

Schema.Org Measurement Proposal

Version: 1.0

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Summary

In order to support describing sports statistics, we need the ability to describe measurements that happen over a certain time period, where the value of the measurement can either be a quantity or a rate. Our current schema.org vocabulary is not sufficient to cover these needs but models, somewhat inconsistently, various aspects of it.

This proposal aims to clean up the existing vocabulary and introduce new terminology to meet the needs of describing sports statistics.

Existing Ontology

```
class: Intangible
  subclass: StructuredValue
    subclass: QuantitativeValue
      property: value
      property: unitCode
      property: maxValue
      property: minValue
      property: valueReference
```

Proposal

Measurement is introduced as a new sub class of **Intangible**

```
rdfs:Class http://schema.org/Measurement
```

rdfs:comment The assignment of a number to an object or event
(see also <http://en.wikipedia.org/wiki/Measurement>)
rdfs:subClassOf <http://schema.org/Intangible>

measurementUnit is introduced as a new property with a domain of **Measurement**

```
rdf:Property http://schema.org/measurementUnit  
  rdfs:comment The unit of a measurement value (e.g. 'inch',  
  'grams', 'hits')  
  schema:domainIncludes http://schema.org/Measurement  
  schema:rangeIncludes http://schema.org/Text
```

QuantitativeValue becomes a subclass of **Measurement**

value is elevated to the domain of **Measurement**

unitCode is elevated to the domain of **Measurement**

unitCode description changed to "The UN/CEFACT Common Code (3 characters) for a unit of measurement."

MeasurementOverTime is introduced as a new sub class of **Measurement**

```
rdfs:Class http://schema.org/MeasurementOverTime  
  rdfs:comment A measurement that takes place over a certain time  
  period.  
  rdfs:subClassOf http://schema.org/Intangible
```

MeasurementOverTime is added to the domain of **startDate**

startDate description changed to "The start date and time of the event, role, measurement or item (in ISO 8601 date format).

MeasurementOverTime is added to the domain of **endDate**

endDate description changed to "The end date and time of the event, role, measurement or item (in ISO 8601 date format).

duringEvent is introduced as a new property with a domain of **MeasurementOverTime** **

```
rdf:Property http://schema.org/duringEvent  
  rdfs:comment An alternative means of defining a duration  
  associated with something; in the form of an event, rather than  
  simply a start and end date.  
  schema:domainIncludes http://schema.org/MeasurementOverTime  
  schema:rangeIncludes http://schema.org/Event
```

New Ontology

class: Intangible

```
subClass: Measurement
  property: value
  property: measurementUnit
  property: unitCode
subClass: MeasurementOverTime
  property: startDate
  property: endDate
  property: duringEvent
subClass: QuantitativeValue
  property: maxValue
  property: minValue
  property: valueReference
```

*** We should strongly consider adding this property to 'Role' and other classes where someone may want to express a duration in the form of a well-known event.*

Examples

Example 1: Interception statistics for the Seattle Seahawks American Football Team during the 2013 NFC Championship event.

```
{
  "@context": "http://schema.org",
  "@type": "SportsTeam",
  "name": "Seattle Seahawks",
  "@reverse": {
    "about": {
      "@type": "MeasurementOverTime",
      "measurementUnit": "http://en.wikipedia.org/wiki/Interception",
      "value": "2",
      "duringEvent": {
        "@type": "SportsEvent",
        "name": "2013 NFC Championship"
      }
    }
  }
}

// same as above, but within the context of the measurement instance
{
  "@context": "http://schema.org",
```

```

"@type": "MeasurementOverTime",
"about": {
  "@type": "SportsTeam",
  "name": "Seattle Seahawks"
}
"measurementUnit": "http://en.wikipedia.org/wiki/Interception"
"value": "2",
"duringEvent": {
  "@type": "SportsEvent",
  "name": "2013 NFC Championship"
},
},
}

// same as above, but within the context of the event
{
"@context": "http://schema.org",
"@type": "SportsEvent",
"name": "2013 NFC Championship",
"result": {
  "@type": "Measurement",
  "measurementUnit": "http://en.wikipedia.org/wiki/Interception",
  "value": "2",
  "about": {
    "@type": "SportsTeam",
    "name": "Seattle Seahawks"
  }
}
}
}

```

Example 2: The artists with the most cumulative weeks at number one according to Billboard 200

```

{
"@context": "http://schema.org",
"@type": "ItemList",
"@url": "http://en.wikipedia.org/wiki/Billboard\_200",
"name": "Top music artists",
"itemListElement": [
  {
    "@type": "ListItem",
    "position": 1,
    "positionBasis": {
      "@type": "Measurement",
      "value": "132",

```

```

    "measurementUnit": "http://en.wikipedia.org/wiki/Week"
  }
  "item": {
    "@type": "MusicGroup",
    "name": "Beatles"
  }
}, {
  "@type": "ListItem",
  "position": 2,
  "positionBasis": {
    "@type": "Measurement",
    "value": "67",
    "measurementUnit": "http://en.wikipedia.org/wiki/Week"
  }
  "item": {
    "@type": "MusicGroup",
    "name": "Elvis Preseley"
  }
}
]
}

```

Background

To ensure alignment on terminology, the following definitions are assumed and used within the scope of this document. These definitions are derived in most part from Wikipedia.org

Measurement - the assignment of numbers to objects or events;

Quantity - a value that is numerical in nature; it expresses a magnitude or multitude.

Rate - a ratio of two **Measurements** with differing units, with its most common and implicit secondary measurement being time.

Based on these definitions, the following additional statements can arguably be inferred.

Quantity is a type of **Measurement** or in other words, the result (value) of a **Measurement** can be a **Quantity**.

Rate is a type of **Measurement** or in other words, the result (value) of a **Measurement** can be a **Rate**. A **Rate** can be expressed as a **Number**. A **Rate** is not a **Quantity**.

Change Log

1.0.0 - 2014/08/05

- First Draft