



# A Tutorial for Requirement Modeling with i\* Framework

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# Agenda

- Why Conceptual Modeling?
- Fundamentals of  $i^*$  Modeling
- Automobile Insurance Example
- Meeting Scheduling Example
- Using  $i^*$  in Project Requirement Analysis



# Conceptual Modeling

- The requirements analysis phase that occurs during information systems development often involves use of models called conceptual models.
- These models, which are mostly graphic, are used to represent both static phenomena (e.g., things and their properties) and dynamic phenomena (e.g., events and processes) in some domain.

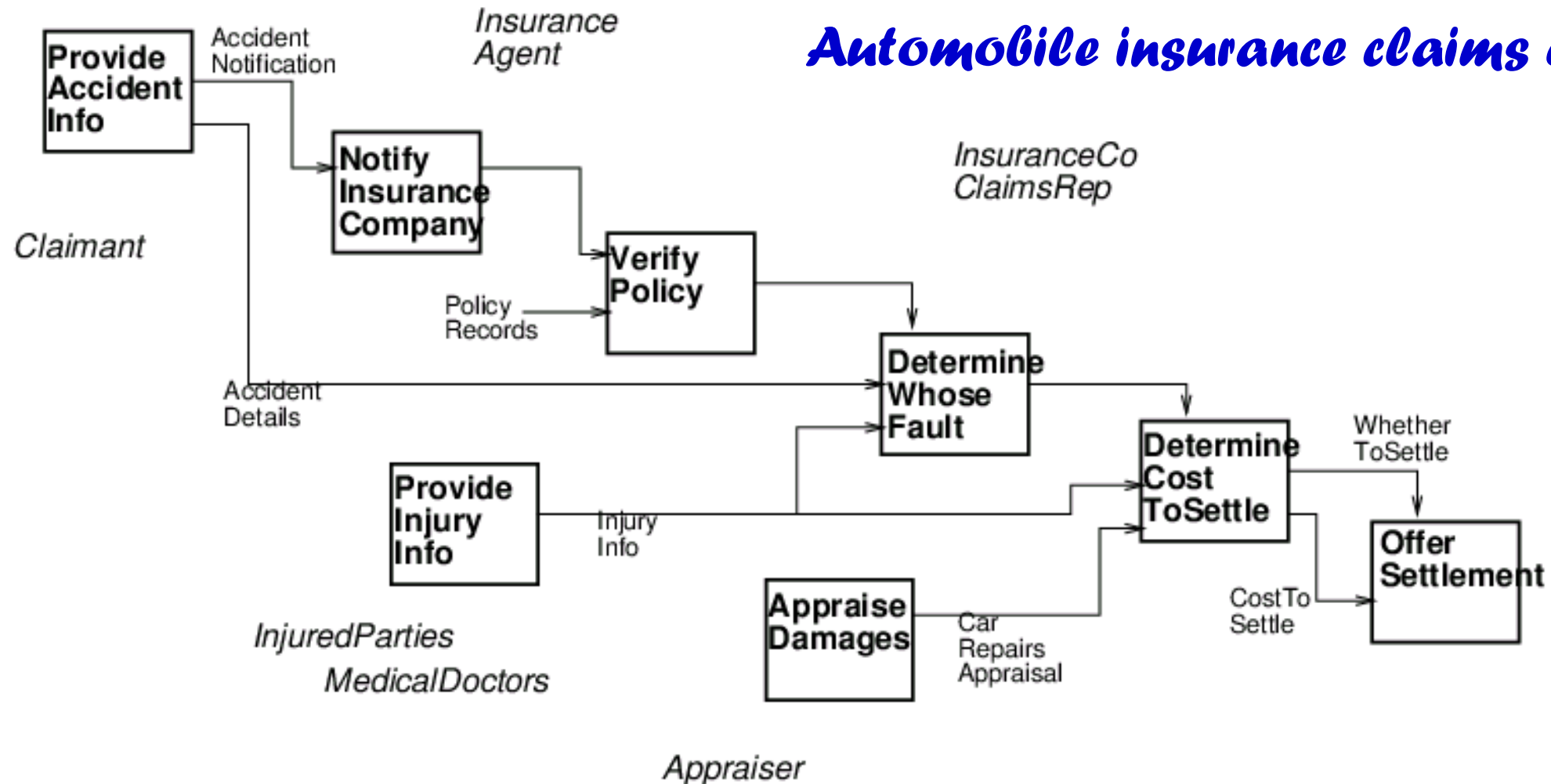


# Purposes of Conceptual Modeling

- Supporting communication between developers and users.
- Helping analysts understand a domain.
- Providing input for the design process.
- Documenting the original requirements for future reference.

# A Typical Process Model

## *Automobile insurance claims example*





# A Deep Understanding about Processes

- Car owner wants car to be repaired
- Insurance company wants to minimize claims payout
- Car owner needs fair appraisal of repairs
- Insurance agent wants to maintain good customer relations

