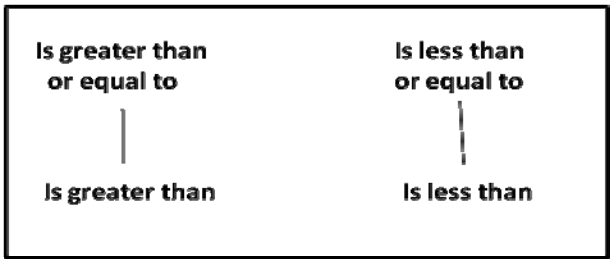
Number-OS

Name	Number-0S
Keywords	Real number, Integer, Non-negative integer, Positive integer, Prime number, Imaginary number, complex number
Creation date	July 14th, 2009
Has contributor	Gilles Kassel
Used ontology engineering methodology	OntoSpec
Is of type	Domain ontology
Natural language	English
Has ontology language	OntoSpec
Has formality level	Semi-informal
Ressource locator	http://www.laria.u-picardie.fr/IC/site/IMG/pdf/Number-OS.pdf
Has reference	This ontology corresponds to the sub-ontology of numbers of SUMO (Suggested Upper Merged Ontology) : http://www.ontologyportal.org/ It incorporates the Number hierarchy from the ontology 'kif-numbers' on the Ontolingua server: http://www-ksl.stanford.edu/knowledge-sharing/ontologies/html/kif-numbers/
Version	1.0
Number of concepts (classes)	17
Number of relations (properties)	5

// Relations



Is equal to

Meta-properties

IS EQUAL TO is an EQUIVALENCE RELATION.

Properties

[EP/DR & RR] A NUMBER *is equal to* a NUMBER.

Comment

[DEF] A NUMBER *is equal to* a NUMBER iff the two NUMBERS are identical.

[DIV] In SUMO, this relation is defined for arbitrary entities, not uniquely numbers.

Is greater than or equal to

Meta-Properties

IS GREATER THAN OR EQUAL TO is a PARTIAL ORDERING RELATION.

Properties

[EP/DR & RR] A NUMBER *is greater than or equal to* a NUMBER. [EP/NSMC] x *is greater than or equal to* y iff x *is greater than* y or x *is equal to* y. [EP/IVL] *Is greater than or equal to* mutually implies *is less than or equal to*.

Comment

[DIV] Mathematical symbol: '≥'

Is greater than

Meta-properties

IS GREATER THAN is a TRANSITIVE and IRREFLEXIVE RELATION.

Properties

[EP/DR & RR] A NUMBER *is greater than* a NUMBER. [EP/SL] x *is greater than* y implies that x *is greater than or equal* to y. [EP/IVL] *Is greater than* mutually implies *is less than*.

Comment

[DIV] Mathematical symbol: '>'

Is less than or equal to

Meta-Properties

IS LESS THAN OR EQUAL TO is a PARTIAL ORDERING RELATION.

Properties

[EP/DR & RR] A NUMBER *is less than or equal to* a NUMBER. [EP/NSMC] x *is less than or equal to* y iff x *is less than* y or x *is equal to* y. [EP/IVL] *Is less than or equal to* mutually implies *is greater than or equal to*.

Comment

[DIV] Mathematical symbol: '≤'

Is less than

Meta-properties

IS LESS THAN is a TRANSITIVE and IRREFLEXIVE RELATION.

