Research perspectives at Nemo / Ufes

Vítor E. Silva Souza
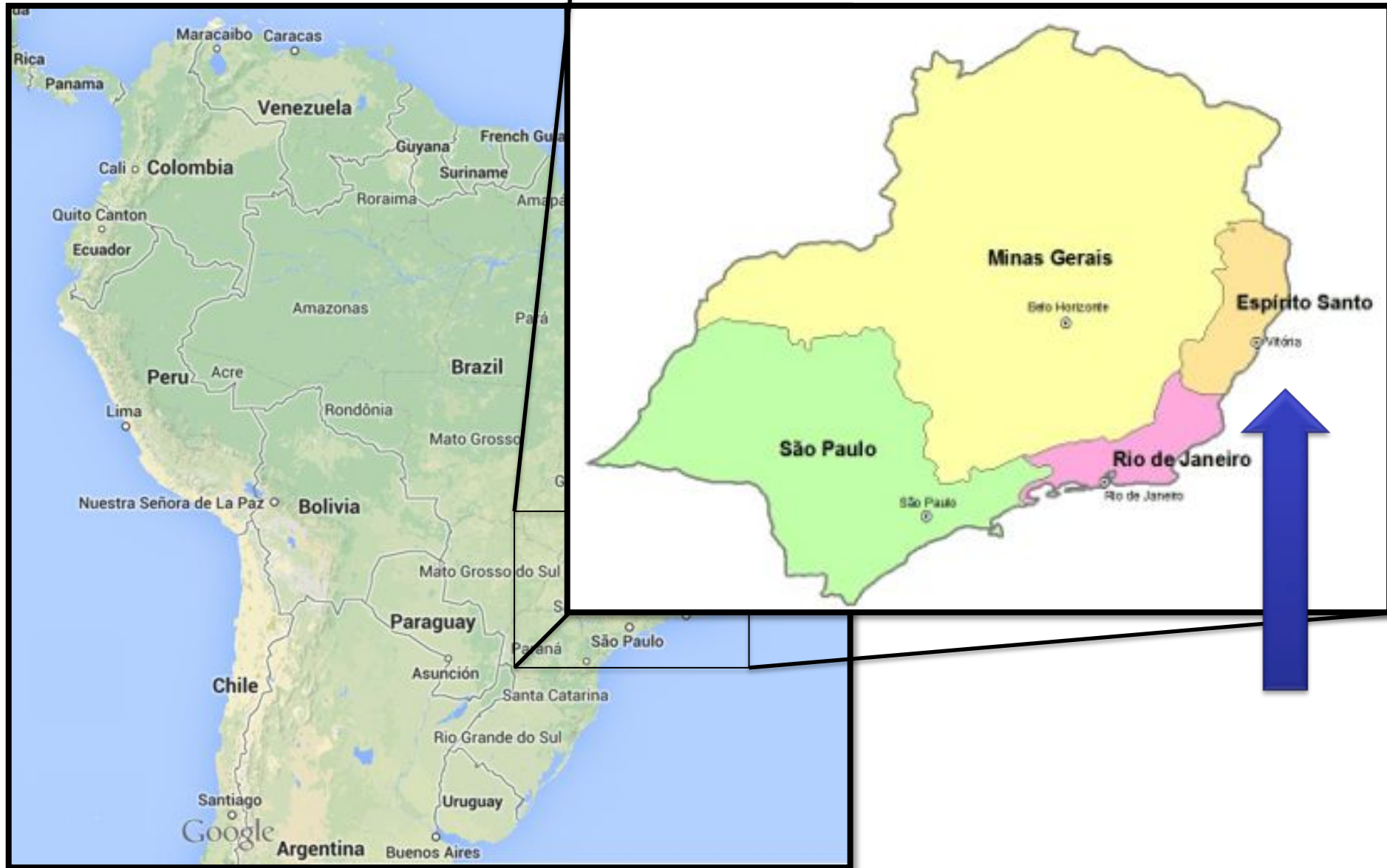
(vitorsouza@inf.ufes.br)

http://www.inf.ufes.br/~vitorsouza

Computer Science Department

Federal University of Espírito Santo (Ufes),

Vitória, ES – Brazil

Espírito Santo, Brazil

Lucretius RE Seminar - Trento, Italy

Federal University of Espírito Santo

Federal University of Espírito Santo

- Between 1950-70, the Brazilian government created a public university in each state (at the time 25);
- Ufes today:
  - Regular courses: 94 undergrad, 17 specialization, 47 masters, 16 PhD;
  - Long distance courses: 9 undergrad, 3 specialization;
  - 17.000 enrolled students, plus 4.200 long distance;
  - 1650 professors, 2500 administrative staff;
  - 4 campuses, the main one being in Vitória, the capital of the state;
  - Recently ranked 34 out of 192 universities in Brazil (Computer Science course ranked #15).

