RDF for Semantic Interoperability

A subgroup of the HL7 ITS work group, working jointly with the W3C Healthcare and Life Sciences group

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RDF for Semantic Interoperability

- Subgroup of HL7 ITS
- Working jointly with W3C Healthcare and Life Sciences group
- Formed in October 2014
- Weekly teleconference
- Agenda page:
 http://wiki.hl7.org/index.php?title=ITS_RDF_ConCall_Agenda

Mission

- Establish semantic interoperability of structured healthcare information
- Using RDF and related standards to express machine-processable meaning

=> *Increase the effectiveness and efficiency of healthcare delivery*

Each standard is an island
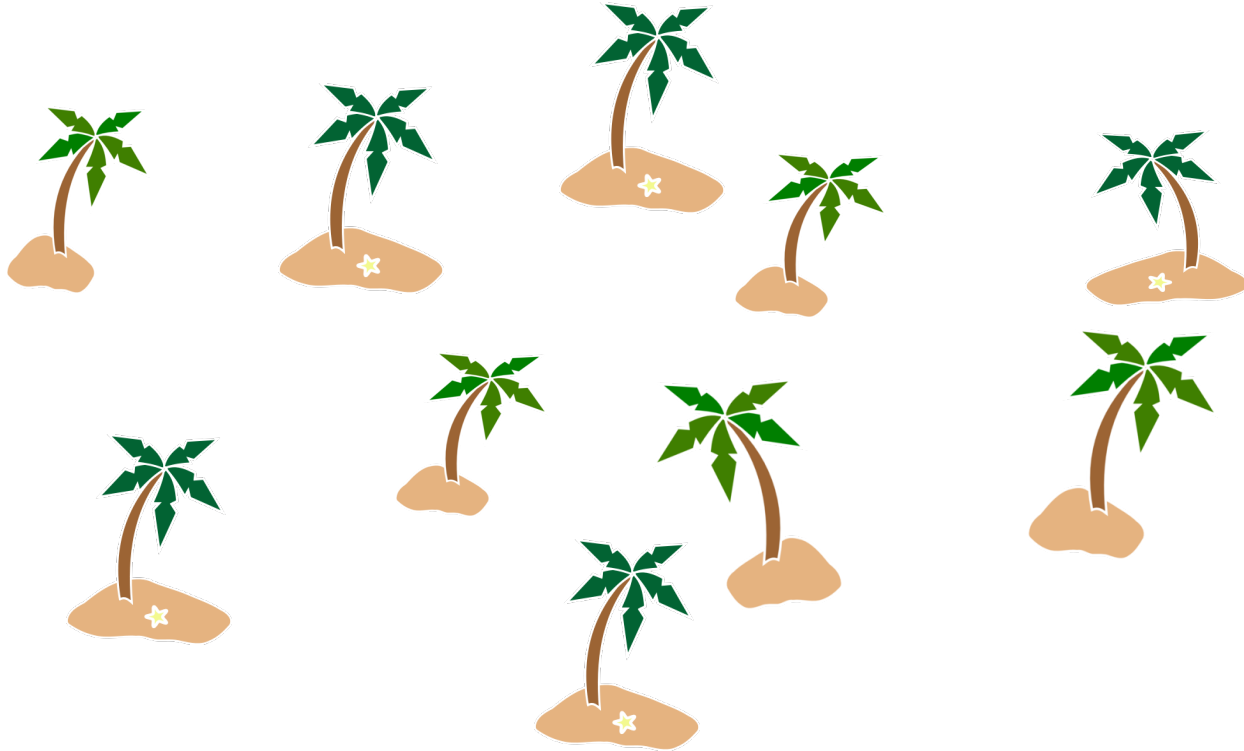
RDF and OWL are semantic bridges between standards
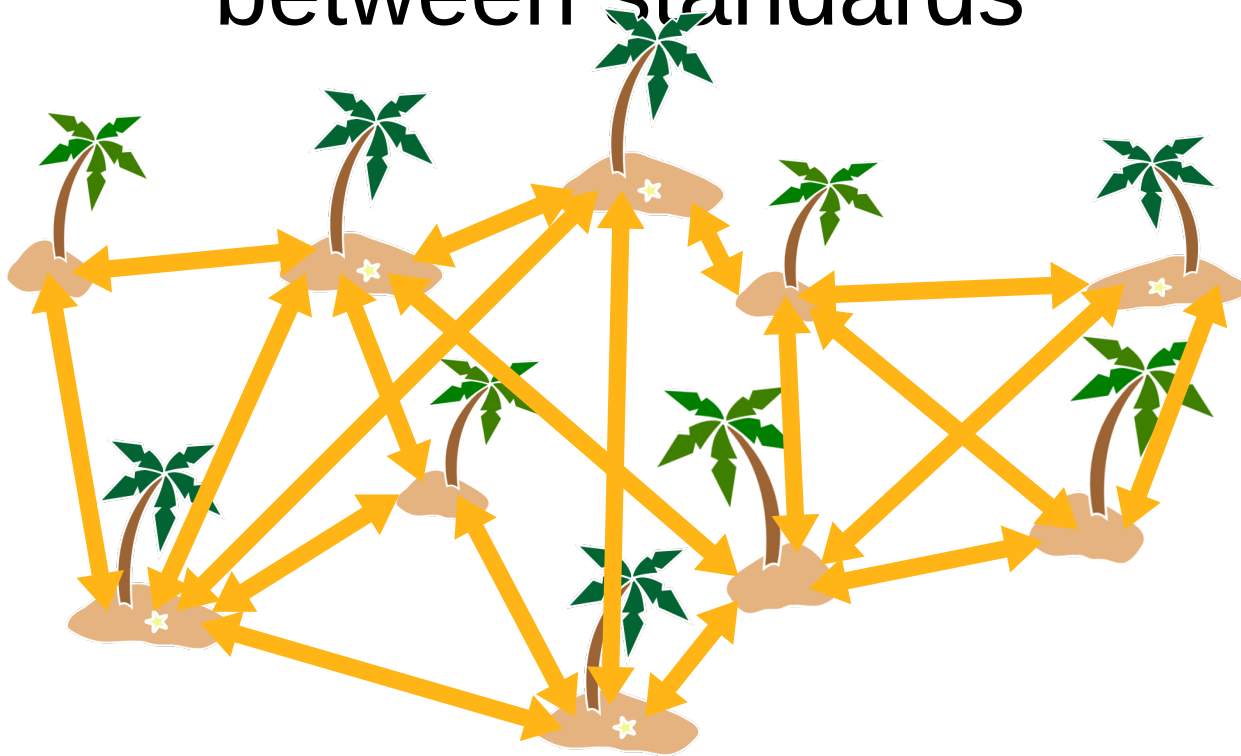
Major goals

