Infer Informational Capabilities by Relating Expertises in Requirements Engineering

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Outline

Definition (Zave [17]):

> *"Requirements engineering is the branch of software engineering concerned with the real-world goals for, functions of, and constraints on software systems. It is also concerned with the relationship of these factors to precise specifications of software behavior, and to their evolution over time and across software families."*

Activities [13, 4, 9]: requirements elicitation, modelling, analysis, verification and validation, management.

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  - lot of stakeholders with different backgrounds & perspectives
  - Ex: hospital = medical, managerial, sociological, technical, etc.
- RE process is knowledge-intensive [10].
- RE process is human-intensive [3].

Example: ACube, ambient assisted-living project [12]

Major sources of domain knowledge = operators, doctors, managers, software engineers, sociologists, ... and 1 organisational document.

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  - Validation = agreements among the stakeholders
  - Broad mastering generally infeasible for a single person [6, 8]
- Unclear descriptions
  - terminological misalignment between analyst & stakeholders $\Rightarrow$ potentially wrong requirements [11]
- Partial information
  - stakeholders omissions (seems evident, forget rare issues) [15]

Problem

Lacks in the expertise of the analysts or omissions from the stakeholders can lead to not exploit correctly nor discover all the available information, leading to a poor RE process.

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Objective

Design a methodology able to support the sharing of information, from stakeholders to analysts, in a pro-active way.

Research Questions:

RQ1 How can we identify the stakeholders who can fill at best a lack of information identified by an analyst?

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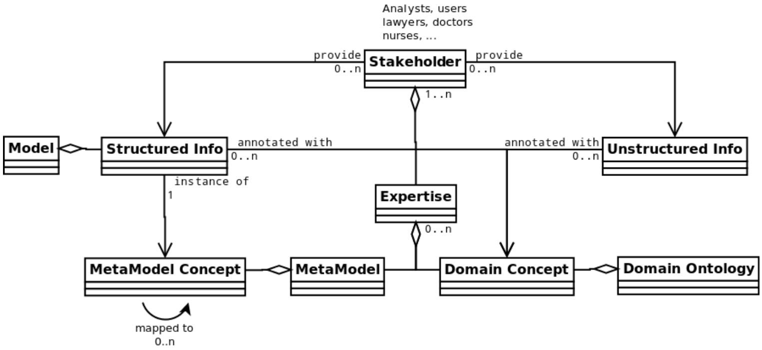
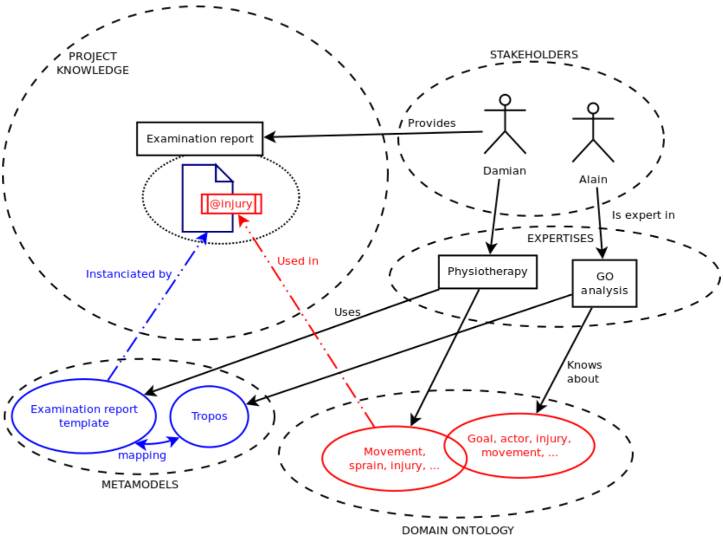
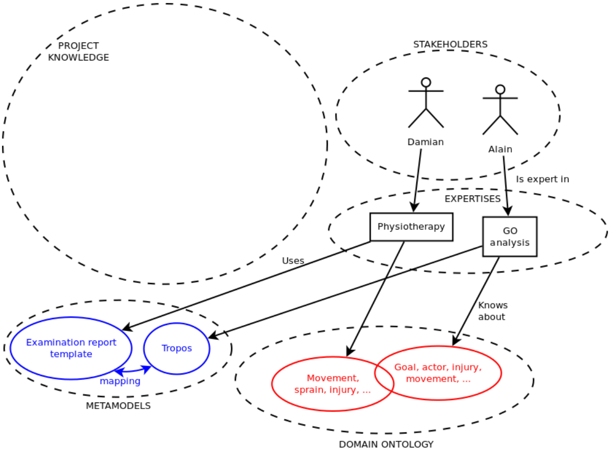
Architecture & Language