Department of Informatics

- 29 professors;

- Undergrad courses on Computer Sciences and Computer Engineering;

- PPGI:

  - Post-graduate (masters and PhD) courses in Informatics;

  - 22+7 professors, 78 students;

  - 69 master dissertations 2010-2012;

  - 49 journal papers published 2010-2012;

  - 148 conference papers published 2010-2012;

  - PhD program started in 2010, no alumni yet.

Nemo

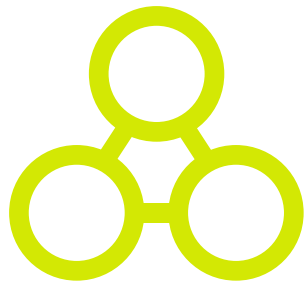Giancarlo Guizzardi (a.k.a., my brother-in-law)

http://www.inf.ufes.br/~gguizzardi/
(Foundational Ontologies, Conceptual Modeling)

João Paulo Andrade Almeida

http://nemo.inf.ufes.br/jpalmeida
(Architectural Design,
Enterprise Architecture,
Enterprise Modeling,
Business Process Modeling)

nemo
ontology & conceptual
modeling research group

Nemo

Renata Silva Souza Guizzardi (a.k.a., sister)

http://www.inf.ufes.br/~rguizzardi/
(Multi-Agent Systems, Constructivist Knowledge Management, Goal-Based Modeling)

Ricardo de Almeida Falbo (former advisor)

http://www.inf.ufes.br/~falbo/
(Ontologies in Software Engineering, Ontological Engineering, Software Process and Quality)

Monalessa Perini Barcellos

http://nemo.inf.ufes.br/monalessa
(Ontologies in Software Engineering, Software Process and Quality)

Research perspectives

1. Continue my PhD research on RE for adaptive systems;

2. The ODE Project;

3. FrameWeb and Web Engineering;

4. Ontological analysis of RE models;

5. Semantic technologies.

RE for adaptive systems

- Further development of the prototype framework;

- Revision of its base model (ontology of requirements);

- LawReqs: studying the relation between regulatory compliance and adaptive systems (Silvia);

- Move towards architecture (Kostas, João);

- Handling the (many) limitations of Zanshin:
  - Too much responsibility on the system developer (integration) and analysts (consistency, correctness);
  - No support for legacy / 3rd party systems;
  - No integration with domain-specific models;
  - Qualia procedures.

The ODE project

- ODE = Ontology-based software Development Environment;

- ODE is a process-centered SDE in which:
  - Ontologies facilitate tool integration and developer communication (uniformity of concepts);
  - Ontologies can also promote interoperability with/ among external tools;
  - A knowledge base allows the environment to offer specialized support to the user;
  - An ontology of process allows the customization of the environment depending on the user's choice.

Current involvement with ODE

- Working with undergrad student to develop a new foundation for a distribute ODE SDE;

- Investigating the Eclipse platform, in particular projects such as Eclipse Orion[1] and Saros[2];

- First steps are more IT focused (organize the development, focus on the technology);

- Later, investigate how to place the ODE ontology at the core of the tool, most likely using EMF.

1. http://www.eclipse.org/orion/
2. http://www.saros-project.org

FrameWeb and Web Engineering

- **Masters** work at Ufes (2005-2007);

- **Frameworks** are very popular for **Web** development: MVC, decorators, ORM, DI, authentication, etc.;

- FrameWeb proposes that **architectural design** models take **concepts** from these **frameworks** into account:

