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AD-675 050

**A DDC BIBLIOGRAPHY ON
ON-LINE COMPUTER SYSTEMS**

VOLUME I OF II VOLUMES

DDC-TAS-68-36

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SEPTEMBER 1968



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U N C L A S S I F I E D - U N L I M I T E D

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DEFENSE DOCUMENTATION CENTER
Cameron Station
Alexandria, Virginia 22314

U N C L A S S I F I E D - U N L I M I T E D

PREFACE

This Unclassified-Unlimited bibliography with 162 citations was compiled in response to a growing interest in On-Line Computer Systems. In preparing this bibliography consideration was given to the general subject areas of programming (computers), information retrieval, time sharing, and graphics as they apply to On-Line Systems. A grouping of various applications was made as a final subject area.

The topical arrangement is complemented by four indexes (accession number (AD-number) sequence, corporate author, personal author, and contract). When a report cited has several personal authors, each is listed separately.

This volume is supplemented by an Unclassified-Limited version with 52 citations (AD-840 090).

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OFFICIAL

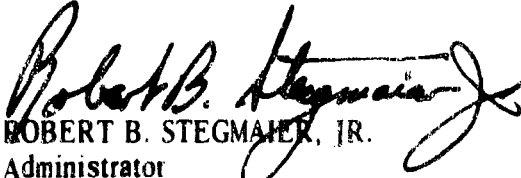

ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

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CONTRACT.....	C-1
AD-NUMERIC	A-1

PROGRAMMING (COMPUTERS)

UNCLASSIFIED

DDC REF RT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-414 564

THOMPSON RAMO WOOLDRIDGE INC CANOGA PARK CALIF

AN ON-LINE COMPUTING CENTER

(U)

DESCRIPTIVE NOTE: FINAL REPT., 11 FEB 62-11 FEB 63.

118P

FRIED, BURTON D. ;

CULLER, GLEN J. ;

MONITOR: RADC

TDR63 160

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, DIGITAL COMPUTERS), (*DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS), PROGRAMMING (COMPUTERS), MATHEMATICAL LOGIC, COMPUTER LOGIC (U)

IDENTIFIERS: INFORMATION PROCESSING, ON-LINE COMPUTING, 1963 (U)

AN ON-LINE COMPUTING SYSTEM HAS BEEN DEVELOPED WHICH ALLOWS DIRECT USE OF A HIGH SPEED DIGITAL COMPUTER BY MATHEMATICIANS AND SCIENTISTS IN THEIR SPECIALIZED FIELDS. THIS REPORT DESCRIBES THE SYSTEM IN DETAIL FROM A USER'S POINT OF VIEW. FOR REFERENCE PURPOSES, THE REPORT INCLUDES A LISTING OF ALL COMPUTER PROGRAMS USED IN THE SYSTEM.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-451 231

RAND CORP SANTA MONICA CALIF
COMPUTER RECOGNITION OF ON-LINE, HAND-WRITTEN
CHARACTERS, (U)

OCT 64 27P BERNSTEIN, M. I. I

REPT, NO. RM3753ARDA

CONTRACT: SD79

PROJ: 189 61

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (CHARACTER RECOGNITION, INPUT/OUTPUT
DEVICES), DOCUMENTATION, MACHINE TRANSLATION,
AUTOMATIC INDEXING, DIGITAL COMPUTERS, PROGRAMMING
(COMPUTERS) (U)

IDENTIFIERS: 1964 (U)

THIS MEMORANDUM DISCUSSES A METHOD FOR
RECOGNIZING SINGLE, HAND-WRITTEN CHARACTERS USING AN
ONLINE GRAPHICAL INPUT DEVICE, SUCH AS A DIGITIZING
PANTOGRAPH, A LIGHT PEN, OR THE GRAPHIC INPUT
TABLET, AS THE PRIMARY INFORMATION SOURCE.
BASICALLY, THE METHOD CONSISTS OF FILTERING AND
SMOOTHING THE INPUT STREAM TO ELIMINATE AS MUCH
REDUNDANCY AS POSSIBLE, DIRECTION OF THE STYLUS
MOVEMENT IS QUANTIZED INTO ONE OF EIGHT DIRECTIONS,
ALLOWING EACH STROKE OF A CHARACTER TO BE DESCRIBED
AS A SERIES OF CONNECTED STRAIGHT-LINE SEGMENTS,
BY ELIMINATING VARIOUS MEASURES ON THE STROKE, THE
DESCRIPTION IS SIZE-, POSITION-, AND ROTATION-
INDEPENDENT, IN ORDER TO RESTORE SOME ROTATIONAL
ORIENTATION AND TO DISCRIMINATE BETWEEN OPEN, CLOSED,
AND MULTI-STROKE CHARACTERS, END-POINT COMPARISONS
ARE ADDED TO THE DESCRIPTION, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-474 019

MASSACHUSETTS INST OF TECH CAMBRIDGE
CALCULAID: AN ON-LINE SYSTEM FOR ALGEBRAIC
COMPUTATION AND ANALYSIS. (U)

DESCRIPTIVE NOTE: MASTER'S THESIS,
SEP 65 53P WANTMAN, MAYER ELIHU J
REPT. NO. MAC-TR-20
CONTRACT: NONR410201
PROJ: NR048 189

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING (COMPUTERS),
DIGITAL COMPUTERS), REAL TIME, SCHEDULING,
ALGEBRA, PROGRAMMING LANGUAGES, COMPUTER
LOGIC (U)

IDENTIFIERS: CALCULAID, TIME-SHARING SYSTEMS,
MAC PROJECT, OPS, ON-LINE COMPUTER SYSTEMS (U)

OPS IS AN ON-LINE SYSTEM DEVELOPED AT PROJECT
MAC. THE PRESENT WORK PROVIDES A POWERFUL AND
SIMPLE WAY TO PERFORM NUMERICAL MANIPULATIONS AND
CALCULATIONS WITHIN OPS. THE PROGRAM PACKAGE IS
CALLED CALCULAID. AND PROVIDES A METHOD OF
EXECUTING ALGEBRAIC ASSIGNMENT STATEMENTS, OF WHICH
MAD AND FORTRAN ASSIGNMENTS ARE A SUBSET. WHEN
THIS ASSIGNMENT-STATEMENT ABILITY IS COUPLED WITH
OTHER FEATURES OF THE OPS SYSTEM, MOST OF THE
ABILITY OF A COMPILER LANGUAGE IS PROVIDED.
BECAUSE THE PROGRAMS WRITTEN IN OPS ARE EXECUTED
INTERPRETIVELY, OPS-3 PROGRAMS CAN BE CHANGED AND
RE-RUN IMMEDIATELY, WITHOUT BEING RECOMPILED. THE
APPLICATIONS OF CALCULAID TO THE ANALYSIS OF A
ROUND-ROBIN SCHEDULING MODEL AND TO A PROCESS-CONTROL
PROBLEM ARE DISCUSSED, AND CONCLUSIONS ARE DRAWN
REGARDING THE SUITABILITY OF RUNNING COMPUTATIONAL
PROGRAMS IN AN INTERPRETIVE MODE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-476 443 12/1 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF
METALLURGY
MAP, A SYSTEM FOR ON-LINE MATHEMATICAL ANALYSIS,
DESCRIPTION OF THE LANGUAGE AND INSTRUCTION MANUAL, (U)
JAN 66 104P KAPLOW, ROY ISTRONG, STEPHEN
BRACKETT, JOHN I
REPT. NO. MAC-TR-24
CONTRACT: NONR-4102(01)
PROJ: NR-048-189

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTERS, MATHEMATICAL
ANALYSIS), MAN-MACHINE SYSTEMS, NUMERICAL
ANALYSIS, INSTRUCTION MANUALS (U)
IDENTIFIERS: MAC PROJECT, ON-LINE MATHEMATICAL
ANALYSIS (MAP) (U)

A SYSTEM FOR ON-LINE MATHEMATICAL ANALYSIS, CALLED
MAP, HAS BEEN DEVELOPED FOR USE WITHIN THE M.I.T.
COMPATIBLE TIME SHARING SYSTEM, TAKING
ADVANTAGE OF THE VARIED USER-MACHINE INTERACTIONS
WHICH ARE POSSIBLE, MAP PROVIDES A FACILITY FOR
HANDLING COMPLEX ANALYSES, DATA INPUT AND
PRESENTATION OF RESULTS WITHOUT REQUIRING ANY
COMPUTER PROGRAMMING BY THE USER. THIS REPORT IS A
DESCRIPTION OF THE LANGUAGE AND A SELF-TEACHING USER
MANUAL. IT DOES NOT DESCRIBE THE TECHNIQUES USED TO
IMPLEMENT THE SYSTEM, WHEN GIVEN INCOMPLETE
REQUESTS, THE SYSTEM WILL PROVIDE INSTRUCTIONS
REGARDING THE USE OF ITS PROCEDURES AND WILL ASK FOR
ALL THE PARAMETERS, VALUES AND OPTION DECISIONS WHICH
MAY BE REQUIRED, IF THE REQUESTS ARE CORRECT AND
SUFFICIENTLY DETAILED, THE COMPUTER WILL PROCEED
DIRECTLY TO THE CALCULATIONS AND, ON COMMAND, PRESENT
THE RESULTS IN GRAPHICAL OR TYPEWRITTEN FORM,
PROVISIONS HAVE ALSO BEEN INCLUDED TO ALLOW THE
EXPANSION AND PERSONALIZATION OF THE SYSTEM IN
WHATEVER MANNER IS DESIRED BY INDIVIDUAL USERS.
(AUTHOR) (U)

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700328

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-603 972

RAND CORP SANTA MONICA CALIF

JOSS: A DESIGNER'S VIEW OF AN EXPERIMENTAL ON-LINE
COMPUTING SYSTEM, (U)

AUG 64 36P

SHAW, J. C. 1

REPT, NO. P-2922

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: THIS PAPER WAS PREPARED FOR
PRESENTATION AT THE 1964 FALL JOINT COMPUTER
CONFERENCE, SPONSORED BY THE AMERICAN FEDERATION OF
INFORMATION PROCESSING SOCIETIES, SAN FRANCISCO,
27-29 OCT 64.

DESCRIPTORS: (*SPECIAL PURPOSE COMPUTERS, DATA
PROCESSING SYSTEMS), (*DATA PROCESSING SYSTEMS, INPUT-
OUTPUT DEVICES), TYPEWRITERS, COMMUNICATION SYSTEMS,
COMPUTER STORAGE DEVICES, PROGRAMMING LANGUAGES (U)

IDENTIFIERS: TIME SHARING (COMPUTERS), JOSS (JOHNNIAC
OPEN-SHOP SYSTEM) (U)

JOSS (JOHNNIAC OPEN-SHOP SYSTEM) IS AN
EXPERIMENTAL ON-LINE, TIME-SHARED COMPUTING SERVICE.
IT IS IN DAILY USE BY STAFF MEMBERS OF THE RAND
CORPORATION FOR THE SOLUTION OF SMALL NUMERICAL
PROBLEMS. THE USERS COMPOSE STORED PROGRAMS AND
INTERACT WITH JOSS THROUGH REMOTE TYPEWRITER
CONSOLES BY USING A SINGLE, HIGH-LEVEL LANGUAGE.
THE SYSTEM IS DESCRIBED WITH EMPHASIS ON THOSE
FEATURES WHICH HAVE LED USERS TO ACCEPT IT AS A
CONVENIENT NEW TOOL. JOSS PROVIDES USE OF FAMILIAR
TYPEWRITERS, EXACT INPUT/OUTPUT, DECIMAL ARITHMETIC,
HIGH-LEVEL ALGEBRAIC LANGUAGE WITH ENGLISH
PUNCTUATION RULES, EASY MODIFICATION AND REPAIR OF
PROGRAMS, AND REPORT-QUALITY FORMATTED OUTPUT.
(AUTHOR) (U)

UNCLASSIFIED

700328

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD 6814 992

RAND CORP SANTA MONICA CALIF

JOSS: EXAMPLES OF THE USE OF AN EXPERIMENTAL ON-LINE
COMPUTING SERVICE. (U)

APR 65 1.4 SHAR, J. C. I

REPT. NO. P-3131

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTES: LIMITED NUMBER OF COPIES CONTAINING
COLOR OTHER THAN BLACK AND WHITE ARE AVAILABLE UNTIL STOCK
IS EXHAUSTED, REPRODUCTIONS WILL BE MADE IN BLACK AND
WHITE ONLY, PRESENTED AT THE SIXTH ANNUAL SYMPOSIUM
OF THE PROFESSIONAL GROUP ON HUMAN FACTORS IN
ELECTRONICS, THE INSTITUTE OF ELECTRICAL AND
ELECTRONIC ENGINEERS, BOSTON, MAY 6-8, 1965.

