

Living with BFO *or*
Adventures on the way to OBI:
some puzzles, some solutions

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Science Commons
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What is?

What is...

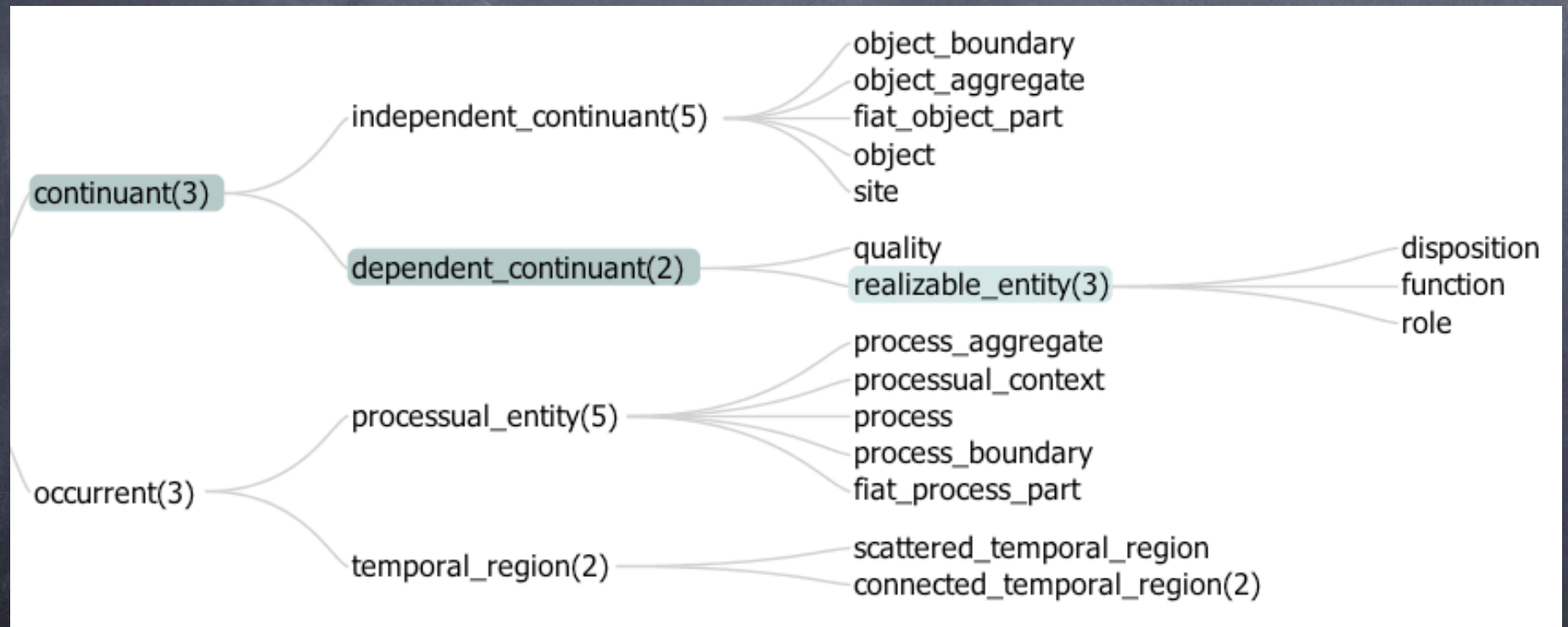
- ① Reagent
- ① Specimen
- ① Food
- ① PCR Primer
- ① Sequence

Some rules of thumb*

- Terms and classes are different
- If you are arguing about about the "correct" meaning of a term, there are probably more than one. Clearly define and represent *both*
- No (asserted) multiple inheritance
Barry Smith: Not the way the world is
Alan Rector: Too hard to maintain
- Don't say things that aren't true (either directly, or by inference)
- Assert, but verify. Say enough that your reasoner can check for nonsense. Follow audit trail to the real world.

*Warning: Takes time to grow the thumb. Helping people grow thumbs can be hazardous to your health.

Living with BFO means understanding (why) this:



No Generically Dependent Continuant in this picture yet - It's new, and I haven't lived with it long.

Multiple inheritance alert!

- Reagent: Antibody=Protein too
- Specimen: Heart of mouse too
- Food: Part of pig too
- PCR Primer: DNA too
- Sequence: DNA, RNA+... too

What is...

- Reagent (Role ✓)
 - Specimen (Role ✓)
 - Food (Role !)
 - PCR Primer (Role !)
 - Sequence (Quality ?)
- ✓=OBI agrees
!=being discussed
?=proposed (by me)

Anxiety: "...it is common to use things for various purposes in an experimental context and if we take too broad a definition of role then types of role could easily be the bulk of OBI"

But: Nothing wrong with some multiple inheritance if...

