

Misuse Cases: Use Cases with Hostile Intent

I. Alexander, "Misuse cases: use cases with hostile intent", *IEEE Software* 20(1), 58-66, Jan/Feb 2003.

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Use Cases

- Based on Scenarios
 - Happy Day for Users
 - Positive Side
 - Functional Requirements (FR)
 - What a system can do

 - Problems, so need Misuse Cases?
 - Exceptions Ignored
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Misuse Cases

**“It isn't that they can't see the solution.
It is that they can't see the problem.”**

G.K.Chesterton

- Misuse cases
 - Negative Scenarios
 - Hostile Agents
 - Nonfunctional Requirements (NFR)
 - Security Requirements
 - Safety Requirements
 - Quality Requirements
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Type of Applications

- Eliciting Requirements
 - Wide Range of Hostile Agents
 - Identifying Exceptions
 - Scenario-directed Search
 - Generating Test Cases
 - Trading off Conflicts
 - which functions to choose if they conflict
 - E.g. in a catalog browsing system, “control loosely” vs. “control strictly”
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Appreciative Comment #1

- From Use Case to Misuse/Use Cases
 - Open a new avenue of exploration
 - Good Supplement of Use Cases
 - Great Enhancement of the power of Use Cases
 - More kinds of applications
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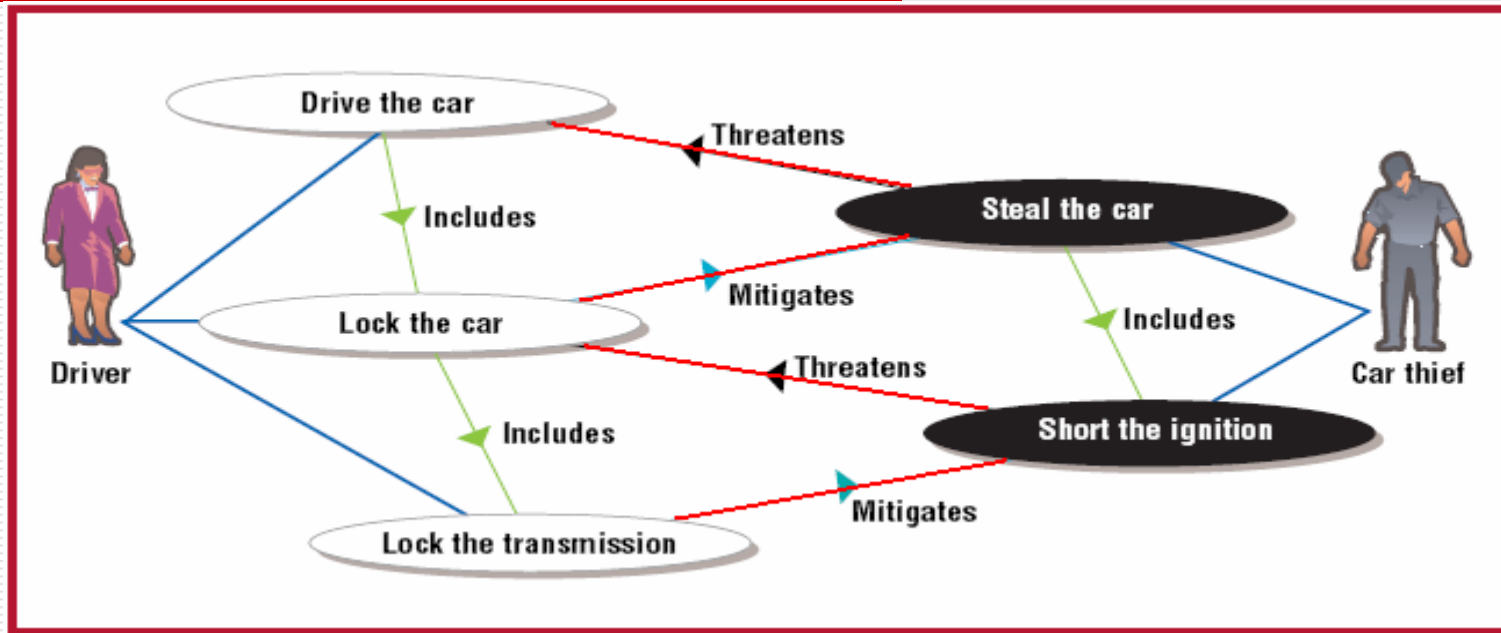
Appreciative Comment #2

- Making elicitation into a game leads to an enjoyable search

 - "A team's best strategy consists of thinking ahead to the other team's best move and acting to block it".

