

REQUIREMENTS, INTENTIONS, GOALS AND APPLICABLE NORMS

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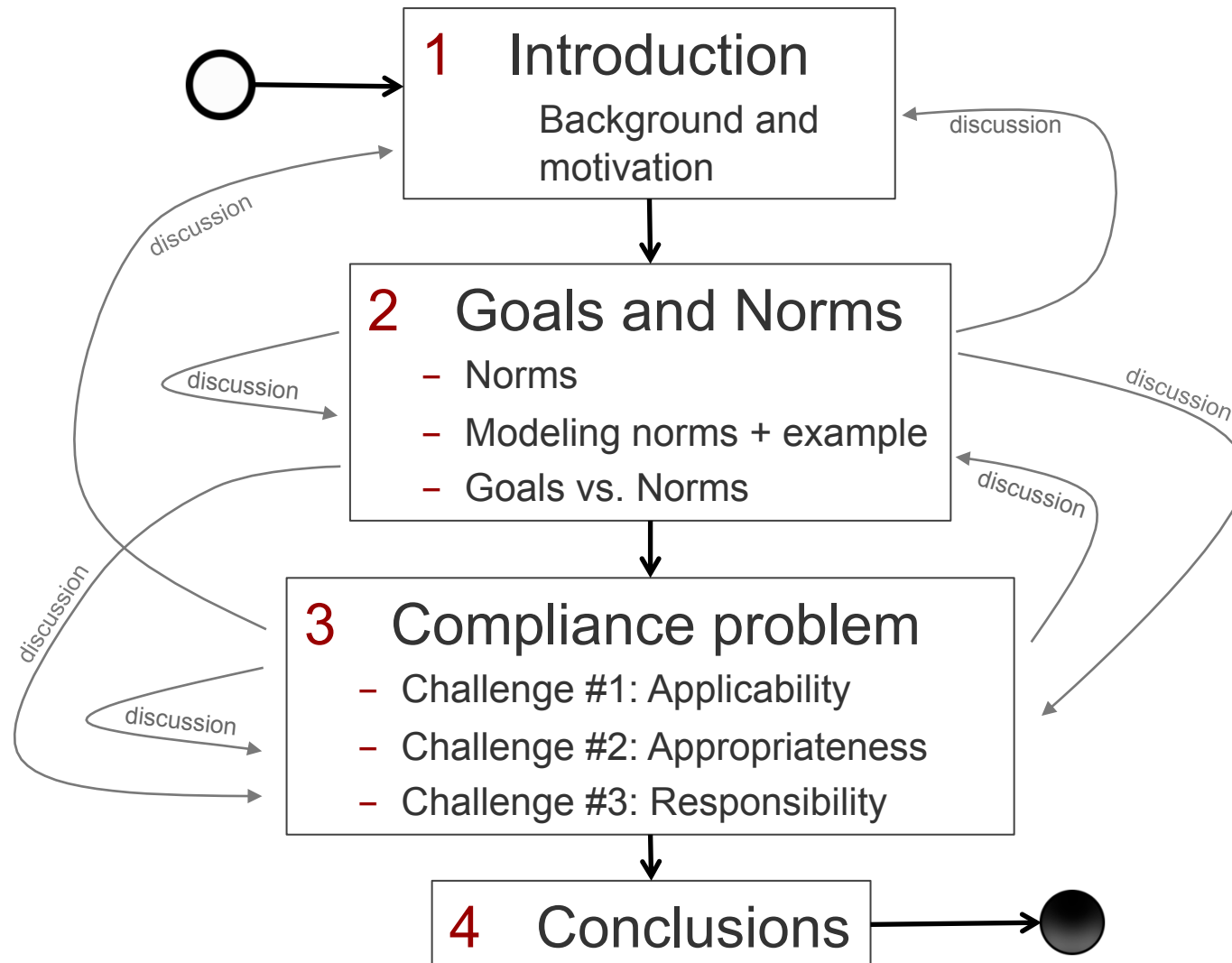
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Outline

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Introduction

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BACKGROUND

Requirement elicitation
problem: $D, S \models R$

[1]

