

Assignment 5

Quality of models

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Requirements Engineering II

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Agenda

- Semiotics and its components
- Quality of models evaluation
- Effectiveness of quality evaluation

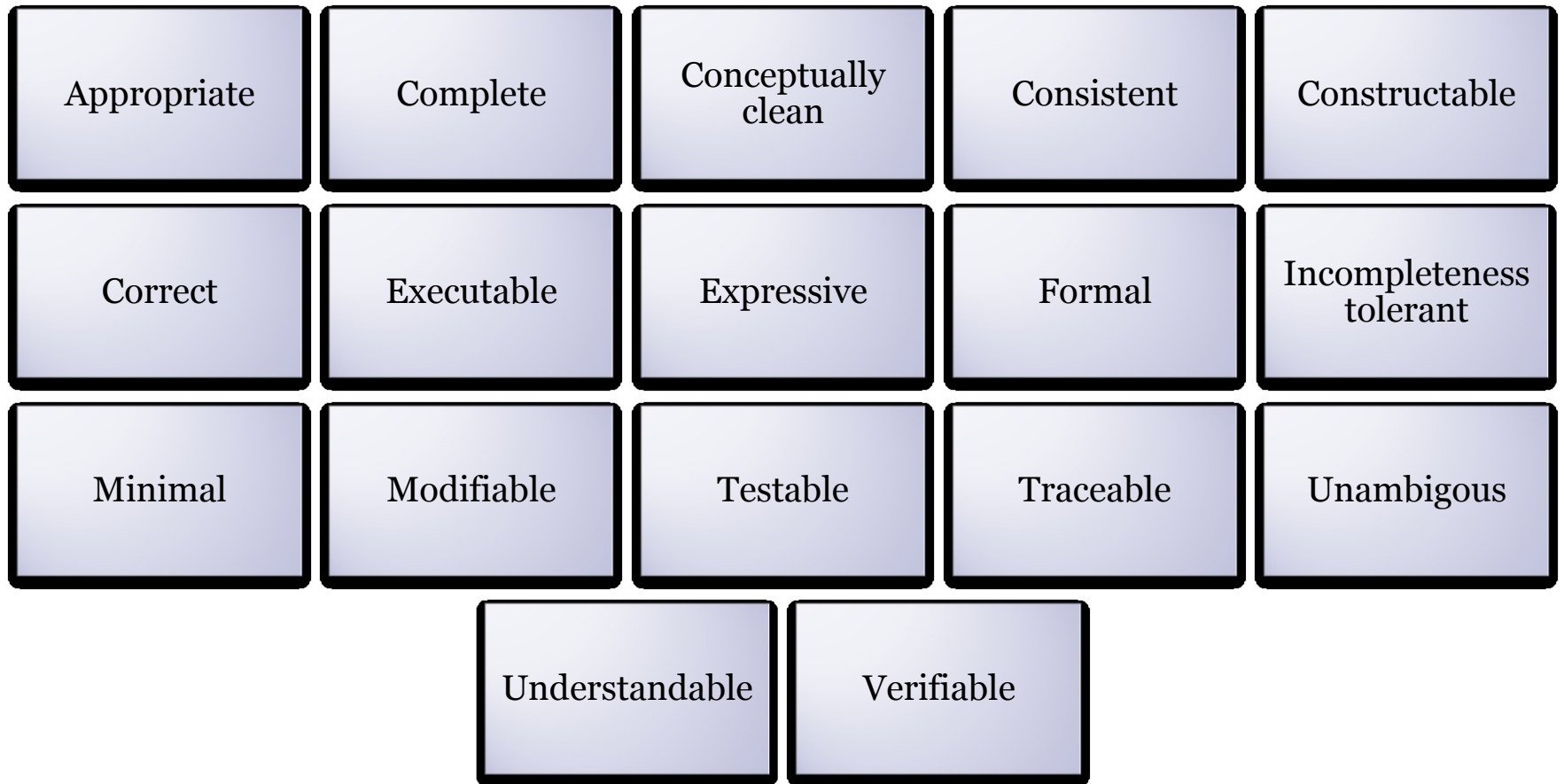
*"The totality of features and characteristics of a **product or service** that bear on its ability to satisfy stated or implied needs"*

ISO 9000 definition of quality

*"The totality of features and characteristics of a **conceptual model** that bear on its ability to satisfy stated or implied needs".*

