

# Description logic view: DOLCE-No-Quality-Qualia

## Classes

### accomplishment

accomplishment  $\sqsubseteq$  event

### achievement

achievement  $\sqsubseteq$  event

### amount-of-matter

amount-of-matter  $\sqsubseteq$  physical-endurant

amount-of-matter  $\sqsubseteq \neg$  physical-object

amount-of-matter  $\sqsubseteq \neg$  feature

### arbitrary-sum

arbitrary-sum  $\sqsubseteq$  endurant

arbitrary-sum  $\sqsubseteq \exists$  part endurant

arbitrary-sum  $\sqsubseteq \neg$  non-physical-endurant

arbitrary-sum  $\sqsubseteq \neg$  physical-endurant

### dependent-place

dependent-place  $\sqsubseteq$  feature

### endurant

endurant  $\sqsubseteq \exists$  participant-in perdurant

endurant  $\sqsubseteq \forall$  part endurant

endurant  $\sqsubseteq$  spatio-temporal-particular

endurant  $\sqsubseteq \forall$  specific-constant-constituent endurant

endurant  $\sqsubseteq \neg$  perdurant

### event

event  $\sqsubseteq$  perdurant

### feature

feature  $\sqsubseteq$  physical-endurant

feature  $\sqsubseteq \exists$  host physical-endurant

feature  $\sqsubseteq \neg$  physical-object

feature  $\sqsubseteq \neg$  amount-of-matter

### **non-physical-endurant**

non-physical-endurant  $\sqsubseteq$  endurant  
non-physical-endurant  $\sqsubseteq \forall$  part non-physical-endurant  
non-physical-endurant  $\sqsubseteq \neg$  arbitrary-sum  
non-physical-endurant  $\sqsubseteq \neg$  physical-endurant

### **non-physical-object**

non-physical-object  $\sqsubseteq$  non-physical-endurant  
non-physical-object  $\sqsubseteq \exists$  generically-dependent-on physical-endurant  
non-physical-object  $\sqsubseteq \forall$  part non-physical-object

### **particular**

#### **perdurant**

perdurant  $\sqsubseteq \exists$  participant endurant  
perdurant  $\sqsubseteq \forall$  part perdurant  
perdurant  $\sqsubseteq \forall$  specific-constant-constituent perdurant  
perdurant  $\sqsubseteq$  spatio-temporal-particular  
perdurant  $\sqsubseteq \neg$  endurant

#### **physical-endurant**

physical-endurant  $\sqsubseteq \forall$  part physical-endurant  
physical-endurant  $\sqsubseteq$  endurant  
physical-endurant  $\sqsubseteq \forall$  specific-constant-constituent physical-endurant  
physical-endurant  $\sqsubseteq \neg$  arbitrary-sum  
physical-endurant  $\sqsubseteq \neg$  non-physical-endurant

#### **physical-object**

physical-object  $\sqsubseteq$  physical-endurant  
physical-object  $\sqsubseteq \neg$  feature  
physical-object  $\sqsubseteq \neg$  amount-of-matter

#### **process**

process  $\sqsubseteq$  stative

#### **relevant-part**

relevant-part  $\sqsubseteq$  feature

#### **spatio-temporal-particular**

spatio-temporal-particular  $\equiv$  particular  $\sqcap$  endurant  $\sqcup$  perdurant

### **state**

state  $\sqsubseteq$  stative

### **stative**

stative  $\sqsubseteq$  perdurant

## **Object properties**

### **abstract-location**

$\sqsubseteq$  exact-location

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlabstract-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.location-of}_i^-$

$\exists$  abstract-location Thing  $\sqsubseteq$  non-physical-endurant

### **abstract-location-of**

$\sqsubseteq$  exact-location-of

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlabstract-location-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.location-of}_i^-$

$\top \sqsubseteq \forall$  abstract-location-of non-physical-endurant

### **atomic-part**

$\sqsubseteq$  part

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlatomic-part}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpart-of}_i^-$

$\exists$  atomic-part Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  atomic-part particular

### **atomic-part-of**

$\sqsubseteq$  part-of

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlatomic-part-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpart-of}_i^-$

$\exists$  atomic-part-of Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  atomic-part-of particular

### **boundary**

$\sqsubseteq$  proper-part

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlboundary}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlboundary-of}_i^-$

$\exists$  boundary Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  boundary particular

### **boundary-of**

$\sqsubseteq$  proper-part-of

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlboundary}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlbou}$   
 $\text{of}_i^-$

$\exists$  boundary-of Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  boundary-of particular