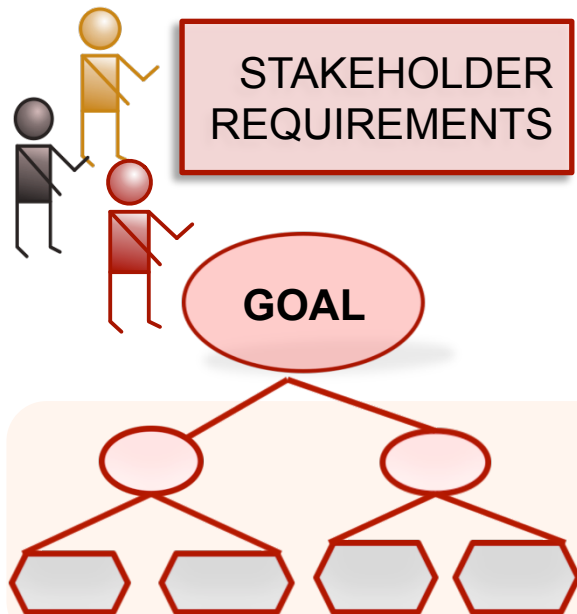
Domain knowledge and Specification must be *sufficient* for the satisfaction of Requirements

■ How to derive S from D and R?

We want to **represent requirements**



Goals are primitive concepts in our modeling language



GOAL REFINEMENT: systematic way of deriving S from D and R

[1] Zave, P., Jackson, M.: Four dark corners of requirements engineering. ACM Trans. Softw. Eng. Methodol. 6(1), 1–30 (1997)

Introduction

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■ Why norms and goals?

MOTIVATIONS

- Regulatory compliance is pervasive: STS, IS, ...
- Regulatory compliance is expensive



HIPAA: \$17.6 billion

Dodd-Frank: \$8 billion (estimated)

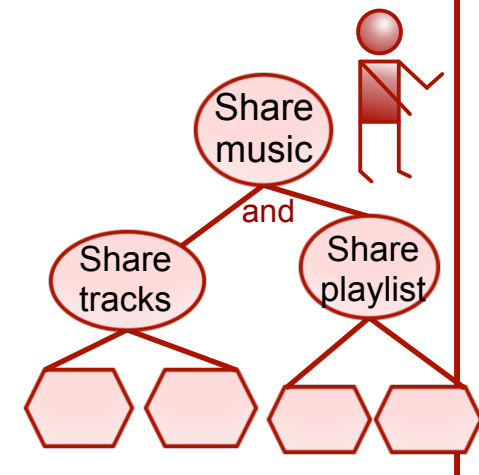
- Fines, prosecutions
- Revenue loss
- Productivity loss
- Business disruption

■ What's the problem?

RE methodologies natively

- lack normative reasoning/analysis
- have no legal concepts

Including normative directly as goal does not make sense



Goals and Norms

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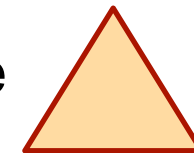


NORMS

- We need to **represent the law**

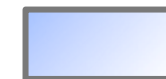


Norm is a primitive concept in our modeling language



Norm := (Type, Holder, Beneficiary, Antecedent, Consequent)		
<u>Modality</u> e.g. Right Duty	<u>Roles</u> that has to satisfy the norm the one who's interests are helped	<u>Situations</u> make the norm applicable make the norm satisfied

A **situation** is defined as the neutral concept of partial state of the world.



SITUATIONS

Goals and Norms

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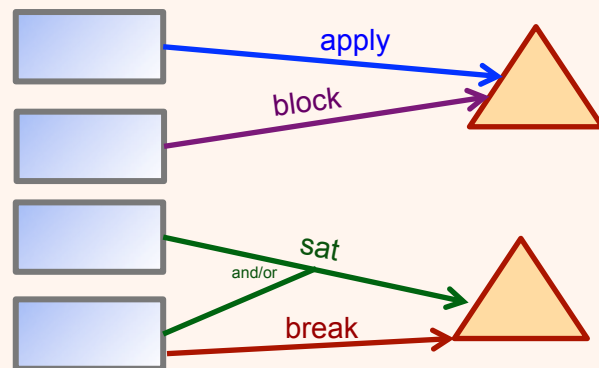


MODELING NORMS

[ER'12, Siena et al.]

