Courant Institute of
Mathematical Sciences
Computer Science Department

The SETL Project Master Catalog

A Comprehensive Listing of Reports,
Working Papers, and Computer Readable
Document and Program Files Pertaining
to Work at New York University on the
SETL Set-Theoretic Programming Language

Compiled by Robert Abes

Prepared under Grant # NSF-GJ-1202X
with the National Science Foundation

New York University
COMPUTER SCIENCE DEPARTMENT
COURANT INSTITUTE OF MATHEMATICAL SCIENCES
NEW YORK UNIVERSITY

THE SETL PROJECT MASTER CATALOG

A Comprehensive Listing of Reports, Working Papers, and Computer Readable Document and Program Files Pertaining to Work at New York University on the SETL Set-Theoretic Programming Language

(Complete as of September 1973)

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PREPARED UNDER GRANT # NSF - GJ - 1202X

WITH THE NATIONAL SCIENCE FOUNDATION
THE SETL PROJECT - MASTER CATALOG

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1. ON PROGRAMMING, AN INTERIM REPORT ON THE SETL PROJECT,
   J. SCHWARTZ

   INSTALLMENT 1, GENERALITIES,
   JANUARY 1973       VIII+160 PP       PRICE $4.25
   INSTALLMENT 2, THE SETL LANGUAGE, AND EXAMPLES OF ITS USE,
   OCTOBER 1973      VIII+520 PP       PRICE $13.00
   INSTALLMENT 3, EXTENDED FACILITIES OF THE SETL LANGUAGE,
   TO APPEAR

2. A SETL PRIMER,
   M. MULLISH
   I. GOLSTEIN

   A STEP-BY-STEP TUTORIAL WITH OVER 100 ILLUSTRATIVE
   PROGRAMMETTES,
   JUNE 1973         V+201 PP        PRICE $5.25

3. THE SETL RUN-TIME LIBRARY

   THIS IS THE RUN-TIME SUPPORT SYSTEM FOR SETL. IT IS
   WRITTEN IN LITTLE AND IS WELL DOCUMENTED INTERNALLY.
   IT SUPPORTS ALL OF THE MAIN SET-THEORETIC PRIMITIVES
   OF SETL AND IS OF PRIME INTEREST TO THOSE WISHING TO
   DEVELOP OR MODIFY THE SETL SYSTEM. THE RUN-TIME
   LIBRARY IS AVAILABLE IN MACHINE READABLE FORM.
PART 1 - MAJOR DOCUMENTS.

4. ASL: A PROPOSED VARIANT OF SETL.

H. WARREN

A PRELIMINARY DESCRIPTION OF AN ALGORITHM SPECIFICATION LANGUAGE, GENERATED AS AN EXTENDED RESPONSE TO A REQUEST FOR CRITICISMS OF SETL. AVAILABLE FREE ON REQUEST.

MAY 1973 XI+326 PP IMM 397

5. OTHER MACHINE READABLE INFORMATION.

THOSE INTERESTED IN ACQUIRING ANY OF THE FOLLOWING DOCUMENTS IN MACHINE READABLE FORM SHOULD ADDRESS AN INQUIRY CONCERNING PRICE TO MISS LENORA GREENE AT THE ADDRESS GIVEN ABOVE.

SETL NEWSLETTER 49 -
DETAILED SPECIFICATIONS OF CERTAIN SETL OPERATIONS.

SETL NEWSLETTER 66 -
BALM SETL USER'S MANUAL VERSION 1.0.

SETL NEWSLETTER 70 -
SETL USER'S MANUAL.

SETL NEWSLETTER 73 -
USER'S GUIDE TO THE SETL RUN-TIME LIBRARY.

FILE SETLTESTPACKAGES: ARCHIVE ITEM 37 -
THE SETL TEST PACKAGES DESCRIBED IN PART 7 OF THIS CATALOG.

FILE ALGORITHM'SPL -
THE SETL ALGORITHMS LIBRARY LISTED IN PART 6 OF THIS CATALOG.