DESCRIPTORS: (*SPECIAL PURPOSE COMPUTERS, NUMERICAL
METHODS AND PROCEDURES), (NUMERICAL METHODS AND
PROCEDURES, SPECIAL PURPOSE COMPUTERS), (*DATA
PROCESSING SYSTEMS, SPECIAL PURPOSE COMPUTERS),
NUMBERS, NUMERICAL ANALYSIS, PROGRAMMING LANGUAGES,
INPUT-OUTPUT DEVICES (U)

IDENTIFIERS: JOSS (JOHNNIAC OPEN-SHOP SYSTEM), ON-
LINE SYSTEMS, TIME SHARING (COMPUTERS) (U)

CONTENTS (SINCE JOSS IGNORES INPUT LINES
BEGINNING WITH AN ASTERISK, THE DEVICE IS USED TO
INTERPOSE COMMENTS IN THE EXAMPLES; ON THE ORIGINAL
COPY, OUTPUT IS IN BLACK AND INPUT IN GREEN):
ELEMENTS OF THE LANGUAGE STORED PROGRAM FOR
COMPUTING THE HYPOTENUSE INTEGRATION OF $1/x$ BY
GAUSS 2-POINT RULE ROOT FINDING MATRIX
INVERSION WITH SIMPLE PIVOTING ON THE DIAGONAL AN
ASTERISK AT THE END CAN KILL THE LINE PRODUCTION OF
A FORMATTED TABLE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-615 604

RAND CORP SANTA MONICA CALIF

JOSS: CONVERSATIONS WITH THE JOHNNIAC OPENSHOP
SYSTEM,

MAY 65 OF SHAW, J. C. I

REPT. NO. P-3146

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE INTERNATIONAL
FEDERATION FOR INFORMATION PROCESSING CONGRESS,
NEW YORK, N. Y., 24-29 MAY 65, SEE ALSO AD-603
972, AD-614 992.

DESCRIPTORS: (*SPECIAL PURPOSE COMPUTERS, NUMERICAL
METHODS AND PROCEDURES), (NUMERICAL METHODS AND
PROCEDURES, SPECIAL PURPOSE COMPUTERS), (*DATA
PROCESSING SYSTEMS, SPECIAL PURPOSE COMPUTERS),
NUMERICAL ANALYSIS, PROGRAMMING (COMPUTERS),
PROGRAMMING LANGUAGES

(U)

IDENTIFIERS: ON-LINE SYSTEMS, JOSS (JOHNNIAC OPENSHOP
SYSTEM), TIME SHARING (COMPUTERS)

(U)

THE JOHNNIAC OPEN-SHOP SYSTEM (JOSS) IS AN
EXPERIMENTAL SYSTEM DESIGNED TO DEMONSTRATE BENEFITS
OF ON-LINE INTERACTION WITH A COMPUTER, PARTICULARLY
A COMPUTER LIMITED TO SMALL NUMERICAL COMPUTATIONS
SUCH AS THE JOHNNIAC. EXAMPLES ARE GIVEN OF
CONVERSATION WITH THE COMPUTING SYSTEM WHEREBY
COMPUTING REQUIREMENTS ARE MET THAT ARE NOT WELL
SATISFIED BY CONVENTIONAL SERVICES. THE FIRST
EXAMPLE IS OF THE PRODUCTION OF A TABLE WITH THE
CONVERSATION DIRECTING JOSS TO MODIFY THE PROGRAM
TO SPECIFY PYTHAGOREAN TRIPLES. JOSS STORES
NUMERICAL VALUES, FORMS, AND STEPS THAT BEGIN WITH
NUMERICAL LABELS. THE SECOND EXAMPLE IS OF THE
ASSISTANCE JOSS GIVES BY EXTENSIVE CHECKING OF THE
USER'S INSTRUCTIONS. JOSS COMMENTS FROM A STOCK OF
40 'CANNED' MESSAGES (MOSTLY ERROR MESSAGES),
FREQUENTLY ALLOWING THE USER TO REPAIR AN ERROR ON
THE SPOT AND DIRECT JOSS TO CONTINUE.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-615 658

MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
AN EXPERIMENTAL ON-LINE DATA STORAGE AND RETRIEVAL
SYSTEM, (U)

FEB 65 42P NOLAN, J. F.; ARMENTI, A. W. I
REPT. NO. TR-377
CONTRACT: AF19 628 500 ,NONR410201
MONITOR: ESD , TOR-65-36

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), DATA STORAGE
SYSTEMS), (*DATA STORAGE SYSTEMS, PROGRAMMING
(COMPUTERS)), INFORMATION RETRIEVAL, COMPUTER LOGIC,
DATA TRANSMISSION SYSTEMS, COMPUTERS, MULTIPLE
OPERATION (U)

IDENTIFIERS: LIST PROCESSING, MAC PROJECT, ON-LINE
SYSTEMS, COMPUTER WORDS, TIME SHARING (COMPUTERS) (U)

THIS REPORT DESCRIBES AN EXPERIMENTAL PROGRAM
SYSTEM DESIGNED TO TEST AND DEMONSTRATE ON-LINE
STORAGE AND RETRIEVAL OF FORMATTED DATA BASED ON
COMPLETE INTERNAL DESCRIPTIONS OF THE FILES, THE
USE OF INTERNAL DESCRIPTIONS ALLOWS EACH USER (WHO
NEED NOT BE A TRAINED PROGRAMMER) TO DEFINE,
MODIFY, AND CROSS-ASSOCIATE DATA FILES TO SUIT HIS
PARTICULAR NEEDS. THE EXPERIMENTAL PROGRAM SYSTEM
WAS IMPLEMENTED BY REMOTE USE OF THE COMPATIBLE
TIMESHARING SYSTEM (CTSS) FACILITIES OF
PROJECT MAC AT THE MASSACHUSETTS INSTITUTE OF
TECHNOLOGY, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700326

AD-615 731

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
FUNDAMENTALS OF INFORMATION PROCESSING AND COMPUTERS
FOR STATE AND LOCAL GOVERNMENT, (U)
MAY 65 34P KIBBEE, JOEL M. ;
REPT. NO. SP-2073

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, MANAGEMENT
ENGINEERING), (*COMPUTERS, MANAGEMENT ENGINEERING),
PROGRAMMING (COMPUTERS), REAL TIME, PROGRAMMING
LANGUAGES, INPUT-OUTPUT DEVICES (U)
IDENTIFIERS: TIME SHARING (COMPUTERS), ON-LINE
SYSTEMS, INFORMATION SYSTEMS, LOCAL GOVERNMENTS (U)

THE PAPER INTRODUCES TO THE PUBLIC MANAGER THE
FUNDAMENTALS OF INFORMATION PROCESSING AND COMPUTERS.
TO UNDERSTAND COMPUTERS, IT IS NECESSARY TO
DISTINGUISH BETWEEN 'HARDWARE' AND 'SOFTWARE.'
HARDWARE IS THE PHYSICAL PIECE OF EQUIPMENT.
SOFTWARE IS EVERYTHING ELSE--PROGRAMS AND
PROCEDURES--NEEDED BY PEOPLE TO MAKE COMPUTERS
USEFUL. A COMPUTER SHOULD NOT BE THOUGHT OF AS
SOMETHING WHICH EXISTS INDEPENDENTLY OF SOFTWARE.
THIS PAPER DEALS FIRST WITH THE INFORMATION SYSTEM--
A COLLECTION OF MEN, MACHINES, AND SOFTWARE, WITH
EACH ASSIGNED THAT TASK WHICH EACH DOES BEST--AND
THEN DISCUSSES HARDWARE AND DATA COMMUNICATIONS,
SOFTWARE, MORE IMPORTANT THAN HARDWARE, AND EQUALLY
COSTLY, IS TREATED WITH PRIMARILY EMPHASIS ON
PROGRAMMER AND USER LANGUAGES, TIME-SHARING,
SOFTWARE-SHARING, AND INFORMATION-SHARING ARE
COVERED, AS WELL AS THE CONCEPTS OF A UNIFIED
INFORMATION SYSTEM AND A COORDINATED INFORMATION
SYSTEM. THE PAPER CONCLUDES WITH A SUGGESTION THAT
STATE AND LOCAL GOVERNMENT MIGHT, THROUGH JOINT
DEVELOPMENT, DECREASE THE COST OF SOFTWARE FOR EACH
OF THEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-618 825

AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

DEBUG, AN EXTENSION TO CURRENT ONLINE DEBUGGING
TECHNIQUES, (U)

DESCRIPTIVE NOTE: PHYSICAL AND MATHEMATICAL SCIENCES
RESEARCH PAPERS,

NOV 64 13P EVANS, THOMAS G.; DARLEY, D.

LUCILLE I

REPT. NO. AFCL-65-411, PMSRP-110

PROJ: 4641

TASK: 464102

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN COMMUNICATIONS OF THE ACM
V8 NS P321-6 MAY 1965 (COPIES NOT AVAILABLE TO DDC OR
CLEARINGHOUSE CUSTOMERS); PREPARED IN COOPERATION WITH
BOLT, BERANEK, AND NEWMAN, CAMBRIDGE, MASS.

DESCRIPTORS: (*PROGRAMMING (COMPUTERS),
CORRECTIONS), PROGRAMMING LANGUAGES (U)

IDENTIFIERS: M-460 COMPUTER (UNIVAC), RAP
COMPUTER ASSEMBLER, ON-LINE SYSTEMS, STUD COMPUTER
PROGRAM, DEBUG COMPUTER PROGRAM, TIC COMPUTER
PROGRAM, DDT COMPUTER PROGRAM (U)

A METHOD FOR ONLINE ASSEMBLY-LANGUAGE DEBUGGING
WHICH GREATLY SIMPLIFIES SEVERAL OF THE BOOKKEEPING
TASKS CHARACTERISTICALLY ASSOCIATED WITH THAT PROCESS
HAS BEEN DEVELOPED AND IMPLEMENTED IN A PROGRAM FOR
THE UNIVAC M-460 COMPUTER AT AIR FORCE
CAMBRIDGE RESEARCH LABORATORIES. WITH THIS
PROGRAM, AN ONLINE USER MAY INSERT OR DELETE (IN
SYMBOLIC ASSEMBLY LANGUAGE) ANY NUMBER OF LINES AT
ANY POINT OF HIS PREVIOUSLY ASSEMBLED PROGRAM IN
CORE, WITH THE REMAINDER OF THE PROGRAM BEING
RELOCATED APPROPRIATELY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-622 520

STANFORD RESEARCH INST MENLO PARK CALIF
RESEARCH ON COMPUTER-AUGMENTED INFORMATION
MANAGEMENT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 65 132P ENGELBART, D. C. ;

HUDDART, BONNIE I

CONTRACT: AF19 628 4088

PROJ: SR14987

MONITOR: ESD , TDR-65-168

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-432 098.