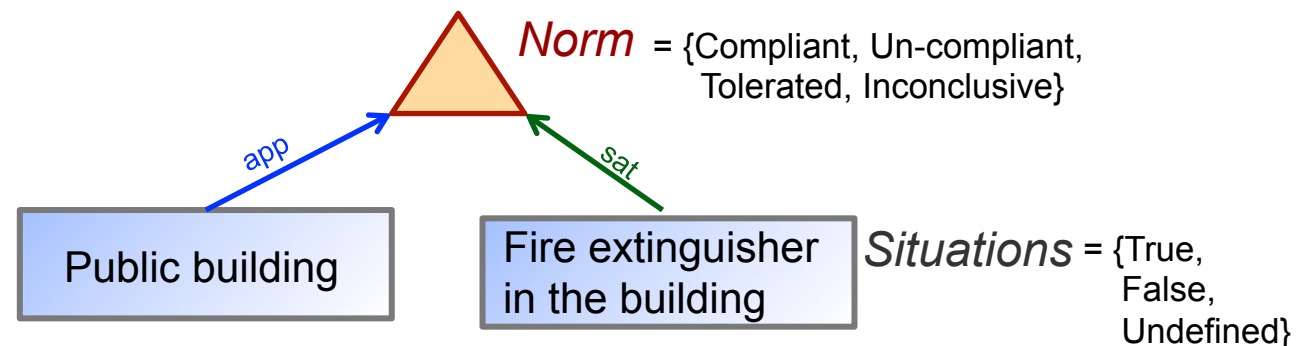
■ How to represent norms with situations?

Relations (Situation x Norms)



Situation makes applicable (or block) a norm (e.g. “every *public building* must have fire extinguisher”)

Situation satisfy (or break) a norm (e.g. “*fire extinguisher in the building*”)



