paluno – The Ruhr Institute for Software Technology
University of Duisburg-Essen
Germany

Software Systems Engineering
Prof. Dr. Klaus Pohl

E-03: Goal Modelling

Sample Solution

This Lecture Material was produced by
Prof. Dr. Klaus Pohl
Dr. Thorsten Weyer
Torsten Bandyszak
Philipp Bohn
Jennifer Brings
Johanna Buchner
Marian Daun
Felix Föcker
Andrea Salmon
Philipp Schmidt
Bastian Tenbergen

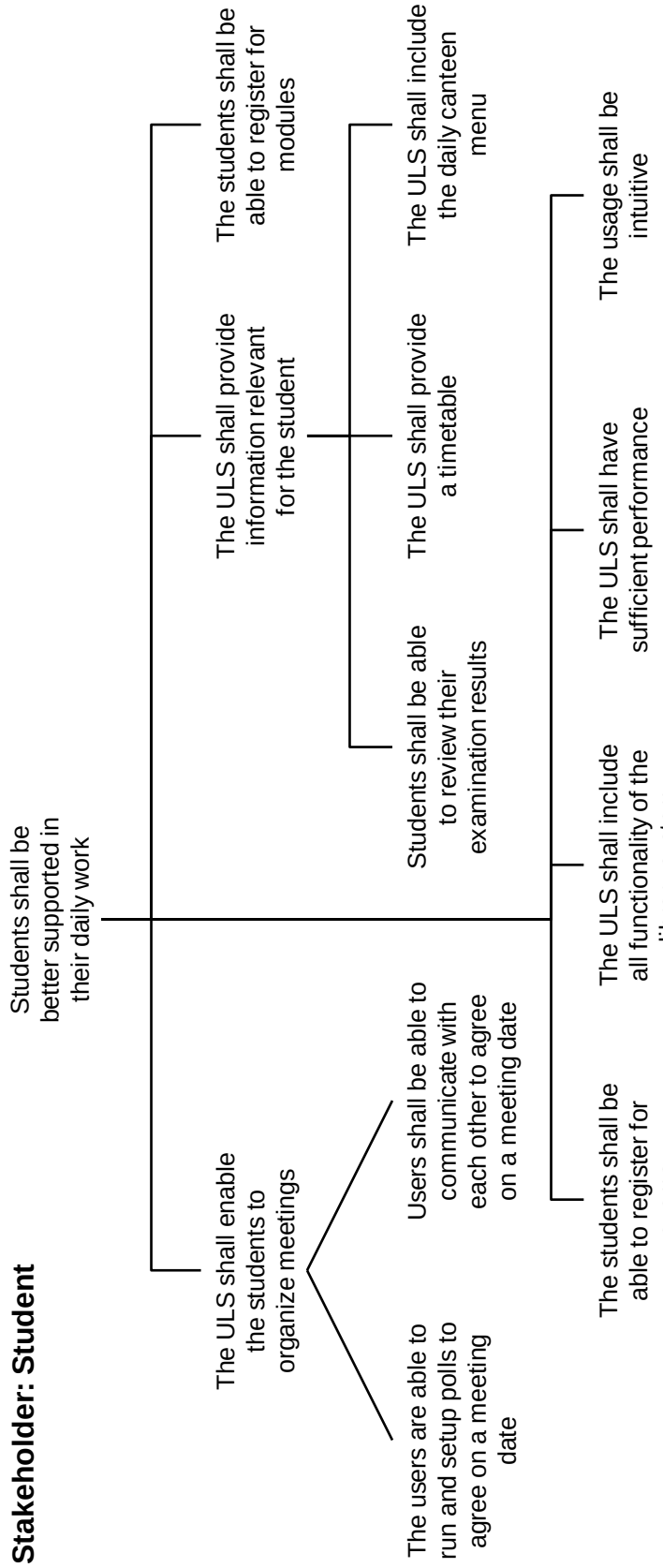
© University of Duisburg-Essen, Prof. Dr. K. Pohl, Germany For Academic Use Only.

Note: In particular, when creating diagrams based on textual descriptions, there are many other acceptable solutions – in addition to the solutions presented here.