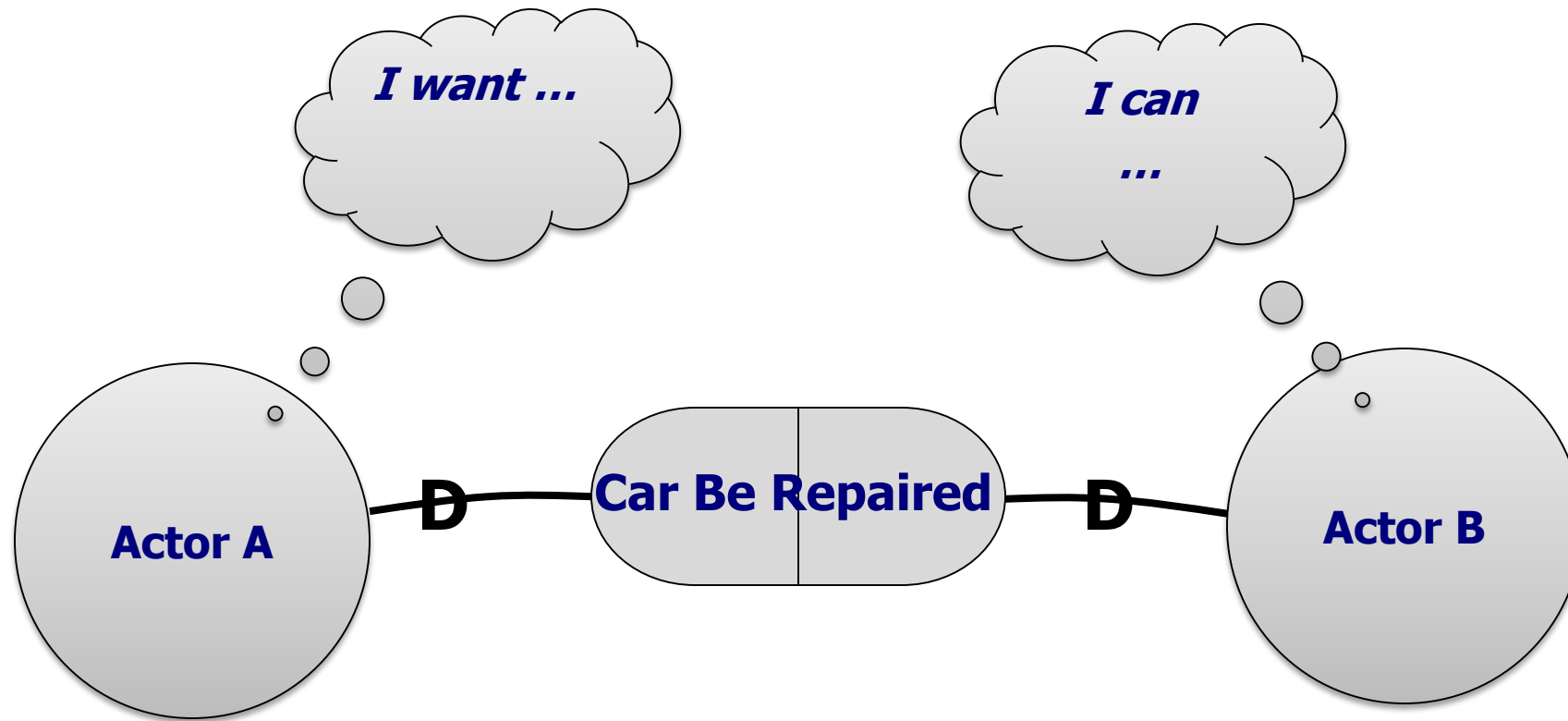
# Modelling Strategic Actor Relationships and Rationales

- the *i\** modelling framework

## ■ Strategic Actors

- have goals, beliefs, abilities, commitments
- depend on each other for goals to be achieved, tasks to be performed, resources to be furnished
- are semi-autonomous -- not fully knowable / controllable

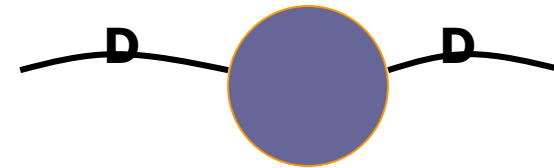
# Strategic Dependency Relationship



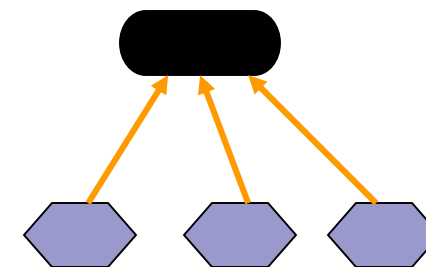


# *i*\* objectives, premises, key concepts

- Actors are semi-autonomous, partially knowable
- Strategic actors, intentional dependencies
- Have choice, reasons about alternate means to ends



wants and  
abilities



means-ends  
alternatives

# i\* Notation Overview

- Graphic notation of i\* syntax

- Please visit

- <http://istar.rwth-aachen.de/tiki-index.php?page=Summary+of+i%2A+Notation&structure=i%2A+Guide>

- And understand the meanings of the graphical notations.

- Modeling language (graphic notation) is a tool, and it works for your project requirement analysis.

- You don't need to use all the notations in your requirement analysis.

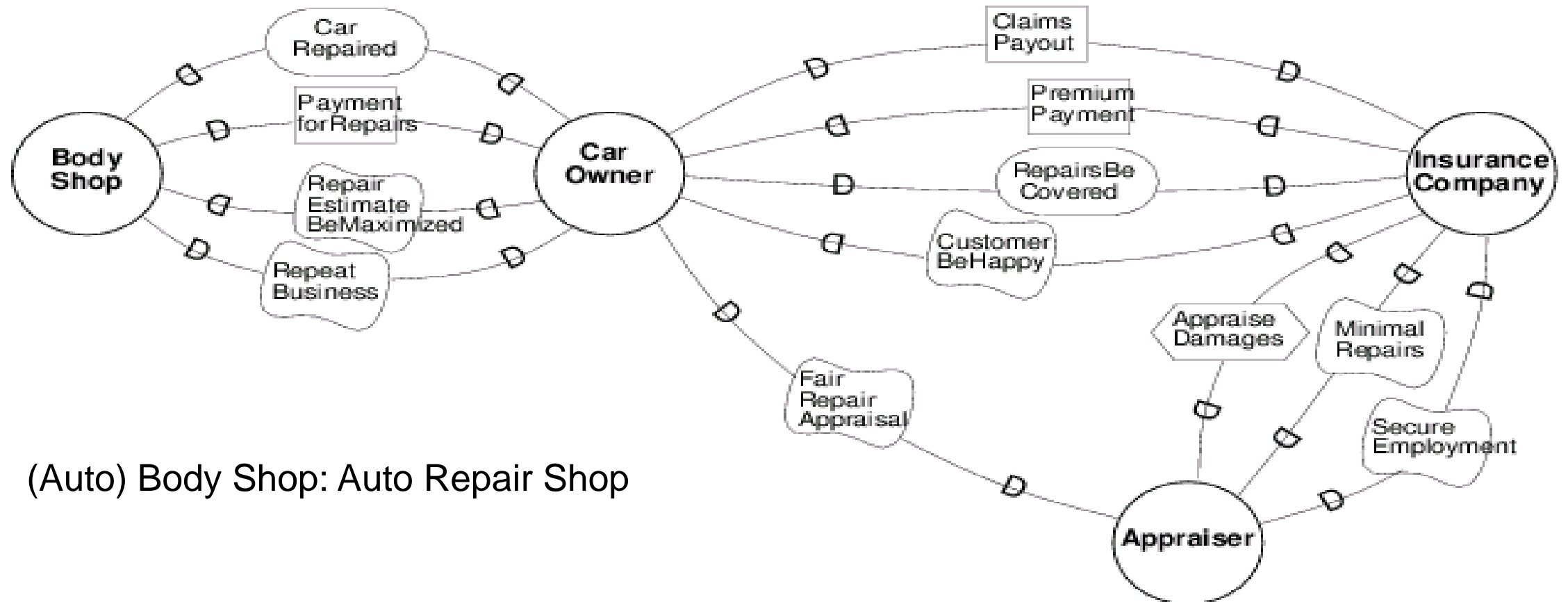
- You can invent your notations if necessary.