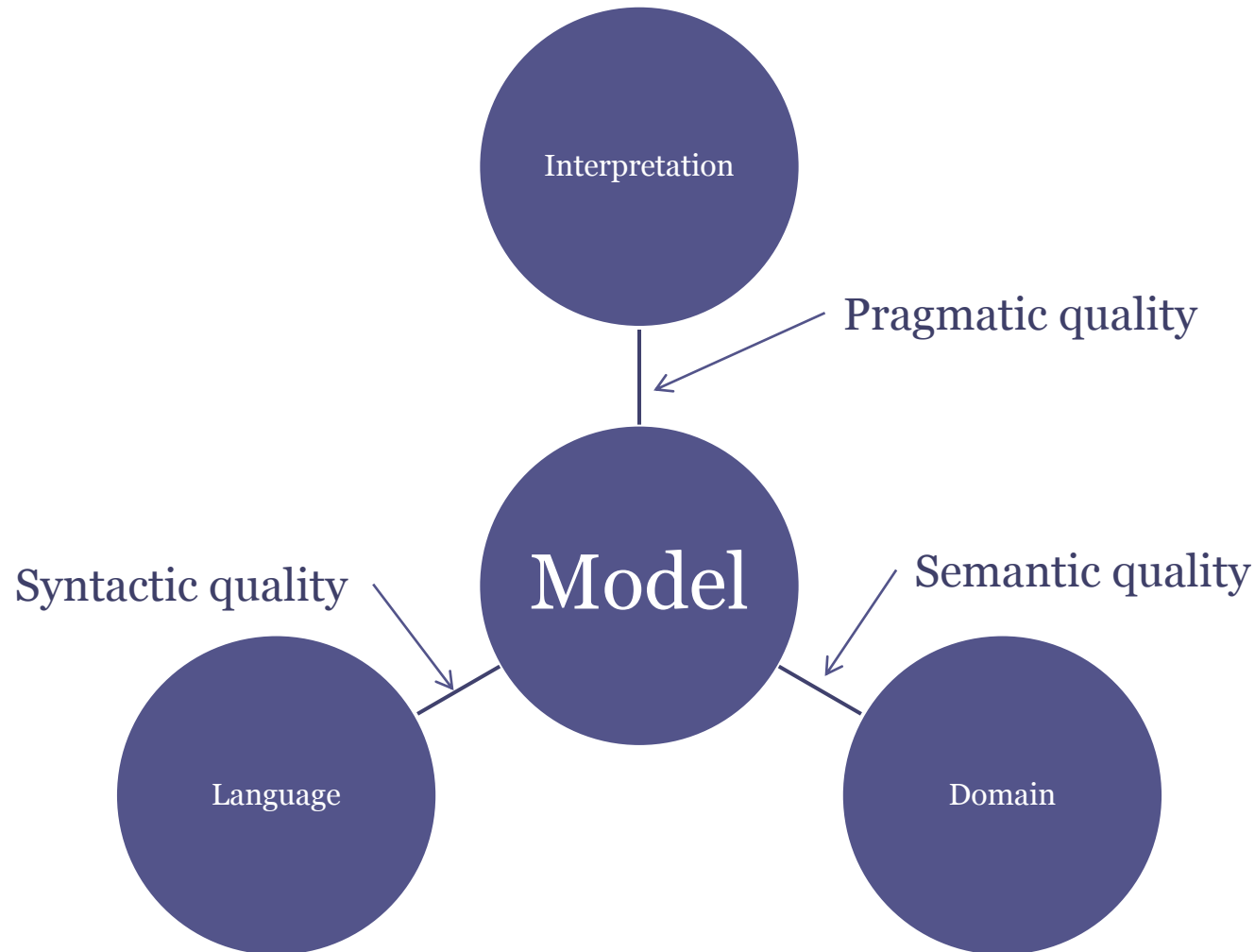
Moody 2005, possible definition of conceptual model quality