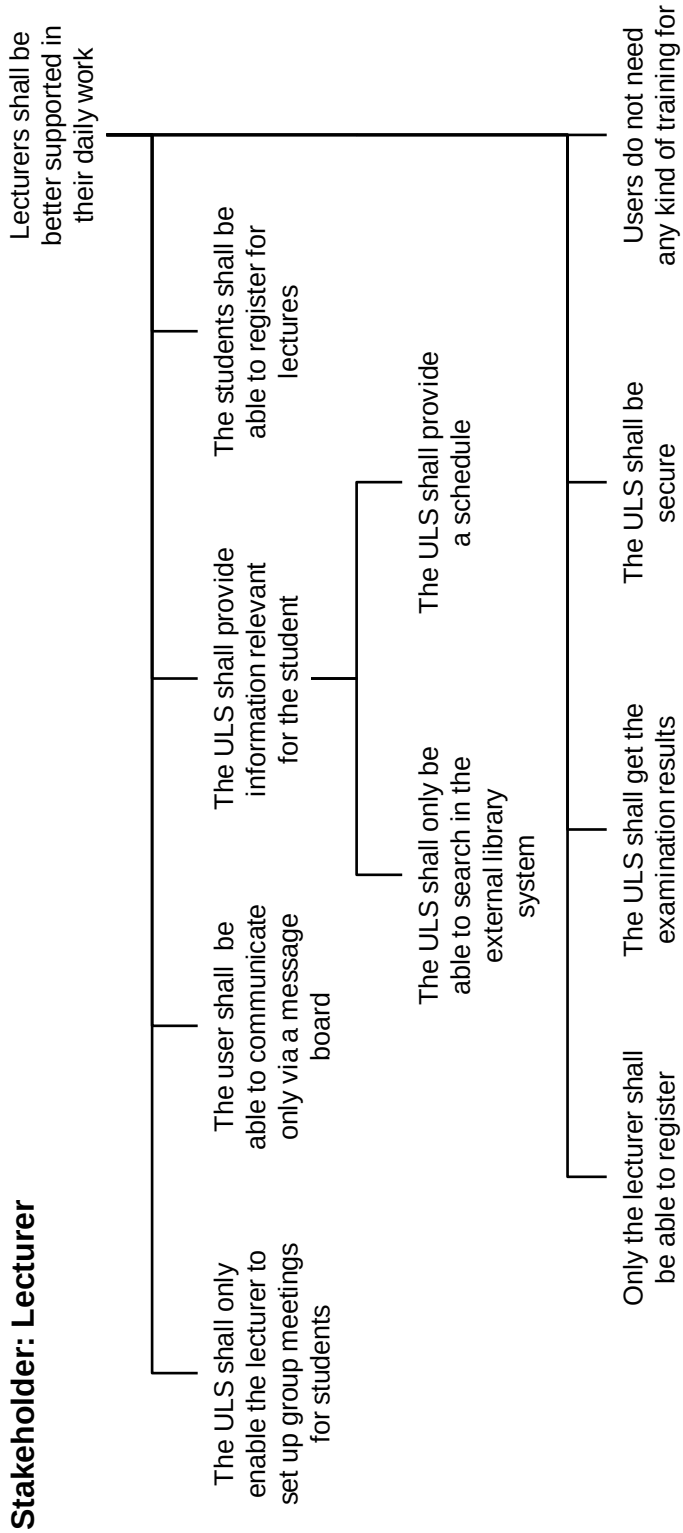
© University of Duisburg-Essen, Prof. Dr. K. Pohl, Germany For Academic Use Only.

Task 1: Goal documentation in AND/OR Graphs

Task 1A: Create a goal diagram for each of the two interview minutes for each stakeholder group. (Sample Solution)



© University of Duisburg-Essen, Prof. Dr. K. Pohl, Germany For Academic Use Only.


