

ISO/IEC JTC 1/SC 34 N 1329

DATE: 2009-11-26

ISO/IEC JTC 1/SC 34
Document Description and Processing Languages
Secretariat: [Japan \(JISC\)](#)

DOC. TYPE	Meeting Report						
TITLE	TMCL Issues - Leipzig, November 2009						
SOURCE	WG 3 Convenor [Mr. Patrick DURUSAU]						
PROJECT	JTC1.34.19756						
STATUS	Notes from the WG 3 Leipzig meeting on FCD 19756, Topic Map -- Constraint Language (TMCL). This document is circulated to the SC 34 members for information.						
ACTION ID	FYI						
DUE DATE							
DISTRIBUTION	P, O and L Members of ISO/IEC JTC 1/SC 34 ; ISO/IEC JTC 1 Secretariat; ISO/IEC ITTF						
ACCESS LEVEL	Open						
ISSUE NO.	106						
FILE	<table><tr><td>NAME</td><td>1329.pdf</td></tr><tr><td>SIZE (KB)</td><td></td></tr><tr><td>PAGES</td><td>22</td></tr></table>	NAME	1329.pdf	SIZE (KB)		PAGES	22
NAME	1329.pdf						
SIZE (KB)							
PAGES	22						

Secretariat ISO/IEC JTC 1/SC 34 - IPSJ/ITSCJ (Information Processing Society of Japan/Information Technology Standards Commission of Japan)* Room 308-3, Kikai-Shinko-Kaikan Bldg., 3-5-8, Shiba-Koen, Minato-ku, Tokyo 105-0011 Japan *Standard Organization Accredited by JISC
Telephone: +81-3-3431-2808 ; Facsimile: +81-3-3431-2808; E-mail: kimura@itscj.ipsj.or.jp



TMCL Issues

Leipzig, November 2009



Current status of TMCL

- We have a draft that's been through a few iterations
 - we think it's fairly solid
 - however, it's not yet implemented, as far as we know
- The standard is currently at FCD
 - next ballot is FDIS, which means *no more changes of substance*
- So we really need to get a solid draft together
 - *then* go to ballot
- We've spent a lot of time on this
 - we really need to wrap this one up and move on

<http://projects.topicmapslab.de/projects/tmcl/issues>



1458: Referring to validation rules

- Feedback from Seattle meeting:
 - "Global validation rules section numbering. We need it for referring to them."
- However
 - this would bloat the table of contents dramatically
 - it would also inflate the size of the text by introducing lots of new headings
 - it gets worse because text before rule needs a separate subclause
 - *there are no clauses which have more than one global validation rule*
- Proposal
 - just say "clause 7.5 global validation rule", or
 - "7.5 GVR"
- Clarification: the spec will not say anything about references to validation rules
- **Don't require clauses for GVRs**

1447: Error messages for user-defined constraints

- How are violations of user-defined constraints to be reported?
 - current spec doesn't say anything about it
 - a possible convention would be to use at least the name of the constraint topic in the report
 - however, not clear if TMCL should say anything about this
- Alternatively, one could use TMQL expressions to build the error message

```
c isa tmcl:denial-constraint;  
- "Person died before being born";  
tmcl:validation-expression: " // person [ . / date-of-birth <= . / date-of-death ] ";  
tmcl:error-message: " 'Person ' + $this + ' died ' + $this / date-of-death + ', but  
was born ' + $this / date-of-birth " .
```

**There is no real notion of 'error' and we don't have this for built in constraints.
Don't do this.**



1474: Item identifier constraints

- Should there be a constraint type for this?
- Arguments against
 - inflates the size of the spec
 - not clear that there is much need
 - can be solved using user-defined constraints
- Arguments for
 - looks odd to have them for subject-* and not item-identifiers
 - People have use case, item identifiers is key to source of topic, identifiers are used in TMQL

Add this constraint type.



1490: Datatype for regular expressions?

- Should there be one?
 - the `tmcl:regexp` occurrence type would then use it
- Arguments against
 - requires TMCL to define one extra datatype,
 - requires processors to support one extra datatype,
 - XML Schema (which defined the language) has no datatype for it
- Arguments for
 - ?

Don't need this.



How are TMCL schemas identified?

- Using subject locators?
tmcl-schema isa tmcl:schema;
= <http://www.isotopicmaps.org/tmcl/2009-10-26/schema.ctm> ; # location of file
- "TMCL schema" .
- Or using subject identifier?
tmcl-schema isa tmcl:schema;
<http://psi.topicmaps.org/tmcl/meta-schema/2009-10-26> ; # PSI
- "TMCL schema" .
- We don't need to say anything on this beyond standard mechanisms in tmdm



1446: Indicating the schema used

- Should topic maps have a way to say what schema they follow?
 - general agreement that if so, this is just documentation
 - that is, the user decides what schema to validate against, not the topic map
- Some possible approaches
 1. An occurrence on the reified topic map refers to the schema file.
 2. **An association from the reified topic map connects to a schema topic.**
 3. Typing topics connect with a schema topic via `tmcl:is-defined-by`.

