

Motivation

- There are domain concepts that can be represented according to multiple alternative classification criteria
- This pattern mitigates the opportunity for ad-hoc decisions in such ontology modelling scenario



wine



pizza



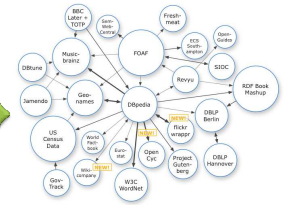
person



dish detergent



and eventually in...



the web of data

FCS Generic Structure

- **TDC**: Target Domain Concept
- **Facet_i**: *Facet₁, Facet₂, ..., rest of facets*
- **F_iTerm_j**: Terms or foci organized by facets
 - *Facet₁: F₁Term₁, F₁Term₂, ..., rest of terms in Facet₁*
 - *Facet₂: F₂Term₁, F₂Term₂, ..., rest of terms in Facet₂*
 - ... rest of terms by facet
- **Item_x**: Set of items to classify: *Item₁, Item₂, ..., rest of items*

Comparative
Analysis

Normalisation ODP Generic Structure

```
owl:Thing
  |- :Modulei
  |- :MiClassj
  |- :TargetDomainConcept (or :TDC)
  |- (≡) :MiClassjTDC
  |- :SpecificTDCx

owl:topObjectProperty
  |- :hasModulei
```

Alignment of a Faceted Classification Scheme and the Normalisation ODP

Information Science	Ontology Modelling			
	Faceted Classification Scheme	Normalisation ODP	FCS in Normalisation ODP	OWL Implementation
TDC		:TDC		owl:Class (primitive)
Facet _i		:Module _i	:Facet _i	owl:Class (primitive)
		:hasModule _i	:hasFacet _i	owl:ObjectProperty
F _i Term _j		:M _i Class _j	:F _i Term _j	owl:Class (primitive)
		:M _i Class _j TDC	:F _i Term _j TDC	owl:Class(defined) (≡)
Item _x			:SpecificTDC _x	owl:Class (primitive)

Dish Detergent FCS Example

Facet	Terms
Agent	dishwasher, person
Form	gel, gelpac, liquid, powder, tablet
Brand Name	Cascade, Electrasol, Ivory, Palmolive, President's Choice, [...]
Scent	green apple, green tea, lavender, lemon, mandarin, ocean breeze, [...]
Effect on Agent	aroma therapy (subdivisions: invigorating, relaxing)
Special Property	antibacterial

Alignment
Guidelines

Dish Detergent FCS Normalisation Example

```
owl:Thing
  |- :Agent
  |- :Person
  |- :Dishwasher
  |- :Form
  |- :Gel
  |- :Gelpac
  |- (... rest of terms
    in the facet "Form")
  |- :BrandName
  |- :Cascade
  |- :Electrasol
  |- (... rest of terms
    in the facet "Brand Name")
  |- :Scent
  |- :GreenApple
  |- :GreenTea
  |- (... rest of terms
    in the facet "Scent")
  |- :EffectOnAgent
  |- :AromaTherapy
  |- :Invigorating
  |- :Relaxing
  |- :SpecialProperty
  |- :Antibacterial
```

```
owl:Thing
  |- :DishDetergent (:TDC)
  |- (≡) :ManualDishDetergent
  |- (≡) :DishwasherDishDetergent
  |- (≡) :GelDishDetergent
  |- (≡) :GelpacDishDetergent
  |- (≡) (... rest of subclasses for each
    term in the facet "Form")
  |- (≡) :CascadeDishDetergent
  |- (≡) :ElectrasolDishDetergent
  |- (≡) (... rest of subclasses for each
    term in the facet "Brand Name")
  |- (≡) :GreenAppleDishDetergent
  |- (≡) :GreenTeaDishDetergent
  |- (≡) (... rest of subclasses for each
    term in the facet "Scent")
  |- (≡) :AromaTherapyDishDetergent
  |- (≡) :InvigoratingDishDetergent
  |- (≡) :RelaxingDishDetergent
  |- (≡) :AntibacterialDishDetergent
  |- :PresidentsPersonLiquidAntibacterial
  |- :PalmoliveAromaTherapyLavenderYlangYlang
  |- :SpecificDishDetergent3
  |- (... rest of :SpecificDishDetergentx)
```