Stakeholder: Lecturer
Lecturers shall be better supported in their daily work
The ULS shall only enable the lecturer to set up group meetings for students
The user shall be able to communicate only via a message board
The ULS shall provide information relevant for the student
The students shall be able to register for lectures
The ULS shall only be able to search in the external library system
The ULS shall provide a schedule
Only the lecturer shall be able to register students for exam
The ULS shall get the examination results from the examination office
The ULS shall be secure
Users do not need any kind of training for using the ULS

Goal	Line reference (not comprehensive)
Explanations - Student	
The ULS shall enable the students to organize meetings	page 2, lines 27-32
The users are able to run and setup polls to agree on a meeting date	page 2, lines 36-38
Users shall be able to communicate with each other to agree on a meeting date	page 2, lines 35-36
The students shall be able to register for modules	page 1, line 30
The ULS shall provide information relevant for the student	page 2, lines 3-8
Students shall be able to review their examination results	page 1, lines 33-34
The ULS shall provide a timetable	page 2, lines 3-4
The ULS shall include the daily canteen menu	page 2, lines 6-8
The students shall be able to register for exams	page 1, lines 27-28
The ULS shall include all functionality of the library system	page 2, lines 14-15
The ULS shall have sufficient performance	page 2, lines 19-20
The usage shall be intuitive	page 2, lines 18-19
Explanations - Lecturer	
The ULS shall only enable the lecturer to set up group meetings for students	page 4, lines 26-28
The user shall be able to communicate only via a message board	page 4, lines 18-20
The ULS shall provide information relevant for the student	page 4, lines 6-7 page 4, lines 9-12
The ULS shall only be able to search in the external library system	page 4, lines 1-4
The ULS shall provide a schedule/timetable	page 4, lines 5-6
The students shall be able to register for lectures	page 3, lines 21-22
Only the lecturer shall be able to register students for exam	page 3, lines 22-28
The ULS shall get the examination results from the examination office	page 3, lines 14-15
The ULS shall be secure	page 3, lines 15-17
Users do not need any kind of training for using the ULS	page 4, line 33

© University of Duisburg-Essen, Prof. Dr. K. Pohl, Germany For Academic Use Only.

Task 2: Structured Textual Goal Documentation

Task 2A: Documents textual goals in the provided template. (Sample Solution)

No.		Section	Content/Explanation
ID	1.2	Name	Run and setup polls
Management	2.1	Authors	
Context	3.1	Source	Clark Parker
	3.2	Responsible stakeholder	Clark Parker
	3.3	Using stakeholder	Students in the system
Goal Definition	4.2	Goal description	The users are able to run and setup polls to agree on a meeting date

No.		Section	Content/Explanation
ID	1.2	Name	Library System implementing
Management	2.1	Authors	
Context	3.1	Source	Clark Parker
	3.2	Responsible stakeholder	Clark Parker
	3.3	Using stakeholder	Students of the system
Goal Definition	4.2	Goal description	The ULS shall include all functionality of the library system

No.		Section	Content/Explanation
ID	1.2	Name	Exam Registration
Management	2.1	Authors	
Context	3.1	Source	Mrs. Lane
	3.2	Responsible stakeholder	Mrs. Lane
	3.3	Using stakeholder	Lecturers of the system
Goal Definition	4.2	Goal description	The lecturer shall be able to register students for exam

© University of Duisburg-Essen, Prof. Dr. K. Pohl, Germany For Academic Use Only.

Task 2B: Identify errors in the goal descriptions of your colleague. (Sample Solution)

No.		Section	Content/Explanation
ID	1.2	Name	Module registration
Management	2.1	Authors	Jack Lee
Context	3.1	Source	Clark Parker
	3.2	Responsible stakeholder	~~Mrs. Lane~~ Clark Parker
	3.3	Using stakeholder	~~user~~ student of the system
Goal Definition	4.2	Goal description	~~The module registration shall be possible.~~ (Documenting the intention precisely) → The student shall be able to register for modules