# **AUTOMOBILE INSURANCE EXAMPLE**

# The Strategic Dependency Model

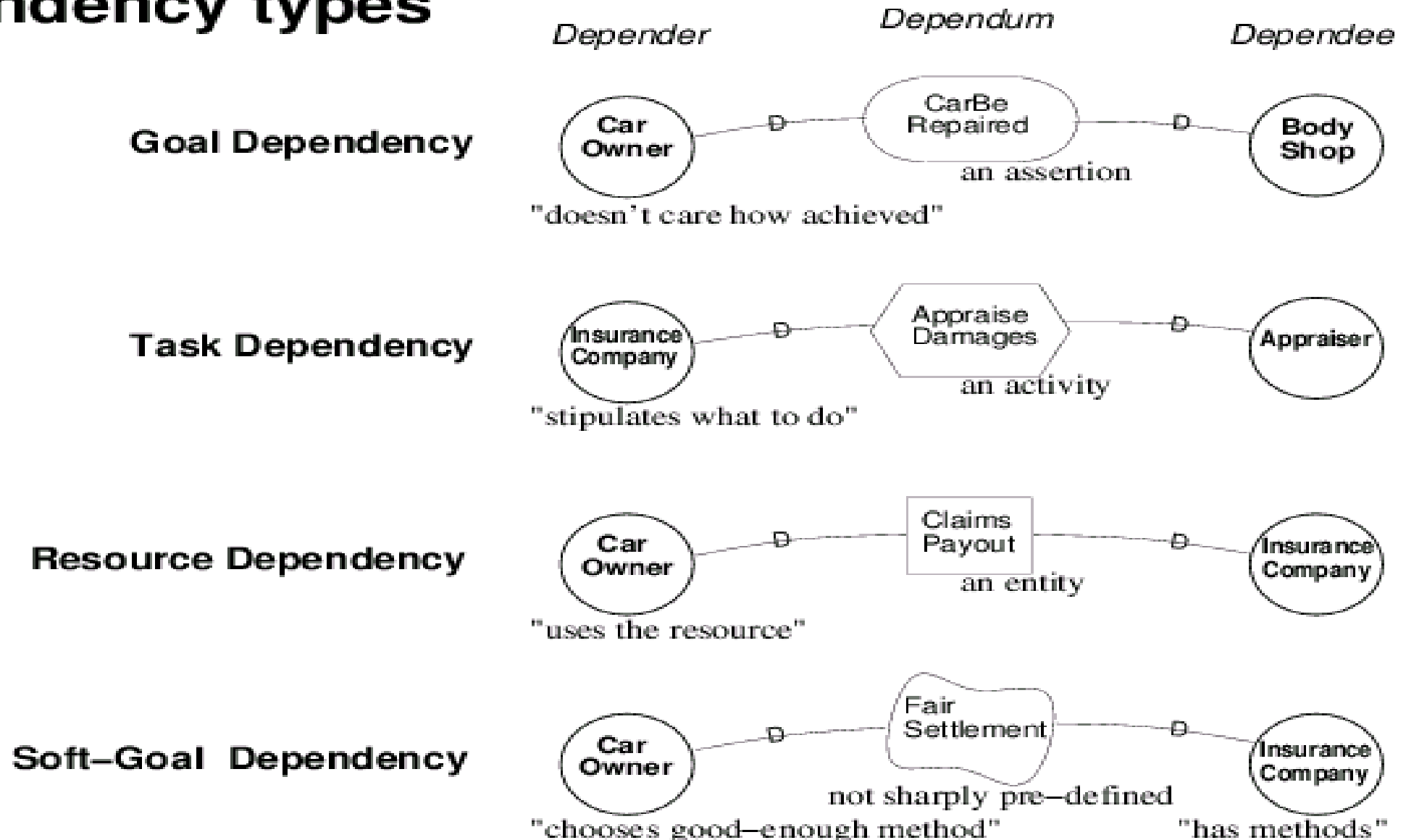
*automobile insurance – example 1*



(Auto) Body Shop: Auto Repair Shop

# Strategic Dependency Model

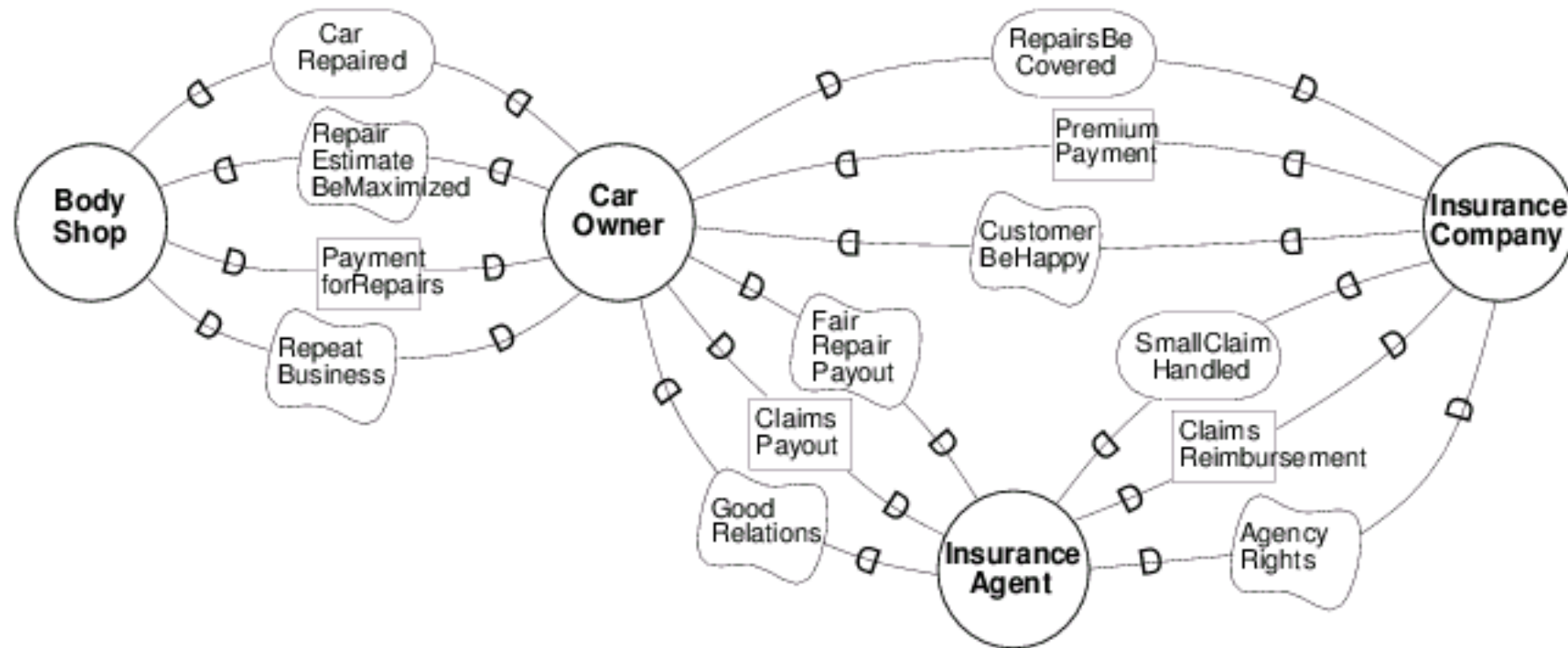