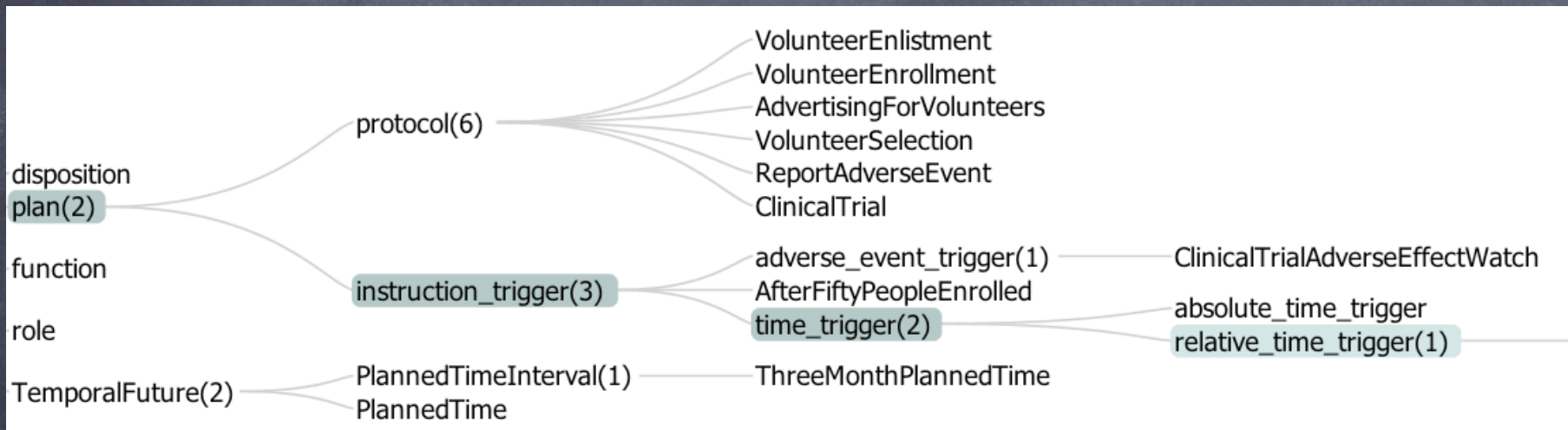
- hasRole: Domain: Role, Range: Independent Continuant
- Role => (realized as some process)
- Disjoint: Independent, Dependent Continuant
- Disjoint: Pig, Pencil...
- part_of (I?)Continuant is a (I?)Continuant
- Food is a Role
- Pig is an Independent Continuant
- Pork *defined class* part_of some Pig and hasRole some Food and ... is a
- ~~Pig is a Food~~ (Reasoner tells us!)

Protocols

A protocol is a plan

- A study enrollment protocol starts with advertising for subjects. Subjects are enrolled until 50 people sign up or for three months, whichever comes first. Up to 10 are selected based on eligibility requirements.

Study Enrollment



+ ThreeMonthsAfterEnrollment is a relative_time_trigger
+ ThreeMonthPlannedTime instance of Planned Time,
"realized as" Three month Time Interval

Volunteer Enlistment

VolunteerEnlistment

A plan to eventually select 10 volunteers. Organized by some initial advertising and volunteer enrollement, which terminates after 3 months or r50 people have signed up, after which the 10 are selected.

(and protocol (has_part some VolunteerSelection)

(has_part some AdvertisingForVolunteers)

(has_part some VolunteerEnrollment)

(has_part some ThreeMonthsAfterEnrollment)

(has_part some AfterFiftyPeopleEnrolled))

Triggers

relative_time_trigger

A time trigger which triggers after some period relative to the start of a some kind of process

(and time_trigger (monitorsProcess min 1)

(plannedTimeInterval exactly 1) (not absolute_time_trigger))

Subject of: whenToTrigger, plannedTimeInterval, whenOccurs, part_of, has_part, realized_as, monitorsProcess, whatToTrigger

Object of: realization_of, part_of, has_part, whatToTrigger

Three Months After Enrollment

ThreeMonthsAfterEnrollment

A time_trigger that triggers a certain amount of time after some process has started

(and relative_time_trigger

(monitorsProcess some

(and process (realization_of some VolunteerEnrollment)))

(whatToTrigger some VolunteerSelection)

(plannedTimeInterval some ThreeMonthPlannedTime))

A time in the future?

TemporalFuture

Give me a solid definition!

(and realizable_entity (realized_as some temporal_region)
(not plan))

Subject of: plannedTimeInterval, whenOccurs, part_of,
has_part, realized_as

Object of: realization_of, part_of, has_part

Possibly object of: plannedTimeInterval, whenOccurs

How will it be used?

A surprise

- "Plan steps are specified as part of MGED Object Model and don't belong in OBI"*
- Working on OBI for several months, and having read a lot of documentation about it, I had never heard of the MGED Object model!

*paraphrase

Applications/ Interoperability

- “Annotations” in a database
- Statements (in OWL/RDF)
-
- How should this matter in the design of the ontology?
- How do we construe “Interoperability” of an ontology: Across similar applications? Across as different cases as “annotations” versus, “statements”?
- At least: Define the cases we know better NOW.

Did I mention...

- I really enjoy working on OBI!
 - Great group of people - Great process!
 - Very interesting domain
 - Important problem to solve
 - No shortage of technical challenges