 - In fact, it is not a real game.
 - The white team always wins.
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Car Example



Stick Man → Agent

White → Use Cases, Black → Misuse Cases

Black "Threatens" White

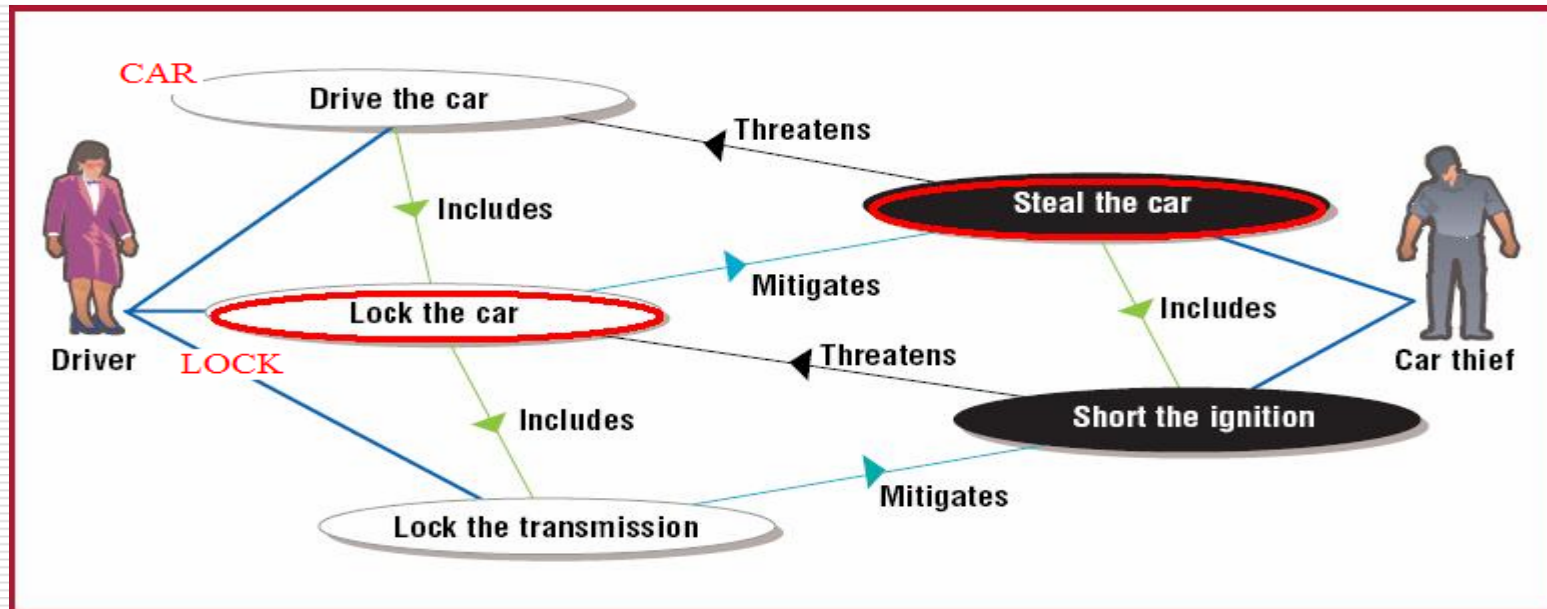
White "Mitigates" (Fights Against) Black

Appreciative Comment #3

- This metaphor has several advantages compared with textual form applied in Use Cases
 - More Visual
 - Easier to understand
 - More Clear Relationships
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Appreciative Comment #4

- Giving a new point when estimating Misuse Cases
 - Traditional Opinion: Misuse Cases → NFR (Use Cases → FR)
 - Author: Misuse Cases → FR & NFR



Appreciative Comment #4

- “both use and misuse cases can help to elicit FR and NFR.....”
- More complete and unbiased Opinion

Applicability of use and misuse cases for eliciting different types of requirements

Elicitation through	Use case	Misuse case
Functional requirement	Important mechanism	Useful, but indirect
Nonfunctional requirement	Possible	Important mechanism