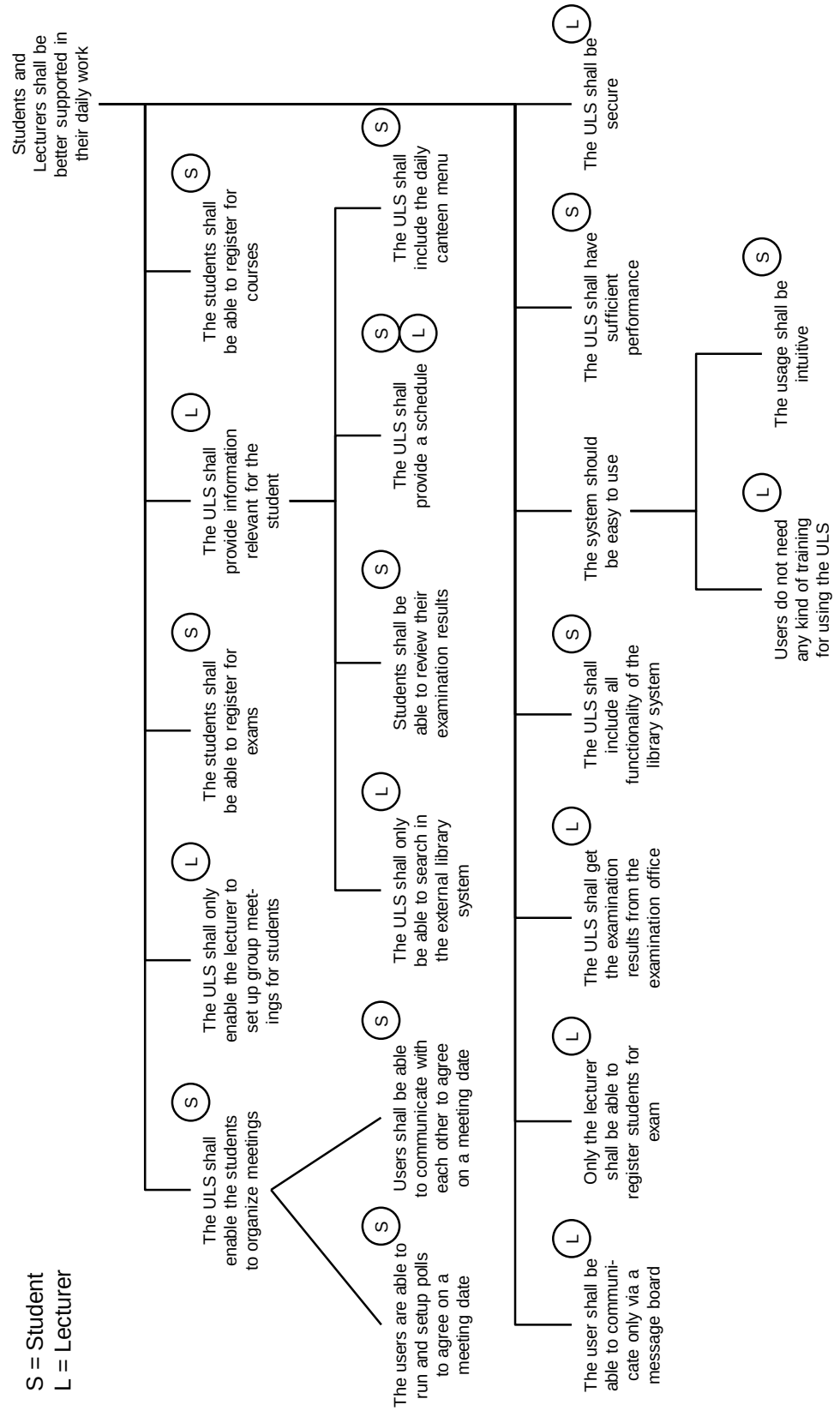
No.		Section	Content/Explanation
ID	1.2	Name	Security
Management	2.1	Authors	Jack Lee
Context	3.1	Source	Mrs. Lane
	3.2	Responsible stakeholder	~~None~~ Mrs. Lane
	3.3	Using stakeholder	~~none~~ users of the system
Goal Definition	4.2	Goal description	~~Security aspects have to be taken into consideration of the ULS.~~ (Using the active voice for documenting goals) → The ULS shall be secure.

No.		Section	Content/Explanation
ID	1.2	Name	Exam results
Management	2.1	Authors	Jack Lee
Context	3.1	Source	Mrs. Lane
	3.2	Responsible stakeholder	~~Administration office staff~~ Mrs. Lane
	3.3	Using stakeholder	Students of in the system
Goal Definition	4.2	Goal description	~~The lecturer assigned grades and is submitting the examination results to the examination office. The examination office transfers the information into their system. The new ULS shall ask the examination office system for the examination results to provide them for the students.~~ (Documenting a goal concisely) → The ULS shall get the examination results from the examination office.