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), DESIGN),
(*PHOTOGRAPHIC TECHNIQUES, COMPUTERS),
(*MANAGEMENT ENGINEERING, COMPUTERS), DATA
PROCESSING SYSTEM, DATA STORAGE SYSTEMS,
INSTRUCTION MANUALS, DOCUMENTATION, REPORTS,
AUTOMATION, PRINTING, PHOTOGRAPHIC
TECHNIQUES

(U)

IDENTIFIERS: ON-LINE SYSTEMS, FLOW CHARTS,
INFORMATION MANAGEMENT SUBSYSTEM, CDC-160-A
COMPUTER, PUBLICATION

(U)

THIS REPORT PRESENTS RESULTS OF A RESEARCH AND
EXPERIMENTAL PROJECT IN COMPUTER-AUGMENTED
INFORMATION MANAGEMENT. THE REPORT IS, IN ITSELF A
PRODUCT OF THE PROJECT: WITH THE EXCEPTION OF
'FRONT MATTER,' THE ENTIRE REPORT WAS COMPOSED,
EDITED, AND PRODUCED WITH ON-LINE AND OFF-LINE
COMPUTER AIDS. FOR THIS PROJECT, THE TECHNIQUES OF
COMPUTER AIDS WERE APPLIED TO TWO AREAS: TASK
MONITORING AND PROGRAM DESIGN. THE PROCESSES AND
TECHNIQUES DEVELOPED OFFER A PROMISING BEGINNING TO
COMPUTER-AIDED PROGRAMMING DESIGN EXTENDING FROM
INITIAL SPECIFICATION TO FINAL DEBUGGING IN A UNIFIED
DESIGN RECORD THAT GROWS AND EVOLVES TO COMPLETE
FINAL DOCUMENTATION. THE PROCESSES AND TECHNIQUES
ALSO OFFER PROMISE IN INCREASING THE PRODUCTIVITY OF
INDIVIDUALS AND GROUPS OF PROGRAMMERS. FUTURE WORK
ENVISIONED FOR INFORMATION-MANAGEMENT SYSTEMS SUCH AS
THAT USED IN THIS STUDY INCLUDE PROGRAM DESIGN
RECORDS, EXTERNAL REFERENCE DOCUMENTATION, AND USER
REFERENCE MANUALS. AS AN APPENDIX, THERE IS
ATTACHED 'USER'S GUIDE: MAN-MACHINE
INFORMATION SYSTEM,' REVISED JUNE 1965.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00320

AD-623 796 9/2
LINCOLN LAB MASS INST OF TECH LEXINGTON
AN EXPERIMENTAL ON-LINE DATA STORAGE AND RETRIEVAL
SYSTEM, (U)
DESCRIPTIVE NOTE: REVISED ED.,
SEP 65 42P NOLAN, JOHN F. I
ARMENTI, AMEDIO W. I
REPT. NO. TR-377
CONTRACT: AF19(628)-5167 ,NONR-4;02(01)
MONITOR: ESD , TDR-65-456

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT SUBMITTED 3
FEB 65,

DESCRIPTORS: (*DATA STORAGE SYSTEMS,
PROGRAMMING(COMPUTERS)),
(*PROGRAMMING(COMPUTERS), DATA STORAGE
SYSTEMS), (*DATA, INFORMATION RETRIEVAL), DATA
PROCESSING SYSTEMS, COMPUTERS, MAN-MACHINE
SYSTEMS (U)
IDENTIFIERS: TIME SHARING(COMPUTERS), ON-LINE
SYSTEMS, FILE STRUCTURES, LIST PROCESSING (U)

THIS REPORT DESCRIBES AN EXPERIMENTAL PROGRAM
SYSTEM DESIGNED TO TEST AND DEMONSTRATE ON-LINE
STORAGE AND RETRIEVAL OF FORMATTED DATA BASED ON
COMPLETE INTERNAL DESCRIPTIONS OF THE FILES, THE
USE OF INTERNAL DESCRIPTIONS ALLOWS EACH USER (WHO
NEED NOT BE A TRAINED PROGRAMMER) TO DEFINE,
MODIFY, AND CROSS-ASSOCIATE DATA FILES TO SUIT HIS
PARTICULAR NEEDS, THE EXPERIMENTAL PROGRAM SYSTEM
WAS IMPLEMENTED BY REMOTE USE OF THE COMPATIBLE
TIME-SHARING SYSTEM (CTSS) FACILITIES OF
PROJECT MAC AT THE MASSACHUSETTS INSTITUTE OF
TECHNOLOGY, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-623 804 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
LISP PRIMER; A SELF-TUTOR FOR Q-32 LISP 1.5, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO,,
JUN 65 152P WEISSMAN, CLARK I
REPT. NO. TM-2337/010/00
CONTRACT: SD-97

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING LANGUAGES, INSTRUCTION
MANUALS) (U)
IDENTIFIERS: LISP, AN/FSQ-32, ON-LINE SYSTEMS (U)

THE DOCUMENT IS A SELF-TUTOR FOR LISP 1.5
PROGRAMMING, PARTICULARLY FOR ON-LINE Q-32 LISP
1.5. MATERIAL IS ORGANIZED INTO CHAPTERS THAT, BY
DISCUSSION AND EXAMPLE, PROGRESSIVELY EXPAND THE
STUDENT'S UNDERSTANDING OF THE LANGUAGE AND ABILITY
TO WRITE PROGRAMS IN THE LANGUAGE. A CAREFULLY
SELECTED AND GRADUATED SET OF EXERCISES FOR USE ON-
LINE IS PROVIDED AS AN INTEGRAL PART OF EACH CHAPTER.
COMPUTER-CHECKED ANSWERS FOR EACH EXERCISE ARE ALSO
PROVIDED AS A SEPARATE APPENDIX. THE DOCUMENT IS
NOT AN EXHAUSTIVE TREATISE ON LISP 1.5, BUT,
RATHER, A PRACTICAL PRIMER THAT PROVIDES THE SERIOUS
STUDENT WITH A SOLID FOUNDATION FOR UNDERSTANDING THE
PROGRAMMING LANGUAGE AND SYSTEM. HE MAY THEN
EASILY SUPPLEMENT HIS KNOWLEDGE FROM OTHER SOURCES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-625 003 9/2 5/1
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THEORY, PRACTICE, AND TRENDS IN BUSINESS
PROGRAMMING, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
JUL 65 23P SHAW, CHRISTOPHER J.,
REPT. NO. SP-2030/001/02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PROGRAMMING LANGUAGES, COMMERCE),
(PROGRAMMING (COMPUTERS), COMMERCE), THEORY,
STATE-OF-THE-ART REVIEWS, DATA PROCESSING
LANGUAGES (U)
IDENTIFIERS: TIME SHARING (COMPUTERS), ON-LINE
SYSTEMS, FILE STRUCTURES, COLINGO, LUCID LANGUAGE (U)

SURVEYS SOME WORK DONE IN THE LAST FEW YEARS IN THE
UNITED STATES, BOTH PRACTICAL AND THEORETICAL IN
NATURE, LIKELY TO HAVE AN IMPACT ON PROGRAMMING
PRACTICES FOR COMMERCIAL AND ADMINISTRATIVE PROBLEMS.
TOPICS INCLUDE: NONPROCEDURAL LANGUAGES, WHICH
EMPHASIZE PROBLEM STATEMENT RATHER THAN PROBLEM-
SOLVING PROCEDURES; GENERALIZED FILE PROCESSING
SYSTEMS, WHICH ENABLE PROGRAM TO BE DESCRIBED IN
TERMS OF FILES AND REPORTS AND SMALL SETS OF
RELATIVELY POWERFUL FILEKEEPING OPERATIONS;
USER-ORIENTED, ON-LINE SYSTEMS THAT ALLOW THE
NONPROGRAMMER, SITTING AT A LOCAL OR REMOTE TERMINAL,
TO RETRIEVE AND PROCESS DATA, (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-626 143 9/2 5/7
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS
MACHINE-AIDED DESIGN OF CONTEXT-FREE GRAMMARS, (U)
DESCRIPTIVE NOTE: PHYSICAL AND MATHEMATICAL SCIENCES
RESEARCH PAPERS,
OCT 65 25P EVANS, THOMAS G, I
PROJ: AF-4641
TASK: 464102
MONITOR: AFRL , 65-747, PHSRP-152

UNCLASSIFIED REPORT
NOFORN
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CONTEXT FREE GRAMMARS, DESIGN),
SYNTAX, ANALYSIS, PROGRAMMING LANGUAGES,
GRAMMARS (U)
IDENTIFIERS: LISP, TREE DIAGRAMS(LINGUISTICS),
BACKUSNORMAL FORM, ON-LINE SYSTEMS (U)

A PROGRAM HAS BEEN DEVELOPED TO ASSIST AN ON-LINE
USER IN THE MODIFICATION AND TESTING OF AN ARBITRARY
CONTEXT-FREE PHRASE-STRUCTURE GRAMMAR, COMMANDS
ARE AVAILABLE TO THE USER PERMITTING HIM TO INSERT OR
DELETE GRAMMAR RULES, DEFINE TEST STRINGS, OR ATTEMPT
TO PARSE SPECIFIED TEST STRINGS ACCORDING TO THE
CURRENT GRAMMAR, FURTHER COMMANDS GIVE THE USER
EXTENSIVE CONTROL OVER WHAT OUTPUT AND DIAGNOSTIC
INFORMATION HE RECEIVES FROM THE PROGRAM AND PROVIDE
FACILITIES FOR ISOLATING AND DIAGNOSING DIFFICULTIES
WITH THE GRAMMAR, ONE VERSION OF THE PROGRAM IS
WRITTEN ENTIRELY IN LISP AND HENCE IS AVAILABLE FOR
USE ON ANY MACHINE FOR WHICH A LISP PROCESSOR
EXISTS AND SUITABLE ON-LINE ACCESS IS POSSIBLE,
THIS REPORT IS A REVISION OF A PAPER PRESENTED AT
THE NATIONAL CONFERENCE OF THE ASSOCIATION FOR
COMPUTING MACHINERY, CLEVELAND, OHIO,
AUGUST, 1965. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-627 537 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
PROGRAMMING SEMANTICS FOR MULTIPROGRAMMED
COMPUTATIONS, (U)
DEC 65 54P DENNIS, JACK B, IVAN
HORN, EARL C, I
REPT. NO. MAC-TR-23
CONTRACT: NONR-4102(01)
PROJ: NR-048-189

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ASSOCIATION FOR
COMPUTING MACHINERY, CONFERENCE ON PROGRAMMING
LANGUAGES AND PRAGMATICS, SAN DIMAS, CALIF., AUG
8-12 1965, REPT. ON PROJ. MAC,

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
SEMANTICS), (*SEMANTICS,
PROGRAMMING(COMPUTERS)), REAL TIME,
PROGRAMMING LANGUAGES, COMPUTER STORAGE DEVICES,
INPUT-OUTPUT DEVICES (U)
IDENTIFIERS: TIME SHARING(COMPUTERS), MAC
PROJECT, ON-LINE SYSTEMS, MULTIPLE ACCESS SYSTEM,
FILESTRUCTURES, HIERARCHY, ALGOL (U)

THE SEMANTICS ARE DEFINED FOR A NUMBER OF META -
INSTRUCTIONS WHICH PERFORM OPERATIONS ESSENTIAL TO
THE WRITING OF PROGRAMS IN MULTIPROGRAMMED COMPUTER
SYSTEMS, THESE META-INSTRUCTIONS RELATE TO
PARALLEL PROCESSING, PROTECTION OF SEPARATE
COMPUTATIONS, PROGRAM DEBUGGING, AND THE SHARING
AMONG USERS OF MEMORY SEGMENTS AND OTHER COMPUTING
OBJECTS, THE NAMES OF WHICH ARE HIERARCHICALLY
STRUCTURED, THE LANGUAGE SOPHISTICATION
CONTEMPLATED IS MIDWAY BETWEEN AN ASSEMBLY LANGUAGE
AND AN ADVANCED ALGEBRAIC LANGUAGE, (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-628 135 9/2
TRW SYSTEMS REDONDO BEACH CALIF
ON LINE COMPUTER SYMBOLIC MANIPULATION, (U)
DESCRIPTIVE NOTE, FINAL REPT, AUG 64-AUG 65,
JAN 66 1990 BLACKWELL, FREDERICK W. ;
REPT, NO. 5253-6001-R0000,
CONTRACT: AF 30(602)-3516,
PROJ: AF-4594
TASK: 459404,
MONITOR: RACC , TR-65-376

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PROGRAMMING (COMPUTERS),
PROGRAMMING LANGUAGES), (PROGRAMMING LANGUAGES,
DIGITAL COMPUTERS), COMPILERS, DATA PROCESSING
SYSTEMS, ALGEBRA (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE DEVELOPMENT IS DESCRIBED OF AN ON-LINE COMPUTER
SYSTEM FOR SYMBOL MANIPULATION IN WHICH A USER CAN
ARBITRARILY DEFINE SYMBOLS AND RULES FOR OPERATING
WITH THESE SYMBOLS, AND THEN INSTRUCT THE COMPUTER
ON-LINE TO SELECTIVELY APPLY THE RULES. AT THE
BASIS OF THE SYSTEM IS A SMALL SET OF ELEMENTARY
SYMBOL MANIPULATORY OPERATORS WHICH CAN BE PROGRAMMED
ON-LINE TO CARRY OUT MORE COMPLEX SYMBOLIC PROCESSES.
THE APPLICATION OF THE SYSTEM TO ALGEBRA IS
PRESENTED. THE RESULTANT SYSTEM FOR ALGEBRAIC SYMBOL
MANIPULATION ALLOWS THE USER TO HAVE THE COMPUTER
APPLY RULES OF ALGEBRA ON-LINE TO TRANSFORM
MATHEMATICAL EXPRESSIONS WHICH HE HAS INPUT IN A
NATURAL FORM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-631 941 9/2
RAND CORP SANTA MONICA CALIF
FUTURE COMPUTER TECHNOLOGY AND ITS IMPACT, (U)
MAR 66 30P WARE, W. H. I
REPT. NO. P-3279,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (DIGITAL COMPUTERS, EFFECTIVENESS),
AIR FORCE, PROGRAMMING (COMPUTERS), HISTORY,
SIMULATION, COMPUTER STORAGE DEVICES, MAGNETIC
CORE STORAGE, INPUT-OUTPUT DEVICES, TEACHING
MACHINES (U)
IDENTIFIERS: PREDICTION, TIME
SHARING (COMPUTERS) (U)