Architecture & Language



Expert Recommendation



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3. Identify overlaps
4. Infer expertises
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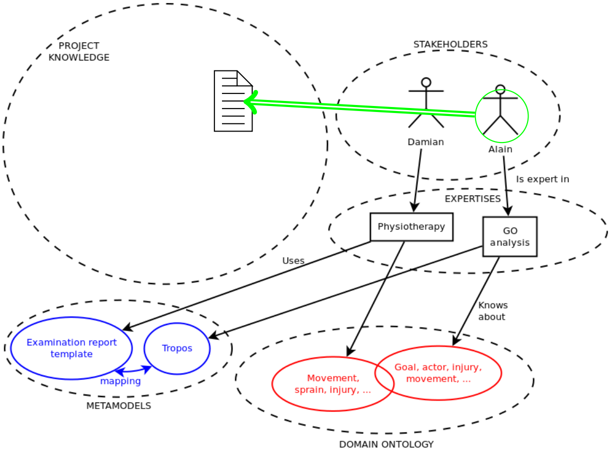

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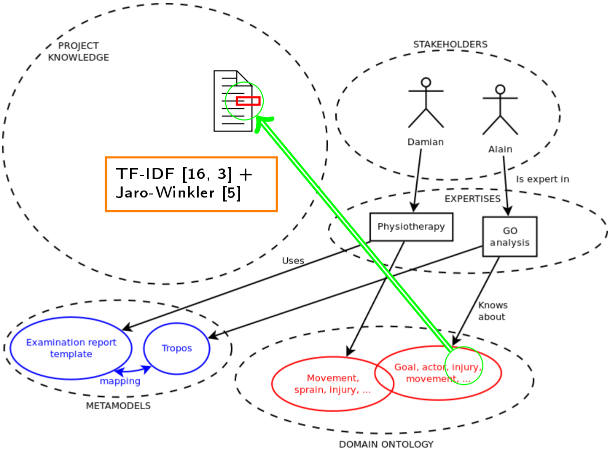

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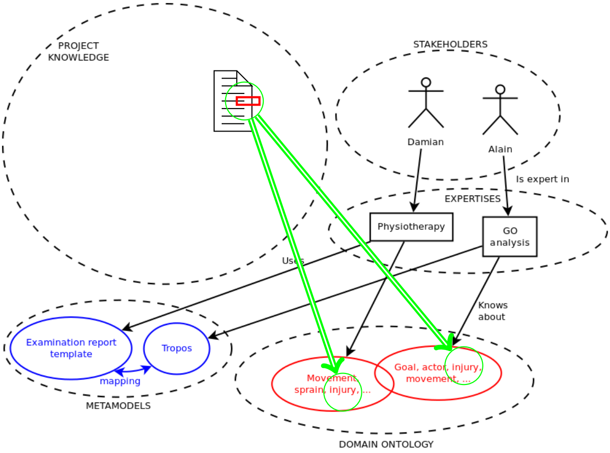

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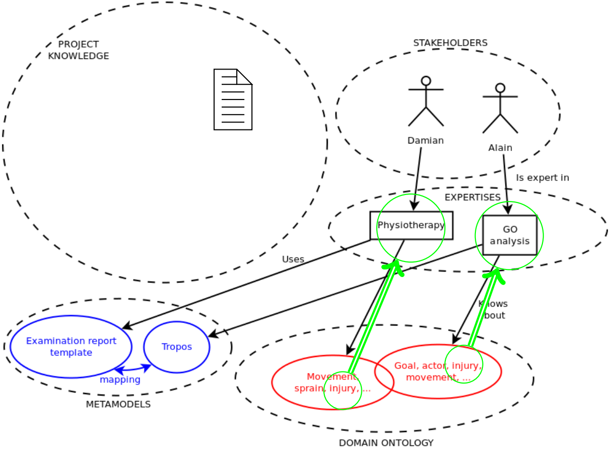