ARCHIVE ITEMS 16, 12, 13 -
BALM PRIMER
BALM REFERENCE MANUAL
BALM SYSTEM LISTING
PART 2 - SETL NEWSLETTERS

1. BALM-SETL -- A SIMPLE IMPLEMENTATION OF SETL.
   NOVEMBER 1970 6 PP  M. HARRISON

2. NO LONGER AVAILABLE.

3. MODIFICATIONS AND EXTENSIONS FOR SETL, PART 1.
   NOVEMBER 1970 6 PP  D. SHIELDS

4. AN APL VERSION OF PETER MARKSTEIN'S MCKEEMAN TABLE ROUTINE.
   NOVEMBER 1970 2 PP  P. MARKSTEIN

5. MISCELLANEOUS ALGORITHMS WRITTEN IN SETL.
   NOVEMBER 1970 7 PP  J. SCHWARTZ

6. A REVISED SETL VERSION OF THE MCKEEMAN PARSE.
   NOVEMBER 1970 3 PP  P. MARKSTEIN

7. MODIFICATIONS AND EXTENSIONS FOR SETL, PART 2.
   NOVEMBER 1970 6 PP  J. SHIELDS

8. ADDITIONAL MISCELLANEOUS SETL ALGORITHMS.
   NOVEMBER 1970 4 PP  J. SCHWARTZ

9. IMPLEMENTATION AND LANGUAGE DESIGN.
   DECEMBER 1970 5 PP  M. HAPRISON

10. A SORTING ALGORITHM.
    DECEMBER 1970 3 PP  K. NALY
11. MODIFICATIONS AND EXTENSIONS FOR SETL, PART 3.
   DECEMBER 1970       4 PP
   J. SHIELDS

12. RECAPITULATION OF THE BASIC PARTS OF THE SETL LANGUAGE.
   JANUARY 1971        14 PP
   J. SCHWARTZ

13. ADDITIONAL MISCELLANEOUS ALGORITHMS.
   JANUARY 1971        7 PP
   J. SCHWARTZ

14. ADDITIONAL SYNTACTIC EXTENSIONS.
   JANUARY 1971        3 PP
   J. SCHWARTZ

15. A PROPOSED SETL IMPLEMENTATION PLAN THROUGH THE END OF THE
    BOOTSTRAP PHASE.
    FEBRUARY 1971       2 PP
    J. SCHWARTZ

16. SETL 64-CHARACTER SET -- 48-CHARACTER SET / 006 KEYPUNCH -- CDC
    6600 64-CHARACTER SET / 029 KEYPUNCH.
    FEBRUARY 1971       2 PP
    K. MALY

17. NO LONGER AVAILABLE.

18. PRELIMINARY SPECIFICATION OF RALMSETL CONVENTIONS.
    FEBRUARY 1971       2 PP
    J. SHIELDS

19. LEXICAL DESCRIPTION OF SETL.
    FEBRUARY 1971       5 PP
    K. MALY

20. RALMSETL USERS GUIDE (IN BRIEF).
    MARCH 1971          4 PP
    J. SHIELDS
21. AN OUTSIDE REVIEW: COMMENTS ON THE SETL DRAFT
April 1971 8 PP

22. SOME SMALL AND LARGE LANGUAGE EXTENSIONS FOR CONSIDERATION
April 1971 4 PP

J. Schwartz

23. CURRENT STATUS OF BAL/SETL IMPLEMENTATION
April 1971 3 PP

J. Shields

24. DESCRIPTION OF A REGISTER ALLOCATION ALGORITHM
April 1971 8 PP

K. Kennedy

25. A PRINT ROUTINE
April 1971 3 PP

J. Loerinc

26. THE CURRENTLY SPECIFIED FORM OF SETL FROM A MORE FUNDAMENTAL
POINT OF VIEW
May 1971 8 PP

J. Schwartz

27. CODE FOR THE POSTPARSE SETUP PROCEDURE (POSTPARSE METALANGUAGE
ANALYSIS)
May 1971 15 PP

J. Schwartz

28. AN ALGORITHM FOR COMMON SUBEXPRESSSION ELIMINATION AND CODE
MOTION
May 1971 10 PP

K. Kennedy

29. SOME ISSUES CONNECTED WITH SUBROUTINE LINKAGE
May 1971 3 PP

J. Schwartz

30. SINISTER CALLS
May 1971 32 PP

J. Schwartz
31. AN ADDITIONAL PRELIMINARY REMARK ON THE IMPORTANCE OF \textit{OBJECT TYPES} FOR \textsc{setl}, WITH SOME REFLECTIONS ON THE MOTION OF \textit{DATA STRUCTURE LANGUAGES},

\textsc{setl} newsletters, May 1971

32. \textsc{hyper-setl} PROCEDURAL LANGUAGES,

\textsc{setl} newsletters, May 1971

33. WHAT IS \textsc{programming}?

\textsc{setl} newsletters, May 1971

34. SYNTAX REVISIONS IN PREPARATION FOR IMPLEMENTATION,

\textsc{setl} newsletters, May 1971

35. A NEW FORM FOR THE IFF-\textsc{statement},

\textsc{setl} newsletters, May 1971

36. NO LONGER AVAILABLE.

37. INITIAL DESCRIPTION OF AN ALGORITHM FOR USE-DEFINITION CHAINING IN OPTIMIZATION,

\textsc{setl} newsletters, July 1971

38. AN ALGORITHM FOR L\textsc{IVE-DEAD ANALYSIS INCLUDING NODE-SPLITTING FOR IRREDUCIBLE PROGRAM GRAPHS},

\textsc{setl} newsletters, January 1972

39. MORE DETAILED SUGGESTIONS CONCERNING \textit{DATA STRATEGY} ELABORATIONS FOR \textsc{setl},

\textsc{setl} newsletters, May 1971

40. NO LONGER AVAILABLE
41. ADDITIONAL PLANNING DETAIL FOR THE CURRENT AND NEXT PHASE OF
SETL IMPLEMENTATION.                        J. SCHWARTZ
JUNE 1971                   4 FP