New directions for FrameWeb
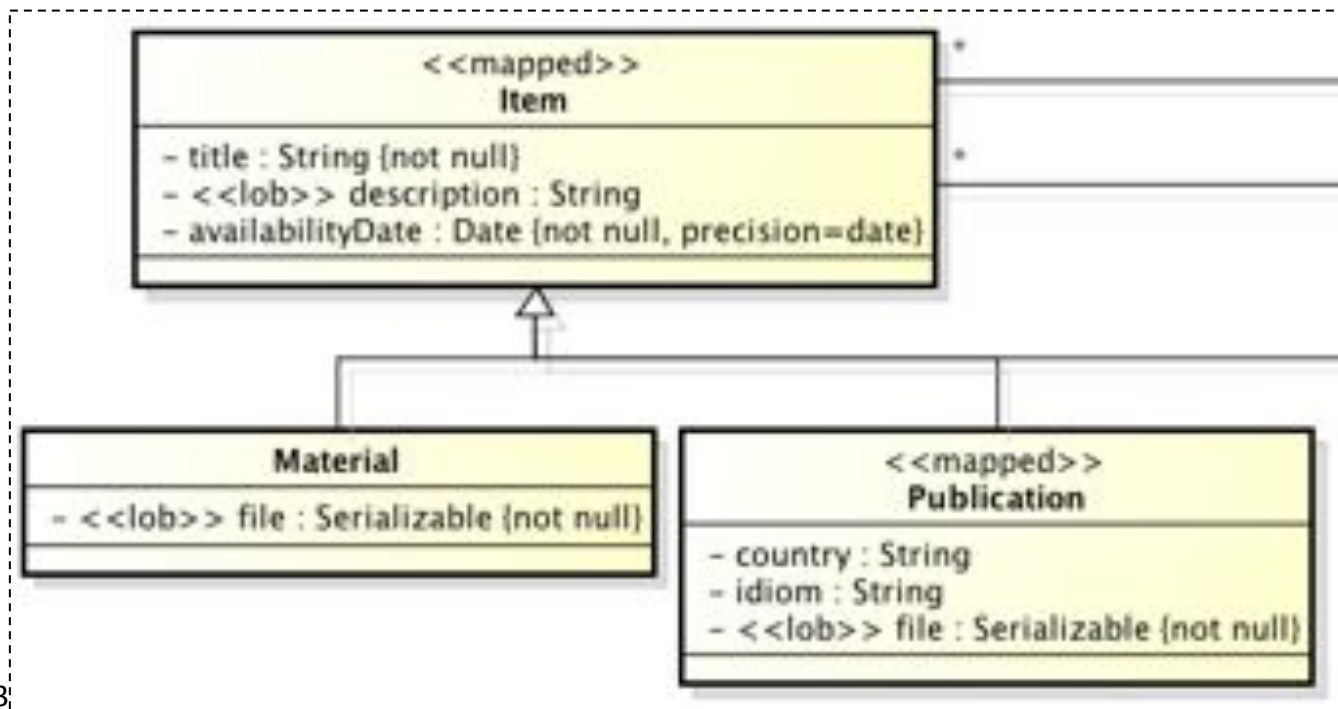
- Container-based standard architectures (e.g., Java EE) have incorporated frameworks;

- Experiments with practitioners, CASE tools, code generators;

- Further development of the S-FrameWeb, a semantic extension of the method.

- Non-uniform use of GORE languages such as i* created dialects with different meanings;

- Going from early requirements to runtime, goal model elements may also change their meaning.