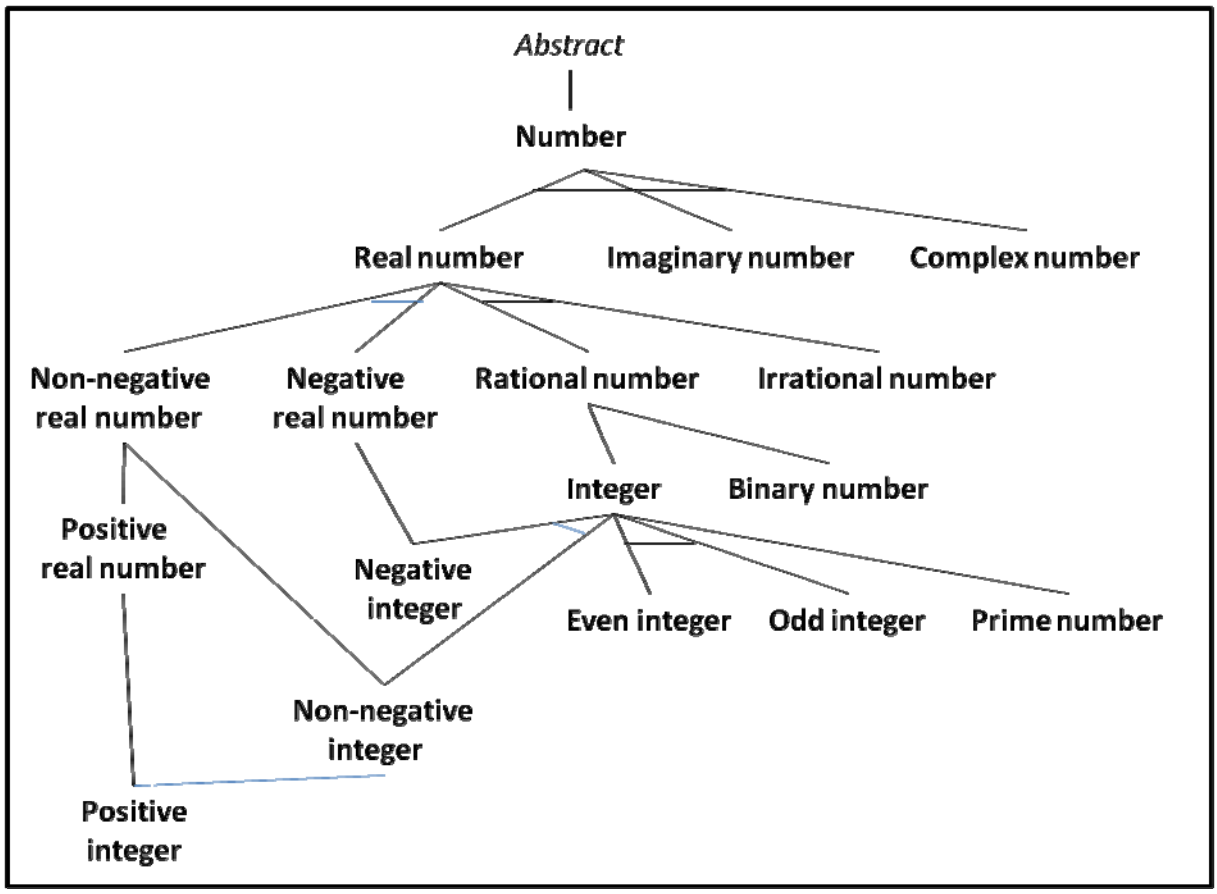
Properties

[EP/DR & RR] A NUMBER *is less than* a NUMBER. [EP/SL] x *is less than* y implies that x *is less than or equal* to y. [EP/IVL] *Is less than* mutually implies *is greater than*.

Comment

[DIV] Mathematical symbol: '<'

// Concepts



Number

Meta-properties

NUMBER is RIGID (**+R**). NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**). REAL NUMBER, IMAGINARY NUMBER, and COMPLEX NUMBER *is a non-trivial partition of* NUMBER.

Properties

[EP/SL] A NUMBER is an ABSTRACT.

Comment

[CIT] Documentation of SUMO's concept 'Number': "A number is a measure of how many things there are, or how much there is, of a certain kind."

Real number

Meta-properties

REAL NUMBER is RIGID (**+R**). REAL NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**). RATIONAL NUMBER and IRRATIONAL NUMBER *is a non-trivial partition of* REAL NUMBER. NON-NEGATIVE REAL NUMBER and NEGATIVE REAL NUMBER *is a non-trivial partition of* REAL NUMBER.

Properties

[EP/SL] A REAL NUMBER is a NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'RealNumber': "Any Number that can be expressed as a (possibly infinite) decimal, i.e. any Number that has a position on the number line."

Rational number

Meta-properties

RATIONAL NUMBER is RIGID (**+R**). RATIONAL NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] A RATIONAL NUMBER is a REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'RationalNumber': "Any RealNumber that is the product of dividing two Integers."