42. REVISED CONVENTIONS CONCERNING TUPLES.     J. SCHWARTZ
JUNE 1971                    6 FP

43. A PARSING SCHEME FOR FORTRAN.               S. GRUBER
JULY 1971                   20 FP

44. COMPREHENSIVE SETL SPECIFICATIONS.         K. MALKY
JULY 1971                    11 FP

45. SEMI-LOCAL SETL OPTIMIZATION.              D. SHIELDS
JULY 1971                    8 FP

46. GENERALIZED NOCAL SPAN PARSING ROUTINE - PRELIMINARY DRAFT.  
JULY 1971                    12 FP  J. SCHWARTZ

47. AN OUTLINE FOR A PARSING SCHEME FOR SETL.   K. MALKY
JULY 1971                       3 FP

48. TOWARD A DOCUMENTATION OF THE STRING PROJECT'S PROGRAM FOR  
PARSING ENGLISH SENTENCES.                     J. HORBS
AUGUST 1971                    19 FP

49. SPECIFICATION OF THE SETL RUN-TIME LIBRARY (REVISION ?).  
APRIL 1973                  156 PP  H. WAPREN

50. A THREE-PHASE PARSING SCHEME FOR SETL.       K. MALKY
SEPTEMBER 1971                 3 FP
51. NO LONGER AVAILABLE.

52. COMMENTS ON SETL.
   
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53. SETL TO LITTLE TRANSLATOR: A FIRST LOOK.
   
   SEPTEMBER 1971  26 PP  R. WARREN

54. CURRENT STATUS OF RALUSETL++.
   
   SEPTEMBER 1971  5 PP  S. CRUBER

55. SETL SUGGESTIONS AND QUESTIONS.
   
   SEPTEMBER 1971  5 PP  S. FINKELSTEIN

56. ADDITIONAL COMMENTS ON SOME BASIC SETL OPERATIONS.
   
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56A. MORE COMMENTS ON SETL.
   
   OCTOBER 1971  5 PP  J. FARLEY

56B. MORE SETL COMMENTS.
   
   OCTOBER 1971  10 PP  J. FARLEY

57. MINIMIZING COPYING IN SETL: PRELIMINARY OBSERVATIONS.
   
   OCTOBER 1971  3 PP  R. WARREN

58. PHASE ONE OF THE SETL COMPILER.
   
   OCTOBER 1971  21 PP  R. MALS

59. AN ALGEBRA OF ASSIGNMENT.
   
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60. SETL COMPILED CODE: CALLS TO SETL PROCEDURES.
   
   NOVEMBER 1971  48 PP  H. WARREN
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61. SYNTACTIC STRUCTURE OF SETL.
   NOVEMBER 1971   14 PP  K. Maly

62. FINAL SPECIFICATION OF SETL AND PARSER.
   DECEMBER 1971   20 PP  K. Maly

63. THE SETL PRINT routine.
   JANUARY 1972   5 PP  J. Fisher

64. SETL COMPILER WITH ELABORATED DATA STRUCTURES.
   JANUARY 1972   33 PP  K. Maly

65. SOME NOTATIONAL SUGGESTIONS.
   FEBRUARY 1972   2 PP  B. Donic

66. BALMSETL USER'S MANUAL VERSION 1.0.
   FEBRUARY 1972   71 PP  E. Milgrom

67. DATA STRUCTURES OF THE SETL COMPILER FROM THE LITTLE VERSION.
   FEBRUARY 1972   16 PP  K. Maly

68. SOME THOUGHTS ON EFFICIENT PROGRAMMING IN SETL.
   OCTOBER 1972   5 PP  S. Brown

69. THE SETL PROJECT - MASTER CATALOG (REVISED 10/73).
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70. SETL3 USER'S MANUAL.
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83. USER EXPERIENCE AND HUMAN FACTORS.
   NOVEMBER 1972  16 PP
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84. PLAN FOR A LIBRARY OF ALGORITHMS.
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85. ESTIMATE OF MINIMUM RUNNING SIZE FOR THE NEXT SETL® SYSTEM
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89. USER INFORMATION FOR LEXICAL SCAN SETUP PACKAGE.
   NOVEMBER 1972  2 PP
   E. GUTH
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90. PRELIMINARY REFLECTIONS ON THE USE OF SETL® IN A DATA-BASE
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91. A GRAMMARLESS PARSE AND A RELATED METHOD OF RETRIEVAL BY SIMILARITY. 
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92. SOME EXPERIMENTS WITH SETL PROGRAMS. 
   S. CURTIS 
   JANUARY 1973    9 PP