COMPUTER POTENTIALS ARE GIVEN AS THE ABILITY (1)
TO ENCODE INFORMATION IN TERMS OF NUMERIC SYMBOLS,
(2) TO PARSE SENTENCES, DRAWING A PICTURE OF THE
SENTENCE STRUCTURE, OR TO PERFORM ALGEBRAIC
MANIPULATION, (3) TO PROCESS SYMBOLIC PICTORIAL
INFORMATION AND RECONSTRUCT A PICTURE, AND (4)
TO MODEL ANY SYSTEM, IDENTIFYING ITS VARIABLES AND
STATING THE RELATIONS BETWEEN THEM, IN TERMS OF A SET
OF MATHEMATICAL RELATIONS. THE ATTRIBUTES OF THE
COMPUTER, OR MORE PROPERLY THE INFORMATION PROCESSOR,
ARE GIVEN AS FOLLOWS. IT IS THE MOST POWERFUL AND
MOST FLEXIBLE TOOL EVER AVAILABLE TO MAN AND TO
SOCIETY. IT IS NOT A REPLACEMENT FOR MAN IN ANY
LARGE AND ENCOMPASSING SENSE; IT WILL DISPLACE HIM
IN MANY JOBS, BUT IT ALSO WILL OFFER HIM MANY NEW
OPPORTUNITIES. THE COMPUTER WILL TOUCH MEN
EVERWHERE AND IN EVERY WAY, ALMOST ON A MINUTE-TO-
MINUTE BASIS. EVERY MAN WILL COMMUNICATE THROUGH A
COMPUTER WHATEVER HE DOES. IT WILL CHANGE AND
RESHAPE HIS LIFE, MODIFY HIS CAREER, AND FORCE HIM TO
ACCEPT A LIFE OF CONTINUOUS CHANGE. (PAPER
PRESENTED TO THE BOARD OF TRUSTEES OF THE RAND
CORP, AND THE PROJECT RAND AIR FORCE
ADVISORY GROUP IN NOV 1965) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-633 907 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AN EMPIRICAL COMPARISON OF ON-LINE AND OFF-LINE
DEBUGGING. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
MAY 66 19P GRANT, E. E. I
REPT. NO. 58-2441,
CONTRACT: AF 19(628)-5166, ARPA ORDER-773

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
CORRECTIONS), COMPUTER PERSONNEL, OPERATIONS
RESEARCH, PERFORMANCE TESTS, TIME STUDIES,
ALGEBRA, EQUATIONS, SIMULATION, SCHEDULING,
MULTIPLE OPERATION, HUMAN ENGINEERING (U)
IDENTIFIERS: TIME SHARING(COMPUTERS), ON-LINE
SYSTEMS, DEBUGGING(COMPUTERS), OFF-LINE SYSTEMS (U)

THE EXPERIMENT COMPARED THE PROGRAM DEBUGGING
(CHECKOUT) PERFORMANCE OF PROGRAMMERS USING A
TIME-SHARING SYSTEM (TSS) WITH THE DEBUGGING
PERFORMANCE OF PROGRAMMERS USING A SIMULATED CLOSED
SHOP. TWELVE PROGRAMMERS PARTICIPATED IN THE
STUDY. EACH PROGRAMMER WAS GIVEN TWO PROBLEM
STATEMENTS AND WAS ASKED TO WRITE A PROGRAM TO SOLVE
EACH. ONE PROBLEM REQUIRED A PROGRAM TO INTERPRET
AND SOLVE ALGEBRAIC EQUATIONS, THE OTHER PROBLEM
REQUIRED A PROGRAM TO FIND THE SINGLE PATH THROUGH A
20 X 20 CELL MAZE REPRESENTED IN THE COMPUTER BY A
400-ENTRY TABLE. SIX SOLUTIONS (PROGRAMS) TO
EACH PROBLEM WERE DEBUGGED ON LINE USING TSS AND
SIX WERE DEBUGGED OFF LINE USING A SIMULATED CLOSED-
SHOP SYSTEM WITH A DESK-TO-DESK TURNAROUND TIME OF
TWO HOURS. PERFORMANCE WAS MEASURED IN TERMS OF
MAN HOURS TO DEBUG AND CENTRAL PROCESSOR TIME USED IN
DEBUGGING. PROGRAMMERS WHO DEBUGGED THEIR
ALGEBRAIC INTERPRETATION PROGRAMS ON LINE USED
SLIGHTLY FEWER MAN HOURS AND ABOUT THREE TIMES AS
MUCH CENTRAL PROCESSOR TIME AS DID PROGRAMMERS WHO
DEBUGGED THESE PROGRAMS OFF LINE. PROGRAMMERS WHO
DEBUGGED THEIR MAZE PROGRAMS ON LINE USED ABOUT ONE -
THIRD AS MANY MAN HOURS AND SLIGHTLY MORE CENTRAL
PROCESSOR TIME THAN THOSE WHO DEBUGGED THEIR MAZE
PROGRAMS OFF LINE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-636 993 9/2 5/8
RAND CORP SANTA MONICA CALIF
JOSS: INTRODUCTION TO A HELPFUL ASSISTANT, (U)
JUL 66 SOP BAKER, C. L. I
REPT. NO. RM-5038-PR,
CONTRACT: AF 49(438)-1700,

UNCLASSIFIED REPORT
AVAILABILITY: RAND CORP, 1700 MAIN ST., SANTA
MONICA, CALIF, \$2,00.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (COMPUTERS, MAN-MACHINE SYSTEMS),
REAL TIME, DIGITAL COMPUTERS, SPECIAL PURPOSE
COMPUTERS, REMOTE CONTROL SYSTEMS, SYSTEMS
ENGINEERING (U)
IDENTIFIERS: JOSS (JOHNNIAC OPEN SHOP
SYSTEM) (U)

A STEP-BY-STEP DEMONSTRATION OF JOSS--A SYSTEM
DESIGNED TO PROVIDE THE INDIVIDUAL SCIENTIST AND
ENGINEER WITH A PERSONAL COMPUTATIONAL SERVICE
IMMEDIATELY AVAILABLE, WHENEVER REQUIRED, IN HIS OWN
WORKING ENVIRONMENT, THE DISTINGUISHING FEATURES
OF JOSS ARE: MOBILE CONSOLES EQUIPPED WITH
ELECTRIC TYPEWRITERS FOR INPUT AND OUTPUT; HIGHLY
READABLE AND POWERFUL LANGUAGE FOR NUMERIC
COMPUTATION; ENGLISH CAPITALIZATION, SPELLING, AND
PUNCTUATION RULES; EASY EDITING; QUICK RESPONSE;
EXACT INPUT; FAMILIAR DECIMAL ARITHMETIC; EXACT
OUTPUT; AND REPORT-QUALITY FORMATTED OUTPUT, THE
INTIMATE INTERACTION BETWEEN MAN AND MACHINE PERMITS
THE JOSS USER TO EXERCISE JUDGMENT CONTINUALLY
DURING THE COURSE OF COMPUTATION, CHANGING AND
MODIFYING THE PROCEDURE AS HE WISHES, THIS IS ONE
OF THE UNIQUE ASPECTS THAT DISTINGUISHES JOSS FROM
OTHER SYSTEMS AND HAS LED TO ITS ENTHUSIASTIC
ADOPTION BY THE RAND STAFF, THIS TALK WAS
PRESENTED TO THE ELEVENTH ANNUAL DATA
PROCESSING CONFERENCE AT THE UNIVERSITY OF
ALABAMA BIRMINGHAM CENTER ON 4 MAY 1966,
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-640 057 15/7 3/8 17/2
COMPUTER RESEARCH CORP CAMBRIDGE MASS.
A STUDY OF CONVERSATIONAL ON-LINE INTERACTION IN MAN-
MACHINE WAR GAMING, (U)
DESCRIPTIVE NOTE: FINAL REPT.,
AUG 66 75P CLAPP, LEWIS C. ;
JACOBSON, ROBERT V. ; JORDAN, DALE E. ; WAX, ELLEN
J. ;
REPT. NO. R-102-4,
CONTRACT: NONR-4861(00),
PROJ: J-102,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*WAR GAMES, *MAN-MACHINE SYSTEMS),
PROGRAMMING (COMPUTERS), REMOTE CONTROL SYSTEMS,
PROGRAMMING LANGUAGES, VOICE COMMUNICATION
SYSTEMS (U)
IDENTIFIERS: TIME SHARING (COMPUTERS), JOPL,
CONSORT (U)

THE REPORT DESCRIBES THE RESULTS OF A STUDY OF WAR
GAMING USING ON-LINE INTERACTION BETWEEN MAN AND
COMPUTER. THE STUDY CONCLUDES THAT ANALYSIS AND
WAR GAMING CAPABILITIES CAN BE INCREASED
SIGNIFICANTLY USING A TIME-SHARING COMPUTER SYSTEM
WITH APPROPRIATE SOFTWARE AND REMOTE-ACCESS
TERMINALS. A SYSTEM CONCEPT CALLED CONSORT
(CONVERSATIONAL SYSTEM WITH ON-LINE REMOTE
TERMINALS) IS DESCRIBED, AND SPECIFICATIONS ARE
GIVEN FOR A USER-ORIENTED, CONVERSATIONAL LANGUAGE,
JOPL, WHICH IS DESIGNED SPECIFICALLY FOR SIMULATION
AND ANALYSIS APPLICATIONS. CONSORT INCLUDES AN
AUTOMATED DATA LIBRARY, COMPUTER PROGRAMMING
MANAGEMENT FEATURES, AND THE CAPABILITY TO OPERATE
COMPUTER PROGRAMS WRITTEN IN LANGUAGES OTHER THAN
JOPL. COMPUTER-AIDED MANUAL GAMING USING CONSORT
IS DESCRIBED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-642 353 9/2
MITRE CORP BEDFORD MASS
USER'S MANUAL FOR PEST, A MONITOR PROGRAM FOR THE
PHOENIX COMPUTER, (U)
OCT 66 32P BEN-AARON, MAX I
REPT. NO. MTR-219
CONTRACT: AF 19(628)-5163
PROJ: SOBF
MONITOR: ESD TR-66-301

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
INSTRUCTION MANUALS), DIGITAL COMPUTERS (U)
IDENTIFIERS: ON-LINE SYSTEMS, PEST (U)

PEST IS A NON-TIME-SHARED PROGRAM WHICH GIVES A
USER ACCESS TO AN EDITOR AND AN ASSEMBLER ON
PHOENIX, A COMPUTER DEVELOPED BY THE MITRE
CORPORATION. PEST ALLOWS THE USER TO ENTER, EDIT,
ASSEMBLE, LOAD, DEBUG, AND EXECUTE A SYMBOLIC
PROGRAM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-645 438 9/2 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXPLORATORY EXPERIMENTAL STUDIES COMPARING ONLINE AND
OFFLINE PROGRAMING PERFORMANCE, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
DEC 64 36P SACKMAN, H, IERIKSON, W, J, I
GRANT, E, E, I
REPT. NO. SP-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: RESEARCH SUPPORTED IN PART BY
ARPA.