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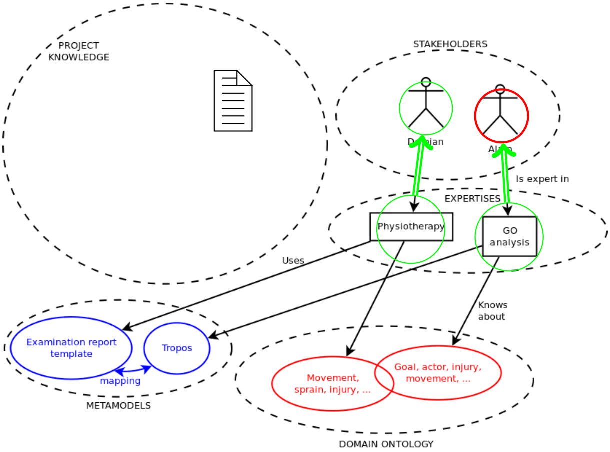

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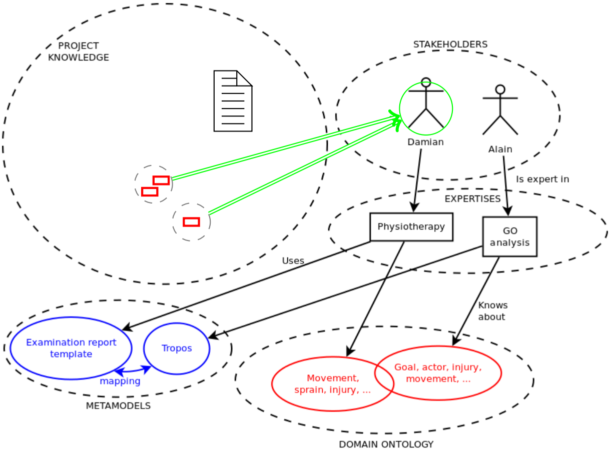

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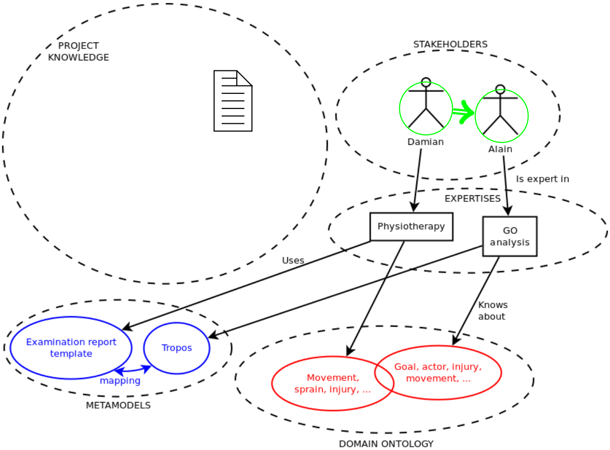

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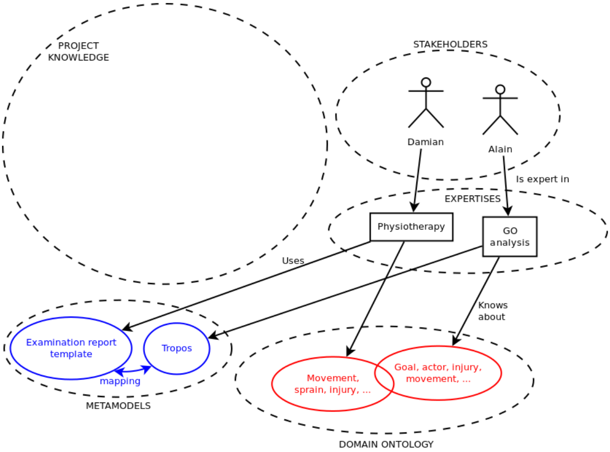