93. A NOTE ON OPTIMIZATION AND PROGRAMMING STYLE IN SETL. 
   S. CURTIS 
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94. AN ALGORITHM TO REPRESENT A COLLECTION OF SETS AS INTERVALS (ON A LINE). 
   J. JENNINGS 
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95. GENERALIZED LOCAL SPAN PARSE ROUTINE, CORRECTED VERSION. 
   Y. FEINROTH 
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96. POINTERS AND VERY HIGH LEVEL LANGUAGES. 
   S. MINSKY 
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97. SETL EXTENSIONS FOR OPERATING SYSTEM DESCRIPTION. 
   D. MARKSTEIN 
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98. REFLECTIONS ON P. MARKSTEIN'S NEWSLETTER ON SETL EXTENSIONS FOR OPERATING SYSTEM DESCRIPTION. 
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99. PAGING, THE QUICK AND DIRTY WAY. 
   (THIS IS ALSO SAME BULLETIN NO. 21) 
   D. BROWN 
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100. MAKING SETL DEBUGGING RUNS. 
    J. WAPREN 
    FEBRUARY 1973    11 PP
101. HOW TO PROGRAM IF YOU MUST (THE SETL STYLE).
  MARCH 1973     15 PP  R. RONIC

102. REDUCTION IN STRENGTH USING HASHED TEMPORARIES.
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103. PRELIMINARY PLAN FOR BALM-TO-LITTLE TRANSLATOR.
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106. USER VARIATION OF THE SEMANTICS OF FUNCTION AND SUBROUTINE
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  MAY 1973       3 PP  J. JENNINGS

107. LINEAR FUNCTION TEST REPLACEMENT.
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108. APL - SETL, AN EXTENSION OF SETL ACHIEVED FROM USER VARIED
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109. FASTER EXECUTION FOR THE LITTLE BASED BALM SYSTEM.
  JULY 1973      4 PP  S. BROWN

110. MORE ON SEMANTIC DEFINITION MATTERS.
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111. GLOBAL DEAD COMPUTATION ELIMINATION.
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114. A SETL3 TO PUBLICATION SETL TRANSLATOR.
   A. GETZLER
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23. NAMEJETS: A NEW WAY TO HANDLE GLOBAL VARIABLES IN LITTLE.
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24. PROPOSALS FOR THE NEXT STAGE OF LITTLE DEVELOPMENT.
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25. PROPOSED EXTENSIONS TO LITTLE.
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   AUGUST 1973  3 PP  L. CHERNOBROD

29. A MEDIUM-LEVEL SEMANTIC ENVIRONMENT BASED ON LITTLE.
   SEPTEMBER 1973  20 PP  J. SCHWARTZ
PART 4 - ADDITIONAL SETL DOCUMENTATION.

1. SET THEORY AS A LANGUAGE FOR PROGRAM SPECIFICATION AND
   PROGRAMMING, J. SCHWARTZ
   SEPTEMBER 1970 97 PP

2. ABSTRACT ALGORITHMS, AND A SET-THEORETIC LANGUAGE FOR THEIR
   EXPRESSION, (THE SETL MANUSCRIPT) J. SCHWARTZ
   DECEMBER 1970 295 PP
PART 5 - BALM NEWSLETTERS

1. INTRODUCTION.
   JUNE 1971  3 PP  I. HARRISON

2. THE MBALM MACHINE.
   JUNE 1971  11 PP  I. HARRISON

3. THE MBALM SIMULATOR ON THE CDC 6600.
   JUNE 1971  5 PP  I. HARRISON

4. STATUS OF BALM4.0.
   JUNE 1971  3 PP  I. HARRISON

5. BALM4.0 SYSTEM LISTING.
   JUNE 1971  18 PP  I. HARRISON

6. ONGOING IMPROVEMENTS, MODIFICATIONS AND ASSOCIATED PROJECTS.
   JULY 1971  2 PP  I. HARRISON

7. SUGGESTIONS FOR NEW MBALM INSTRUCTIONS
   JULY 1971  1 PP  I. HARRISON

   AUGUST 1971  3 PP  J. BROWN

9. CHANGES WHICH ARE IN BALM4.1.
   OCTOBER 1971  3 PP  I. HARRISON

10. FASTER EXECUTION.
    NOVEMBER 1971  10 PP  I. HARRISON
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<td>11</td>
<td>Facilities for Non-Sequential Processing.</td>
<td>November 1971</td>
<td>8 pp</td>
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<td>12</td>
<td>BALM Editor.</td>
<td>March 1972</td>
<td>3 pp</td>
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<td>13</td>
<td>Some Thoughts on the Use of BALM to Implement SETL.</td>
<td>June 1972</td>
<td>7 pp</td>
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<td>15</td>
<td>Problems in BALM4.</td>
<td>July 1972</td>
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<td>16</td>
<td>Real Numbers in BALM.</td>
<td>September 1972</td>
<td>5 pp</td>
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<td>17</td>
<td>Paging Within BALM.</td>
<td>October 1972</td>
<td>4 pp</td>
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<td>Paging Primitives.</td>
<td>November 1972</td>
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<td>BALM on the XDS Sigma V and the DEC PDP-10.</td>
<td>November 1972</td>
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<td>No Longer Available.</td>
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21. Paging, the Quick and Dirty Way,
   January 1973  4 PP  S. Brown

