Semantics of Business Vocabulary and Business Rules (SBVR), v1.4

Annex I - Concept Diagram Graphic Notation

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(informative)

I.1   General

A business vocabulary can be presented to a business audience using four simple main conventions, described in this Annex. These conventions have been purposely kept neutral of any particular modeling notations, and have been selected to be largely self-explanatory and visually intuitive. Note that a diagram using these conventions is only one view of a vocabulary and is intended to help in understanding some particular aspects of the vocabulary and the conceptual schema that underlies it.

Various graphic constructs are used to provide visual clarity (e.g., color, shading, font, font size, etc.). Unless explicitly stated, none of these carry any semantic or syntactic meaning. A diagram can be viewed in grayscale without losing information.

I.2   Boxes -- Concepts

A box of any size represents a core concept. The name in the box is the preferred name given to that concept. Refer to the Vocabulary for the precise meaning of each term. Because of the need to format within realistic bounds, some concepts re-appear in several diagrams.

For example, Figure I.1 depicts two concepts, termed 'concept a' and 'concept s.'

Figure I.1 - concept a and concept s are core concepts within the model

I.3   Box-Within-A-Box -- Categories

I.3.1 Simple Categories

Straightforward categorization — where one element is a category of another element — is represented as a box within a box. Another way to think about this is that the inner box (the category) represents a specific kind or variation of the concept represented by the outer box (the more general concept).

There is no assumption in this graphic representation that box-within-a-box implies mutually exclusive categories, or represents an exhaustive or mandatory list of categories. When categories in the SBVR model are mutually exclusive, this constraint is documented in the Vocabulary. When the categories of a scheme are completely enumerated and required as shown, these constraints are documented in the Vocabulary.

For example, Figure I.2 depicts two concepts, termed 'concept s' and 'concept t' that are categories of a more general concept, termed 'concept a.'
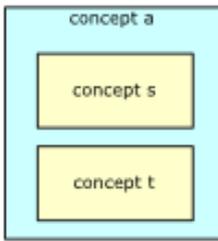
**Figure I.2 - concept s and concept t
are categories of concept a**

I.3.2 Categorization Schemes and Segmentations

In some cases, categories form part of a designated categorization scheme. For these, a dashed-line box is used to depict the categorization scheme within the concept box. The scheme box surrounds the categories that make up the scheme. The categorization scheme's name is shown at the top of the scheme box that the scheme is for. Note that a category may appear in more than one scheme.

When the categorization scheme depicts a 'segmentation' (a categorization scheme in which the set of categories are mutually exclusive and complete) these constraints are documented in the Vocabulary. This may also be shown on the diagram as '[segmentation]' after the categorization scheme name.

For example, Figure I.3 depicts a categorization scheme, named 'Scheme X' that is for a concept (termed 'concept a'). Two concepts (termed 'concept s' and 'concept t') make up the scheme.
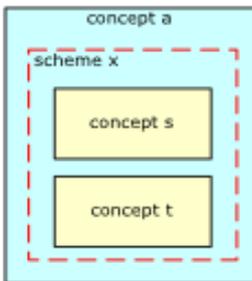

**Figure I.3 - concept s and concept t are
mutually exclusive categories of concept a
within the categorization scheme 'scheme x'**

I.4   Connections Between Boxes -- Verb Concepts

I.4.1 Binary Verb Concepts

A line connecting any two boxes (or the same box twice) indicates a connection between core concepts. Such a line represents a verb concept. The labels adjacent to the lines are written as verbs or verb phrases so that the facts of the SBVR model can be read as simple sentences. These sentences convey the meaning of the connections in the context of the SBVR model; however, more explanation is given in the Vocabulary, along with the definitions for each of the terms involved.

The rules that apply to these constructs are also part of the SBVR model. However, these rules are not expressed in the model graphics. For example, the connection lines represent simple unconstrained facts (i.e., 'many-to-many' and 'optional' in both directions). While the diagram may suggest some rules, the final word on any rule is documented in the Vocabulary.

To avoid clutter, only one wording of a verb concept is shown in the graphics. The verb concept is read clockwise around the line, from participating concept, to verb phrase, to (other) participating concept. Additional wordings, as useful, are provided in the Vocabulary. Figure I.4 depicts two verb concepts, with one wording for each.

concept a defines concept b   concept b defines concept a
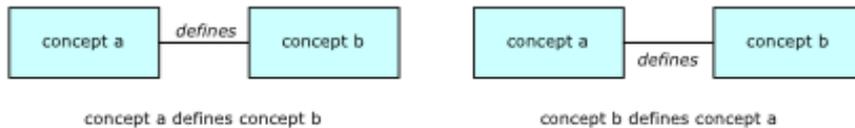
Figure I.4 - Wording two verb concepts, using 'defines' as a typical verb phrase

I.4.2 N-ary Verb Concepts

Where a connection involves more than two core concepts, a simple line cannot be used to represent the verb concept. In this case, the verb concept is shown as * with the verb concept lines radiating from it to the participating concepts. The wording is placed adjacent to the * and no verbs are written on the lines. Figure I.5 illustrates a ternary verb concept and one of its wordings.
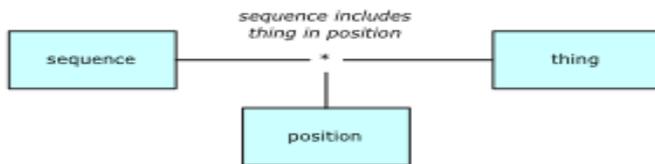
Figure I.5 - An n-ary verb concept

I.4.3 Characteristics

Characteristics are shown using a similar * notation. A characteristic is drawn as a line coming out of the concept box and ending with *. The verb concept verb phrase is placed adjacent to the * symbol. Figure I.6 illustrates a characteristic.

Figure I.6 - A characteristic

I.4.4 Verb Concept Objectification

When a noun concept is defined using objectification such that it is coextensive with a verb concept it is shown as a box labeled with the primary term for the noun concept. The wording of the verb concept is provided in a legend (or glossary). To aid in visually distinguishing these verb concept-objectifying noun concepts from other concepts, the concept name is marked with * which provides the visual clue to look in the legend/glossary.

No verb phrase labels are written on the lines to the concepts that participate in the verb concept. This permits the verb concept itself to participate in other verb concepts without visual ambiguity.[1]

Figure I.7 depicts a verb concept (rented car is rented from non-EU-Rent site to branch) and a verb concept objectification as the noun concept termed 'car recovery'.
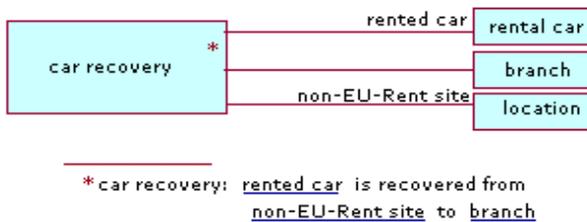
Figure I.7 - Verb Concept Objectification

I.5   Roles

A role name may be given to a concept's participation in a verb concept. This is reflected as a term (the role name) adjacent to the box for the concept whose instances play in the verb concept. There is no syntactic or semantic significance to the side of the line on which the role name is placed, other than careful placement to avoid confusion between the verb phrase and any role names. Figure I.8 depicts a role name 'part' given to the concept termed 'concept b' in this verb concept.

Figure I.8 - Role name

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1.   There is a potential for confusion if the objectified verb concept then participates in another verb concept that is objectified, but this case is so rare that these conventions have elected simplicity for the typical cases over excruciating precision and the associated complexity.