Goal-oriented Requirements Engineering

—A Brief Introduction of My Current Research Topics—

September 15, 2017

Shin'ichi SATO
Assistant Professor
Aoyama Gakuin University

Requirements Engineering

- **Requirements Engineering (RE)** is one of the research fields in Software Engineering.
- The research object of RE is the **requirements analysis** process which is the most upstream process of software development project.
- In RE community, **Goal-oriented Requirements Engineering (GORE)** has been intensively studied as a formal requirements elicitation method.

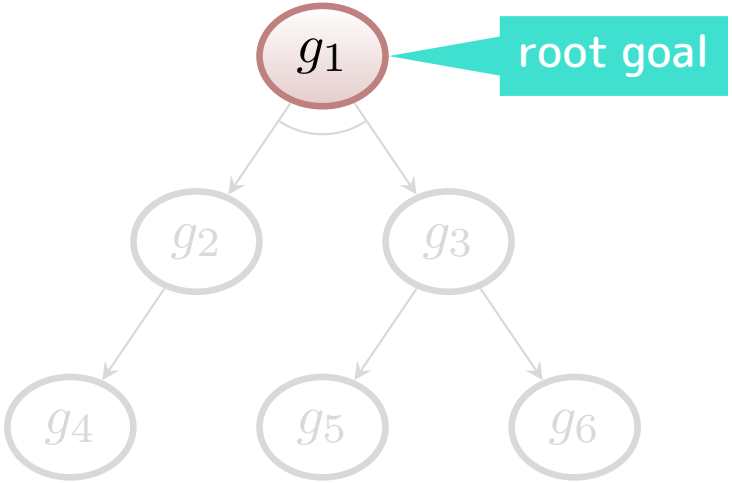
Overview of GORE

- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.

Toy goal graph

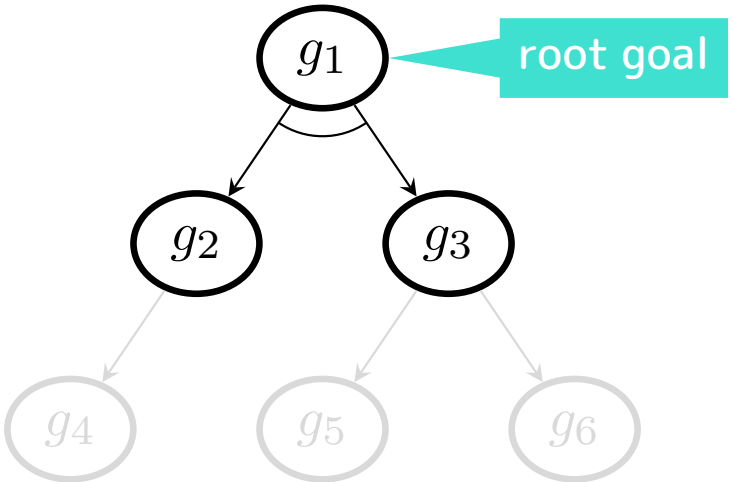
Overview of GORE

- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.



Overview of GORE

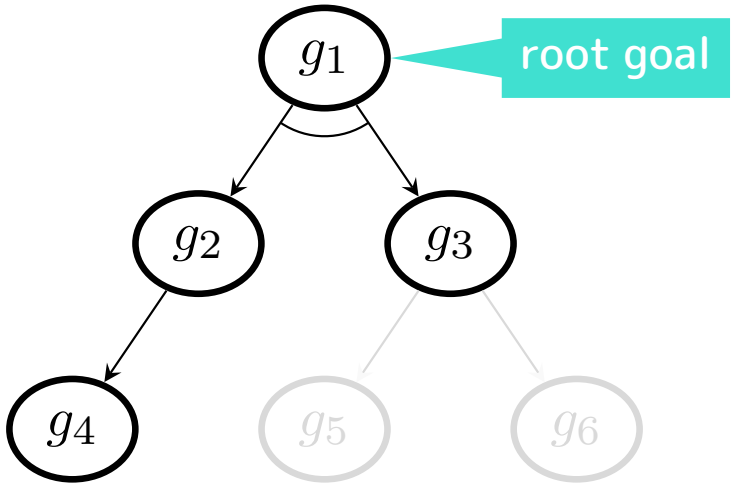
- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.



Toy goal graph

Overview of GORE

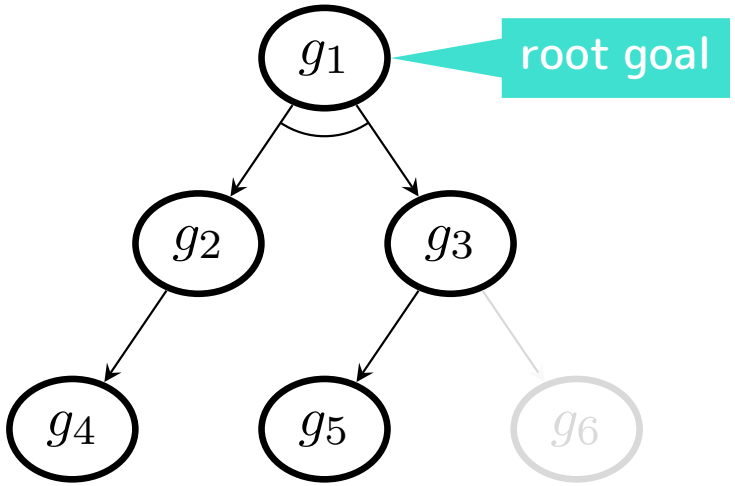
- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.