22. Reflections on Balm,
   January 1973  30 PP  L. Pfeffer

23. Language-Oriented Instruction Sets,
   February 1973  19 PP  M. Harrison

24. NWALM-66 Translator,
   March 1973  49 PP  R. Paige

25. Top-Down Meta-Farser User's Guide,
   September 1973  19 PP  S. Brown
PART 6 - THE SETL (CYRILLIC) NEWSLETTERS.

***

THE SERIES OF NEWSLETTERS IN RUSSIAN CONCERNING SETL, BEING WRITTEN AT THE NOVOSELIISK COMPUTING CENTER, IS DESIGNATED IN THIS CATALOG AS THE SETL (CYRILLIC) OR SETL (C) SERIES.

***

1. PHASE 1 IMPLEMENTATION PROJECT.
   9 PP
   J. LEVIN
   L. CHERNOBROD

2. A CONCEPTUAL REVIEW OF THE SET-THEORETIC LANGUAGE SETL.
   41 PP
   L. CHERNOBROD

3. LISPSETL USER'S MANUAL, VERSION 1.
   25+21 PP
   L. CHERNOBROD

   29 PP
   J. LEVIN

5. THE SYSTEM BALM-BERM/6.
   19+37 PP
   J. LEVIN

6. SETL: SOURCE LANGUAGE OF AN EXPERIMENTAL IMPLEMENTATION.
   22 PP
   J. LEVIN

7. INTERNAL REPRESENTATION OF SETS AND AN EXPERIMENTAL IMPLEMENTATION OF SET-THEORETIC OPERATIONS.
   34 PP
   J. LEVIN

8. THE SETLBALM SYSTEM AND A PRELIMINARY IMPLEMENTATION OF SETL.
   10 PP
   J. LEVIN
9. DECOMPOSITION OF SETL PROGRAMS.
   15 PP

10. INTERACTION OF DATA TYPES.
   30 PP

11. CATALOGUE OF SETL(C) NEWSLETTERS 1 - 12.
    (THIS IS ALSO SETL NEWSLETTER 116.)
    3 PP

12. PARALLEL PROGRAMMING AND HIGH LEVEL LANGUAGES.
    6 PP
A library of substantial, important algorithms coded in SETL currently resides on the file ALGORITHMSPL. The addition of other algorithms to this library, and the improvement of the documentation and performance of the algorithms that have been established, is an ongoing project. Contents are as follows.

1. DECK BINRES (413 CARDS)
   DECK HYRES (133 CARDS)
   CODER: E. SCHONBERG
   AN AUTOMATIC THEOREM PROOF OPERATING ON STATEMENTS IN THE SENTENTIAL CALCULUS. PRODUCES SHORTEST PROOFs VIA A BREADTH FIRST TREE SEARCH WHEN THE BINARY RESOLUTION PRINCIPLE IS USED, OR LONGER PROOFS IN LESS TIME WHEN HYPER-RESOLUTION IS EMPLOYED.

2. DECK TYPEVAR (543 CARDS)
   CODER: K. ABDALI
   GIVEN THE GRAPH OF A PROGRAM AND SOME INFORMATION ABOUT ITS ASSIGNMENT STATEMENTS, THIS ALGORITHM FINDS THE TYPES THAT A VARIABLE CAN ASSUME DURING THE EXECUTION OF THE PROGRAM. ONE OF THE MORE IMPORTANT SETL COMPILER OPTIMIZATIONS WILL BE BASED ON EXPERIMENTATION WITH THIS ALGORITHM.

3. DECK MATCHUP (147 CARDS)
   CODER: G. WHITEHEAD
   A MODIFICATION OF MARSHALL HALLS ALGORITHM FOR THE MARRIAGE PROBLEM WHICH WILL YIELD A MAXIMAL SYSTEM OF DISTINCT REPRESENTATIVES (MAXIMAL MATCHING).

4. DECK TOPDATA (112 CARDS)
   DECK TOPDOWNA (236 CARDS)
   DECK TOPDWNP (242 CARDS)
   CODER: S. MARATECK
   S. BROWN
   A TOP-DOWN PARSER AND ITS INPUT DATA COMPLETE WITH A BOOTSTRAPPING META-COMPIlER THAT OPERATES ON AN EXTENDED BACKUS NORMAL FORM DESCRIPTION OF THE LANGUAGE.
5. DECK MCKENAN (531 CARDS)  
CODER: I. KAYE  
GENERATES THE MCKENAN TABLES (A SERIES OF GENERALIZED PRECEDENCE TABLES) USING BACKUS NORMAL FORM GRAMMAR AS ITS INPUT. SAMPLE INPUT DATA IS INCLUDED.