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
PERFORMANCE(HUMAN)), (*PROGRAMMERS,
PERFORMANCE(HUMAN)), PERFORMANCE TESTS,
MANPOWER STUDIES (U)

IDENTIFIERS: ON-LINE SYSTEMS, OFF-LINE
SYSTEMS (U)

TWO EXPLORATORY EXPERIMENTS COMPARED DEBUGGING
PERFORMANCE OF PROGRAMERS WORKING UNDER CONDITIONS OF
ONLINE AND OFFLINE ACCESS TO A COMPUTER. THESE ARE
THE FIRST KNOWN STUDIES MEASURING THE PERFORMANCE OF
PROGRAMERS UNDER CONTROLLED CONDITIONS FOR STANDARD
TASKS. STATISTICALLY SIGNIFICANT RESULTS INDICATED
SUBSTANTIALLY FASTER DEBUGGING UNDER ONLINE
CONDITIONS IN BOTH STUDIES. THE RESULTS WERE
AMBIGUOUS FOR CENTRAL PROCESSOR TIME--ONE STUDY
SHOWED LESS COMPUTER TIME FOR DEBUGGING, AND THE
OTHER SHOWED MORE TIME IN THE ONLINE MODE. PERHAPS
THE MOST IMPORTANT PRACTICAL FINDING, OVERSHADOWING
ONLINE/OFFLINE DIFFERENCES, INVOLVES THE LARGE AND
STRIKING INDIVIDUAL DIFFERENCES IN PROGRAMER
PERFORMANCE. ATTEMPTS WERE MADE TO RELATE OBSERVED
INDIVIDUAL DIFFERENCES TO OBJECTIVE MEASURES OF
PROGRAMER EXPERIENCE AND PROFICIENCY THROUGH
FACTORIAL TECHNIQUES. IN LINE WITH THE EXPLORATORY
OBJECTIVES OF THESE STUDIES. METHODOLOGICAL PROBLEMS
ENCOUNTERED IN DESIGNING AND CONDUCTING THESE TYPES
OF EXPERIMENTS ARE DESCRIBED. LIMITATIONS OF THE
FINDINGS ARE POINTED OUT, HYPOTHESES ARE PRESENTED TO
ACCOUNT FOR RESULTS, AND SUGGESTIONS ARE MADE FOR
FURTHER RESEARCH. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-645 660 12/1 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
ADEPT, A HEURISTIC PROGRAM FOR PROVING THEOREMS OF
GROUP THEORY, (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
SEP 66 181P NORTON, LEWIS MARK I
REPT. NO. MAC-TR-33
CONTRACT: NONR-4102(G)
PROJ: NR-048-189 , RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTER PROGRAMS,
GROUPS, MATHEMATICS), (THEOREMS,
GROUPS, MATHEMATICS), MATHEMATICAL LOGIC,
ARTIFICIAL INTELLIGENCE, DIGITAL COMPUTERS, TIME
SHARING, REAL TIME, THESES (U)
IDENTIFIERS: ADEPT, MULTIPLE ACCESS SYSTEM, ON-
LINE SYSTEMS, HEURISTIC PROGRAM (U)

A COMPUTER PROGRAM, NAMED ADEPT (A DISTINCTLY
EMPIRICAL PROVER OF THEOREMS), HAS BEEN
WRITTEN WHICH PROVES THEOREMS TAKEN FROM THE ABSTRACT
THEORY OF GROUPS, ITS ORGANIZATION IS BASICALLY
HEURISTIC, INCORPORATING MANY OF THE TECHNIQUES OF
THE HUMAN MATHEMATICIAN IN A 'NATURAL' WAY. THIS
PROGRAM HAS PROVED ALMOST 100 THEOREMS, AS WELL AS
SERVING AS A VEHICLE FOR TESTING AND EVALUATING
SPECIAL-PURPOSE HEURISTICS. A DETAILED DESCRIPTION
OF THE PROGRAM IS SUPPLEMENTED BY ACCOUNTS OF ITS
PERFORMANCE ON A NUMBER OF THEOREMS, THUS PROVIDING
MANY INSIGHTS INTO THE PARTICULAR PROBLEMS INHERENT
IN THE DESIGN OF A PROCEDURE CAPABLE OF PROVING A
VARIETY OF THEOREMS FROM THIS DOMAIN. SUGGESTIONS
HAVE BEEN FORMULATED FOR FURTHER EFFORTS ALONG THESE
LINES, AND COMPARISONS WITH RELATED WORK PREVIOUSLY
REPORTED IN THE LITERATURE HAVE BEEN MADE,
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-646 717 9/2
MITRE CORP BEDFORD MASS
USERS' MANUAL FOR THE EDITOR, (U)
NOV 66 83P ISQUITH, BEN I
REPT. NO. MTR-222
CONTRACT: AF 19(628)-5163
PROJ: 508F
MONITOR: ESD TR-66-309

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, INSTRUCTION
MANUALS), PROGRAMMING LANGUAGES, SYNTAX,
PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: EDITOR I PROGRAM. ON-LINE
SYSTEMS (U)

EDITOR I IS AN ON-LINE PROGRAM WITHIN THE INITIAL
PHOENIX COMPUTER SOFTWARE SYSTEM WHICH ENABLES THE
SYSTEM USER TO CREATE, DESTROY, OR MODIFY HIS
COLLECTION OF SYMBOLIC DATA, ORGANIZED AS FILES.
THE ACTIONS OF EDITOR I ARE USER-CONTROLLED BY
MEANS OF A ONE-PASS ASSEMBLER, (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-650 500 6/4 9/2
RAND CORP SANTA MONICA CALIF
ON-LINE COMPUTER CLASSIFICATION OF HANDPRINTED
CHINESE CHARACTERS AS A TRANSLATION AID, (U)
APR 67 20P GRONER, G. F., HEAFNER, J.,
F. ROBINSON, T. W., I
REPT. NO. P-3568

UNCLASSIFIED REPORT

DESCRIPTORS: (*CHARACTER RECOGNITION, *CHINESE
LANGUAGE), COMPUTERS, COMPUTER PROGRAMS,
PRINTING, CLASSIFICATION, CATHODE RAY TUBES,
PATTERN RECOGNITION, FEASIBILITY STUDIES, INPUT-
OUTPUT DEVICES (U)
IDENTIFIERS: ON-LINE SYSTEMS, WRITING (U)

IT IS USUALLY A LONG AND ARDUOUS TASK TO FIND
CHINESE CHARACTERS IN A DICTIONARY BECAUSE THE
CHARACTERS HAVE NO NATURAL ORDERING. IN ORDER TO
DEMONSTRATE THE FEASIBILITY OF AUTOMATING THIS
PROCEDURE, A COMPUTER PROGRAM WAS DEVELOPED FOR
CATALOGING AND RETRIEVING RELATED GROUPS OF CHINESE
CHARACTERS. THE PROGRAM IS WRITTEN IN IBM 360
ASSEMBLY LANGUAGE AND RUNS ON AN IBM 360/
MODEL 40. IT MAKES USE OF MUCH OF THE SOFTWARE
AND TECHNIQUES DEVELOPED FOR THE GRAIL PROJECT.
THE INPUT DEVICE IS A TABLET; THE OUTPUT DEVICE IS
A HIGH-PERFORMANCE CATHODE RAY TUBE (CRT) DISPLAY.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-651 582 9/2 5/7
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SEMIANNUAL TECHNICAL SUMMARY REPORT TO THE DIRECTOR,
ADVANCED RESEARCH PROJECTS AGENCY FOR THE PERIOD 1
JULY 1966 TO 31 DECEMBER 1966, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO,
DEC 66 58P
REPT. NO. TM-687/007/00
CONTRACT: F19628-67-C-0004

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING LANGUAGES, REVIEWS),
(*DATA PROCESSING SYSTEMS, REVIEWS),
(*COMPUTERS, REVIEWS), MAN-MACHINE SYSTEMS,
COMMUNICATION SYSTEMS, LANGUAGE, LINGUISTICS,
NETWORKS, COMPILERS, TIME SHARING (U)
IDENTIFIERS: LISP (U)

PROJECTS COVERED IN THE REPORT INCLUDE:
PROGRAMMING LANGUAGE DEVELOPMENT, MAN-
MACHINE COMMUNICATION, DATA BASE SYSTEMS,
COMPUTER NETWORKS, AND LANGUAGE PROCESSING
RESEARCH, A SUMMARY OF THE PROFESSIONAL
ACTIVITIES OF THE STAFF FOR THE PAST SIX MONTHS IS
INCLUDED. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-654 595 5/2 5/7 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
ON-LINE TRANSLATION OF NATURAL LANGUAGE QUESTIONS
INTO ARTIFICIAL LANGUAGE QUERIES, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
APR 67 51P KELLOGG, CHARLES H, I
REPT. NO. SP-2027/000/00

UNCLASSIFIED REPORT

DESCRIPTORS: (•INFORMATION RETRIEVAL, •COMPUTER
PROGRAMS), ENGLISH LANGUAGE,
PROGRAMMING (COMPUTERS), SEMANTICS, SYNTAX,
GRAMMARS, MAN-MACHINE SYSTEMS (U)

THE REPORT DESCRIBES A COMPUTER PROGRAM THAT
DEMONSTRATES ONE APPROACH TO THE PROBLEM OF RELATING
QUESTIONS, POSED IN A LIMITED SUBSET OF ENGLISH, TO
A SET OF FACTS STORED IN AN ON-LINE DATA BASE, THE
PROGRAM, CALLED CONVERSE, IS DESIGNED TO USE AN
EXISTING DATA MANAGEMENT SYSTEM, TO PROVIDE ANSWERS
TO QUESTIONS, WHERE POSSIBLE, CONVERSE
TRANSLATES AN ENGLISH QUESTION INTO ONE OR MORE
FILE-SEARCHING PROCEDURES. IF COMPLETE TRANSLATION
IS NOT POSSIBLE, THE PROGRAM PROVIDES A USER WITH
INFORMATION THAT MAY HELP HIM IN DEFINING NEW TERMS
OR REPHRASING HIS QUESTION INTO ACCEPTABLE ENGLISH
TERMS. CONVERSE ACCEPTS GENERIC OR BROWSING TYPES
OF QUESTIONS THAT ASK FOR INFORMATION ABOUT THE DATA
BASE AS WELL AS QUESTIONS OF A MORE SPECIFIC NATURE.
THE TRANSLATION PROCEDURE IS BASED ON A GENERATIVE
MODEL OF SYNTAX AND SEMANTICS THAT IS COMPREHENSIVE
ENOUGH TO AUTOMATICALLY RESOLVE SOME FORMS OF
SYNTACTIC AND SEMANTIC AMBIGUITY. A DEFINITION OF
'FACT' IS INTRODUCED TO HELP SPECIFY SEMANTIC
ASSOCIATIONS BETWEEN QUESTIONS AND DATA VALUES, A
DICTIONARY AND A SERIES OF SYNTACTIC, SEMANTIC
INTERPRETATION, AND QUERY CONSTRUCTION RULES
CONSTITUTE A FILE OF INTERPRETIVE DATA THAT IS USED
BY THE PROGRAM IN EFFECTING QUESTION-TO-QUERY
TRANSLATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-656 041 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
SOME ASPECTS OF PATTERN RECOGNITION BY COMPUTER, (U)
DESCRIPTIVE NOTE: MASTER'S THESIS,
FEB 67 127P GUZMAN-ARENAS, ADOLFO I
REPT. NO. MAC-TR-37
CONTRACT: NONR-4102(01)
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PATTERN RECOGNITION, COMPUTERS),
CODING, THESES, MODELS(SIMULATIONS), REAL
TIME, TIME SHARING, COMPUTER PROGRAMS, GEOMETRIC
FORMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, CONVERT, (U)
POLYBRICK (U)

A COMPUTER MAY GATHER A LOT OF INFORMATION FROM ITS ENVIRONMENT IN AN OPTICAL OR GRAPHICAL MANNER, IF A TV PICTURE OF A SCENE IS TRANSFORMED INTO A SYMBOLIC DESCRIPTION OF POINTS AND LINES, OR SURFACES, THIS THESIS DESCRIBES SEVERAL PROGRAMS, WRITTEN IN THE LANGUAGE CONVERT, FOR ANALYZING SUCH DESCRIPTIONS IN ORDER TO RECOGNIZE, DIFFERENTIATE, AND IDENTIFY DESIRED OBJECTS OR CLASSES OF OBJECTS IN A SCENE, EXAMPLES ARE GIVEN IN EACH CASE. IMPORTANT RESTRICTIONS AND SUPPOSITIONS ARE: (A) INPUT IS ASSUMED PERFECT (NOISELESS) AND IN A SYMBOLIC FORMAT; (B) NO PERSPECTIVE DEFORMATION IS CONSIDERED. A PORTION OF THIS THESIS IS DEVOTED TO THE STUDY OF MODELS (SYMBOLIC REPRESENTATIONS) OF THE OBJECTS WE WANT TO IDENTIFY, AND DIFFERENT SCHEMES, SOME OF THEM ALREADY IN USE, ARE DISCUSSED, FOCUSING ATTENTION ON THE MORE GENERAL PROBLEM OF IDENTIFYING GENERAL OBJECTS WHEN THEY SUBSTANTIALLY OVERLAP, SOME SCHEMES ARE PROPOSED FOR SUCH RECOGNITION, AND SOME CONCURRENT PROBLEMS ARE ANALYZED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. / 328