### **constant-participant**

$\sqsubseteq$  participant

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlconstant-participant-in}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE}$   
 $\text{participant}_i^-$

$\exists$  constant-participant Thing  $\sqsubseteq$  perdurant

$\top \sqsubseteq \forall$  constant-participant endurant

### **constant-participant-in**

$\sqsubseteq$  participant-in

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlconstant-participant-in}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE}$   
 $\text{participant}_i^-$

$\exists$  constant-participant-in Thing  $\sqsubseteq$  endurant

$\top \sqsubseteq \forall$  constant-participant-in perdurant

### **exact-location**

$\sqsubseteq$  generic-location

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlexact-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}$   
 $\text{location-of}_i^-$

$\exists$  exact-location Thing  $\sqsubseteq$  particular

### **exact-location-of**

$\sqsubseteq$  generic-location-of

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlexact-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}$   
 $\text{location-of}_i^-$

$\top \sqsubseteq \forall$  exact-location-of particular

### **generic-constituent**

$\sqsubseteq$  immediate-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlgeneric-constituent-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-}$   
 $\text{constituent}_i^-$

$\exists$  generic-constituent Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  generic-constituent particular

### **generic-constituent-of**

⊆ immediate-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlgeneric-constituent-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlconstituent}_i^-$

$\exists$  generic-constituent-of Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  generic-constituent-of particular

### **generic-dependent**

⊆ immediate-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlgeneric-dependent}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owldependent-on}_i^-$

$\exists$  generic-dependent Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  generic-dependent particular

### **generic-location**

⊆ mediated-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlgeneric-location-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owllocation}_i^-$

$\exists$  generic-location Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  generic-location particular

### **generic-location-of**

⊆ mediated-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlgeneric-location-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owllocation}_i^-$

$\exists$  generic-location-of Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  generic-location-of particular

### **generically-dependent-on**

⊆ immediate-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlgeneric-dependent}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owldependent-on}_i^-$

$\exists$  generically-dependent-on Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  generically-dependent-on particular

### **host**

⊆ specifically-constantly-dependent-on

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlhost-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlhost}_i^-$

$\exists$  host Thing  $\sqsubseteq$  feature

$\top \sqsubseteq \forall$  host physical-endurant

### host-of

$\sqsubseteq$  specific-constant-dependent  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlhost-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlhost-of}_i^-$   
 $\exists$  host-of Thing  $\sqsubseteq$  physical-endurant  
 $\top \sqsubseteq \forall$  host-of feature

### identity-c

$\sqsubseteq$  immediate-relation  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlidentity-c}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlidentity-c}_i^-$   
 $\exists$  identity-c Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  identity-c particular

### identity-n

$\sqsubseteq$  immediate-relation  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlidentity-n}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlidentity-n}_i^-$   
 $\exists$  identity-n Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  identity-n particular

### immediate-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlimmediate-relation-i}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlimmediate-relation-i}_i^-$   
 $\exists$  immediate-relation Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  immediate-relation particular

### immediate-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlimmediate-relation-i}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlimmediate-relation-i}_i^-$   
 $\exists$  immediate-relation-i Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  immediate-relation-i particular

### inherent-in

$\sqsubseteq$  immediate-relation  
 $\top \sqsubseteq \forall$  inherent-in particular

### life

$\sqsubseteq$  constant-participant-in  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlife}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlife-of}_i^-$   
 $\exists$  life Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  life perdurant

### life-of

$\sqsubseteq$  constant-participant  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}life_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}life\text{-of}_i^-$   
 $\exists$  life-of Thing  $\sqsubseteq$  perdurant  
 $\top \sqsubseteq \forall$  life-of endurant

### mediated-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}mediated\text{-relation-}i_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}mediated\text{-relation}_i^-$   
 $\exists$  mediated-relation Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  mediated-relation particular

### mediated-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}mediated\text{-relation-}i_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}mediated\text{-relation}_i^-$   
 $\exists$  mediated-relation-i Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  mediated-relation-i particular

### mereologically-coincides

$\sqsubseteq$  temporary-part  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}mereologically\text{-coincides}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}mereologically\text{-coincides}_i^-$   
 $\exists$  mereologically-coincides Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  mereologically-coincides endurant

### overlaps

$\sqsubseteq$  mediated-relation  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}overlaps_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}overlaps_i^-$   
 $\exists$  overlaps Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  overlaps particular

### part

$\sqsubseteq$  immediate-relation  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}part\text{-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}part_i^-$   
 $\exists$  part Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  part particular

### part-of

$\sqsubseteq$  immediate-relation-i  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}part\text{-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl}part_i^-$   
 $\exists$  part-of Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  part-of particular