Critical Comment #1

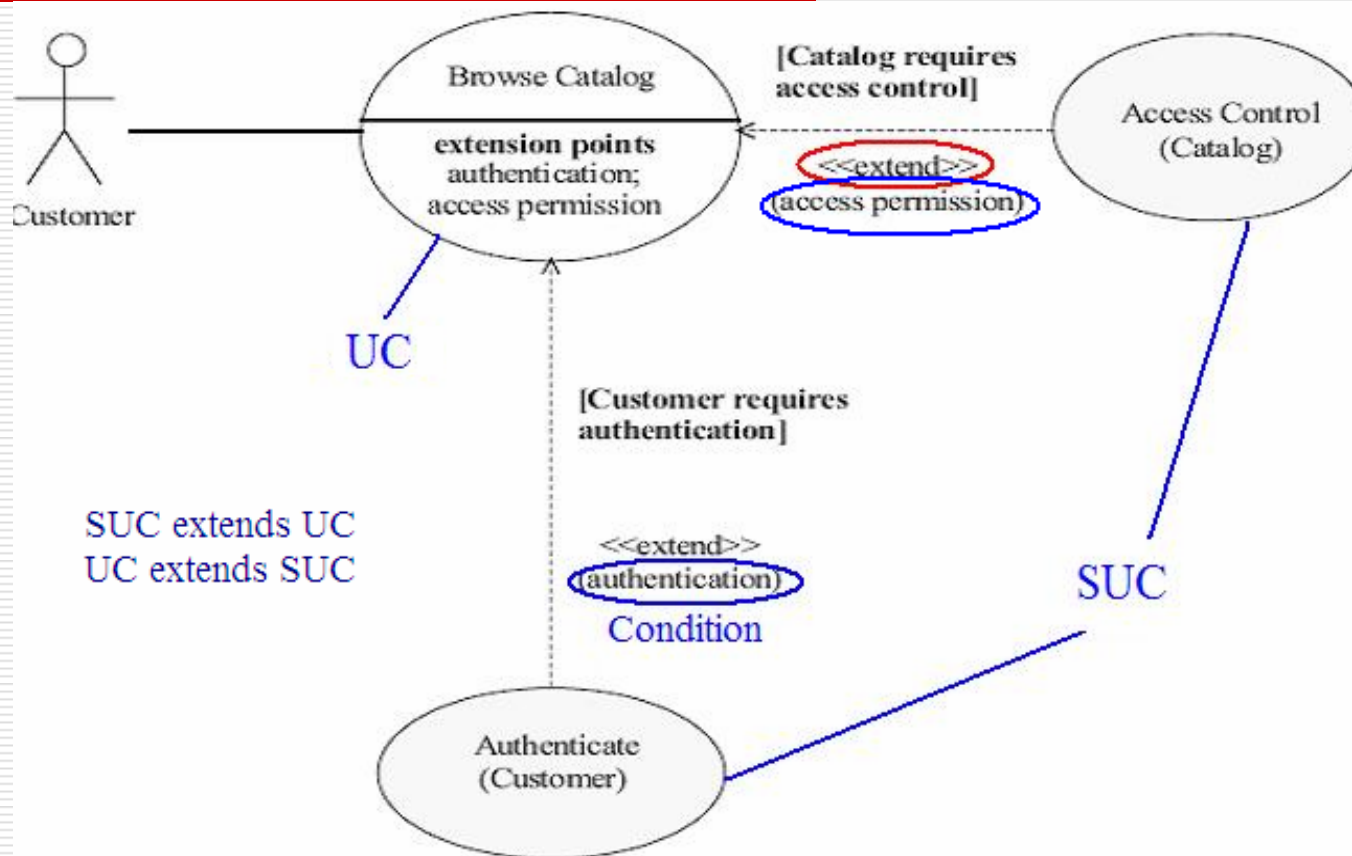
- Structure not so reasonable
 - Too much content (mainly) about applications
 - Too brief introduction of the other aspects of MUC
 - how to get started with Misuse Cases
 - Trade-off Conflicts
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Critical Comment #2

- Though claiming that Use Cases can help to elicit NFR, no evidence supports this.
- In other papers, another kind of UC called *Security Use Cases* (SUC) may be helpful.

Elicitation Through	Use Cases (UC)	Misuse Cases (MUC)	Security Use Cases (SUC)
Functional Requirement (FR)	Important Mechanism	Useful, but indirect	Impossible
Nonfunctional Requirement (NFR)	Possible	Important Mechanism	Specially for Security Requirements

Example for SUC



Browse Catalog with security use case in E-Commerce System

Question

- What are the differences between Security Use Cases and Misuse Cases when used to elicit security requirements?
 - Can you apply Misuse Cases to the "Browse Catalog" example?
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Answer

	Misuse Cases	Security Use Cases
Usage	Analyze and Specify Security Threats	Analyze and Specify Security Requirements
Used By	Security Team	Requirements Team
Agent	Hostile Agents (e.g. Misusers)	Users

Reference

- I. Alexander, "Misuse cases: use cases with hostile intent", *IEEE Software* 20(1), 58-66, Jan/Feb 2003.
 - Ian Alexander, "Requirements Engineering with Use & Misuse Cases", <http://www.scenarioplus.org.uk>.
 - Goma, H., Eonsuk Shin, M., "Modelling complex systems by separating application and security concerns", *Engineering Complex Computer Systems, 2004. Proceedings. Ninth IEEE International Conference*, 19 – 28, 14-16 April 2004.
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