AD-656 583 9/2

NAVAL WEAPONS LAB DAHLGREN VA
DISPLAYTRAN - A GRAPHICAL DISPLAY ORIENTED
CONVERSATIONAL FORTRAN FACILITY FOR AN IBM 360/40
COMPUTER. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JUL 67 122P AMMERMAN, ANNE B. ;
DIESEN, LARRY R. THOMBS, HERMON W. ;
REPT. NO. NWL-TM-4-19/67

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMING (COMPUTERS), DATA
PROCESSING SYSTEMS), SUBROUTINES, TIME SHARING,
ERRORS, INPUT-OUTPUT DEVICES, PROGRAMMING
LANGUAGES, MAN-MACHINE SYSTEMS, CONTROL SEQUENCES,
DISPLAY SYSTEMS (U)

IDENTIFIERS: DISPLAYTRAN, ON-LINE SYSTEMS, IBM
360/40, FORTRAN IV (U)

THE REPORT DESCRIBES AN EXPERIMENTAL TIME-SHARED
SYSTEM CALLED DISPLAYTRAN. THE DISPLAYTRAN
SYSTEM ALLOWS PROGRAMMERS TO CONSTRUCT AND DEBUG
FORTRAN IV PROGRAMS IN AN ON-LINE CONVERSATIONAL
MANNER. IT PROVIDES IMMEDIATE RESPONSE TO SYNTAX
ERRORS AND CONTAINS A HOST OF SOURCE LANGUAGE DEBUG
AIDS TO ASSIST PROGRAMMERS IN FINDING ERRORS IN
PROGRAM LOGIC OR SEMANTICS. ANALYSIS WILL BE ABLE
TO COMMUNICATE WITH APPLICATION PROGRAMS (PREPARED
USING THE SYSTEM) DURING THEIR EXECUTION. INPUT
TO AND OUTPUT FROM APPLICATION PROGRAMS CAN BE IN A
GRAPHICAL AND/OR TABULAR FORM. DISPLAYTRAN IS
OPERATIONAL ON AN IBM 360/40 COMPUTER. THIS
TIME-SHARED SYSTEM DRIVES ONE REMOTE TERMINAL AND
CONCURRENTLY EXECUTES ONE BACKGROUND PROGRAM. THE
REMOTE TERMINAL CONSISTS OF AN IBM 2250 DISPLAY, A
SLOW SPEED PRINTER AND A FUNCTION KEYBOARD. A TWO
TERMINAL SYSTEM IS EXPECTED TO BE AVAILABLE DURING
THE FALL OF 1967. THIS MANUAL PROVIDES THE
INFORMATION NECESSARY TO USE THE DISPLAYTRAN
SYSTEM. IT CONTAINS A DESCRIPTION OF THE COMMAND
LANGUAGE (USER/SYSTEM COMMUNICATION LANGUAGE),
THE FORTRAN IV LANGUAGE, AND THE HARDWARE
CONFIGURATION OF THE SYSTEM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-656 771 972
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
THE BBN 940 LISP SYSTEM, (U)
JUL 67 138P BOBROW, DANIEL G. ;
DARLEY, D. LUCILLE ; DEUTSCH, L. PETER ;
MURPHY, DANIEL L. ; TEITELMAN, WARREN ;
REPT. NO. SCIENTIFIC-9, BBN-1539
CONTRACT: AF 19(628)-5065, ARPA ORDER-627
PROJ: AF-8668
MONITOR: AFCRL 67-0458

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING LANGUAGES,
COMPUTERS), COMPUTER STORAGE DEVICES,
ARTIFICIAL INTELLIGENCE, COMPILERS, SUBROUTINES,
TIME SHARING, DATA PROCESSING SYSTEMS (U)
IDENTIFIERS: LISP, SDS 940 COMPUTER, LIST
PROCESSING, ON-LINE SYSTEMS (U)

THE REPORT DESCRIBES THE LISP SYSTEM IMPLEMENTED
AT BBN ON THE SDS 940 COMPUTER, THIS LISP
IS AN UPWARD COMPATIBLE EXTENSION OF LISP 1.5 FOR
THE IBM 7090, WITH A NUMBER OF NEW FEATURES WHICH
MAKE IT WORK WELL AS AN ON-LINE LANGUAGE, THESE
NEW FEATURES INCLUDE TRACING, AND CONDITIONAL
BREAKPOINTS IN FUNCTIONS FOR DEBUGGING AND A
SOPHISTICATED LISP ORIENTED EDITOR, THE BBN
940 LISP SYSTEM HAS A LARGE MEMORY STORE
(APPROXIMATELY 50,000 FREE WORDS) UTILIZING
SPECIAL PAGING TECHNIQUES FOR A DRUM TO PROVIDE
REASONABLE COMPUTATION TIMES, THE SYSTEM INCLUDES
BOTH AN INTERPRETER, A FULLY COMPATIBLE COMPILER, AND
AN ASSEMBLY LANGUAGE FACILITY FOR INSERTING MACHINE
CODE SUBROUTINES, (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-656 900 5/1 15/5 9/2
NAVAL ORDNANCE LAB WHITE OAK MD
A COMPUTERIZED INVENTORY CONTROL SYSTEM, (U)
JUL 67 52P PRYOR, C, NICHOLAS ;
REPT, NO, NOLTR-67-92

UNCLASSIFIED REPORT

DESCRIPTORS: (INVENTORY CONTROL, COMPUTER
PROGRAMS), (MANAGEMENT PLANNING, INVENTORY
CONTROL), PUNCHED CARDS, FLOW CHARTING,
SUBROUTINES, PREDICTIONS, SCHEDULING (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

AN INVENTORY CONTROL PROGRAM HAS BEEN DEvised FOR
THE IBM 7090 COMPUTER TO MEET THE REQUIREMENTS OF A
SMALL ELECTRONIC SYSTEM DEVELOPMENT GROUP. THE
SYSTEM PRESENTLY USES PUNCH CARD INPUT FOR CONTROL
INFORMATION, BUT IS ADAPTABLE TO ON-LINE OPERATION IN
MULTIPLE ACCESS SYSTEMS. THE INVENTORY SYSTEM
KEEPS A RECORD OF THE PRESENT STOCK OF A NUMBER OF
ITEMS, AND RECORDS ALL ORDERS AND RESERVATIONS FOR
THE ITEMS. ON THE BASIS OF THESE ORDERS AND
RESERVATIONS, THE SYSTEM PREDICTS FUTURE QUANTITIES
OF THE ITEMS AND WARNS WHEN AN ITEM REACHES A
CRITICAL LEVEL. THIS SYSTEM SHOULD BE GENERALLY
USEFUL TO ACTIVITIES REQUIRING A CONTINUING STOCK OF
A MODERATE NUMBER OF DISTINCT ITEMS, (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-657 282 9/7
MASSACHUSETTS INST OF TECH CAMBRIDGE
AN ON-LINE SYSTEM FOR ALGEBRAIC MANIPULATION. (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
JUL 66 115P FENICHEL, ROBERT ROSS I
REPT. NO. MAC-TR-35
CONTRACT: NONR-4102(01)
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT, ON PROJ: MAC, PREPARED
IN COOPERATION WITH HARVARD UNIV., CAMBRIDGE,
MASS.

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
ALGEBRA), ALGORITHMS, THESES, TIME SHARING,
SUBROUTINES, REAL TIME, THEOREMS, COMPUTER
PROGRAMS (U)
IDENTIFIERS: MAC PROJECT, ON-LINE SYSTEMS,
FAMOUS (U)

FAMOUS IS AN ON-LINE SYSTEM FOR THE MANIPULATION OF
LINGUISTIC FORMS. ALTHOUGH THESE FORMS CAN HAVE
QUITE ARBITRARY INTERPRETATIONS, THE STANDARD
INTERPRETATION IS THAT THEY ARE ALGEBRAIC
EXPRESSIONS. FAMOUS ALLOWS ITS 'ALGEBRAIC
EXPRESSIONS' TO INCLUDE ARBITRARY FUNCTIONS WHICH MAY
OR MAY NOT BE DEFINED. IN THIS WAY, REGULAR NON-
ALGEBRAIC CONSTRUCTIONS MAY BE CONCEALED AS ARGUMENTS
OF AD HOC FUNCTIONS. RULES OF LOCAL CHANGE ARE THE
HEART OF FAMOUS, AND SUPPLIED BY THE USER. USING
THESE RULES, FAMOUS LOOKS AT AN ALGEBRAIC
MANIPULATION AS A SERIES OF LOCAL CHANGES. THE
CENTRALITY OF PROXIMITY IN FAMOUS WAS ORIGINALLY
PROMPTED BY G-THEORY, WHICH MIGHT BE CALLED THE
STUDY OF PROXIMITY. THE PRESENTATION IN CHAPTER
II IS COMPLETE, BUT IT HAS RATHER A COOKBOOK TONE.
CHAPTER III IS A MORE REFLECTIVE ATTEMPT TO
DEFINE THE POWER AND NATURE OF THE SYSTEM.
ALGEBRAIC 'SIMPLIFICATION' HAS BEEN A BENCHMARK OF
ALGEBRAIC MANIPULATORS, AND IT IS DISCUSSED IN
CHAPTER IV. A MORE NOVEL APPLICATION, THAT OF
LIMIT PROBLEMS, IS DISCUSSED IN CHAPTER V.
FINALLY, CHAPTER VI CONSISTS OF MISCELLANEOUS
REMARKS ABOUT POSSIBLE AND IMPOSSIBLE LINES OF
FURTHER WORK. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-657 283 12/1 9/2
MASSACHUSETTS INST OF TEC CAMBRIDGE
SYMBOLIC MATHEMATICAL LABORATORY, (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
JAN 67 340P MARTIN, WILLIAM ARTHUR I
REPT. NO. MAC-TR-36
CONTRACT: NONR-4101(01)
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, MATHEMATICS),
ALGORITHMS, TIME SHARING, THESES, REAL TIME,
SUBROUTINES, DATA PROCESSING SYSTEMS,
PROGRAMMING(COMPUTERS), SYMBOLS, CODING,
INPUT-OUTPUT DEVICES, GRAPHICS,
TRANSFORMATIONS(MATHEMATICS) (U)
IDENTIFIERS: LIGHT PENS, ON-LINE SYSTEMS, LISP,
NON-NUMERICAL ANALYSIS (U)

LARGE COMPUTER PROGRAM HAS BEEN DEVELOPED TO AID
APPLIED MATHEMATICIANS IN THE SOLUTION OF PROBLEMS IN
NON-NUMERICAL ANALYSIS WHICH INVOLVE TEDIOUS
MANIPULATIONS OF MATHEMATICAL EXPRESSIONS, THE
MATHEMATICIAN USES TYPED COMMANDS AND A LIGHT PEN TO
DIRECT THE COMPUTER IN THE APPLICATION OF
MATHEMATICAL TRANSFORMATIONS; THE INTERMEDIATE
RESULTS ARE DISPLAYED IN STANDARD TEXT-BOOK FORMAT SO
THAT THE SYSTEM USER CAN DECIDE THE NEXT STEP IN THE
PROBLEM SOLUTION, THREE PROBLEMS SELECTED FROM THE
LITERATURE HAVE BEEN SOLVED TO ILLUSTRATE THE USE OF
THE SYSTEM, A DETAILED ANALYSIS OF THE PROBLEMS OF
INPUT, TRANSFORMATION, AND DISPLAY OF MATHEMATICAL
EXPRESSIONS IS ALSO PRESENTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-657 314 9/2
RAND CORP SANTA MONICA CALIF
JOSS: ACCOUNTING AND PERFORMANCE MEASUREMENT, (U)
JUN 67 #9P BRYAN, G. E. I
REPT. NO. RM-5217-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS,
PERFORMANCE(ENGINEERING)),
(*PROGRAMMING(COMPUTERS), COSTS), TIME
SHARING, INPUT-OUTPUT DEVICES, DATA STORAGE
SYSTEMS, STATISTICAL PROCESSES, COMPUTER PROGRAMS,
MANAGEMENT PLANNING (U)
IDENTIFIERS: JOSS, ON-LINE SYSTEMS (U)

