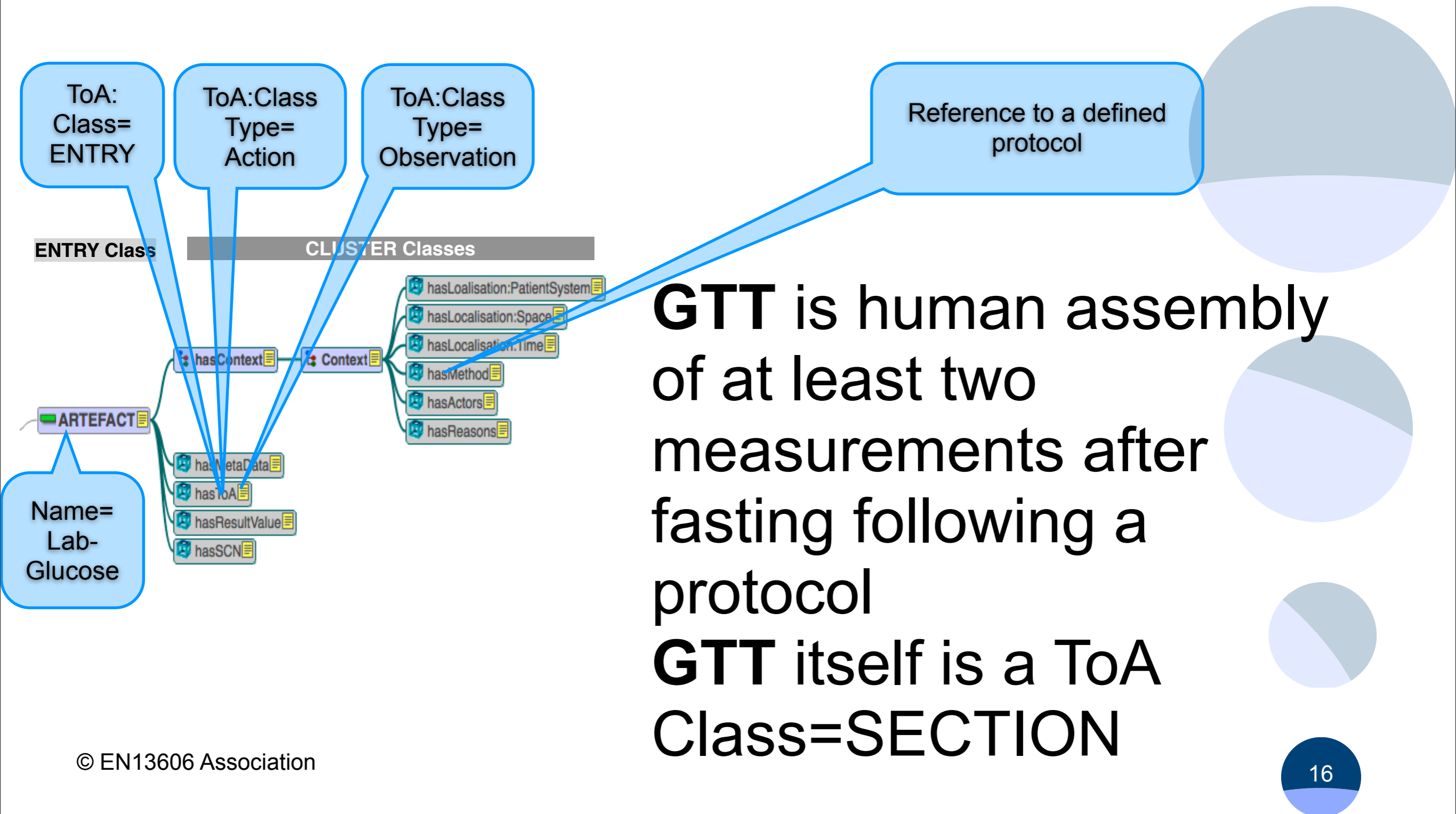
–APGAR entered by hand

–APGAR Calculated - Data points entered by hand

–APGAR Calculated - data points are queried

# CIMI model

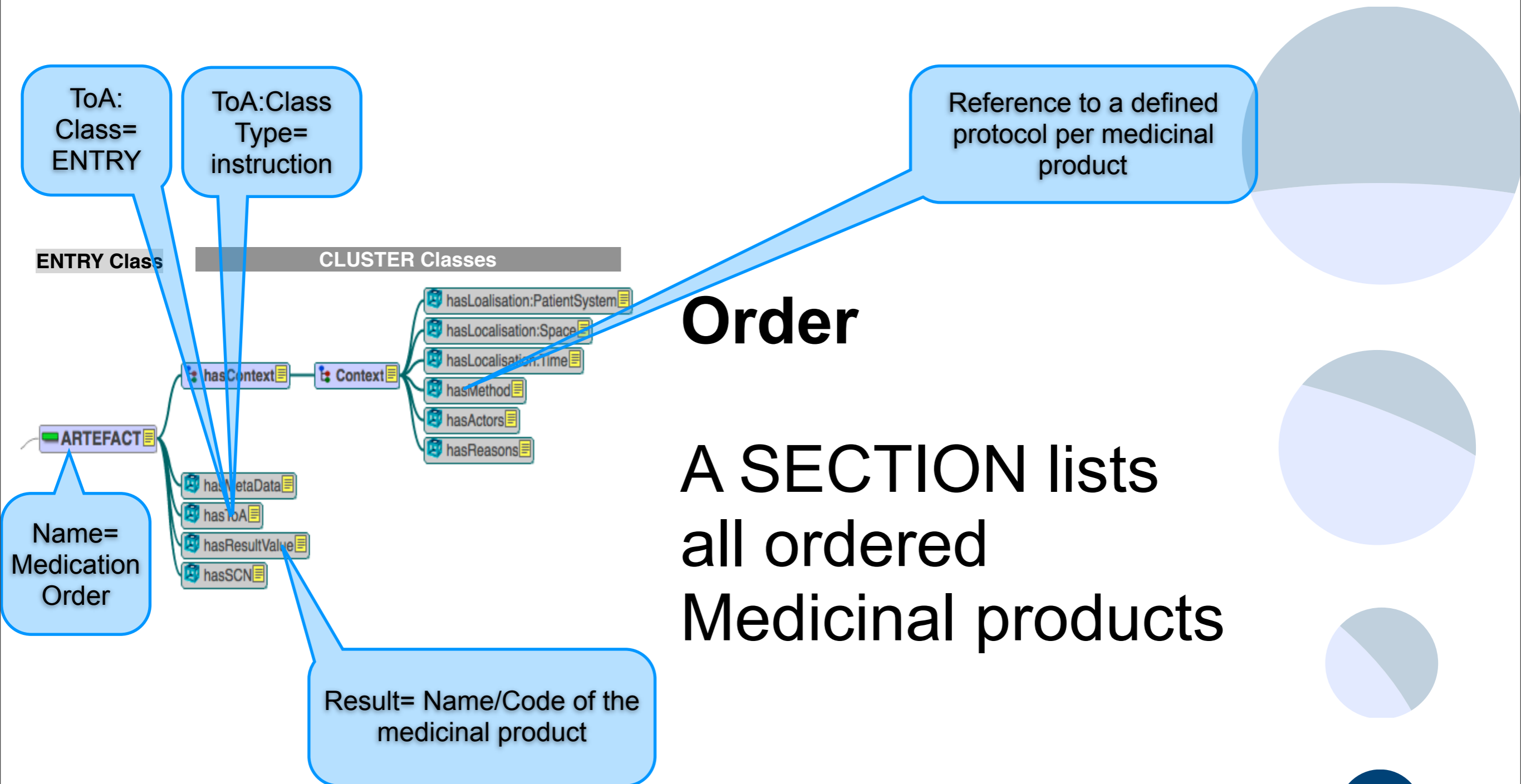
## Example 4: GTT





# CIMI model

## Example 5: Medication Order

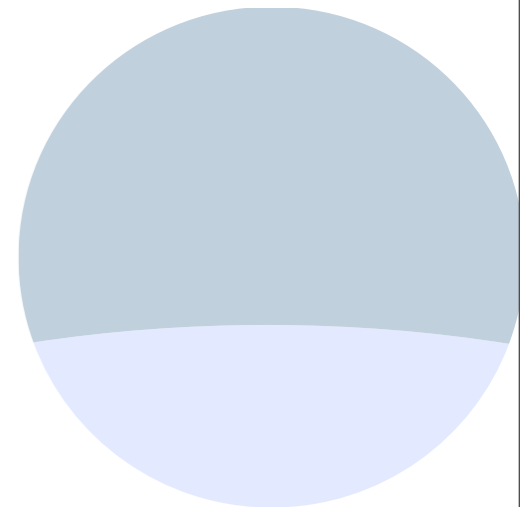


# CIMI model

## Example 6: Problem List

### Problem List

- Personalised ad-hoc subjective collection
- ‘diagnosis’, ‘complaints’, ‘reasons for ...’
- Observations and Evaluations
- SECTION with semantic pointers to stored ENTRY class data/information



# CIMI model

## Example 6: Nausea reported

### Care giver reported nausea

- Observable by senses ->ENTRY:Observation
- Assumption: an other care provider reported the finding
- WHO-section: allows the reporting who the finding made and in what role  
The default is the author/care giver but can be overridden

### Observe:

- RM deals with Commit/Archiving data
- Archetypes deal with documentation of the healthcare process (What, Where, Who, Why, How)