

**PACKAGE ID** - 000482AL00000 OTTER2

**KWIC TITLE** - Resolution Style Theorem Prover

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**LIMITATION CODE** -UNL                   **AUDIENCE CODE** - UNL

**COMPLETION DATE** - 04/01/1990   **PUBLICATION DATE** - 04/01/1990

**DESCRIPTION** - OTTER2 (Organized Techniques for Theorem-proving and Effective Research) is a resolution-style theorem-proving program for first-order logic with equality. OTTER2 includes the inference rules binary resolution, hyperresolution, UR-resolution, and binary paramodulation. These inference rules take a small set of clauses and infer a clause. If the inferred clause is new and useful, it is stored and may become available for subsequent inferences. Other capabilities are conversion from first-order formulas to clauses, forward and back subsumption, factoring, weighting, answer literals, term ordering, forward and back demodulation, and evaluable functions and predicates.

**PACKAGE CONTENTS** - Software Abstract; Media Directory; ANL-90/9;

**SOURCE CODE INCLUDED?** - Yes

**MEDIA QUANTITY** - 2 3.5 Diskettes

**METHOD OF SOLUTION** - For its inference process OTTER2 uses the given-clause algorithm, which can be viewed as a simple implementation of the set of support strategy. OTTER2 maintains three lists of clauses: axioms, sos (set of support), and demodulators. OTTER2 is not automatic. Even after the user has encoded a problem into first-order logic or into clauses, the user must choose inference rules, set options to control the processing of inferred clauses, and decide which input formulae or clauses are to be in the initial set of support and which, if any, equalities are to be demodulators. If OTTER2 fails to find a proof, the user may try again with different initial conditions.

**COMPUTER** - APPLE MACINTOSH

**OPERATING SYSTEMS** - MAC-OS

**PROGRAMMING LANGUAGES** - C

**SOFTWARE LIMITATIONS** - Maxima of 5000 characters in an input string 64 distinct variables in a clause 51 characters in any symbol. These maxima can be changed by finding the appropriate definition (define) in the header.h file, increasing the limit, and recompiling OTTER2. There are a few constraints on the order of commands.

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**SOURCE CODE AVAILABLE (Y/N)** - Y

**RELATED SOFTWARE** - OTTER2 is similar in scope and purpose to the AURA and LMA, ITP theorem provers.

**HARDWARE REQS** - Apple Macintosh

**REFERENCES** - William W. McCune, OTTER 2.0 Users' Guide, ANL-90-9, March 1990\ L. Wos, R. Overbeek, E. Lusk, and J. Boyle, Automated Reasoning: Introduction and Applications, Prentice-Hall, Englewood Cliffs, New Jersey, 1984.

**ABSTRACT STATUS** - Abstract first distributed August 1989. Apple Macintosh version submitted April 1990.

**SUBJECT CLASS CODE** - P

**KEYWORDS** -

O CODES  
COMPUTER PROGRAM DOCUMENTATION  
ARTIFICIAL INTELLIGENCE  
MATHEMATICAL LOGIC

**EDB SUBJECT CATEGORIES** -  
990200

**SPONSOR** - DOE/ER

**PACKAGE TYPE** - SCREENED