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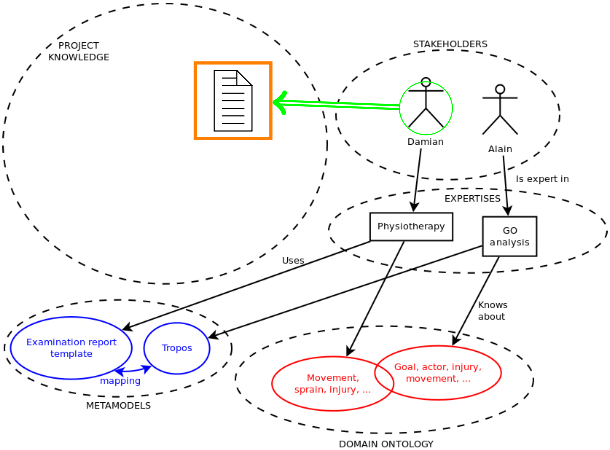

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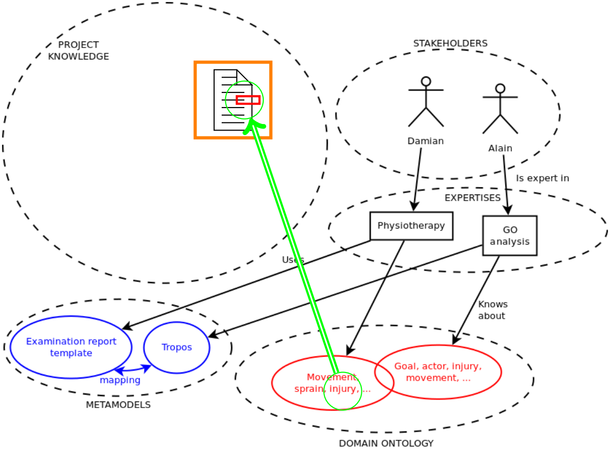

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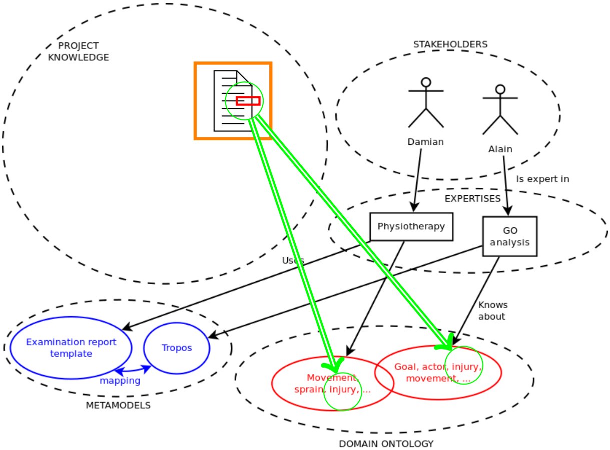

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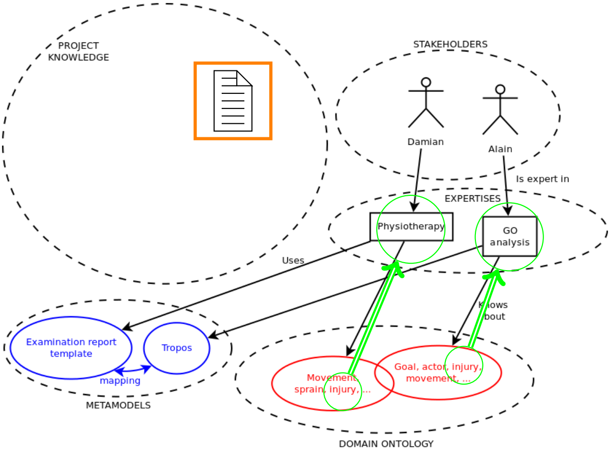

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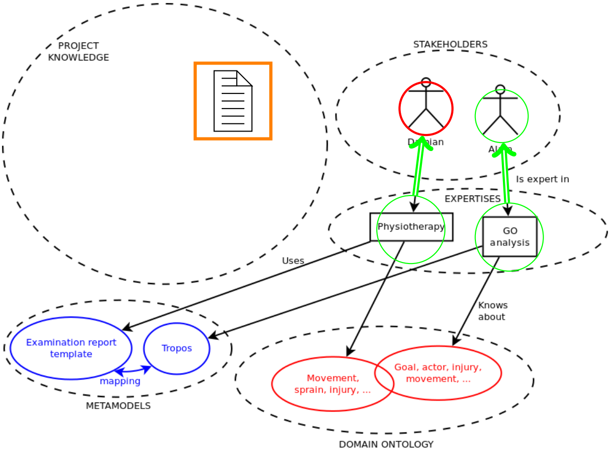

