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Canadian Contribution on Formal Descriptive Techniques (FDT)

Canada has surveyed its National Level shadow committees and found that Formal Descriptive Techniques are in active use within several committees. Please see the attached document for specific examples and usages. Further, it has been identified by several committees that use of Formal Descriptive Techniques is planned for the development of future standards.

Canada therefore believes that it would be inappropriate to remove the text related to the use of FDTs from the draft JTC 1 Supplement, and inappropriate to delete the proposed Standing Document on Formal Descriptive Techniques.

Canada therefore proposes the following draft resolution for adoption at the JTC 1 2009 Plenary.

"Resolution aa - Formal Descriptive Techniques

JTC 1 instructs SWG-Directives to maintain text related to Formal Descriptive Techniques in the draft of the JTC 1 Supplement. Further, JTC 1 instructs SWG-Directives to maintain the draft of the Standing Document on Formal Descriptive Techniques."

Canada recognizes that the content of the Standing Document on Formal Descriptive Techniques is in need of updating. Canada recommends to JTC 1 that the Subcommittees identified in the attached, and others who are also using FDTs, should be instructed to work with SWG-D in the preparation of a revision of the Standing Document, to commence subsequent to the close of the JTC 1 2010 Plenary.

Canadian Submission on Formal Descriptive Techniques

SWG-Directives has discussed the retention of text on the use of Formal Descriptive Techniques in the JTC 1 Supplement and the continued need for the Standing Document on this topic.

Canada has investigated this topic and notes that Formal Description Techniques are in use by several subcommittees within JTC 1 in support of standardization activities, and that they are planning to use them in the future.
In particular:

- SC 7 is using FDTs as follows:
  - In summary the trend is to use formal definition techniques for all SC 7 Standards. However there is no intent of creating FDTs simply for the purpose of specifying standards, but to use existing (or subset/profiles thereof) formal standardized modeling technique.
  - Business Process Specification
    SC 7 does not yet use a "formal" definition technique for Systems/Software Engineering (business) processes (12207, 15288, ...) (about 50% of its standards). It formalized the English definition technique in terms of templates, and published that as a TR (24774). However one of its working groups is preparing a more formal technique, which will probably be a subset of BPM formal modeling techniques
  - Transfer Format Specifications
    Transfer formats (e.g. Petri-net 15909-2) are specified in XML, and the corresponding metamodel using MOF 19503 (UML).
  - Modeling Language Specification
    UML (19505) is used to specify UML Profiles for ODP (19793) Mathematics is used to specify Petri-Nets (15909-1)
  - Metamodel Specification
    A subset of UML (19505) is used to specify the metamodel for methods (24744).
- SC 22 is using FDTs as follows:
  - Most programming languages use Backus Naur form (VDL) to present the syntax of the languages.
- SC 27 is using FDTs as follows:
  - in the development and maintenance of cryptographic elements which is applicable to many of the SC 27 standards. Some of the methods used are Petri Nets, UML State Charts.
- SC 32 is using the FDTs as follows:
  - MOF (UML) for specifying metadata, Petrinets and state transition FDTs for specifying active behaviour and is adding UML FDT.
- SC 34 is using the FDT Schematron formal-logic:
  - ISO/IEC 197587-3 Information technology — Document Schema Definition Languages (DSDL) — Part 3: Rule-based validation — Schematron is formal-logic based.
- SC 36 is using FDTs as follows:
  - standards development work; the use of FDTs is emphasised for modelling purpose and to ensure computer process-ability of implementations based on SC 36 standards.

Use of FDTs in standards is found in Normative Clauses and/or Annexes as well as informative annexes.

  - The two key FDTs currently in use are UML and Schematron. With respect to transfer syntaxes use is made of XML and RDF.

Given the above usage, it is Canada's position that:

- There is clearly a need to keep requirements for Formal Description Techniques in the JTC 1 Supplement to the ISO/IEC Directives,
- The proposed Standing Document must be preserved, and
- The existing text of the proposed SD requires an update. This should be done as soon as practical after the close of the JTC 1 2010 Plenary.