## dependency types



# The Strategic Dependency Model

*auto insurance – example 2*

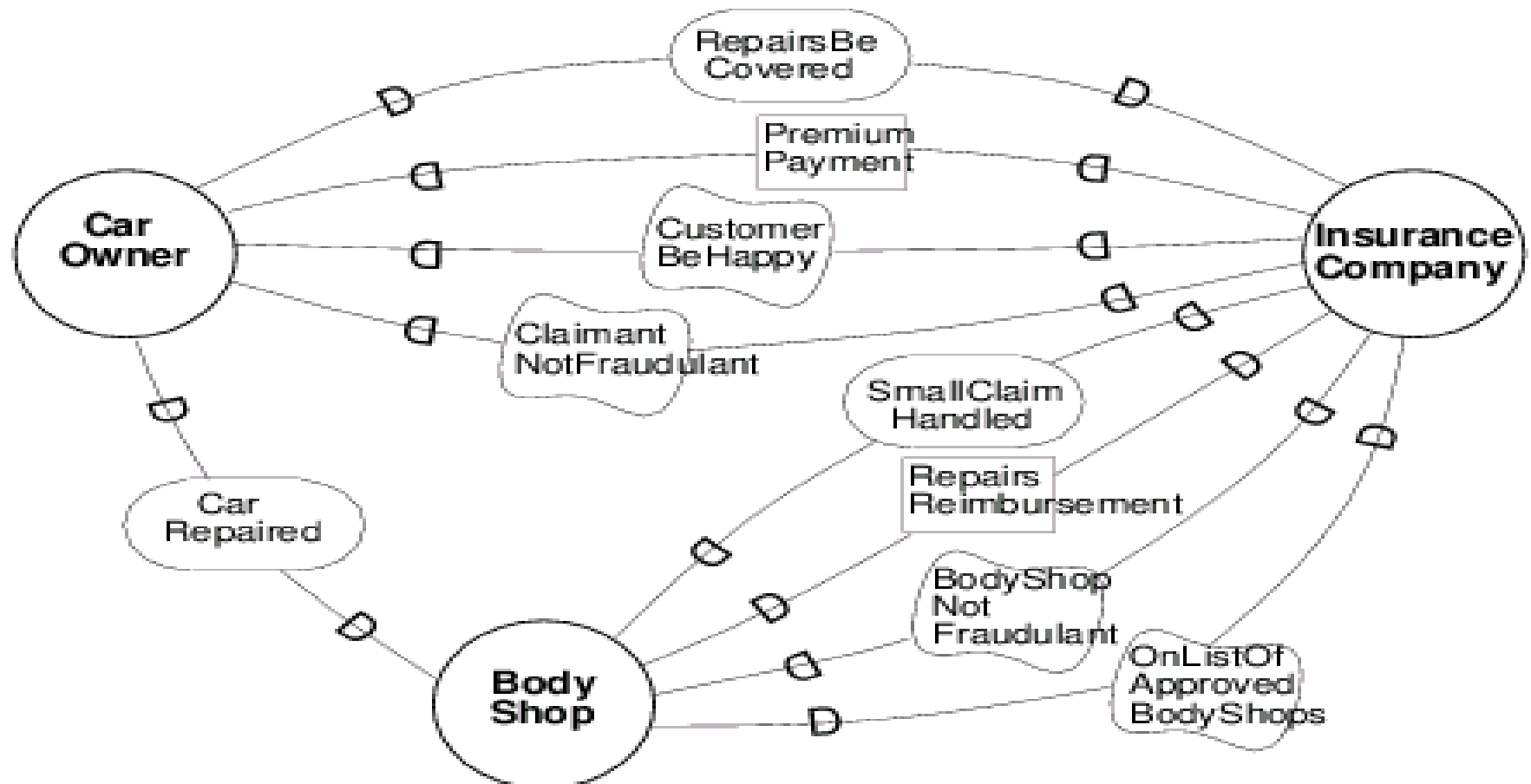
*“Let the Insurance Agent handle it.”*



*examples taken from: Hammer & Champy 1993 –  
Reengineering the Corporation, pp. 137–143.*