Goals and Norms

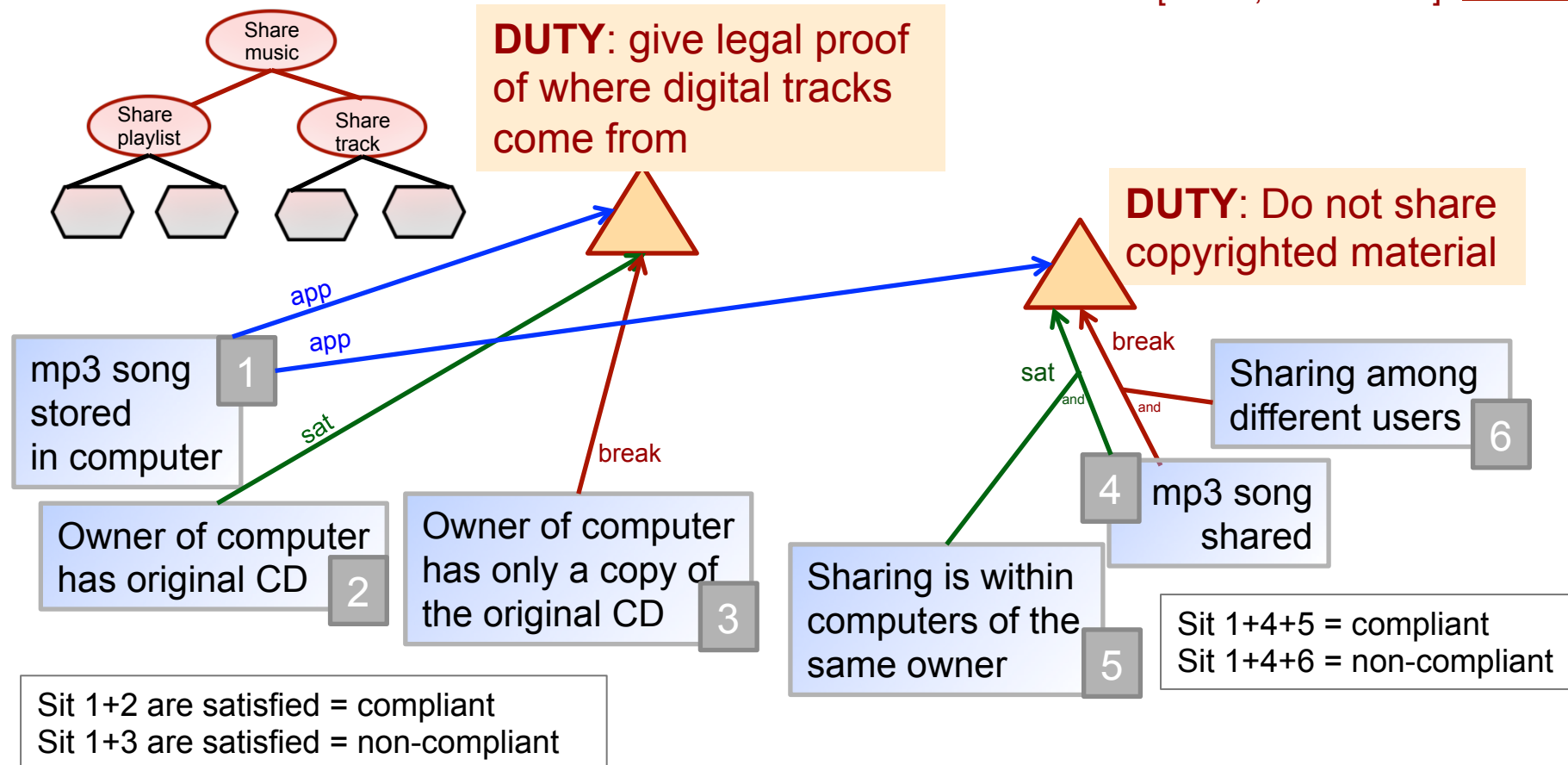
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■ Example: music sharing platform

MODELING NORMS

[ER'12, Siena et al.]

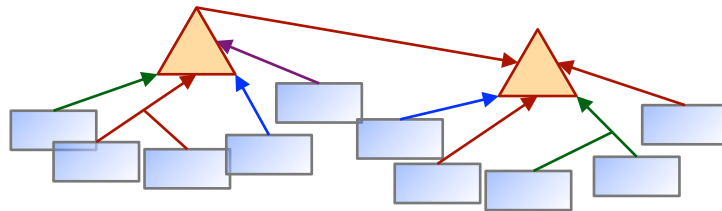


Goals and Norms

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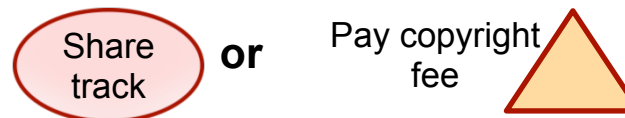


DIFFERENT VARIABILITY



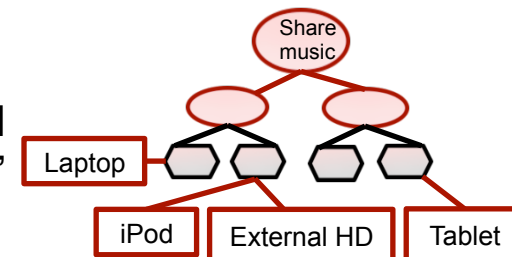
Different norms apply in different situations and the overall compliance also varies depending on situations

DIFFERENT DESIRABILITY

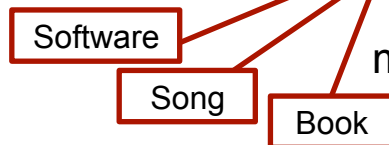


ABSTRACTION GAP

Copyright law: "... digital copy stored in an electronic device"



Copyright law: "a work is under copyright protection from the moment of creation"