Toy goal graph

Overview of GORE

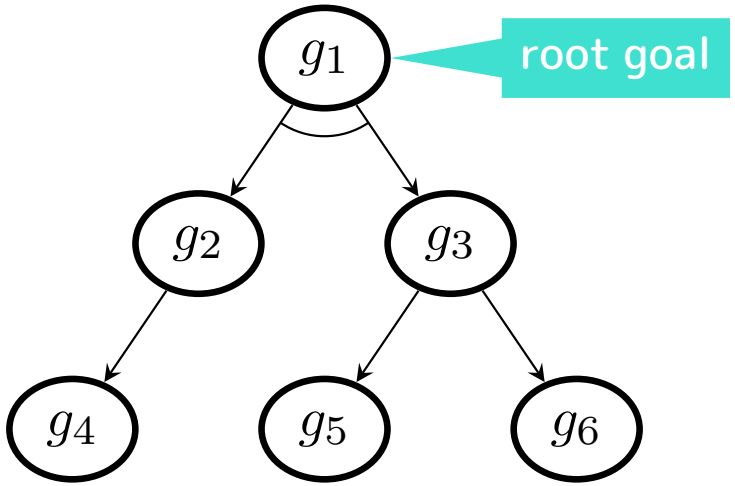
- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.



Toy goal graph

Overview of GORE

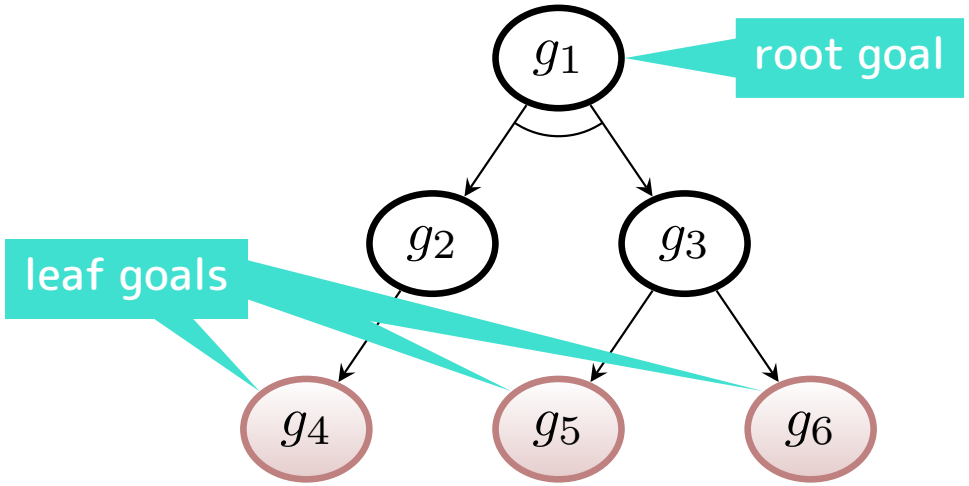
- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.



Toy goal graph

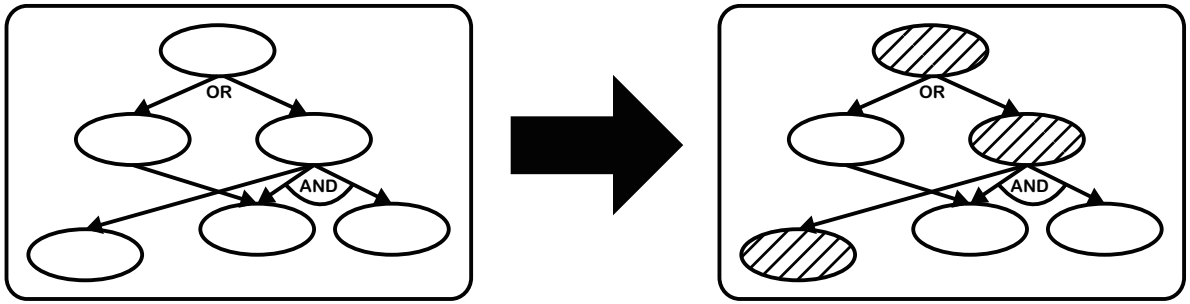
Overview of GORE

- The basic procedure of GORE is as follows.
  1. Based on customers' needs, **root goal**s are formulated. A goal is an achieved state.
  2. Goals are recursively decomposed until concrete goals are defined that can be processed by a software developed by stakeholders.
  3. Goals are selected as requirements from well-decompsosed **leaf goal**s on the goal graph.



My research topics

1. Construction of mathematical models for **goal decomposition** based on Case-based Decision Theory
2. Construction of **goal selection** algorithms
3. Construction of useful **attribute**s for GORE



goal decomposition　　goal selection

Two main requirements elicitation phases in GORE approach

Thanks for listening!!!