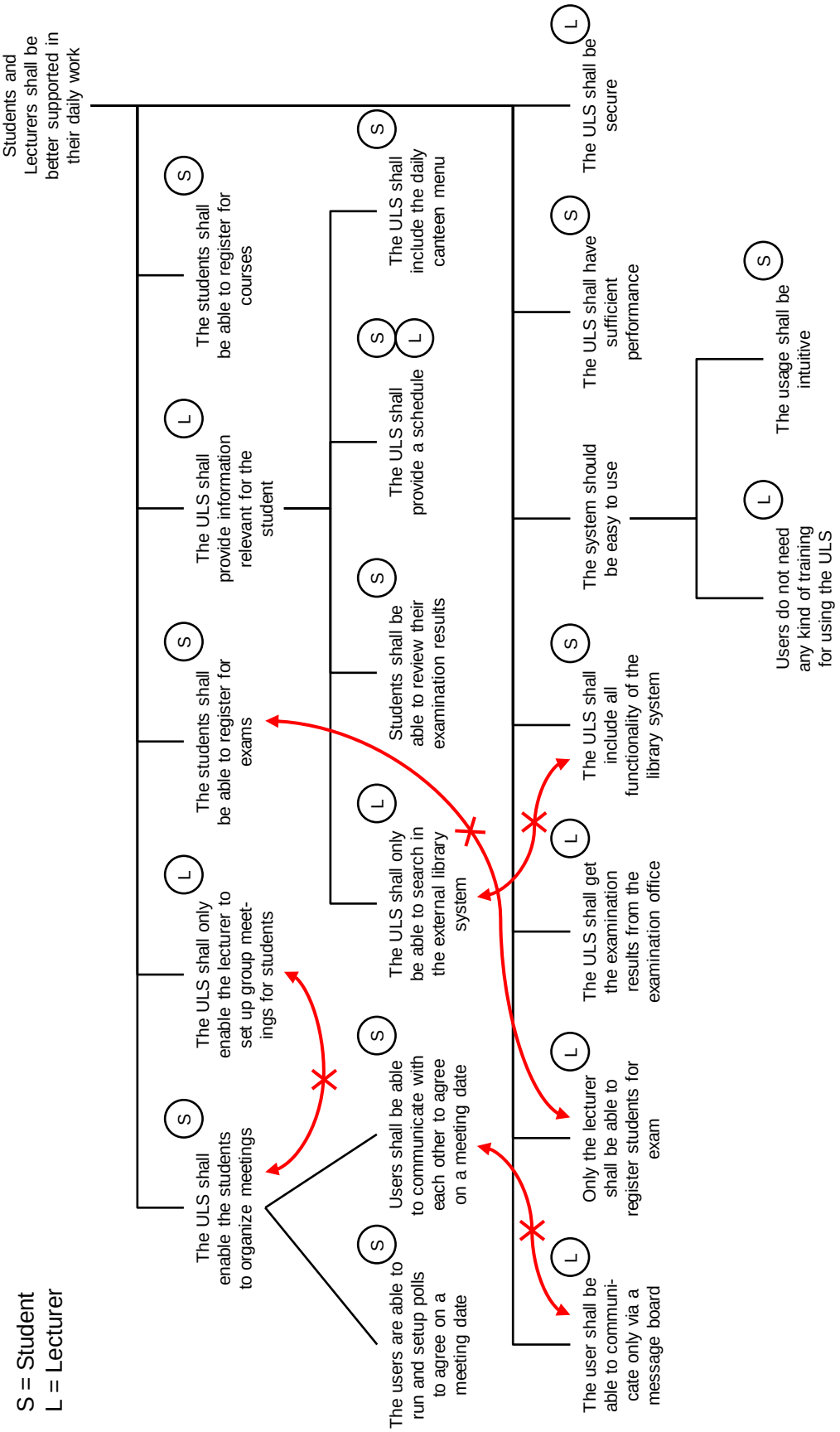
© University of Duisburg-Essen, Prof. Dr. K. Pohl, Germany For Academic Use Only.