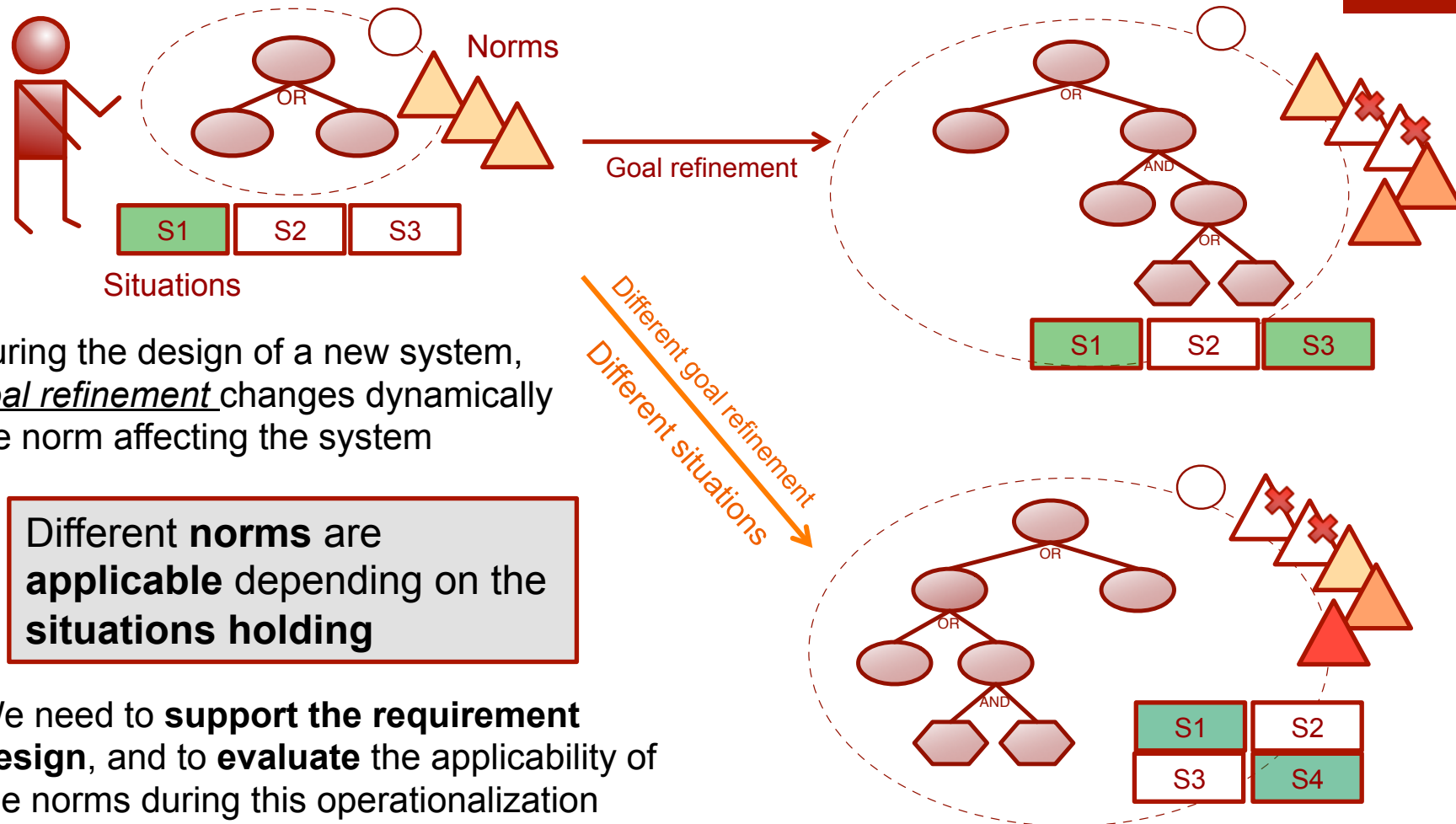
Norms describe classes of legal actors (legal elements) in different situations and are cross domain