THE MONITOR IS THAT PART OF THE JOSS SYSTEM PROGRAM THAT ACTS AS THE SUPERVISORY UNIT OF THE JOSS MACHINE. A MAJOR FUNCTION OF THE MONITOR IS THE GATHERING OF DATA FOR REVENUE ACCOUNTING AND FOR PRODUCING PERFORMANCE MEASURES OF THE SYSTEM AND ITS USERS. THE PRESENT MEMORANDUM INCLUDES DETAILED DESCRIPTIONS OF THE DATA GATHERING PROCESSES FOR ACCOUNTING AND PERFORMANCE MEASUREMENT, TOGETHER WITH SAMPLES OF THE SEVERAL REPORTS PRODUCED FROM THESE DATA. A FUTURE MEMORANDUM WILL DEAL IN DEPTH WITH JOSS SYSTEM AND USER PERFORMANCE AS MEASURED BY THE REPORTING PROCESSES DESCRIBED HERE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-658 829 972 578
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
NATURAL COMMUNICATION WITH COMPUTERS, (U)
DESCRIPTIVE NOTE: FINAL REPT. 15 MAR 65-31 AUG 67,
AUG 67 38P BOBROW, DANIEL G. 1
REPT. NO. BBN-1342
CONTRACT: AF 19(628)-5065, ARPA ORDER-627-2
PROJ: AF-8668
MONITOR: AFRL 67-0485

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTERS, MAN-MACHINE
SYSTEMS), ABSTRACTS, SYNTAX, TIME SHARING,
REAL TIME, INFORMATION RETRIEVAL, DISPLAY
SYSTEMS, SEMANTICS, PROGRAMMING LANGUAGES, DATA
STORAGE SYSTEMS, COMPILERS, DATA PROCESSING
SYSTEMS, DIGITAL COMPUTERS (U)
IDENTIFIERS: LISP, ON-LINE SYSTEMS, LIST
PROCESSING (U)

THE REPORT DISCUSSES RESULTS CONCERNING PROBLEMS
AFFECTING COMPUTER COMMUNICATIONS WITH PEOPLE, OTHER
COMPUTERS, AND REAL-TIME DEVICES, AS FOUND WITHIN THE
2 YEARS OF THE CONTRACT. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-660 251 14/4 12/1 9/2
COMPUTER APPLICATIONS INC NEW YORK
FARADA INFORMATION PROCESSING AND PRESENTATION STUDY,
VOLUME 1, STUDY AND ANALYSES. (U)
AUG 66 166P
REPT. NO. CAI-NY-6155
CONTRACT: N123(62738)-51870A(X)
MONITOR: IDEP 347,40,00,00-X1-01

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN COPYRIGHTED
JOURNAL.

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-660 252 AND
VOLUME 3, AD-660 253.

DESCRIPTORS: (*RELIABILITY, *STATISTICAL
ANALYSIS), (*SAMPLING, RELIABILITY),
DISTRIBUTION FUNCTIONS, RANDOM VARIABLES,
FAILURE(ELECTRONICS), STATISTICAL TESTS,
ENVIRONMENT, NUMERICAL METHODS AND PROCEDURES,
DATA PROCESSING SYSTEMS, TRANSISTORS,
FAILURE(MECHANICS) (U)
IDENTIFIERS: FARADA (U)

THE FARADA INFORMATION PROCESSING AND
PRESENTATION STUDY DESCRIBED HEREIN PRESENTS THE
SUMMARIZED RESULTS OF A PROGRAM TO DEVELOP
ENGINEERING AND STATISTICAL TECHNIQUES FOR ANALYZING
FARADA PART FAILURE-RATE DATA AND PROVIDING
DESCRIPTIVE STATISTICS, AND TO DEVELOP A COMPUTERIZED
INFORMATION-PROCESSING AND PRESENTATION SYSTEM THAT
WOULD INCORPORATE THE STATISTICAL TECHNIQUES
DEVELOPED. THE DETAILS OF THE STUDY ARE PRESENTED
IN FOUR VOLUMES, VOLUME 1 'STUDY AND ANALYSES'
DESCRIBES THE ANALYSES, RESULTS, CONCLUSIONS, AND
RECOMMENDATIONS BASED ON THE STUDY, VOLUME 2
'COMPUTER SYSTEM MANUAL' DESCRIBES THE
COMPUTERIZED INFORMATION-PROCESSING AND PRESENTATION
SYSTEM, VOLUME 3 'OPERATOR'S MANUAL' PRESENTS
STEP-BY-STEP OPERATING INSTRUCTIONS FOR RUNNING THE
FARADA COMPUTER SYSTEM, AND VOLUME 4
'STATISTICALLY ANALYZED FARADA DATA' PRESENTS
TABLES OF STATISTICALLY ANALYZED FARADA DATA AND A
PROCEDURE FOR USING THEM. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-660 252 14/4 12/1 9/2
COMPUTER APPLICATIONS INC NEW YORK
FARADA INFORMATION PROCESSING AND PRESENTATION STUDY,
VOLUME 2, COMPUTER SYSTEM MANUAL, (U)
AUG 66 135P
REPT. NO. CAI-NY-6155
CONTRACT: N123(62738)-51870A(X)
MONITOR: IDEP 347,40,00,00-X1-01

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN COPYRIGHTED
JOURNAL,
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-660 251 AND
VOLUME 3, AD-660 253.

DESCRIPTORS: (*RELIABILITY, *STATISTICAL
ANALYSIS), (*SAMPLING, RELIABILITY),
1*COMPUTER PROGRAMS, STATISTICAL ANALYSIS),
FLOW CHARTING, SUBROUTINES, DATA PROCESSING
SYSTEMS (U)
IDENTIFIERS: FARADA, ON-LINE SYSTEMS (U)

THIS VOLUME DESCRIBES IN DETAIL THE SET OF COMPUTER
PROGRAMS (CALLED THE FARADA SYSTEM) DEVELOPED
TO PERFORM THE INFORMATION-PROCESSING AND
PRESENTATION SYSTEM OBJECTIVES PRESENTED IN THE
COMPANION VOLUME 1 'STUDY AND ANALYSES.'
DETAILED SYSTEM AND TASK BLOCK DIAGRAMS AND FLOW
CHARTS ARE PRESENTED. THESE BLOCK DIAGRAMS AND
CHARTS, TOGETHER WITH THE DETAILED DESCRIPTION GIVEN
FOR EACH TASK, PROVIDE THE USER WITH ALL THE
INFORMATION NECESSARY TO USE OR MODIFY THE PROGRAMS
OF THE COMPUTER SYSTEM. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-660 253 1474 1271 9/2
COMPUTER APPLICATIONS INC NEW YORK
FARADA INFORMATION PROCESSING AND PRESENTATION STUDY,
VOLUME 3, OPERATORS MANUAL. (U)
AUG 66 22P
REPT. NO. CAI-NY-6155
CONTRACT: N1231627321-51870A(X)
MONITOR: IDEP 347,40,00.00-X1-01

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN COPYRIGHTED
JOURNAL,
SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-660 251 AND
VOLUME 2, AD-660 252.

DESCRIPTORS: (RELIAB: TY, *STATISTICAL
ANALYSIS), (*SAMPLING, RELIABILITY), *DATA
PROCESSING SYSTEMS, INSTRUCTION MANUALS, INPUT-
OUTPUT DEVICES, DISPLAY SYSTEMS, FLOW CHARTING (U)
IDENTIFIERS: FARADA, ON-LINE SYSTEMS (U)

THIS VOLUME IS AN OPERATOR'S MANUAL GIVING DETAILED
STEP-BY-STEP OPERATING INSTRUCTIONS FOR RUNNING THE
FARADA COMPUTER SYSTEM ON THE IBM 1460 AND 7094
DIGITAL COMPUTERS. THE FARADA PROCESSING
ROUTINES CAN BE STOPPED AND STARTED AFTER ANY OF THE
COMPONENT PROGRAMS BY REFERRING TO THE CLEARLY
LABELED OPERATING INSTRUCTIONS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-660 581 9/2
MITRE CORP BEDFORD MASS
A DESCRIPTION OF THE INTERNAL OPERATION OF THE ADAM
SYSTEM, (U)
AUG 67 57P CLAPP, JUDITH A ;
REPT. NO. MYR-276
CONTRACT: AF 19(638)-5165
PROJ: SO2F
MONITOR: ESO TR-67-372

UNCLASSIFIED REPORT

DESCRIPTORS: (DATA PROCESSING SYSTEMS,
DESIGN), CONTROL SYSTEMS, SUBROUTINES,
INPUT-OUTPUT DEVICES, DATA STORAGE SYSTEMS,
PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: ADAM SYSTEM, ON-LINE SYSTEMS (U)

THE REPORT SUMMARIZES THE INTERNAL OPERATION OF THE
ADAM SYSTEM. IT DESCRIBES THE ORGANIZATION OF
FUNCTIONS AMONG THE SYSTEM ROUTINES. APPENDIX I
LISTS THE SIZES OF THE PRIMARY ROUTINES. APPENDIX
II DESCRIBES THE INTERNAL FORMAT OF ADAM FILES
AND ROLLS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-660 836 972

RAND CORP SANTA MONICA CALIF

JOSS: ASSEMBLY LISTING OF THE SUPERVISOR, (U)

AUG 67 18p BRYAN, G. E. ;

REPT. NO. RM-5437-PP

CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (U) TIME SHARING, DATA PROCESSING
SYSTEMS, CONTROL SYSTEMS, DATA PROCESSING
SYSTEMS, SCHEDULING, DIGITAL COMPUTERS,
CODING MAN-MACHINE SYSTEM, INPUT-OUTPUT
DEVICES, DATA STORAGE SYSTEMS, REAL TIME (U)

IDENTIFIERS: (U) JOSS ON-LINE SYSTEMS, MAGNETIC
DRUM STORAGE (U)

THE REPORT GIVES A PRESENTATION OF THE CODE FOR THE
MONITOR (SUPERVISOR) UNIT OF JOSS. RAND'S ON-
LINE, TIME-SHARED COMPUTER SYSTEM. THIS UNIT,
WHICH ACTS AS A SCHEDULING, RESOURCE-ALLOCATING, AND
SYNCHRONIZING DEVICE, EXERCISES OVERALL CONTROL OF
THE SYSTEM'S OPERATION. IT ENSURES THAT ALL DATA
AND HARDWARE NECESSARY FOR A PARTICULAR ACTION ARE
SIMULTANEOUSLY AVAILABLE, AND METERS THE OPERATION OF
THE SYSTEM TO PROVIDE REVENUE ACCOUNTING INFORMATION
AND DATA DESCRIBING SYSTEM PERFORMANCE AND USER
OPERATIONS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-461 239 9/2
RAND CORP SANTA MONICA CALIF
JOSS LANGUAGE, (U)
AUG 67 33P BRYAN, G. E., SMITH, J. W.
REPT. NO. RM-5377-FF
CONTRACT: F-44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMING LANGUAGES, INSTRUCTION
MANUALS), TIME CHARGING, MAN-MACHINE SYSTEMS,
PROBLEM SOLVING (U)
IDENTIFIERS: JOSS, ON-LINE SYSTEMS (U)

THIS IS A JOSS USER'S PORTFOLIO CONTAINING THREE
BRIEF REFERENCE SUMMARIES OF THE ACTIONS THAT CAN BE
REQUESTED OF JOSS AND OF THE LANGUAGE FOR
REQUESTING THESE ACTIONS. THE SUMMARIES ARE
PRESENTED IN VARYING FORMATS TO SUIT THE USER'S
CONVENIENCE: A POCKET-SIZE BOOK FOR PERSONAL USE
(POCKET PRECIS, 18 PP.), A LARGER AND MORE
COMPLETE PIECE FOR DESK-TOP OR CONSOLE USE (APERCU
AND PRECIS, 23 PP.), AND A POSTER-SIZE SUMMARY
FOR THE BULLETIN BOARD (POSTER PRECIS, 1 P.),
THE PRECIS DEMONSTRATE THAT THE LANGUAGE PROVIDED
FOR JOSS IS TERSE, UNAMBIGUOUS, AND READABLE,
STRESSING FAMILIAR ENGLISH TERMINOLOGY AND
PUNCTUATION AND USE, THE SPEED AND EASE OF
INTERACTION BETWEEN JOSS AND THE USER, THE
SIMPLICITY OF THE LANGUAGE, THE USE OF FAMILIAR
DECIMAL ARITHMETIC, AND JOSS'S PRECISE ERROR AND
STATUS REPORTING COMBINE TO ALLOW MOST PROBLEMS TO BE
SOLVED BY AN UNDERSTANDING OF THE PROBLEM AT HAND AND
A LIST OF JOSS COMMANDS AND FUNCTIONS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-661 273 9/2
MITRE CORP BEDFORD MASS
EVALUATION OF ADAM AN ADVANCED DATA MANAGEMENT
SYSTEM, (U)