1473: tmcl:imports

- Should there be a way to import another TMCL schema?
 - at the syntactic level there already is (%include / <mergeMap>)
 - however, at the logical level there is no support for this
- Similar proposals to 1446
 - occurrence type referring to imported file
 - associations to schema topic representing schema to be imported
- What are the semantics?
 - validate against this schema, too, but don't mess up my current topic map?
 - same as mergemap?

Add an association type 'includes-schema' which connects two schema topics together. Validating against one schema will validate against all stated (transitively) included schemas. Applications are responsible for fetching / finding all the constraints for the schema.



1495: min/max values for occurrences

- Should it be possible to constrain the range of values for occurrences?
 - for example: the value of the “age” occurrence must be in the range 0-150
- Possible resolutions:
 1. Add a new occurrence-value-range-constraint with min/max occurrences.
 2. Don't do anything, because this can be done with user-defined constraints.
 3. Consider value restrictions to be part of the datatype definition. (XSD does.)
 - unfortunately, TMCL does not provide support for user-defined datatypes

Don't do this. Too much bloat if we do it completely. E.g. string length, date min etc.

847: Variant constraints

- Rejected in Seattle, but users not happy
- Proposal:

```
def has-variant($tt, $nt, $t, $min, $max)
  ?c isa tmcl:variant-constraint;
  tmcl:card-min: $min;
  tmcl:card-max: $max.
```

```
tmcl:constrained-topic-type(tmcl:constrains : ?c, tmcl:constrained : $tt)
tmcl:constrained-statement(tmcl:constrains : ?c, tmcl:constrained : $nt)
tmcl:required-scope(tmcl:constrains : ?c, tmcl:constrained : $t)
end
```

This proposal is underpowered. It cannot express different cardinalities for the different topics appearing on different variants.

Suggested that this compromise of 'one scope' supported would be acceptable in order to advance the completion of standard.

1505: Simplify TMCL structure

I'd like to propose to simplify the internal structure of the TMCL schema (without changing its behavior). That means to represent all constraints not as topic-types but as association-types and respectively all association-types the constraints are involved with, as the corresponding role-types. This is possible because a) all constraints have a connection to the constrained topic-type through exactly one association b) all these associations are binary 1-1-associations (the min and max cardinality equals 1 for both roles). So a) fulfils the association pattern and b) the role pattern.

- Some constraints hold additional data like min max cardinalities in occurrences. I suggest to represent that in a topic (having the same occurrences as the constraint before) which either a) reifies the constraint association or b) plays an additional role in it.

No.



1506: Renaming of role constraints

- Michael Quaas suggests renaming
 - topic-role-constraint to plays-role-constraint
 - association-role-constraint to has-role-constraint

Leave as is.



1507: role-combination-constraint for n-ary

- The constraint already supports n-ary associations
 - but only allows specifying rules for pairs of roles
- Michael Quaas suggests extending it
 - not clear how to represent arbitrarily large rules
 - Dmitry says he has a proposal for patterns which may be relevant

This promotes bad modelling practice. People can do this with TMQL if they want.



1521: constrained-association

I find it more consistent when for example the plays-role template would look like this:

```
tmcl:constrained-topic-type(tmcl:constrains : ?c, tmcl:constrained : $tt)
```

```
tmcl:constrained-ASSOCIATION(tmcl:constrains : ?c, tmcl:constrained : $at)
```

```
tmcl:constrained-role(tmcl:constrains : ?c, tmcl:constrained : $rt)
```

instead of

```
tmcl:constrained-topic-type(tmcl:constrains : ?c, tmcl:constrained : $tt)
```

```
tmcl:constrained-STATEMENT(tmcl:constrains : ?c, tmcl:constrained : $at)
```

```
tmcl:constrained-role(tmcl:constrains : ?c, tmcl:constrained : $rt)
```

Proposal to have `tmcl:constrained-association` as a subtype of `tmcl:constraint-statement` and use it in the appropriate places.



1606: Multiple association signatures

- The current draft does not allow specifying association types like
 - works-for(person, company)
 - works-for(person, non-profit-organization)
- The editors do not believe that this is good modelling
 - either there should only be a single signature, or
 - if the difference is meaningful, two separate association types

Role type hierarchies resolves this issue. Company and non-profit org can have the same super type.



New: Variant constraints

- Do we need \$tt for variant constraints, wouldn't they be consistent across all uses of the name type, regardless of topic type?



New: Inheritance does not allow overriding

- Vehicle with occurrence type 'no of wheels' with a regexp 2 – 8.
- Car inherits but the regexp is '4', but the occurrence types is the same...
- Adding back occurrence / name constraints to be topic type contextual could resolve this. Could be done as an additional constraint type.



New: Missing Variant Constraints

- It is more than just cardinality/ scope constraints that are requested on variants.
- But the following constraints of the variants are required in some case:
 - Cardinality Constraint
 - Reifier Constraint
 - Unique Value Constraint
 - Regular expression Constraint
- **Create a big ugly hairy variant constraint that can do everything.**



New: Scope Type and Reifier Type

- Why don't we still have scope type to constrain the topics that are allowed to be scope topics.
- **Scope types are implied. By scope constraint.**



New: 7.9 doesn't work for association types

- Requires-scope requires a type context. This works for names, occurrences but not for associations.
- **Fix!**