### **participant**

$\sqsubseteq$  immediate-relation

$\text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlparticipant}_i \equiv \text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpa}$   
 $\text{in}_i^-$

$\exists$  participant Thing  $\sqsubseteq$  perdurant

$\top \sqsubseteq \forall$  participant enduring

### **participant-in**

$\sqsubseteq$  immediate-relation-i

$\text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlparticipant}_i \equiv \text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpa}$   
 $\text{in}_i^-$

$\exists$  participant-in Thing  $\sqsubseteq$  enduring

$\top \sqsubseteq \forall$  participant-in perdurant

### **partly-compresent**

$\sqsubseteq$  mediated-relation

$\text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpartly-compresent}_i \equiv \text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite}$   
 $\text{compresent}_i^-$

$\exists$  partly-compresent Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  partly-compresent particular

### **physical-location**

$\sqsubseteq$  exact-location

$\text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlphysical-location}_i \equiv \text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite}$   
 $\text{location-of}_i^-$

$\exists$  physical-location Thing  $\sqsubseteq$  physical-endurant

### **physical-location-of**

$\sqsubseteq$  exact-location-of

$\text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlphysical-location}_i \equiv \text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite}$   
 $\text{location-of}_i^-$

$\top \sqsubseteq \forall$  physical-location-of physical-endurant

### **proper-part**

$\sqsubseteq$  part

$\text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlproper-part}_i \equiv \text{[http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpr}$   
 $\text{part-of}_i^-$

$\exists$  proper-part Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  proper-part particular



### **proper-part-of**

$\sqsubseteq$  part-of

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlproper-part}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlpr}$   
 $\text{part-of}_i^-$

$\exists$  proper-part-of Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  proper-part-of particular

### **q-location**

$\sqsubseteq$  immediate-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlq-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlq-l}$   
 $\text{of}_i^-$

### **q-location-of**

$\sqsubseteq$  immediate-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlq-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlq-l}$   
 $\text{of}_i^-$

### **q-present-at**

$\sqsubseteq$  mediated-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltime-of-q-presence-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-L}$   
 $\text{present-at}_i^-$

### **r-location**

$\sqsubseteq$  immediate-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlr-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlr-lo}$   
 $\text{of}_i^-$

### **r-location-of**

$\sqsubseteq$  immediate-relation-i

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlr-location}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlr-lo}$   
 $\text{of}_i^-$

### **sibling-part**

$\sqsubseteq$  mediated-relation

$\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl sibling-part}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl s}$   
 $\text{part}_i^-$

$\exists$  sibling-part Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  sibling-part particular

### **spatio-temporal-presence-of**

$\sqsubseteq$  exact-location-of  
|<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#spatio-temporal-presence-of>  $\equiv$  |<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#spatio-temporally-present-at><sup>-</sup>  
 $\top \sqsubseteq \forall$  spatio-temporal-presence-of particular

### **spatio-temporally-present-at**

$\sqsubseteq$  exact-location  
|<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#spatio-temporal-presence-of>  $\equiv$  |<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#spatio-temporally-present-at><sup>-</sup>  
 $\exists$  spatio-temporally-present-at Thing  $\sqsubseteq$  particular

### **specific-constant-constituent**

$\sqsubseteq$  immediate-relation  
|<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specific-constant-constituent>  $\equiv$  |<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specific-constant-constituent-of><sup>-</sup>  
 $\exists$  specific-constant-constituent Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  specific-constant-constituent particular

### **specific-constant-constituent-of**

$\sqsubseteq$  immediate-relation-i  
|<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specific-constant-constituent>  $\equiv$  |<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specific-constant-constituent-of><sup>-</sup>  
 $\exists$  specific-constant-constituent-of Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  specific-constant-constituent-of particular

### **specific-constant-dependent**

$\sqsubseteq$  immediate-relation  
|<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specific-constant-dependent>  $\equiv$  |<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specifically-constantly-dependent-on><sup>-</sup>  
 $\exists$  specific-constant-dependent Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  specific-constant-dependent particular

### **specifically-constantly-dependent-on**

$\sqsubseteq$  immediate-relation-i  
|<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specific-constant-dependent>  $\equiv$  |<http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl#specifically-constantly-dependent-on><sup>-</sup>  
 $\exists$  specifically-constantly-dependent-on Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  specifically-constantly-dependent-on particular

### **strong-connection**

$\sqsubseteq$  mediated-relation

$\{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlstrong-connection}_i \equiv \{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite-connection}_i \}^-$