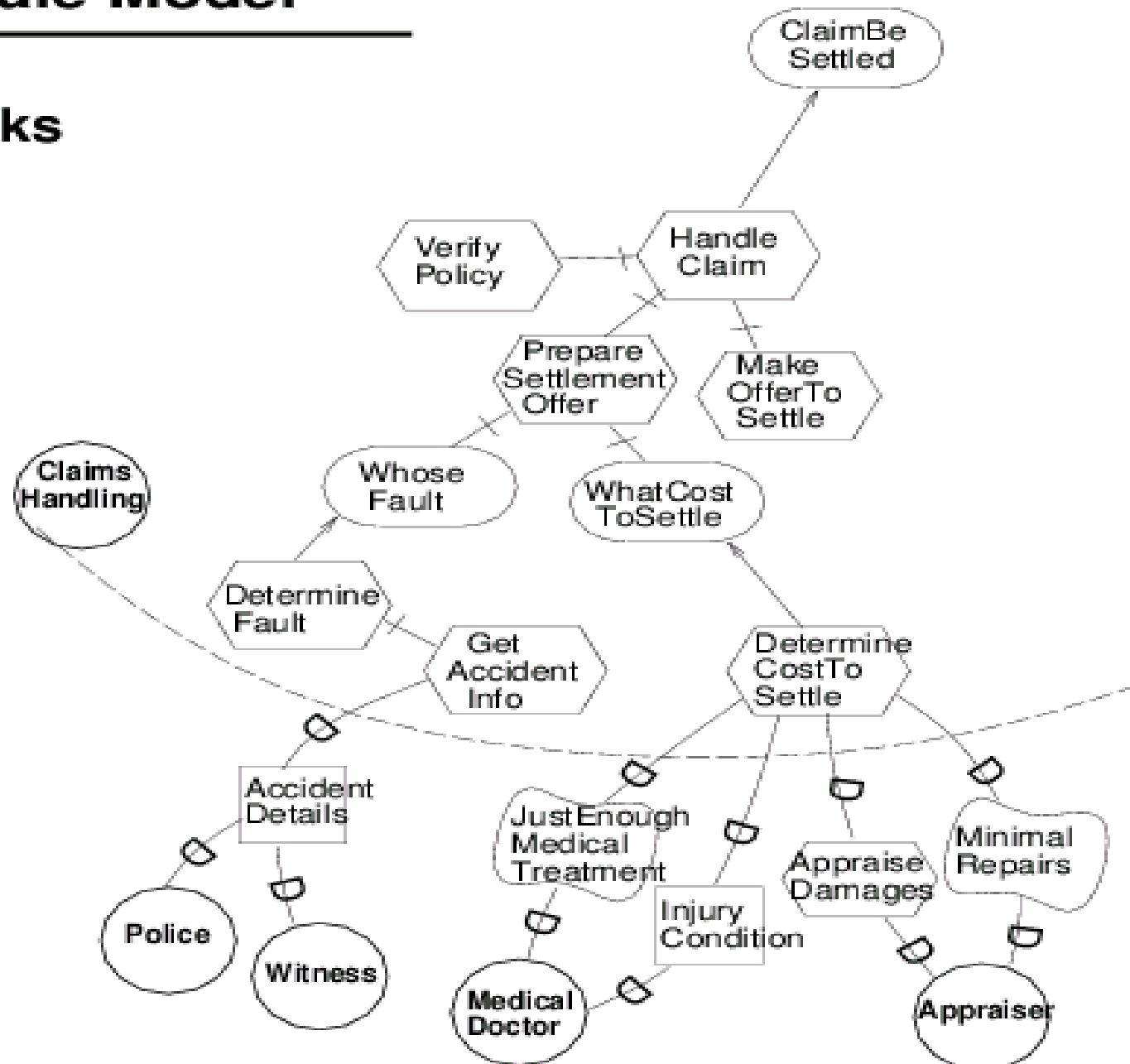
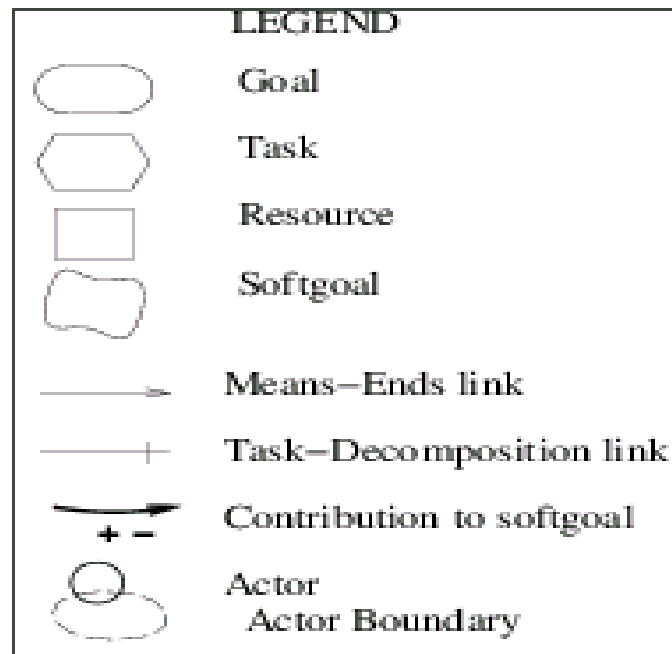
# The Strategic Dependency Model

*auto insurance – example 3*  
*“Let the Body Shop handle it.”*



# The Strategic Rationale Model

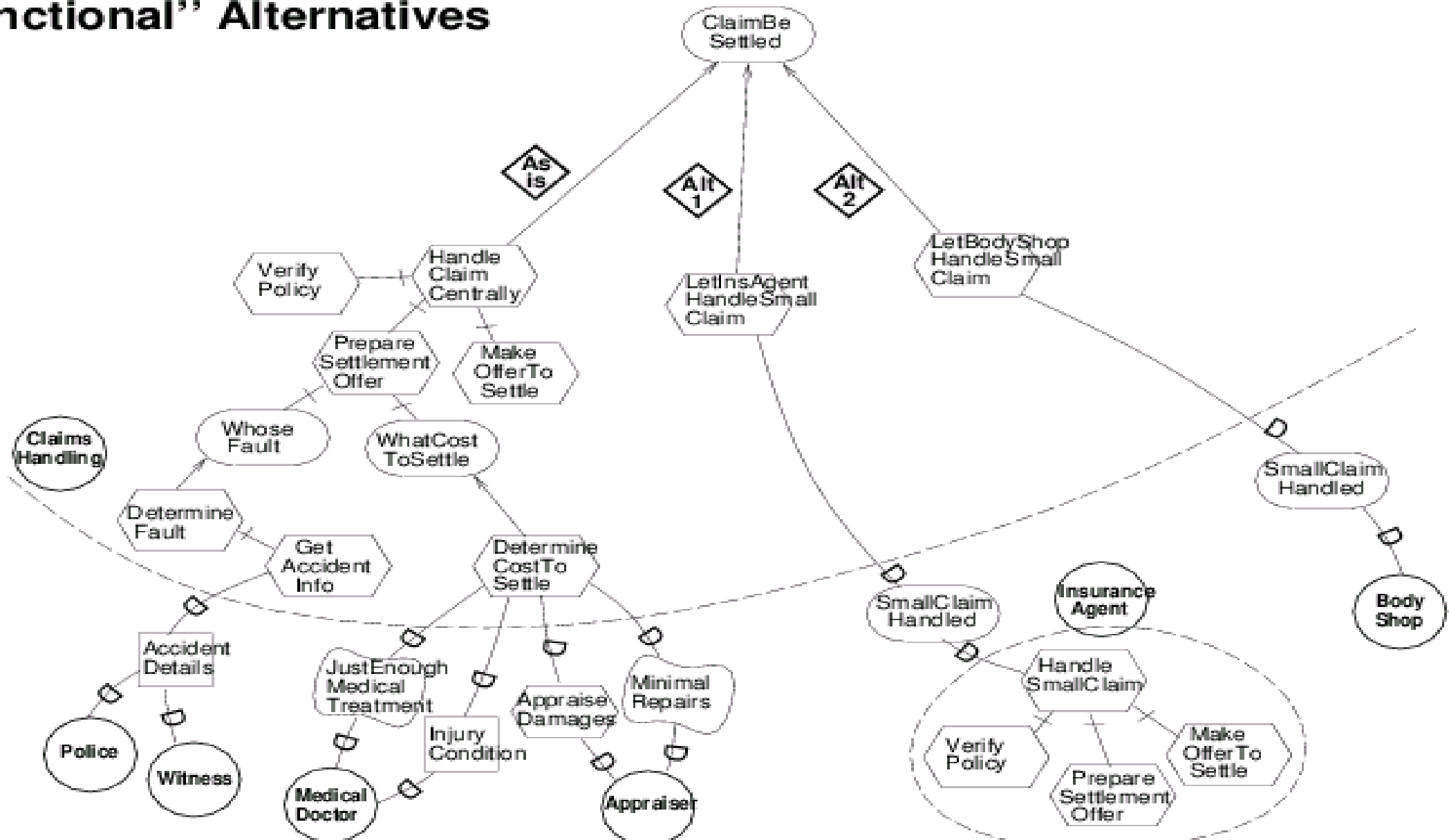
means–ends links and  
task decomposition links