Task 3: Consolidating Goal Models

Task 3A: Combine the previous graphs in one unified diagram. (Sample Solution)

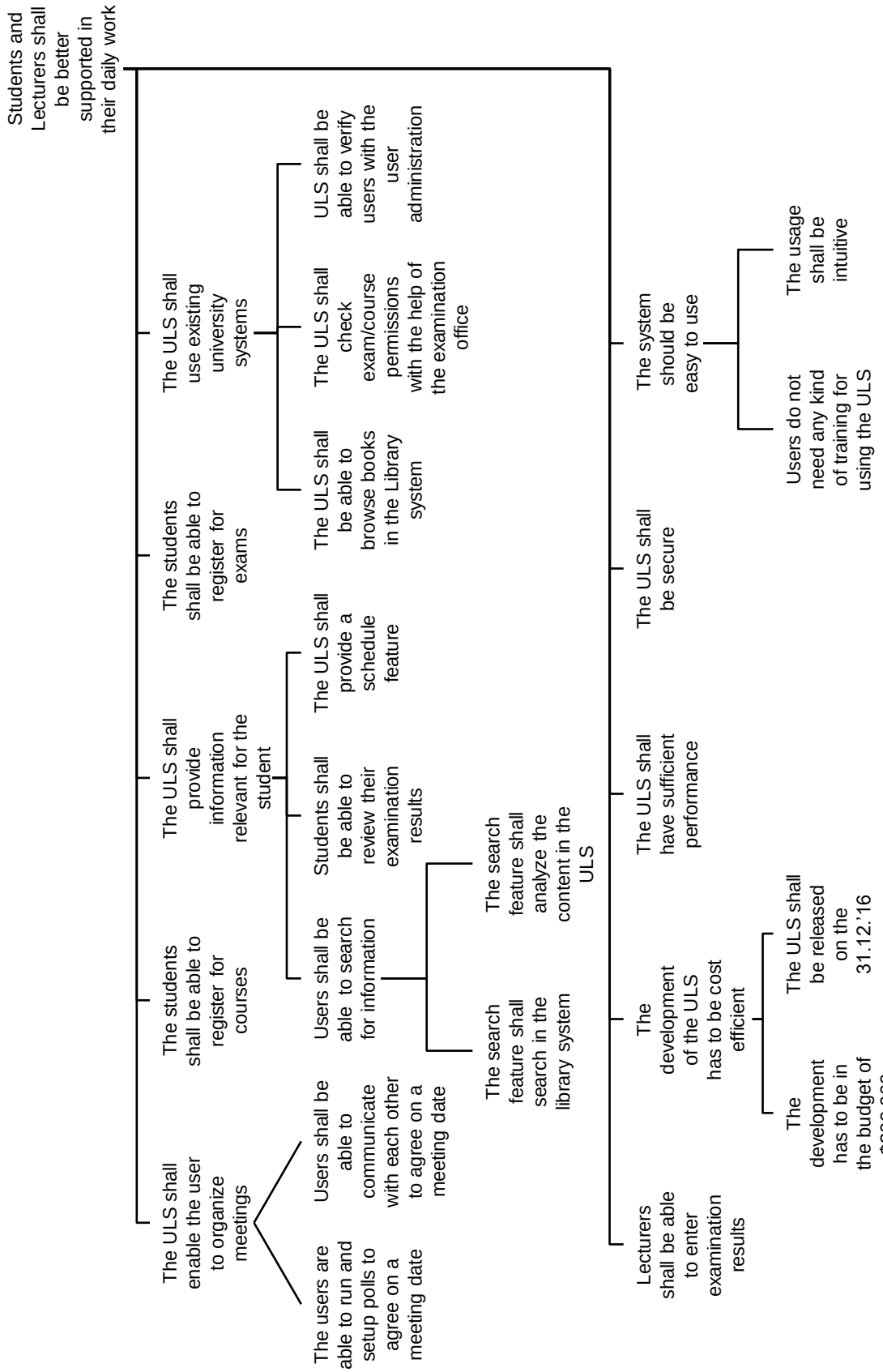
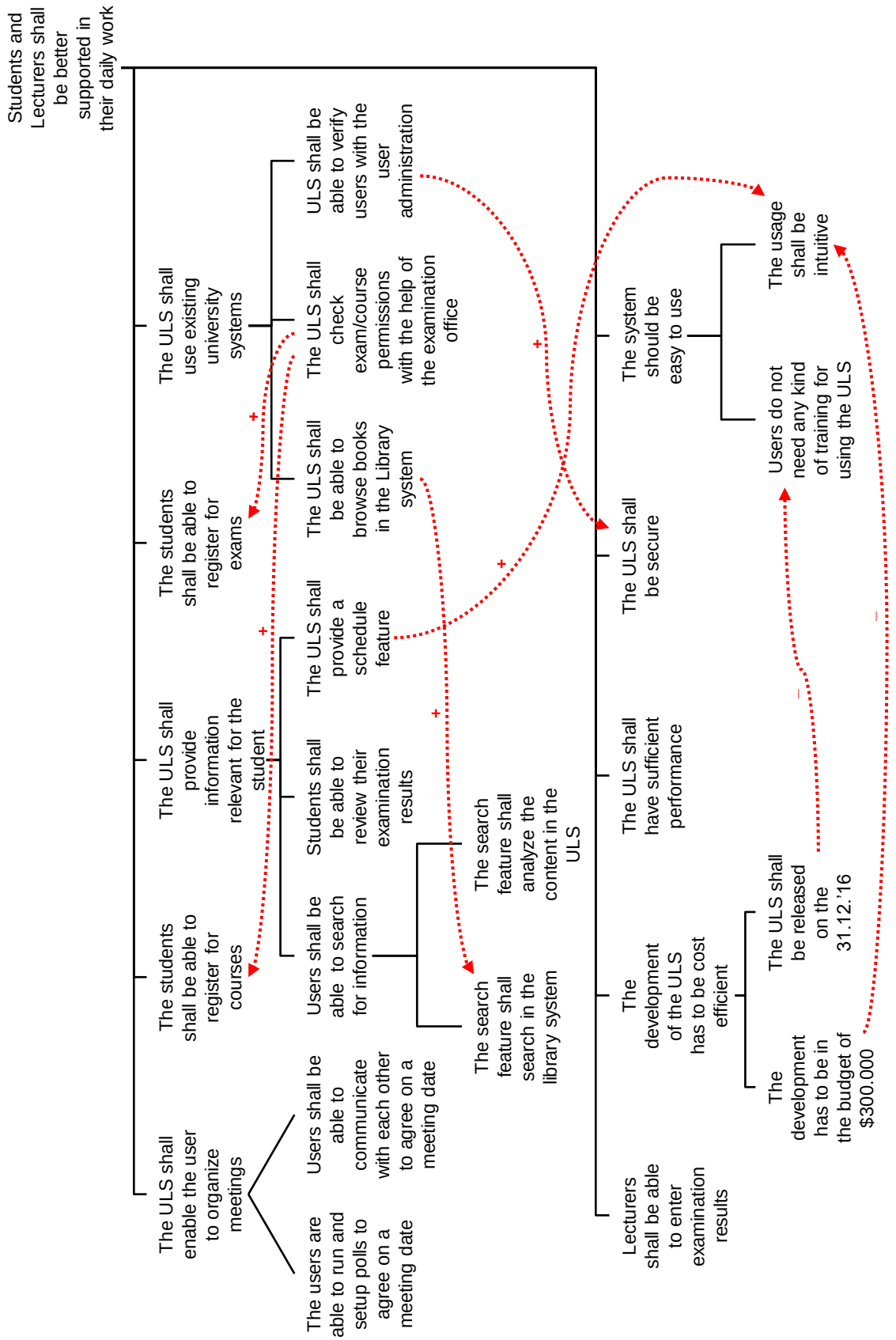


Task 3B: Expand the unified diagram with conflict dependencies. (Sample Solution)



Task 4: Integrating another stakeholder view

Task 4A: Adjust the consolidated AND/OR graph. (Sample Solution)



Task 4B: Expand the AND/OR graph with various kinds of dependencies. (Sample Solution)