Ontological analysis of RE models
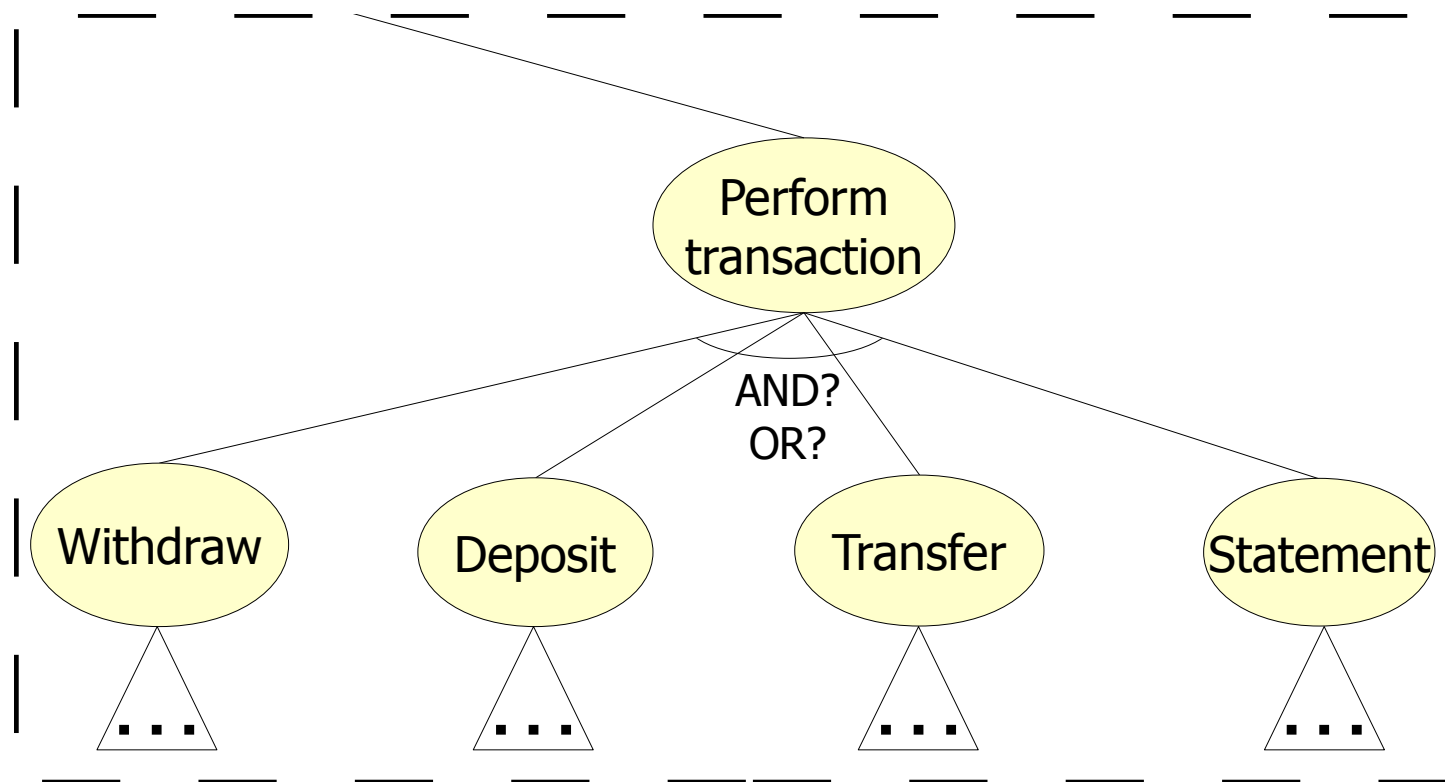
- Nemo has done previous work with UPC (Barcelona) for ontological analysis of i* concepts;

