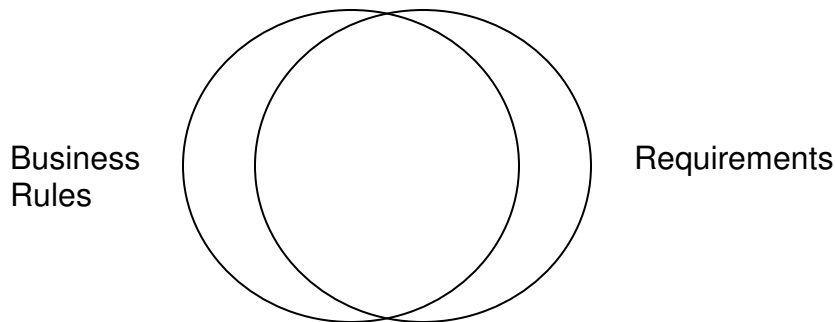


Requirements and Business Rules: How Do They Relate?

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This paper explores the relationship between a detailed classification of requirements information and a detailed classification of business rule information. While there is considerable overlap, there are elements of each that are outside the scope of the other as pictured in the following diagram.



This paper explores the following questions:

- What kinds of business rules might I find in a requirements repository?
- What kinds of business rules are outside the scope of requirements?
- What kinds of requirements information might I find in a business rules repository?
- What kinds of requirements information are outside the scope of business rules?

Specification Patterns

We begin with a classification of requirements information using the 18 ClearSpecs specification patterns. These patterns and their purposes are described in the following tables. More information is available among the technical reports available at www.clearspecs.com.

Category	Spec Pattern	Purpose
Overview		
	1. Background	Information that connects development work to organizational needs, decisions, and history
	2. Features	Natural language descriptions of the system features to be developed or modified
Usage Models		
	1. User Stories	Brief descriptions of the goal-directed activity of someone in an organizational role
	2. Use Cases	Detailed descriptions of interactive system usage to accomplish an organizational goal
	3. Scenarios	Detailed descriptions of a specific instance of system usage – may correspond to a path through a use case
	4. Test Specs	Detailed description of a system usage scenario with setup, wrapup, and checking steps
Behavior Models		
	1. Decision Tables	Detailed descriptions of the system actions resulting from a complete set of logical conditions
	2. State Transition Tables	Detailed description of the system actions and entity states resulting from various logical conditions and trigger events including initial entity states

Category	Spec Pattern	Purpose
Facts		
	1. Constant Conditions	Detailed descriptions of conditions that must be preserved during all system activity
	2. Condition Dependencies	Detailed descriptions of the logical dependencies between conditions
Derivations		
	1. Derived Value	Detailed definition of a calculated value by specifying the calculation
	2. Derived Condition	Detailed definition of an abstract condition (for example potential in potential customer) defined by Boolean functions referencing the attributes of domain and system entities
	3. Derived Action	Work breakdown structure of an action
Definitions		
	1. Entity Specs Internal Input Output	Detailed definitions of domain and system entities that describe their structure, required and optional attributes, value ranges, units of value and relationships to other entities
	2. Action Contracts	Detailed definitions of a system action using pre, post, and constant conditions
	3. Quality Specs	Detailed definitions of measures for assessing non-functional requirements
	4. Common Descriptions	Brief natural language descriptions of terms or phrases
	5. Acronyms	An acronym and the phrase its stands for

Business Rules

The following classification of business rules is based on the GUIDE Business Rules Project final report, (revision 1.2) dated October 1997. Some of the GUIDE classifications have been modified and others omitted.

Structural Assertions

Business Terms

Type (abstraction -- entity or attribute)

Literal (specific value e.g. red)

Facts (may assert associations)

Base <color is an attribute of fleet car -- attribute>

<red is a fleet car color – generalization>

Derived <some fleet cars may be red>

Attribute (declaration that one term is an attribute of another),

Generalization (declaration that one term is
an instance of another),

Participation (declaration of an association between terms)

Examples

Business Rule (Fact)

A customer may request a model from a rental branch on a date [participation]

customer [type], request [type], model [type],
rental branch [type], date [type]

Corresponding Requirement (Feature)

A customer must be able to request a model from a rental branch on a date [feature]

customer [entity], request [action], reservation [entity],
car [entity], model [attribute], rental branch [entity],
date [attribute]

Action Assertions

Examples

- <If a customer is three months in arrears, repossess the car>
- <All cars must be registered>
- <Only a branch manager can approve a car transfer to another branch>

Classes

Conditional

(requires execution of one or more actions
or enables an authorization if a condition is TRUE)

Integrity Constraint

(constant condition – all cars must be registered)

Authorization

(authorizes people or systems to perform an action – only a branch manager can approve a car transfer to another branch)

Effects

Action Controlling <employees may not smoke in the warehouse>

Action Influencing <we usually send 20% discount cards to our customers right before Thanksgiving>

Derivations (produce derived facts)

Mathematical Calculations

<current age = current date – birth date>

Inferences

- < If “no seats are available”, then “no seats are assignable”>
- < If customer (bought-many-services or bought-services-A-and-B or bought-a-lot-of-service-C), then customer is eligible>

Relationships

The following table identifies relationships between types of business rule information and types of requirements information.

Business Rule Information	Type of Relationship	Requirements Information
		Background
Business Facts Authorization Action Assertions	included in	Features
		User Stories
		Use Cases
		Scenarios
		Test Specs
Conditional Action Assertions	includes	Decision Tables
Conditional Action Assertions	includes	State Transition Tables
Integrity Constraints	equivalent to	Constant Conditions
Inference Derivations	includes	Condition Dependencies
Mathematical Derivations	equivalent to	Derived Values
Inference Derivations	includes	Derived Conditions
		Derived Actions
Business Terms & Facts	includes	Entity Specs
		Action Contracts
		Quality Specs
Business Terms & Facts	includes	Common Descriptions
Business Terms	includes	Acronyms
Action Influencing Assertions		

This table answers the questions posed at the start of this paper. It suggests that almost all business rule information can be stored as some form of requirements information.

Business rules and detailed requirements can be viewed as alternative forms of the same information. Thus issues, strategies, and techniques of one approach may be of interest to the other. For example, effective techniques for configuration management and change control of requirements may apply to business rules and vice versa.