6. DECK CHOMSKY (164 CARDS)  
CODER: H. ANTHONY  
NORMAL FORM. SAMPLE INPUT DATA IS INCLUDED.

7. DECK GENNSPD (478 CARDS)  
DECK GENNSPD (7 CARDS)  
CODER: Y. FEINROTH  
A GENERALIZED NONAL SPAN PARSER, WITH ATTRIBUTES. SAMPLE INPUT DATA IS INCLUDED.

8. DECK EULERGR (117 CARDS)  
CODER: H. MULLISH  
A SETLB CODING OF L. EULER'S GRAPH TRACING ALGORITHM USUALLY ASSOCIATED WITH THE BRIDGES OF KOENIGSBERG.

9. DECK LEXGENA (477 CARDS)  
DECK LEXGENP (65 CARDS)  
DECK LEXGEP (43 CARDS)  
CODER: T. POLACZYK  
A FORTRAN PROGRAM WHICH IS A WORKING LEXICAL SCANNER FOR THE DESCRIBED LANGUAGE, COMPLETE WITH TOKEN FILE AND ERROR MESSAGE GENERATORS.

10. DECK HEURMAC (29 CARDS)  
DECK HEURA (202 CARDS)  
DECK HEURB (376 CARDS)  
DECK HEURC (91 CARDS)  
DECK HEURD (92 CARDS)  
DECK HEURE (82 CARDS)  
CODER: L. WECKER  
FIVE COMPLETE INDEPENDENT HEURISTIC SEARCH PROCEDURES, MOSTLY DUE TO NILSSON, PRECEDED BY A DECK OF MACROS WHICH THEY ALL USE. THE ALGORITHMS ARE: A GENERAL PATH FINDER, A TREE SEARCH, A UNIFORM COST SEARCH, A DEPTH FIRST SEARCH, AND A DEPTH FIRST SEARCH.
11. Deck GPS (439 cards)
Coder: A. Getzle
A stripped down version of Ernst, Newell and Shaw's general problem solver program, with a sample specification for the "Monkey and Bananas" problem.

12. Deck SGGraph (100 cards)
Deck Partree (124 cards)
Deck Balance (239 cards)
Coder: W. Tsui
Two separate algorithms to find the strongly connected regions of a directed graph. A program to generate the partitions of a number. A program to generate all binary trees. Two separate algorithms for assembly line balancing.

13. Deck Poly (283 cards)
Coder: E. Guth
A collection of routines for the standard algebraic manipulations of polynomials. Test input is included.

14. Deck Graal (651 cards)
Coder: G. Weinsberger
A Setl representation of the University of Maryland graph manipulation language (Graal) of Rheinhold, Basil and Nesztenyi as explained in SETL Newsletter 115. Sample input data is included.
A library of test programs, coded in SETL, currently resides on the file SETLTESTPACKAGES. This library was established to spot bugs in compiler modifications, and to provide some standards for timing studies. The algorithms vary widely in size, content, and coding style.

1. Huffman (75 cards) - Produces a Huffman tree and table for unique bit string encoding given a set of characters and a frequency of use function over that set.

2. MiscPerm (56 cards) - Contains short programs to make a sequence out of a tuple; compose two functions into one; obtain the inverse of a function; obtain the cycle form of a permutation; obtain the inverse of a permutation; obtain the inverse of a permutation given in cycle form.

3. Perm (49 cards) - Generates all permutations of n objects in lexicographic order.

4. Median (137 cards) - Finds the k-th number (in ascending order) of a given set of numbers. This algorithm, due to Floyd, et al in 1971, runs in linear time as a function of the number of items in the given set.

5. PocksSort (59 cards) - A radix sort in which the items to be sorted and the radix are input parameters.

6. TreePrint (193 cards) - Prints binary or ordered trees in a tree-like format.

7. Fordj (157 cards) - The Ford-Johnson tournament sort algorithm (a complicated minimum comparison sort).

8. Setup and Usetlp (190 cards) - Reads SETL code, and prepares a string and some tables for the lexical scanner.
9. **Intprint (290 cards)** - Prints the flow-graph of a program in flowchart-like format given a set of paths and a set defining the order in which to print the nodes.

10. **Tmerge (35 cards)** - The natural two-way merge for fast in-core sorting.

11. **Primes (72 cards)** - Contains short programs to generate primes by the sieve method; generate primes directly from their definition; find the prime factors of a given number.

12. **Piglatin (27 cards)** - String breakup and translation via table lookup or a programmed English-piglatin dictionary.

13. **Insanity (29 cards)** - A backtracking algorithm to solve the instant insanity (colored cubes) puzzle.

14. **Nodspan (91 cards)** - A nodal span parse routine which can apply any production grammar in Chomsky normal form to an input string.

15. **Pascal (16 cards)** - A string manipulation and formatting program which prints Pascal's triangle neatly.

16. **Erraut (104 cards)** - Calculates the structure of the automaton associated with error detection in very parsing.