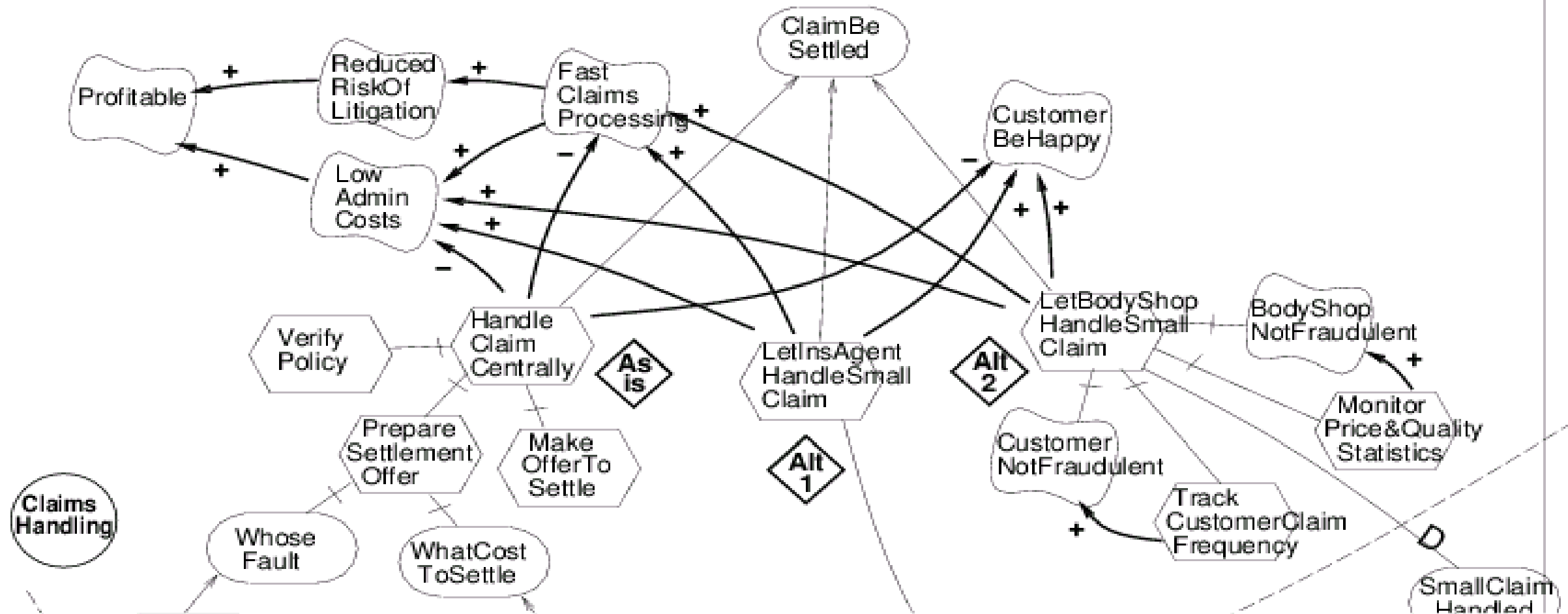
# The Strategic Rationale Model

## “Functional” Alternatives



# The Strategic Rationale Model

## “Non-Functional” Rationales

