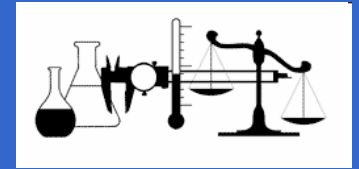


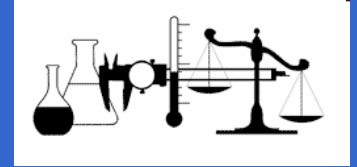
Scope of the Units of Measure Ontology

Ed Barkmeyer
NIST



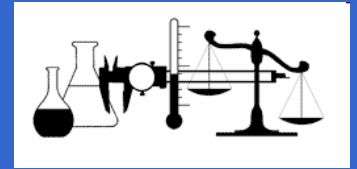
Scope issues

- units only, or quantities and units models
- specific named units: SI-only, metric-only
- derivation
- conversion
- scales
- measurement and uncertainty
- specification and tolerance
- modules, microtheories, priorities
- other standards



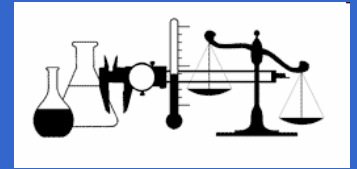
Quantities model

- Do we need a model of Quantity for units?
- Quantities that are not scalar?
- “particular quantity” and/or
“abstract quantity” or “quantity magnitude”?
 - which is ‘quantity’?



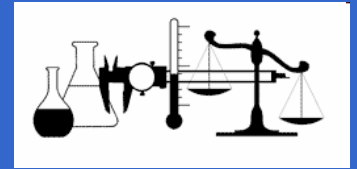
Dimensions

- ‘quantity kind’/’dimension’ ?
- ‘system of quantities’?
 - ‘base quantity’, ‘derived quantity’
 - SI only?
- Explicit model of the SI base quantities
 - Length, mass, time, temperature, current, ...
- Derivations of derived quantities?
 - dimension expressions



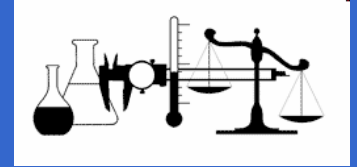
Explicit units

- Which explicit units?
 - metre, gram, second, ampere, etc.
 - metric prefixes
- Which explicit derived units?
- library of derived units?
 - Maintenance agency v. registration authority
Controlled or just registration rules
 - UCUM, UnitsML
 - Published extensions
- Unit derivations?



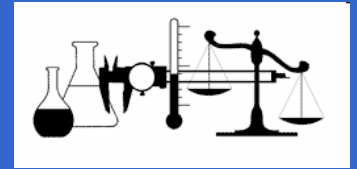
Quantity Scales

- Does the ontology cover quantity scales?
- Ratio scales (length, time, etc.)
- Absolute scales (mass, temperature, etc.)
- Non-linear scales (logarithmic, other?)
- Reference scales (hardness, etc.)



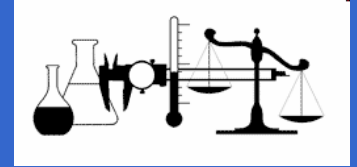
Unit Conversions

- Does the ontology model unit conversions?



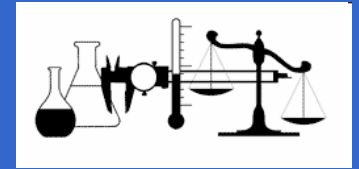
Measurement and Uncertainty

- Do we model particular quantities and measurements?
- How much of measurement?
 - nominal values
 - uncertainties
 - conditions and equipment
- How much of uncertainty?



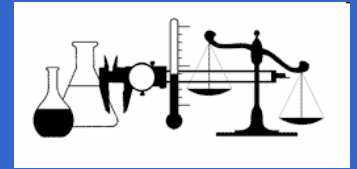
Specification and tolerance

- Do we model quantity specifications?
- Do we model tolerances?
- How much of specification and tolerance



Modularization

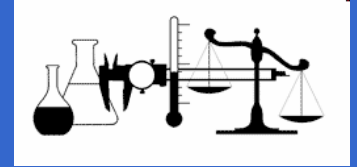
- Should we divide the ontology into modules?
 - quantities, systems, units, scales?
- Explicit microtheories
 - for specification and tolerance
 - for measurement and uncertainty
 - other?
- Prioritization of deliverables
- Published extensions



Other Standards

- Relationship to other standards efforts
 - UCUM
 - UnitsML
 - Other”

Other



- ?