- Create **<u>RDF and OWL definitions</u>** of healthcare information standards
  - Enable semantics to be uniformly interpreted in RDF
- Act as a **<u>knowledge resource</u>** for other work groups

Why RDF?

- See http://dbooth.org/2014/why-rdf/

"Captures information content, not syntax"

"Multi-schema friendly"

"Allows diverse data to be connected and harmonized"

"Allows data models and vocabularies to evolve"

"Good for model transformation"

"Supports inference"

http://**YosemiteProject**.org/
A Roadmap for Healthcare Information Interoperability

Semantic Interoperability

6. Collaborative Standards Convergence

7. Interoperability Incentives

5. RDF/OWL Standards Definitions

4. Crowd-Sourced Translation Rules

2. RDF Mappings

Standards

Translations

3. Translations between models & vocabularies

1. RDF as a Universal Information Representation
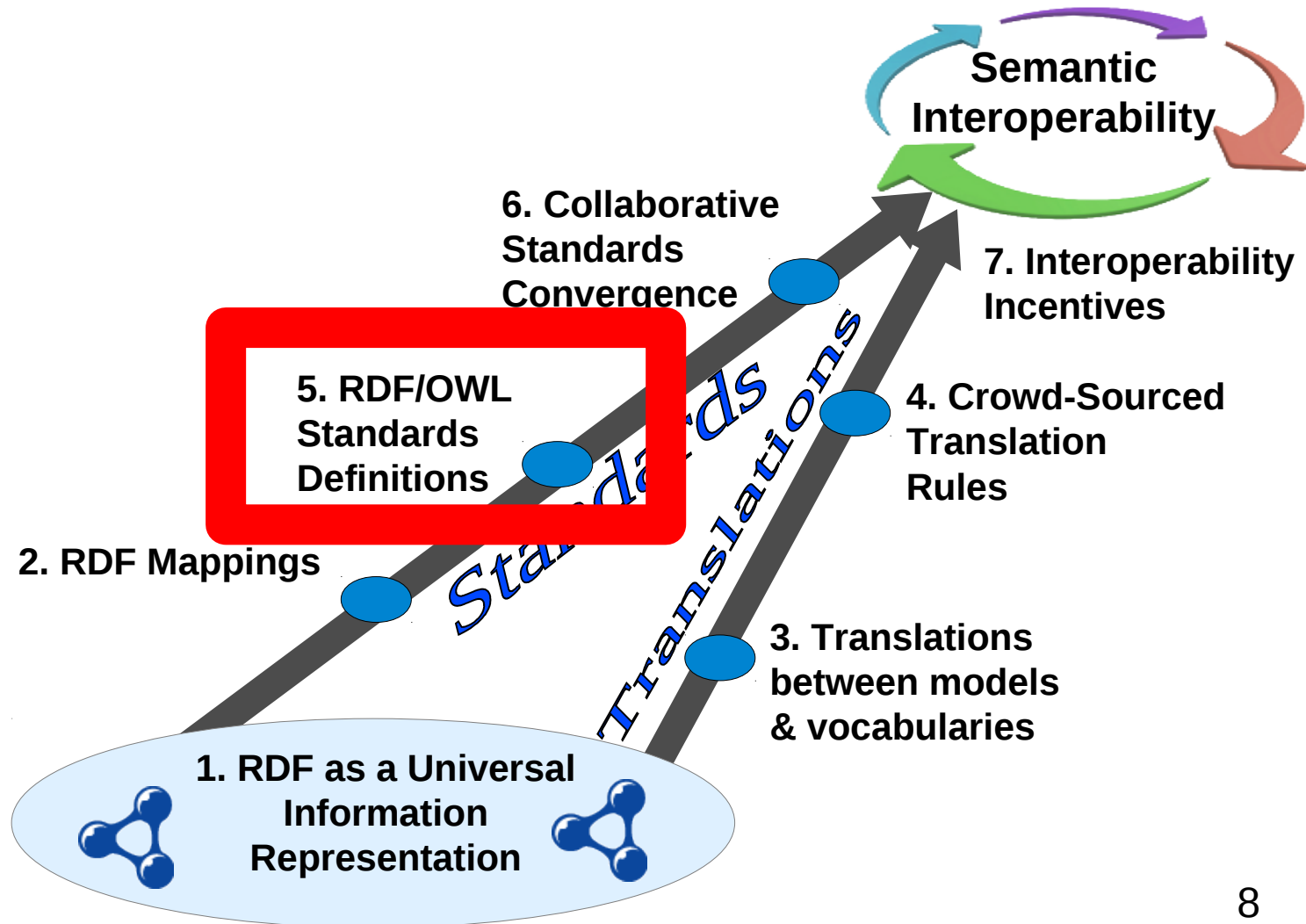
Work projects

- Current:
  - FHIR ontology
  - PhUSE-FDA project (formerly CDISC2RDF)
- Proposed:
  - Bridging VA, Intermountain and other models
  - Use Cases
  - ICD-11 and SNOMED
  - C-CDA RDF representations
  - High-level concept mapping to RDF (AR typeCodes, etc.)

FHIR RDF / Ontology Deliverables

- Mappings between FHIR XML/JSON and FHIR RDF, for lossless conversion of FHIR instance data

- Ontology describing FHIR RDF

FHIR RDF / Ontology Status

- Requirements drafted
- Reviewed four independently developed approaches (Cecil Lynch, Josh Mandel & Eric Prud'hommeaux, Claude Nanjo, Tony Mallia)
  - Fifth approach also under consideration: JSON-LD
- Goal is to converge on a single approach, then standardize

QUESTIONS?

Planning the road ahead

- Priorities? FHIR first, then what?

- How can we be most effective?
  - How can we best support other groups wanting to use RDF?
  - Collect RDF guidelines? E.g.:
    - Using RDF and OWL instead of UML?
    - How to express ordering in RDF?