Quality properties



Conceptual Model Quality FW

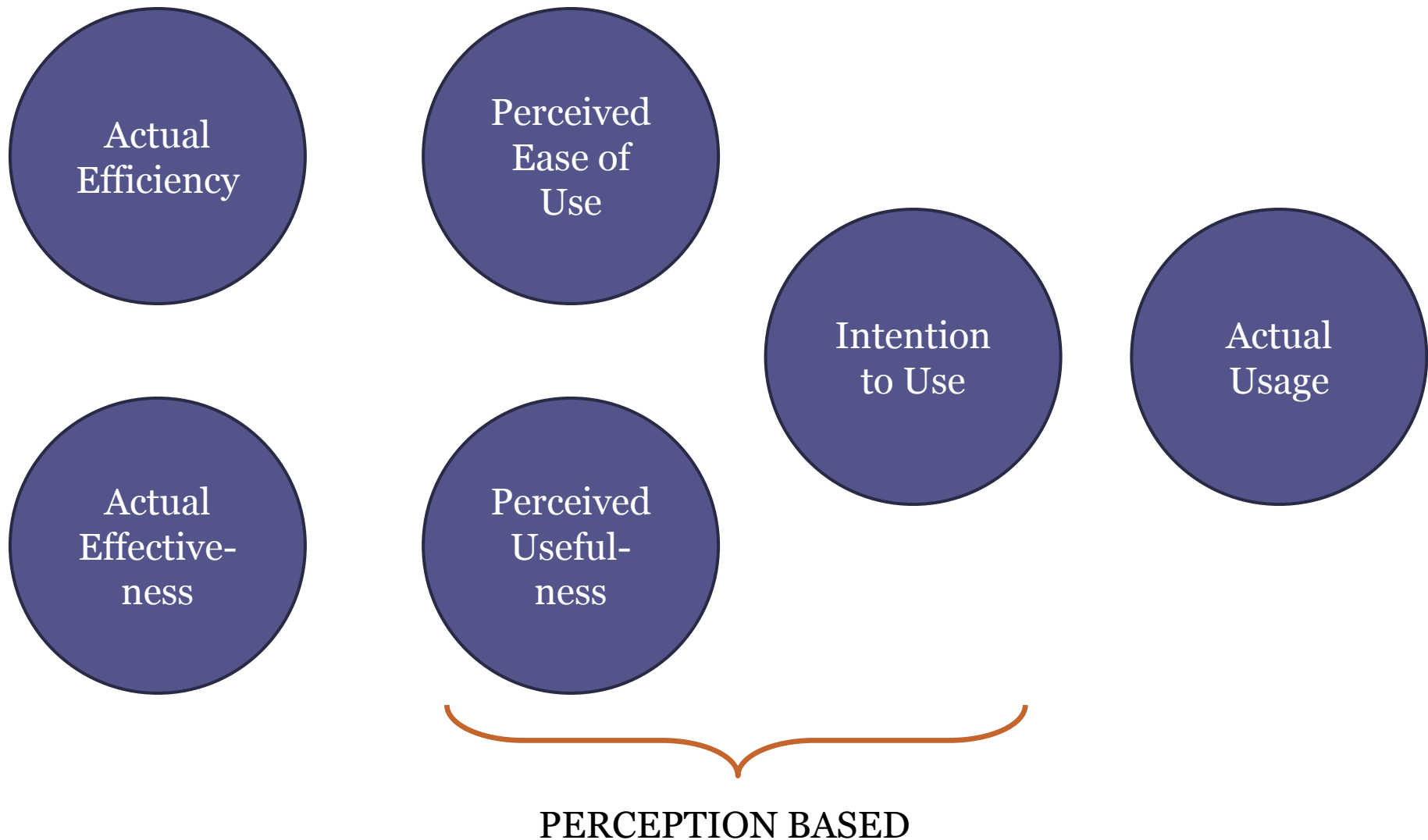
By Lindland



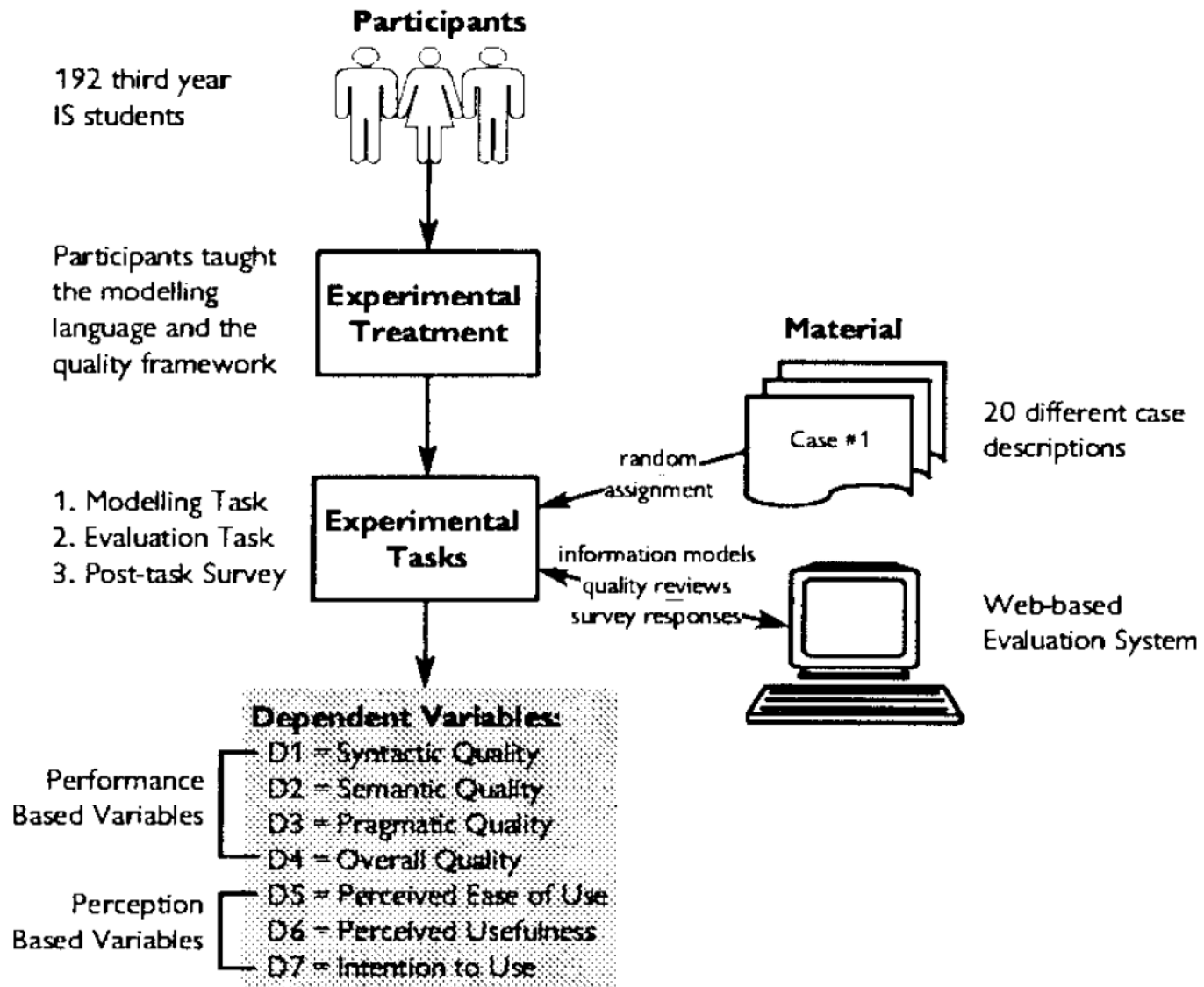
Semiotic theory (theory of signs)