17. **Splash (136 cards)** - Solves all the old bucket problems (e.g., how to get 4 gallons of water given a 3 and a 5 gallon bucket).

18. **Maxflow (103 cards)** - A package to find a path in an ordered graph; determine the maximum flow in a network; and apply the maximum flow algorithm to the matching problem.
PART 9 - THE SETL ARCHIVES.
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THE SETL ARCHIVES WERE CREATED 1/73 TO PROVIDE BACKUP FILES IN CASE OF PHYSICAL DISASTER. TO THIS END: TAPE 781 IS IN NEW JERSEY AND AVAILABLE FROM H. WARREN. TAPE 782 IS IN WESTCHESTER AND AVAILABLE FROM F. ALLEN. TAPES 2025 AND 2026 ARE IN THE TAPE VAULT HERE AT COURANT. THE ARCHIVES ARE DESCRIBED HERE FOR THOSE WHO ARE CLOSELY INVOLVED IN ACTUAL IMPLEMENTATION WORK.


***

1. CATSUM=2243     PFN=SETLNSALGC   JY=13
   SETL PROGRAM - FRONT END FOR NAME SCOPEING ALGORITHMS.

2. CATSUM=37372   PFN=SRC1208   JY=11
   BULK SETL SOURCE - CODE AND MANUAL.

3. CATSUM=113651   PFN=STOLCOMPL   JY=1
   SAME AS CYCLE 2 BEFORE RESEQUENCING.

4. CATSUM=137562   PFN=STOLCOMPL   JY=2
   SETL COMPILER IN LITTLE + SETL COMPILER IN SETL.

5. CATSUM=133566   PFN=STOLCOMPLI   JY=1
   SAME AS CYCLE 2 BEFORE RESEQUENCING.

6. CATSUM=53751    PFN=STOLCOMPLI   JY=2
   SETL COMPILER IN LITTLE.
7. CATSUM=30015  PFN=TESTPL
   MISCELLANEOUS COMPLETE TEST PROGRAMS  CY=1

8. CATSUM=3065  PFN=THEOREMPL
   THEOREM PROVER IN SETL.  CY=1

9. CATSUM=562  PFN=TOPDOWNPL
   TOP DOWN PARSER IN SETL.  CY=1

10. CATSUM=54543  PFN=LDSLLTLPL
    SHORTENED LITTLE COMPILER IN FORTRAN.  CY=7

11. CATSUM=20167  PFN=SOURCE
    SOURCE CODE FOR SIMULATOR SYSTEM.  CY=4

12. CATSUM=43240  PFN=SOURCE
    SOURCE CODE FOR TRANSLATOR SYSTEM.  CY=12

13. CATSUM=11316  PFN=HALM4BINARY
    MBALM FILE OF THE P/L COMPILER SYSTEM.  CY=1

14. CATSUM=122135  CIVLIE
    SETL COMPILER IN FORTRAN.  SET1174

15. CATSUM=77431  CIVLIE
    SUPPORT LIBRARY FOR SETL (INCLUDING MEATCOMPILED).  SLB1174

16. CATSUM=67250  CIVLIE
    MBALM SOURCE FILE FOR MBALM SYSTEM.  BLMSRC

17. CATSUM=302175  TAPE 776
    LITTLE TO FORTRAN TRANSLATOR.  FILE 1

18. CATSUM=3064  PFN=ASSGNV1
    FORTRAN UTILITY PROGRAM.  CY=8

19. CATSUM=41247  PFN=CLEANLTLEXL
    LITTLE LEXICAL SCANNER IN LITTLE - REFORMATTED.  CY=28

20. CATSUM=3705  PFN=EDITSETUP
    SETL PROGRAM YIELDING LEX SCANNER IN FORTRAN FOR ANY LANGUAGE.
21. CATSUM=45155  PFN=GENZZZZZ1174  JY=37
LITTLE TO SETL Compiler IN FORTRAN FOR OPTIMIZER USE.