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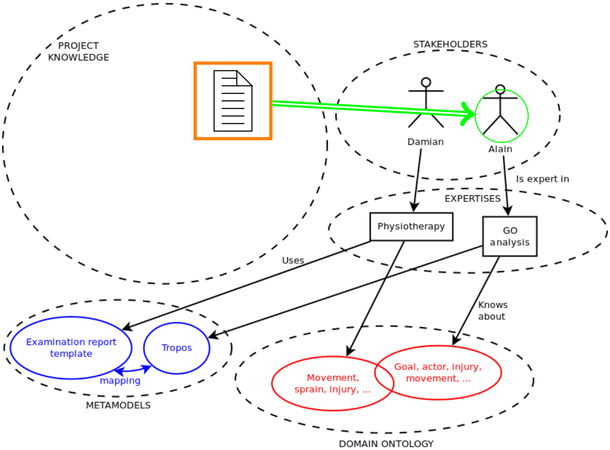

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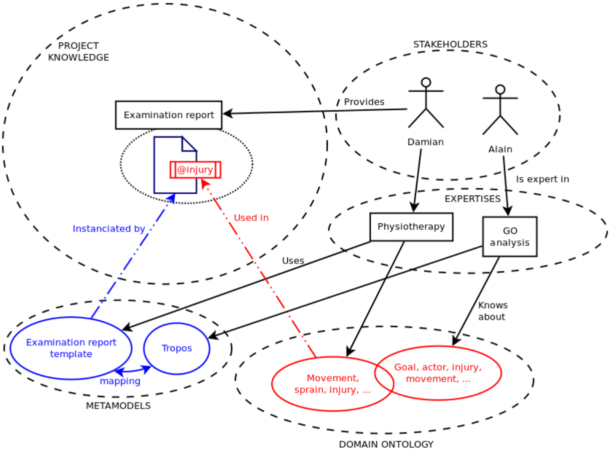

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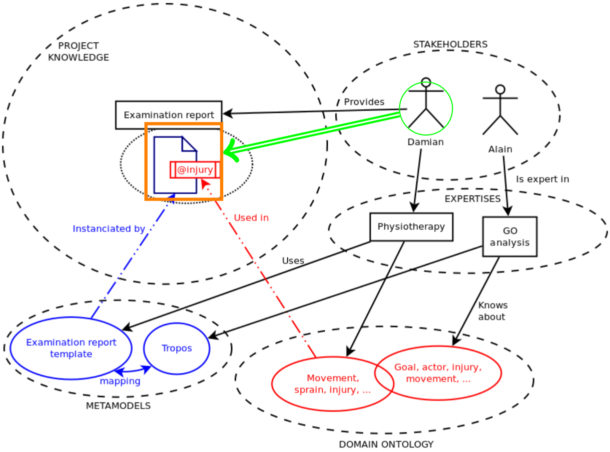

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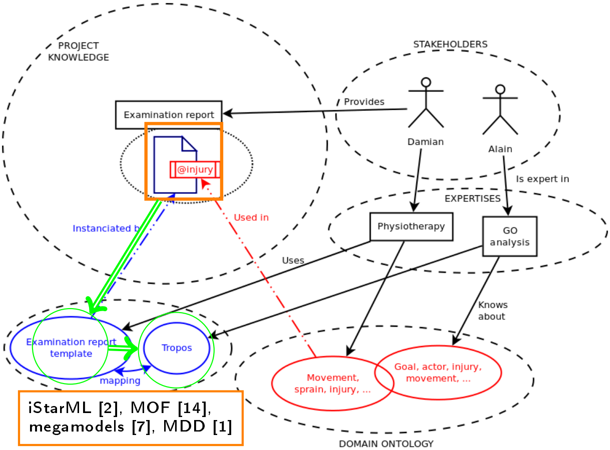

