

Goal-Oriented RE

An overview of goal-oriented Requirements Engineering and goal-oriented requirements elicitation

Agenda

- What are goals?
- Why are goals needed?
- Where are goals coming from?
- When should goals be made explicit?
- Goal Modeling
 - Types and taxonomies
 - Attributes
 - Links
- Goal Specification

What are goals?

- An objective the system should achieve
- Formulated at different levels of abstraction
- Functional and non-functional concerns
- May require cooperation of multiple agents

Why are goals needed?

- Provide a criterion for *sufficient completeness*
- Avoiding irrelevant requirements (*requirements pertinence*)
- Explaining requirements to stakeholders
- Natural mechanism for structuring complex requirements documents
- Provide the roots for detecting conflicts among requirements
- Separating stable from volatile information

Where are goals coming from?

- Often implicit → Goal elicitation
- Analysis of the current system
 - List of problems and deficiencies
- Systematic identification
- Refinement and abstraction of high-level goals
 - *How* and *why* questions

When should goals be made explicit?

- The soonest a goal is identified and validated, the best
- Goal-oriented approaches are not inherently top-down
 - *Why* questions may identify goals lately in the RE process

Goal Modeling

- Types and taxionomies
- Goal attributes
- Goal links

Types and Taxonomies 1

- *Achieve, maintain, avoid*
- Functional goals
 - Services expected of the system
 - Satisfaction goals
 - Information goals

Types and Taxonomies 2

- Non-functional goals
 - Expected system qualities
 - Accuracy
 - Performance
 - Response time
 - Troughput
 - Security
 - Confidentiality
 - Integrity
 - Availabilty

Goal Attributes

- Name
- Specification
- Priority
 - Mandatory / optional
 - Used to resolve conflicts among goals
- Utility
- Feasibility

Goal Links

- Links to other goals and other elements of requirements models
- AND/OR graphs
 - AND-refinement
 - OR-refinement
 - Conflict link

Specifiying Goals

- Goals must be specified precisely
- Informal
- Semi-formal
 - Type, attributes, links
- Formal
 - Allows formal verification

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Thank you.