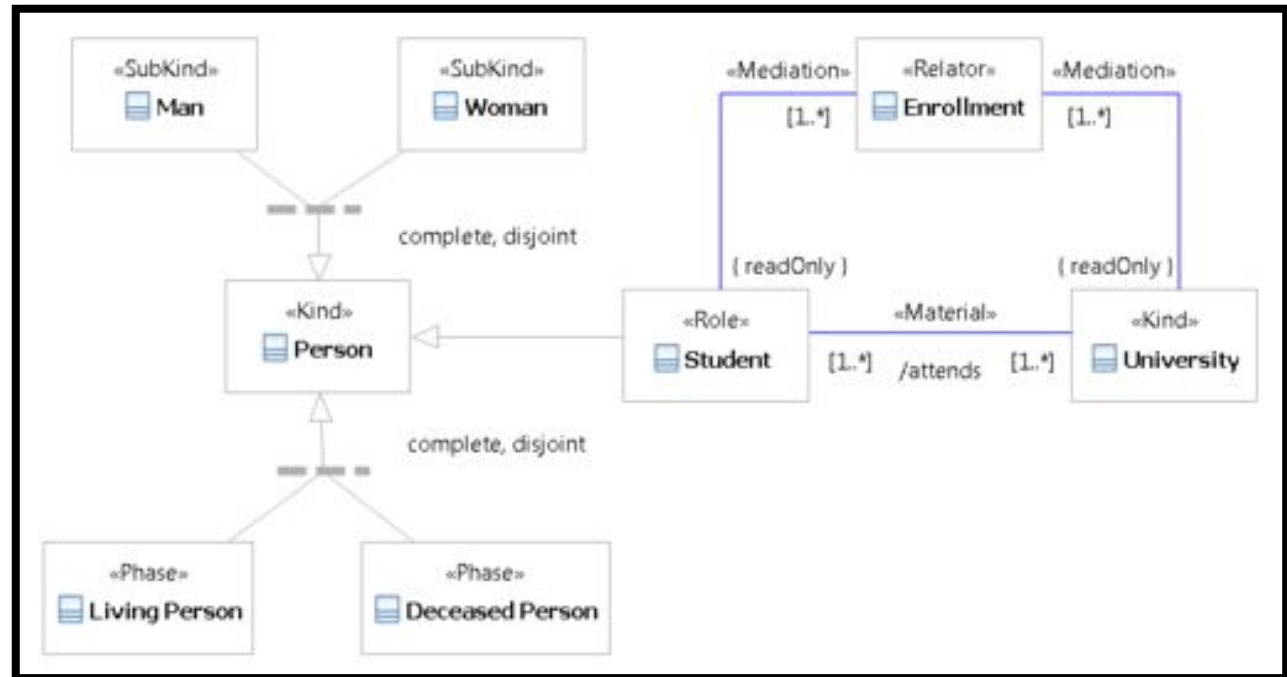- Based on Dalpiaz et al., worked with Pimentel et al. on derivation of statecharts from goal models.
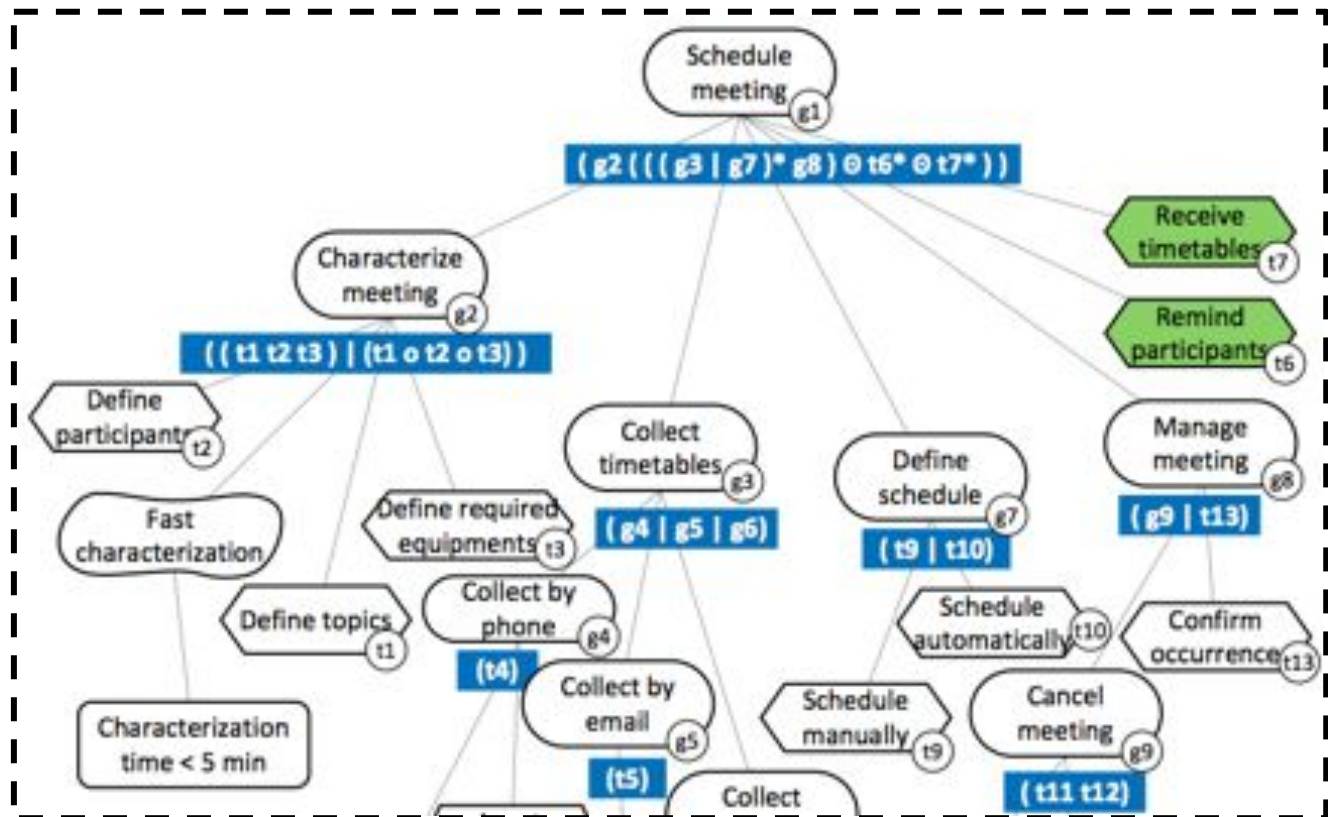
Also related to:

$$\left\{ \text{残心} \right\}$$

Semantic technologies

- Semantic…
  - interoperability;
  - Enteprise Application Integration;
  - matching;
  - Web…

e-Government

Lack of ontological commitment is a commitment.

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