Compliance problem

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CHALLENGE #1: APPLICABILITY

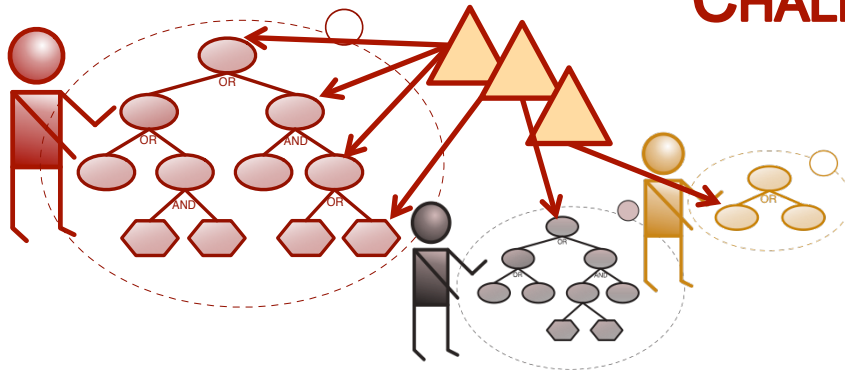


Compliance problem

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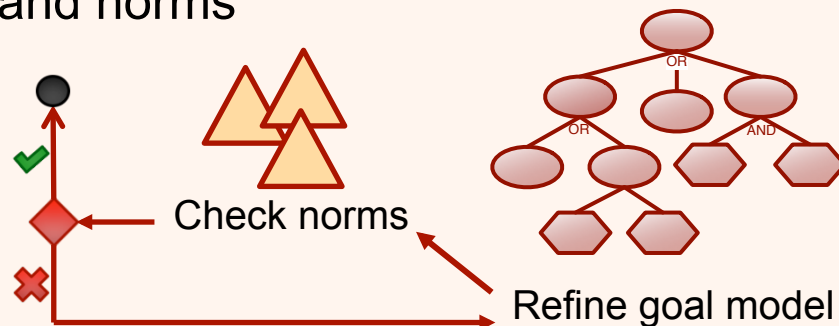
CHALLENGE #2: APPROPRIATENESS



- Need to **evaluate actor behaviors** and their compliance
- Norms affect goals and different actors
- The traditional “**goal refinement**” needs to be a “**goal reconciliation**”

Goal refinement: methodology (operationalization) functional to the satisfaction of a goal

Goal reconciliation: methodology to evaluate the relationship between goals and norms



Our ARGUMENTATION-BASED approach

A discussions evaluates compliance decision under **three perspectives**:

1. practical (stakeholders),
2. legal (lawyers), and
3. technical (engineers)

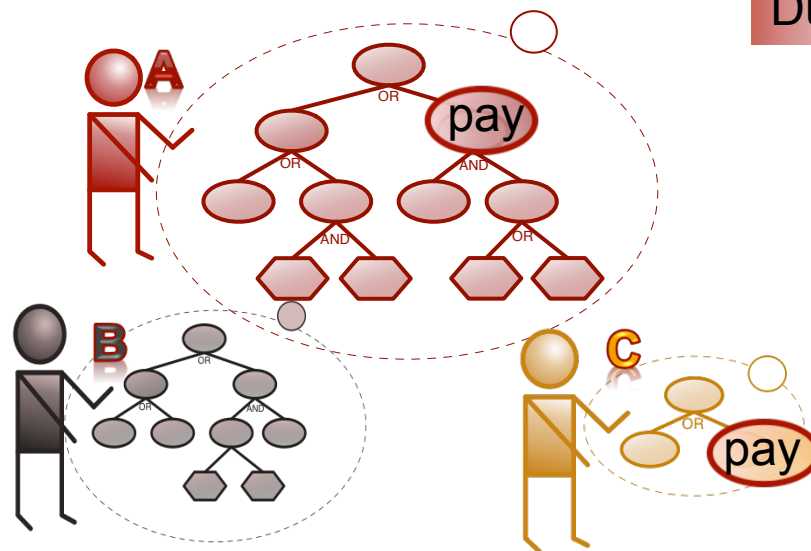
Compliance problem

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- Example:
music sharing platform

CHALLENGE #3: RESPONSIBILITY



Duty to pay copyright fees

delegation

Duty to pay A's copyright fees

**delegation →
(legal) responsibility**

A delegates → B:

who is responsible?

