

Requirements Engineering II
Assignment 6
Group 3

- QUALITY OF
MODELS



● Agenda

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- Model quality
 - Quality properties
 - Quality framework
 - Conclusion



Model quality

What are the properties of a good model?

● Quality assessment approaches

quality of end-product
depends to a great extent
on the quality of early
models (conceptual models,
requirements)

most quality frameworks
appear as lists of desired
properties of the
considered systems

framework distinguishes
between goals and means,
and is based on linguistic
concepts



Quality properties

For information system specifications

● Common quality properties

- **complete** - everything the software shall do is included in the specification
- **consistent** - no set of requirements is in conflict with any other
- **expressive** - able to express everything that need to be modeled without much effort
- **minimal** - the specification should not overconstrain system design
- **understandable** - the specification is understood by non computer specialists without too much effort



Weaknesses of list-approach

Definitions

Many definitions are vague, complicated, undefined

Some goals

unrealistic, impossible to reach

List

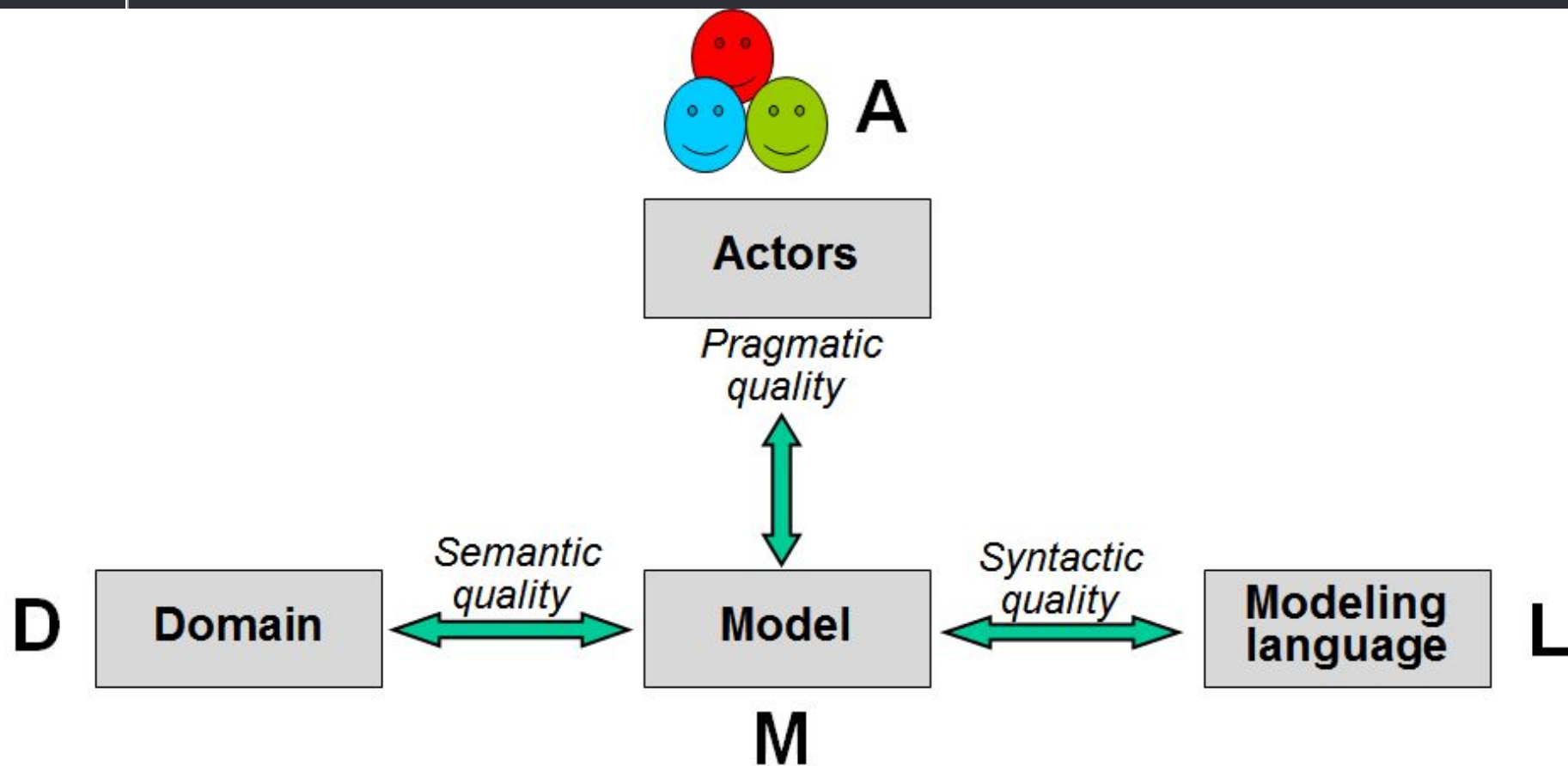
Unstructured, properties partially overlapping

Specification properties

mixed with language and method properties



Quality Framework



● Quality Framework - Quality statements

The language L consists of all of the statements that can be made according to the syntax.

The model M , is the set of statements actually made.

The domain D , consists of all possible statements that would be correct and relevant for solving the problem.

The Audience interpretation A , is the set of statements that the audience thinks the model contains.

● Quality Framework - Quality Goals

Syntactic quality - The more closely the model adheres to the language rules, the higher the syntactic quality.

Goals

Syntactic correctness

- Morphological errors
- Syntactic incompleteness

Means

Formal syntax

- error prevention
- error detection
- error correction

● Quality Framework - Quality Goals

Semantic quality - The model can lack something that the domain contains, or it can include something the domain doesn't have.

Goals

Feasible validity

Feasible completeness

Means

Formal semantics

- consistency checking

● Quality Framework - Quality Goals

Pragmatic quality - how will the audience interpret the model.

Goals

Feasible comprehension

Means

everything that makes the model easier to understand

- Inspection
- Visualization
- Animation
- Filtering



Conclusion

Reflection

Models and modeling languages

- Subject to variation - "as needed"
- Often tailored for specific purposes and adjusted for proper tool-support

Good model?

It depends ... on

- the Domain (D), the Language (L), the Actors (A)
- Syntactic quality
- Semantic quality
- Pragmatic quality

Proper tool support

- provides means for increased model quality

A hand in a blue sleeve points with a white chalk stick to the word "Questions?" written in white chalk on a dark, textured chalkboard. The word is written in a casual, handwritten style.

Questions?

Thank you for your
attention!