

Annex C: Relevant Terminology

This section explains relevant terminology in the Sortal Grammar Interpreter library. *Source:* <http://www.sortal.org/structures/terminology.html>

Term	Description
Attribute sort	<p>A subordinate, semi-conjunctive composition of a primitive <i>sort</i> (its base) with any other <i>sort</i> (its weight/label) under the object-attribute relationship. An individual of an attribute <i>sort</i> is an individual of the base <i>sort</i> (the <i>associate individual</i>) that is assigned a <i>form</i> (a collection of zero, one or more individuals) of the weight/label <i>sort</i> as an attribute (the <i>attribute form</i>).</p> <p>If the attribute form is empty, it may be omitted and the individual is treated as an individual of the base <i>sort</i> only, rather than of the attribute <i>sort</i>.</p> <p>An attribute sort may have a name assigned. The <code>attributeSort</code> class represents an attribute sort additionally by its base and weight sorts. The canonical version of an attribute sort is the unnamed attribute sort of the canonical versions of the base and weight sort.</p>
Disjunctive sort	<p>A co-ordinate, disjunctive composition of any number of <i>sorts</i>. A form of a disjunctive <i>sort</i> is a composition of forms from the respective component <i>sorts</i>, and is called a <i>metaform</i>. The representation of each component <i>sort</i> in the composition of forms is optional.</p> <p>A Disjunctive Sort specifies a disjunctive composition of sorts under the sum operation. Under the sum operation, a form of the disjunctive sort may contain a form of every operand sort. If any component sort is an unnamed disjunctive sort, instead, its components become part of the disjunctive composition.</p> <p>If any component sort is part of another, unnamed component sort, the former component sort is not included in the composition. A disjunctive sort may have a name assigned.</p>
Discrete form	<p>A form with a discrete operational behavior, corresponding to a mathematical set: an individual is part of another individual, only if these are identical; a form is part of another form, if every individual of the first form is also an individual of the second form.</p>

Term	Description
Enumerative form	<p>Enumerative is a value from among an enumerated set, with special behavior. The specification of an enumerative sort requires the enumeration of the values as well as their mutual ranking. An enumerative sort supports the specification of qualitative aspects in "color grammars" (Knight 1989; 1993).</p> <p>A sort of enumerative individuals requires the specification of the enumeration values as well as their mutual rankings. The enumeration values are specified as a set of identifiers, and their ranking as an array of enumeration values resulting from the addition of every combination of two values (ordered as a matrix, corresponding the original enumeration ordering).</p> <p>For instance, given an enumeration of black and white (in that order), a ranking array of black, black, black and white would mean black dominates white as any addition of two values, except for white and white, results in black.</p>
Form	A collection of individuals of the same sort, e.g., a set of points.
Individual	<p>The basic elements of a sort. These are the instances of the class structure. For example, a point is an individual of the sort of points. The characteristic individual of a sort specifies the representation of each individual. The naming of sorts allows for a classification of individuals by meaning, defined by the user.</p> <p>An individual is completely specified by its sort and its representational value.</p>
Metaform	A collection of forms corresponding the different component sorts of a disjunctive sort, e.g., a set of points and line segments.
Primitive sort	A primitive sort represents a base algebra, or a single data type. Algebras of points, line segments and labels are defined as primitive sorts. It is expressed by its characteristic individual, possibly augmented with one or more arguments (depending on the characteristic individual).

Term	Description
Sort	<p>A sort represents a (shape) algebra. Algebras of points, line segments and labels are defined as sorts, so is the algebra of labeled points, or the shape algebra of labeled points and line segments.</p> <p>They can be considered as class structures, specifying either a single data type or a composition of other class structures. For instance, data types such as points, labels, and lines all define sorts. Each sort may be specified a name, for semantic disambiguation. This is a requirement for every primitive sort (or aspect).</p>