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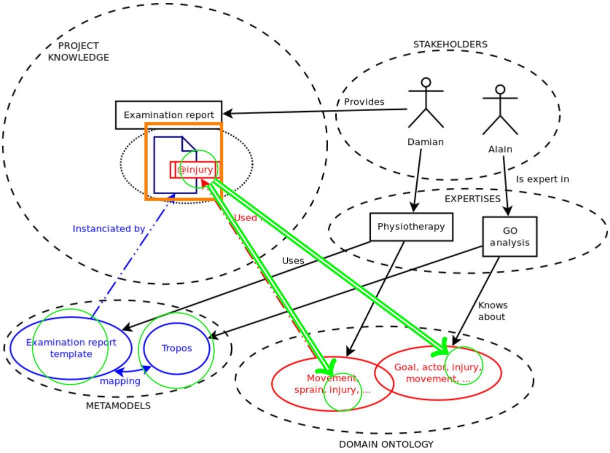

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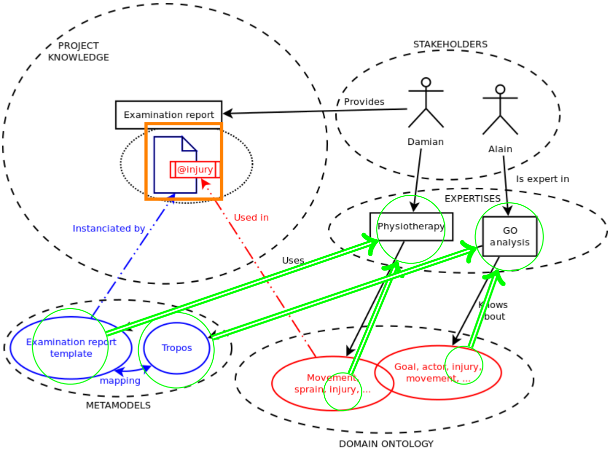

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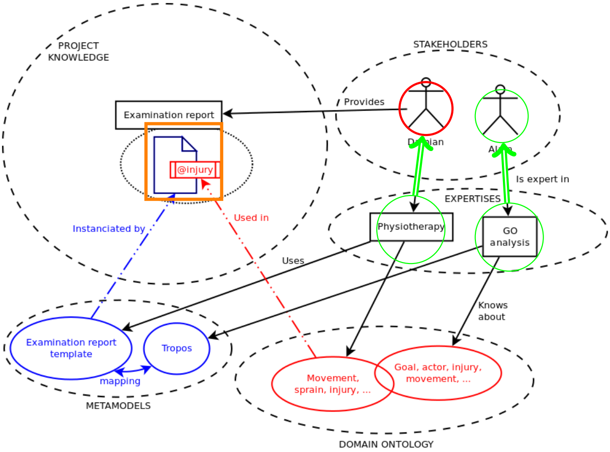

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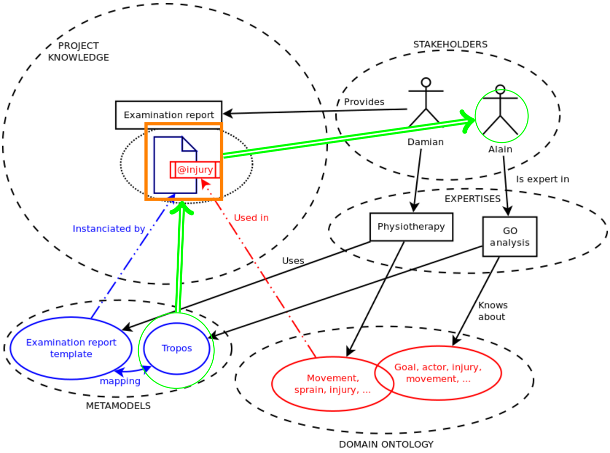

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Expected contributions:

- New expertise description
  - set of ontological concepts (domain expertise)
  - set of metamodels (modelling expertise)
- New concept extraction method
  - Not simple extraction: relate to predefined concepts
- New expert identification method
  - Familiarity with related concepts (known + frequency of uses)

Several candidates for a case study:

- **ACube [12]** Ongoing project for ambient assisted-living
- **RISCOSS** New project for supporting Open Source Software project management.

[say why they are interesting candidates]

Thanks for your attention.

Questions?

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