$\exists$  strong-connection Thing  $\sqsubseteq$  particular

$\top \sqsubseteq \forall$  strong-connection particular

### **t-inherent-in**

$\sqsubseteq$  inherent-in

$\top \sqsubseteq \forall$  t-inherent-in particular

### **temporary-atomic-part**

$\sqsubseteq$  temporary-proper-part

$\{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-atomic-part-of}_i \equiv \{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-atomic-part}_i \}^-$

$\exists$  temporary-atomic-part Thing  $\sqsubseteq$  endurant

$\top \sqsubseteq \forall$  temporary-atomic-part endurant

### **temporary-atomic-part-of**

$\sqsubseteq$  temporary-proper-part-of

$\{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-atomic-part-of}_i \equiv \{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-atomic-part}_i \}^-$

$\exists$  temporary-atomic-part-of Thing  $\sqsubseteq$  endurant

$\top \sqsubseteq \forall$  temporary-atomic-part-of endurant

### **temporary-part**

$\sqsubseteq$  part

$\sqsubseteq$  partly-compresent

$\{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-part-of}_i \equiv \{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite-part}_i \}^-$

$\exists$  temporary-part Thing  $\sqsubseteq$  endurant

$\top \sqsubseteq \forall$  temporary-part endurant

### **temporary-part-of**

$\sqsubseteq$  partly-compresent

$\sqsubseteq$  part-of

$\{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-part-of}_i \equiv \{ \text{http://www.loa-cnr.it/ontologies/DOLCE-Lite-part}_i \}^-$

$\exists$  temporary-part-of Thing  $\sqsubseteq$  endurant

$\top \sqsubseteq \forall$  temporary-part-of endurant

### **temporary-participant**

$\sqsubseteq$  participant  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-participant}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-participant-in}_i^-$   
 $\exists$  temporary-participant Thing  $\sqsubseteq$  perdurant  
 $\top \sqsubseteq \forall$  temporary-participant endurant

### **temporary-participant-in**

$\sqsubseteq$  participant-in  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-participant}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-participant-in}_i^-$   
 $\exists$  temporary-participant-in Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  temporary-participant-in perdurant

### **temporary-proper-part**

$\sqsubseteq$  temporary-part  
 $\sqsubseteq$  proper-part  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-proper-part}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-proper-part-of}_i^-$   
 $\exists$  temporary-proper-part Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  temporary-proper-part endurant

### **temporary-proper-part-of**

$\sqsubseteq$  proper-part-of  
 $\sqsubseteq$  temporary-part-of  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-proper-part}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltemporary-proper-part-of}_i^-$   
 $\exists$  temporary-proper-part-of Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  temporary-proper-part-of endurant

### **time-of-q-presence-of**

$\sqsubseteq$  mediated-relation-i  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltime-of-q-presence-of}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltime-of-q-presence-of}_i^-$

### **total-constant-participant**

$\sqsubseteq$  constant-participant  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-constant-participant}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-constant-participant-in}_i^-$   
 $\exists$  total-constant-participant Thing  $\sqsubseteq$  perdurant  
 $\top \sqsubseteq \forall$  total-constant-participant endurant

### **total-constant-participant-in**

$\sqsubseteq$  constant-participant-in  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-constant-participant-in}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-constant-participant-in}_i^-$   
 $\exists$  total-constant-participant-in Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  total-constant-participant-in perdurant

### **total-temporary-participant**

$\sqsubseteq$  temporary-participant  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-temporary-participant-in}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-temporary-participant-in}_i^-$   
 $\exists$  total-temporary-participant Thing  $\sqsubseteq$  perdurant  
 $\top \sqsubseteq \forall$  total-temporary-participant endurant

### **total-temporary-participant-in**

$\sqsubseteq$  temporary-participant-in  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-temporary-participant-in}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owltotal-temporary-participant-in}_i^-$   
 $\exists$  total-temporary-participant-in Thing  $\sqsubseteq$  endurant  
 $\top \sqsubseteq \forall$  total-temporary-participant-in perdurant

### **weak-connection**

$\sqsubseteq$  immediate-relation  
 $\text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlweak-connection}_i \equiv \text{!http://www.loa-cnr.it/ontologies/DOLCE-Lite.owlweak-connection}_i^-$   
 $\exists$  weak-connection Thing  $\sqsubseteq$  particular  
 $\top \sqsubseteq \forall$  weak-connection particular

## **Data properties**

### **Individuals**

org.coode.owlapi.latex.LatexWriter@158c52c