22. CATSUM=64003  PFN=1DSPL  JY=6
MISCELLANEOUS SUPPORT AND UTILITY PROGRAMS.

23. CATSUM=27733  PFN=LITLITDOC1175  JY=22
DOCUMENTATION FOR LITTLE COMPILER IN LITTLE.

24. CATSUM=56725  PFN=LITLIRSOUPCF  JY=6
ASSEMBLER LANGUAGE UTILITY ROUTINES USED BY LITTLE COMPILER.

25. CATSUM=143672  PFN=LITTLEPL  JY=1
OLD VERSION OF LITTLE COMPILER PROPER IN FORTRAN.

26. CATSUM=26702  PFN=LITTLETESTPL  JY=8
TEST PROGRAMS FOR THE LITTLE COMPILER.

27. CATSUM=36342  PFN=LTLASPLF  JY=11
LITTLE ASSEMBLER IN FORTRAN.

28. CATSUM=46455  PFN=LTLGENPLF  JY=10
LITTLE COMPILER PROPER IN FORTRAN.

29. CATSUM=72750  PFN=LTLLEXPLF  JY=16
LITTLE LEYICAL SCANNER AND MACRO PROCESSOR IN FORTRAN.

30. CATSUM=20566  PFN=LTLUPTPL  JY=5
OPTIMIZATION ROUTINES FOR LITTLE IN SETLB.
PART 9 - THE SETL ARCHIVES.

31. CATSUM=120223  PFN=LTLP LITTLE PARSER, CODE GENERATORS, PRINT UTILITY; ALL IN LITTLE.

32. CATSUM=126046  PFN=MANUALSPL 3Y=5 VARIOUS SETL AND LITTLE NEWSLETTERS, AND THE MANUALMAKE? PROGR

33. CATSUM=566  PFN=NEWS78 3Y=1 GENESIS OF SETL NEWSLETTER 78.

34. CATSUM=235  PFN=NEWS79 3Y=1 GENESIS OF SETL NEWSLETTER 79.

35. CATSUM=360  PFN=NEWTYP 3Y=8 TYPE FINDING ALGORITHM IN SETL.

36. CATSUM=1176  PFN=PAR1 3Y=2 TOP DOWN PARSER IN SETL.

37. CATSUM=20265  PFN=SETLRTTESTPACKAGES 3Y=20 SEE PART 7 OF THIS DOCUMENT.

38. CATSUM=130623  PFN=SETLLIPPL 3Y=11 SETL PJN TIME LIBRARY IN LITTLE.
FRESH ARCHIVES WERE CREATED 9/73. TAPE 5 IS IN WESTCHESTER AND AVAILABLE FROM F. ALLEN. TAPE 6 IS IN LOS ALAMOS AND AVAILABLE FROM J. MORRIS. ANOTHER TAPE IS IN THE VAULT HERE AT COURANT. THE 40 ITEMS LISTED BELOW ARE FILES 1 - 40 ON EACH OF THESE TAPES. THE FIRST OF THE TWO LINES DESCRIBING EACH ITEM GIVES THE ITEM NUMBER, CIMLIB NAME, LAST CIMLIB MOD DATE, AND NUMBER OF WORDS.

1. TBALM4 09/11/73 10415
   THE BALM4 SYSTEM.
2. SAVESETL 09/11/73 39226
   THE BALM SETL SAVED FILE.
3. SRC1208 09/11/73 10305
   THE BALM SETL SOURCE FILE.
4. SNEWSPL 09/14/73 63443
   SETL AND LITTLE MACHINE READABLE NEWS LETTERS.
5. SLIBPL 09/14/73 90708
   THE SETL RUN TIME LIBRARY.
6. LEXPL 09/17/73 21135
   LITTLE LEXICAL SCANNER IN LITTLE - SOURCE.
7. GENPL 09/17/73 24263
   LITTLE COMPILER IN LITTLE - SOURCE.
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8. ASMPL 09/17/73 45235
   LITTLE ASSEMBLER IN LITTLE - SOURCE.

9. LLIBPLF 09/17/73 9569
   LITTLE RUN TIME LIBRARY FOR BOOTSTRAP COMPILER - SOURCE.

10. EDITSTL 09/17/73 8648
    EDITING PROGRAM IN SETL.

11. UPDTSTL 09/17/73 5648
    UPDATE PROGRAM IN SETL.

12. LMANUAL 09/05/73 3986
    LITTLE USERS MANUAL.

13. LLIBPL 09/05/73 10691
    LITTLE RUN TIME LIBRARY IN LITTLE - SOURCE.

14. TOPDNPPL 09/05/73 8330
    TOP-DOWN METAPARSER - SOURCE.

15. TOPDOWN 09/05/73 26198
    BINARY FOR ITEM 14.

16. GOLDPL 07/25/73 45463
    A PREVIOUS ARCHIVING SYSTEM - SOURCE.

17. TAPE 746 07/25/73 6792
    VARIOUS SYSTEMS PROGRAMS OF R. PAIGE.

18. TAPE 745 07/25/73 6531
    CONTINUATION OF ITEM 17.

19. TAPE 749 07/25/73 17795
    CONTINUATION OF ITEM 18.
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<td>45077</td>
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<td>30383</td>
<td>BINARY FOR LITTLE LEXICAL SCANNER IN FORTRAN.</td>
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<td>10664</td>
<td>ANOTHER VERSION OF ITEM 21.</td>
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<td>03/25/73</td>
<td>42077</td>
<td>SOURCE FOR FORTRAN EXECUTABLE PORTION OF THE SETLBR SYSTEM.</td>
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<td>25. DLTLPL</td>
<td>05/15/73</td>
<td>18449</td>
<td>BOOTSTRAP UTILITY PROGRAMS.</td>
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<td>SETL TEST PACKAGES.</td>
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<td>SNOBOL PROGRAMS TO REFORMAT SETL PROGRAMS.</td>
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<td>05/16/73</td>
<td>OPTIMIZATION ROUTINES IN SETL.</td>
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