- Syntactic quality
 - Relationship between model & language
 - No statements included that are not part of the language
- Semantic quality
 - Relationship between model & domain
 - Validity (no incorrect or irrelevant statements about the domain)
 - Completeness (no missing statements that would be correct AND relevant)
- Pragmatic quality
 - Relationship between model & audience interpretation
 - Comprehension for all stakeholders

Evaluation model

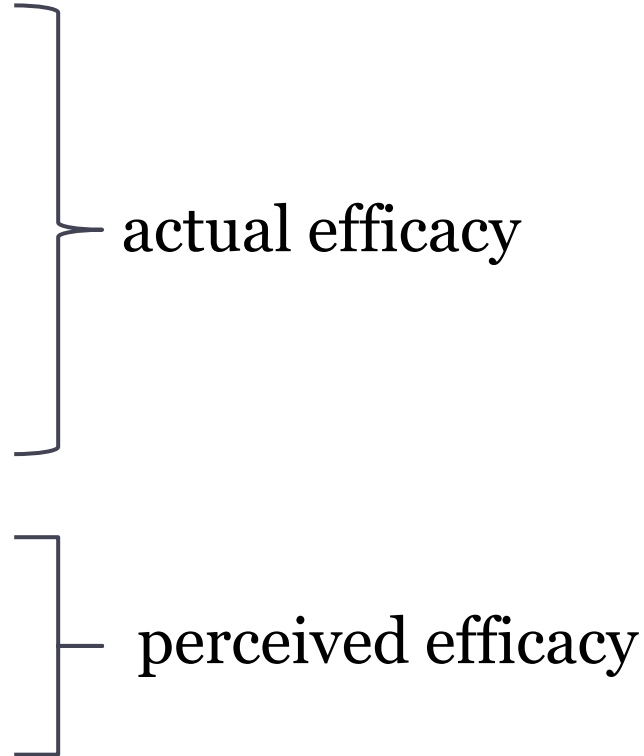


Study setup



Summary of Analyses

- Reliability analysis
- Validity analysis
- Influence analysis
- Interaction analysis
- Defect pattern analysis
- Task accuracy
- Perceived ease of use
- Perceived usefulness
- Intention of use



actual efficacy

perceived efficacy

Results of the study

- Overall quality was acceptable
- Quality categories were sufficient, necessary and independent
- Influence on overall quality
 - Syntactic 27%, Semantic 39%, Pragmatic 34%
- Error identification
 - False negative 75%, false positive 5%, classification error 20%
- Easy to use
- Useful
- Likely to be used in practice

Importance of conceptual model quality

- Traditional approaches focus on the end product (software)
- More than half of the errors in software development are requirements errors.
- Requirements error are the most common cause of failure in SW projects
- Requirements error are most expensive

Current research issues

- Over 50 different proposals
- Lack of empirical testing
- Lack of adoption in practice
- Lack of agreements on concepts & terminology
- No standards



Thank you, questions?