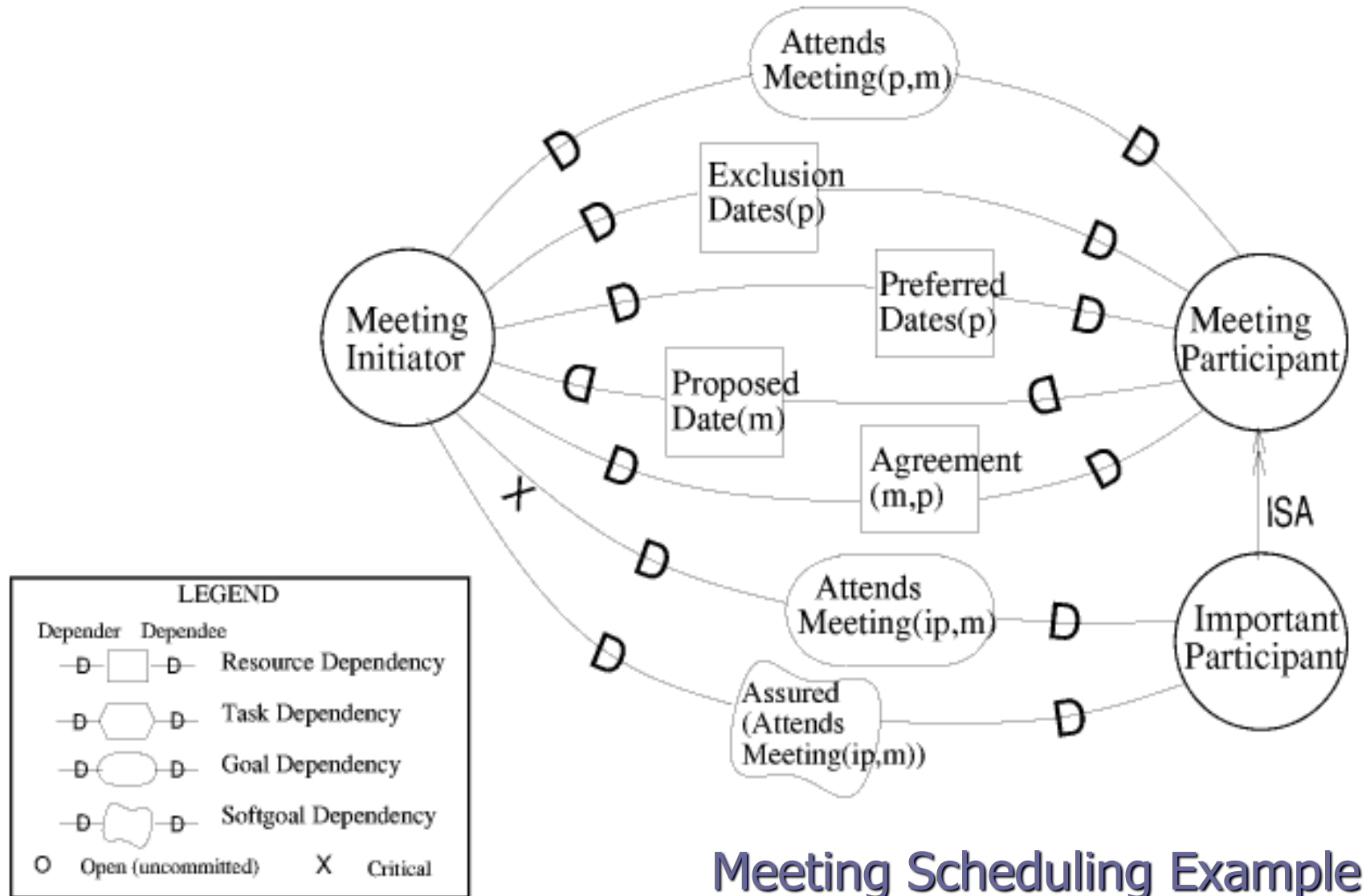




# **MEETING SCHEDULING EXAMPLE**

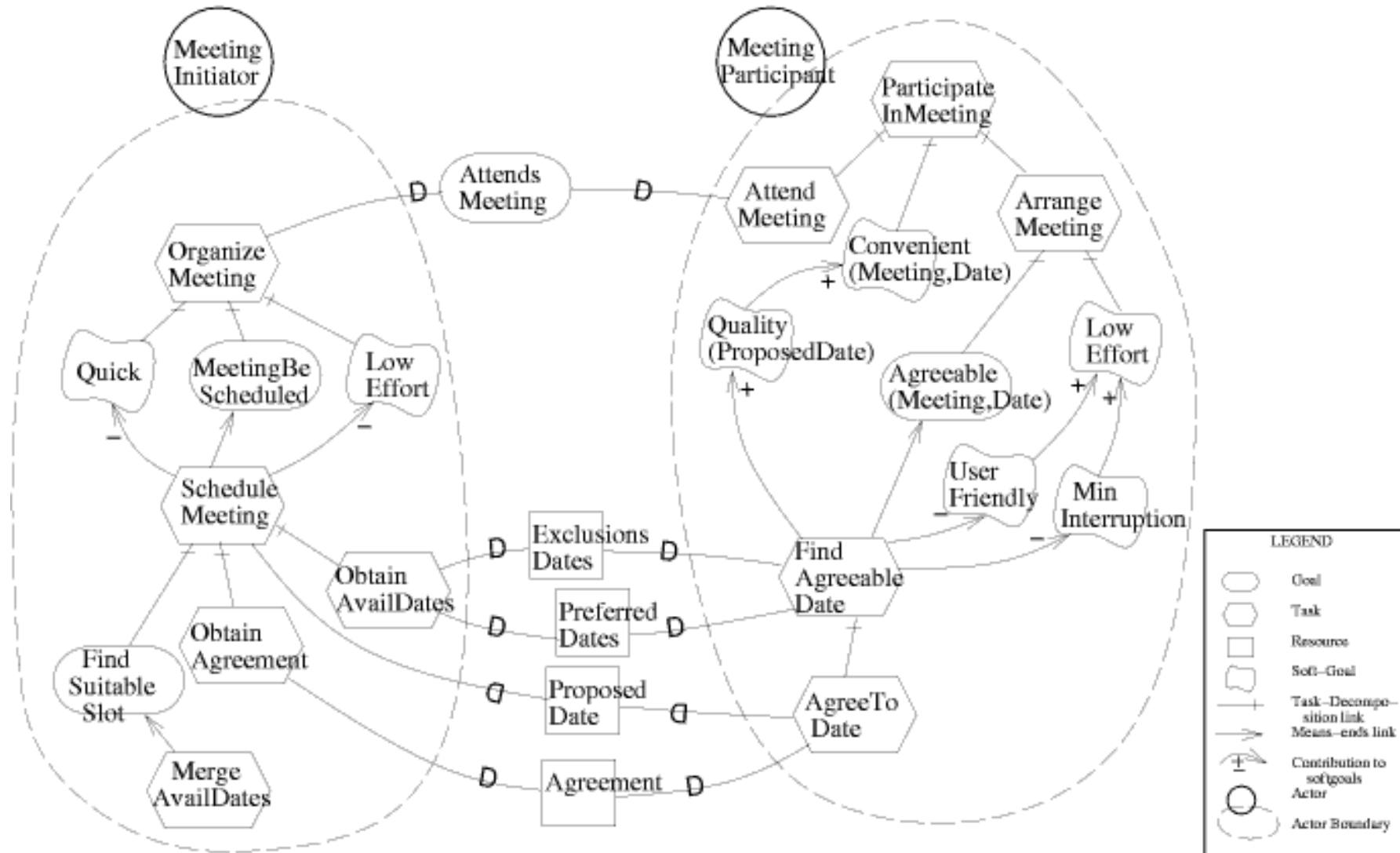
# “Strategic Dependency” Model

[Yu RE97]

