TPTP v3.0.0

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The TPTP (Thousands of Problems for Theorem Provers) problem library is a library of test problems for ATP systems. Since the first release of the TPTP in 1993, many researchers have used the TPTP as an appropriate and convenient basis for testing their ATP systems. Although other test problems do exist and are sometimes used, the TPTP is now the de facto standard for testing classical 1st order ATP systems. TPTP v3.0.0 will be released in 2004. The most significant feature of TPTP v3.0.0 will be a change to the new TSTP syntax, whose salient features are described below. TPTP v3.0.0 will contain the same problems as TPTP v2.7.0. The TSTP syntax makes minimal changes to the core syntax for problems, so that users of the TPTP will need to make only minimal changes to their input reading code to use the new syntax. For those who are more deeply committed to the TPTP syntax, tptp2X will be able to translate the library (as is done by users of other syntaxes, e.g., the DFG and Otter syntaxes). Along with TPTP v3.0.0 will be a new enhanced tptp2X utility, and a library of C code for parsing and manipulating TSTP files. It is also hoped that the release of TPTP v3.0.0 will coincide with the first official release of the TSTP library (but no promises).

About the TSTP syntax: When the TPTP was initiated in 1992, it was decided to write the formulae in a syntax that could be read directly in Prolog, so as to provide a very low entry barrier for use. The syntax was designed for problems in CNF, and a separate syntax for problems in FOF was introduced in 1997. Despite careful design of the FOF formula syntax, little (no?) thought was given to the use of syntax for writing solutions. In 2003 the TSTP syntax was developed. The TSTP syntax is suitable for writing the problems that are input to ATP systems, and also for writing the solutions that are output from ATP systems. The TSTP syntax extends the TPTP FOF syntax. Particularly important features are:

- A consistent, Prolog compatible, abstract syntax
- A core syntax for problems, which is minimally changed from the TPTP syntax
- An extended syntax with specific features for writing derivations
- A common syntax for classical CNF and FOF formulae
- Extensibility for logics and formats other than classical CNF and FOF
- Fields and an abstract syntax for annotating formula and recording non-logical information
- A formally specified set of status values for problems
- A formally specified set of formula types (including the replacement of the `conjecture` status in CNF problems with the new `disbelief` status)
- Separate name spaces for reserved words, e.g., `$true` and `$false`, and numbers
- Infix notation for equality
- Selective `include` directives that allow specification of which named formulae should or should not be included from another file.

And the future ... The TSTP syntax makes significant improvements over the TPTP syntax. It's flexible nature makes it possible to consider important extensions, including the use of theories, the specification of sort information, and syntax for higher order and non-classical logics. It is recognized that the continued value of the TPTP is based largely on the satisfaction of its users, and their input is valuable in the continued development of the TPTP.