Non-negative real number

Meta-properties

NON-NEGATIVE REAL NUMBER is RIGID (**+R**). NON-NEGATIVE REAL NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SLD] A NON-NEGATIVE REAL NUMBER is a REAL NUMBER which *is greater than or equal to* ZERO.

Positive real number

Meta-properties

POSITIVE REAL NUMBER is RIGID (**+R**). POSITIVE REAL NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SLD] A POSITIVE REAL NUMBER is a NON-NEGATIVE REAL NUMBER which *is greater than* ZERO.

Negative real number

Meta-properties

NEGATIVE REAL NUMBER is RIGID (**+R**). NEGATIVE REAL NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SLD] A NEGATIVE REAL NUMBER is a REAL NUMBER which *is less than* ZERO.

Integer

Meta-properties

INTEGER is RIGID (**+R**). INTEGER is NON-EXTERNALLY-DEPENDENT (**-D**). EVEN INTEGER and ODD INTEGER *is a non-trivial partition of* INTEGER. NON-NEGATIVE INTERGER and NEGATIVE INTEGER *is a non-trivial partition of* INTEGER.

Properties

[EP/SL] An INTEGER is a REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'Integer': "A negative or nonnegative whole number."

Non-negative integer

Meta-properties

NON-NEGATIVE INTEGER is RIGID (**+R**). NON-NEGATIVE INTEGER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SLD] A NON-NEGATIVE INTEGER is an INTEGER which is a NON-NEGATIVE REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'NonnegativeInteger': "An Integer that is greater than or equal to zero."

Positive integer

Meta-properties

POSITIVE INTEGER is RIGID (**+R**). POSITIVE INTEGER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SLD] A POSITIVE INTEGER is a NON-NEGATIVE INTEGER which is a POSITIVE REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'PositiveInteger': "An Integer that is greater than zero."

Negative integer

Meta-properties

NEGATIVE INTEGER is RIGID (**+R**). NEGATIVE INTEGER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SLD] A NEGATIVE INTEGER is an INTEGER which is a NEGATIVE REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'NegativeInteger': "An Integer that is less than zero."

Even integer

Meta-properties

EVEN INTEGER is RIGID (**+R**). EVEN INTEGER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] An EVEN INTEGER is an INTEGER.

Comment

[CIT] Documentation of SUMO's concept 'EvenInteger': "An Integer that is evenly divisible by 2."

Odd integer

Meta-properties

ODD INTEGER is RIGID (**+R**). ODD INTEGER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] An ODD INTEGER is an INTEGER.

Comment

[CIT] Documentation of SUMO's concept 'OddInteger': "An Integer that is not evenly divisible by 2."

Prime Number

Meta-properties

PRIME NUMBER is RIGID (**+R**). PRIME NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] A PRIME NUMBER is an INTEGER.

Comment

[CIT] Documentation of SUMO's concept 'PrimeNumber': "An Integer that is evenly divisible only by itself and 1."

Binary number

Meta-properties

BINARY NUMBER is RIGID (**+R**). BINARY NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] A BINARY NUMBER is a REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'Binary Number': "Elements from the number system with base 2, every BinaryNumber is expressed as a sequence of the digits 1 and 0."

Irrational number

Meta-properties

IRRATIONAL NUMBER is RIGID (**+R**). IRRATIONAL NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] An IRRATIONAL NUMBER is a REAL NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'IrrationalNumber': "Any RealNumber that is not also a RationalNumber."

Imaginary number

Meta-properties

IMAGINARY NUMBER is RIGID (**+R**). IMAGINARY NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] An IMAGINARY NUMBER is a NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'ImaginaryNumber': "Any Number that that is the result of multiplying a RealNumber by the square root of -1."

Complex number

Meta-properties

COMPLEX NUMBER is RIGID (**+R**). COMPLEX NUMBER is NON-EXTERNALLY-DEPENDENT (**-D**).

Properties

[EP/SL] A COMPLEX NUMBER is a NUMBER.

Comment

[CIT] Documentation of SUMO's concept 'ComplexNumber': "A Number that has the form: x + yi, where x and y are RealNumbers and i is the square root of -1."

// Instances

Zero
  Is an INTEGER