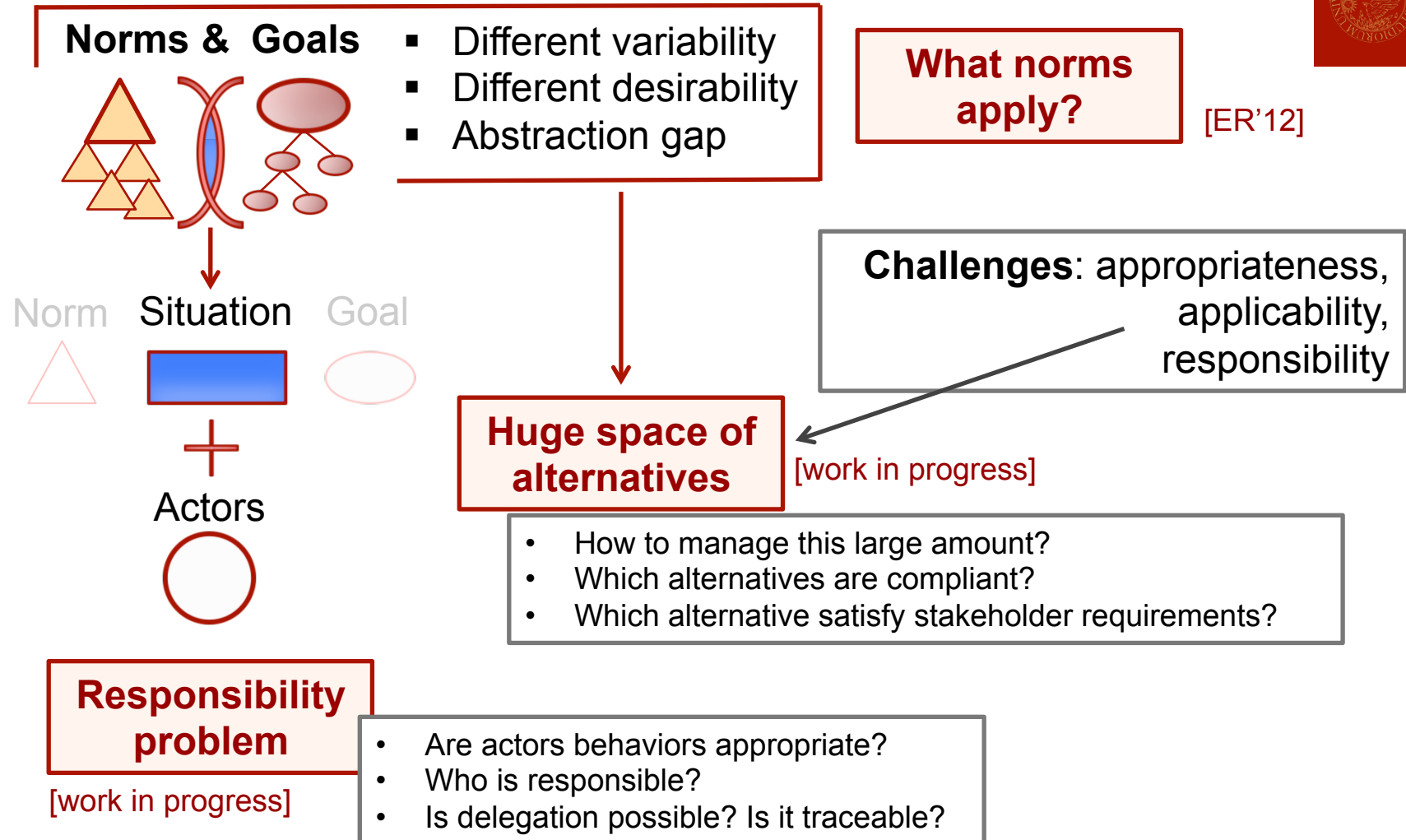
is the delegation legally acceptable?

how to monitor responsibility?



Conclusions

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Questions?

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