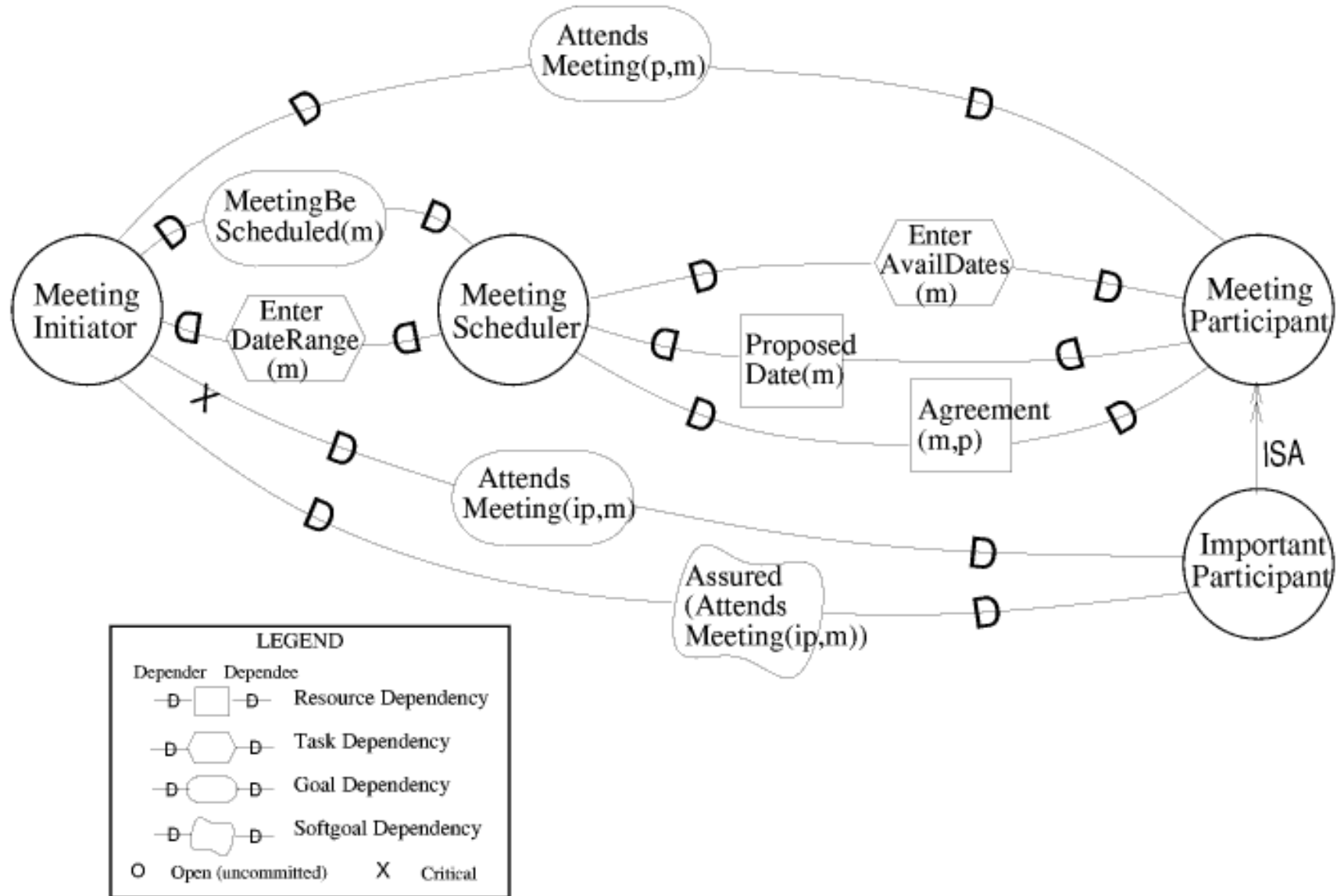


# Revealing goals, finding alternatives

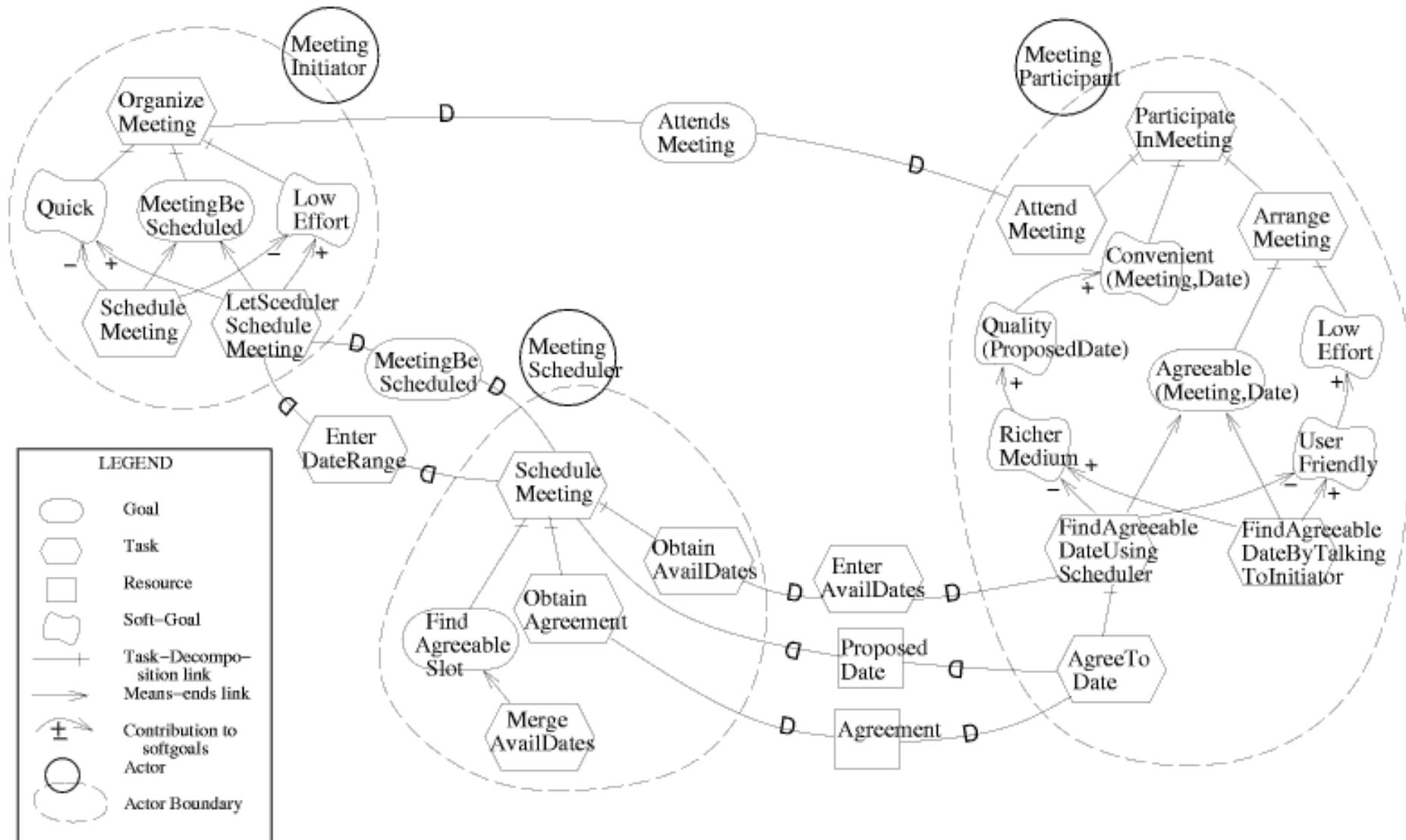
- Ask “Why”, “How”, “How else”



# Scheduling meeting



# “Strategic Rationale” Model with Meeting Scheduler





# Using $i^*$ in Project Requirement Analysis

In the section of requirement analysis in your project report, you may:

- Use  $i^*$  to show your requirement analysis process
- Summarize the system specification based on  $i^*$  modeling



# References

- Special thanks to Prof. Eric Yu at the University of Toronto, some content of the slides are adapted from his published papers and website.  
<http://www.cs.toronto.edu/~eric/>
- i\* Wiki <http://istar.rwth-aachen.de/>
- Wand, Yair, and Ron Weber. "Research commentary: information systems and conceptual modeling—a research agenda." *Information Systems Research* 13.4 (2002): 363-376.