AUG 67 68P GILDEA, R. A. J. I
REPT. NO. MTR-442
CONTRACT: AF 19(628)-5165
PROJ: 512B
MONITOR: ESD TR-67-130

UNCLASSIFIED REPORT

DESCRIPTORS: (DATA PROCESSING SYSTEMS,
DESIGN), DATA STORAGE SYSTEMS, DOCUMENTATION,
PROGRAMMING LANGUAGES, MAGNETIC CORE STORAGE,
PROGRAMMING (COMPUTERS), AIR FORCE PERSONNEL (U)
IDENTIFIERS: ADAM SYSTEM, EVALUATION, COMPUTER
SOFTWARE, ON-LINE SYSTEMS, MULTIPROGRAMMING (U)

THE REPORT EVALUATES THE ADAM PROJECT (ADVANCED
DATA MANAGEMENT SYSTEM), ITS PRODUCTS,
APPLICATIONS, AND SOME OF ITS ACTIVITIES, WHICH WERE
PART OF A LARGER PROJECT ENTITLED INFORMATION
SYSTEMS TOOLS AND SOFTWARE TECHNIQUES, THE
KNOWLEDGE AND CONCLUSIONS CONTAINED HEREIN ARE
INTENDED FOR AIR FORCE AND OTHER PERSONNEL WHO
EITHER ARE SYSTEMS PROGRAMMERS OR HAVE HAD A BRIEF
TECHNICAL ORIENTATION IN INFORMATION PROCESSING
SYSTEMS, AND ARE INTERESTED IN THE MANAGEMENT AND
PRODUCTION OF SOFTWARE TOOLS, THERE ARE DETAILED
EVALUATIONS OF DOCUMENTATION AND DEBUGGING
FACILITIES, SYSTEM LANGUAGES AND LANGUAGE
MANIPULATORS, DATA STRUCTURES AND MEMORY ALLOCATORS,
BOTH THE DESIGN AND IMPLEMENTATION OF PARTS OF THE
SYSTEM, AS WELL AS THE ENTIRE SYSTEM ARE DISCUSSED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-661 539 9/2
RAND CORP SANTA MONICA CALIF
JOSS: CENTRAL PROCESSING ROUTINES, (U)
AUG 67 188P SMITH, J. W. I
REPT. NO. RM-5270-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIME SHARING, DATA PROCESSING
SYSTEMS), (*PROGRAMMING(COMPUTERS),
INSTRUCTION MANUALS), SUBROUTINES, FLOW
CHARTING, MAN-MACHINE SYSTEMS, PROGRAMMING
LANGUAGES (U)
IDENTIFIERS: JOSS, ON-LINE SYSTEMS (U)

THIS IS A REFERENCE GUIDE FOR JOSS USERS TO
(1) THE LANGUAGE USED FOR COUCHING INSTRUCTIONS
TO JOSS; (2) JOSS'S RESPONSES TO
INSTRUCTIONS; (3) THE COLLECTION OF MACHINE-
LANGUAGE ROUTINES (IN JOSS'S CENTRAL COMPUTER)
RESPONSIBLE FOR INTERPRETING AND RESPONDING TO
INSTRUCTIONS; AND (4) THE DETAILS AND DECISIONS
THAT BILATERALLY INFLUENCED THE LANGUAGE AND THE
DESIGN AND IMPLEMENTATION OF THE ROUTINES, THE
MYRIAD DETAILS OF TOTAL SYSTEM DESIGN ARE GIVEN
CONSTANT EXPOSURE, AND PARTICULAR EMPHASIS IS PLACED
ON THE DELICATE BALANCE AND SYMBIOSIS THAT MUST EXIST
AMONG SYSTEM, LANGUAGE, COMPUTER, AND ROUTINES AND ON
THE PERVASIVE EFFECTS OF EACH COMPONENT ON THE
OTHERS, THE MATERIAL IS PRESENTED IN A NARRATIVE
FORM, AUGMENTED BY FLOW-CHART REPRESENTATIONS OF MOST
OF THE PRINCIPAL ROUTINES, AND IS IN PART DESIGNED TO
SERVE AS PROLEGOMENA TO THE ANNOTATED MACHINE-
LANGUAGE LISTINGS OF THE ROUTINES (COPIES OF WHICH
ARE OBTAINABLE FROM RAND). (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-661 551 9/2
RAND CORP SANTA MONICA CALIF
THE COMPUTER IN YOUR FUTURE, (U)
NOV 67 HBP WARE, W. H. I
REPT. NO. P-3626

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO P-3279, AD-631 941.

DESCRIPTORS: (*COMPUTERS, PREDICTIONS),
(*DATA PROCESSING SYSTEMS, REVIEWS),
INTEGRATED CIRCUITS, DATA STORAGE SYSTEMS,
MAGNETIC CORE STORAGE, PROGRAMMING (COMPUTERS),
FLOW CHARTING, MAN-MACHINE SYSTEMS, CODING,
PROGRAMMING LANGUAGES, PUNCHED CARDS, INPUT-
OUTPUT DEVICES, TIME SHARING, SIMULATION (U)
IDENTIFIERS: ON-LINE SYSTEMS, JOSS, PRIVACY (U)

THE REPORT IS DIVIDED INTO 2 MAIN PARTS, THE
FIRST PART IS A TUTORIAL DISCUSSION OF PRESENT
DEVELOPMENTS IN THE COMPUTER FIELD, BOTH FOR HARDWARE
AND FOR SOFTWARE. THE SECOND PART DISCUSSES
POTENTIAL FUTURE APPLICATIONS FOR THE COMPUTER. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00326

AD-661 605 5/10 5/11 5/11
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
MANAGEMENT SYSTEM TRAINING USING LEVIATHAN (A COMPLEX
COMPUTERIZED ORGANIZATION SIMULATION), (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO,,
NOV 67 51P HOLMEN, M. G, ZUCKERMAN, J.,
V. 1
REPT, NO. TH-3727/000/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES,
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION.

DESCRIPTORS: (*SOCIAL COMMUNICATION, *GROUP
DYNAMICS), (*SOCIOMETRICS, SYSTEMS
ENGINEER: 3), (*MANAGEMENT PLANNING, TEACHING
METHODS), SIMULATION, LEARNING, COMPUTERS,
BEHAVIOR, PERFORMANCE(HUMAN) (U)
IDENTIFIERS: LEVIATHAN, ON-LINE SYSTEMS (U)

THE REPORT DESCRIBES A MANAGEMENT SYSTEM TRAINING
PROJECT CONDUCTED IN 1966 AT SYSTEM DEVELOPMENT
CORPORATION BY RESEARCHERS FROM SYSTEM
DEVELOPMENT CORPORATION AND STAFF MEMBERS OF THE
GRADUATE SCHOOL OF BUSINESS AT THE UNIVERSITY
OF SOUTHERN CALIFORNIA, THE VEHICLE FOR THE
STUDY WAS THE LEVIATHAN MODEL, A COMPUTERIZED
SIMULATION FOR STUDYING COMMUNICATION IN LARGE SOCIAL
ORGANIZATIONS, THE LEARNING GROUP AND THEIR
EXPERIENCE WITH LEVIATHAN ARE DESCRIBED AND SOME
SUBJECTIVE AND OBJECTIVE EVALUATIONS OF THE
EXPERIENCE ARE GIVEN, FINALLY, SOME REFLECTIONS ON
THE UNIQUENESS AND POTENTIAL OF THE MODEL ARE
PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-661 967 9/2 517
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SEMIANNUAL TECHNICAL SUMMARY REPORT TO THE DIRECTOR,
ADVANCED RESEARCH PROJECTS AGENCY FOR THE PERIOD 1
JANUARY 1967 TO 30 JUNE 1967, (U)
JUN 67 53P
REPT. NO. TM-687/008/00
CONTRACT: F19628-67-C-0004

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-651 382

DESCRIPTORS: (*PROGRAMMING LANGUAGES, REVIEWS),
(*DATA PROCESSING SYSTEMS, REVIEWS), INPUT-
OUTPUT DEVICES, TIME SHARING, MAN-MACHINE SYSTEMS,
LANGUAGE, LINGUISTICS, COMPILERS, NETWORKS (U)
IDENTIFIERS: LIST, ON-LINE SYSTEMS (U)

THE REPORT DESCRIBES WORK DONE IN THE ARPA
INFORMATION PROCESSING TECHNIQUES RESEARCH
AND LABORATORY PROGRAM AT SDC FROM 1 JANUARY
1967 TO 30 JUNE 1967. PROJECTS COVERED IN THIS
REPORT INCLUDE: PROGRAMMING LANGUAGE
DEVELOPMENT, MAN-MACHINE COMMUNICATION,
LANGUAGE PROCESSING RESEARCH, AND COMPUTER
PROGRAM MANAGEMENT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-662 224 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
PROGRAM ANALYSIS OF DIGITAL COMPUTER, (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
AUG 67 193P WILDE, DANIEL U, I
REPT. NO. MAC-TR-43
CONTRACT: NONR-41021011
PROJ: MR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), FLOW
CHARTING), TIME SHARING, THESES, AUTOMATIC,
REAL TIME, SUBROUTINES, MAN-MACHINE SYSTEMS,
ALGORITHMS, ADAPTIVE SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

COMPARING PROPERTIES OF NON- AND SELF-MODIFYING
PROGRAMS LEADS TO THE DEFINITION OF INDEPENDENT AND
DEPENDENT INSTRUCTIONS, NON-MODIFYING PROGRAMS
CONTAIN ONLY INDEPENDENT INSTRUCTIONS, AND SUCH
PROGRAMS CAN BE ANALYZED BY A STRAIGHT-FORWARD, TWO-
STEP ANALYSIS PROCEDURE, FIRST, PROGRAM CONTROL
FLOW IS DETECTED; SECOND, THAT CONTROL FLOW IS USED
TO DETERMINE PROGRAM DATA FLOW OR DATA PROCESSING,
HOWEVER, SELF-MODIFYING PROGRAMS CAN ALSO CONTAIN
DEPENDENT INSTRUCTIONS, AND THEN PROGRAM CONTROL
FLOWS AND DATA FLOWS EXHIBIT CYCLIC INTERACTION,
THIS CYCLIC INTERACTION SUGGESTS USING AN ITERATIVE
OR RELAXATION ANALYSIS TECHNIQUE, INITIALLY, THE
RELAXATION PROCEDURE DETERMINES A FIRST APPROXIMATION
TO CONTROL FLOW; THE SECOND STEP, TO DATA FLOW,
THESE TWO STEPS ARE REPEATED UNTIL STEADY-STATE
CONDITION IS REACHED, ALGORITHMS FOR IMPLEMENTING
THE FIRST ITERATION ARE PRESENTED, THESE
ALGORITHMS ARE CAPABLE OF ANALYZING PROGRAMS WHICH
MODIFY THEIR CONTROL AND PROCESSING INSTRUCTIONS
WHILE EXECUTING, ALSO DESCRIBED ARE DATA
STRUCTURES WHICH PERMIT CONSTRUCTING FUNCTIONAL
EXPRESSIONS FOR DATA FLOW OR INFORMATION PROCESSING,
FINALLY, ACTUAL OUTPUT FLOWCHARTS OF SELF-MODIFYING
PROGRAMS ARE DISPLAYED, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-662 320 5/10
RAND CORP SANTA MONICA CALIF
SYSTEMATIC USE OF EXPERT OPINIONS, (U)
NOV 67 12P HELMER, OLAF ;
REF ID: A-3721

UNCLASSIFIED REPORT

DESCRIPTORS: (*GROUP DYNAMICS, *DECISION
MAKING), PUBLIC OPINION, AUTOMATION, PROBLEM
SOLVING, PREDICTIONS, PERFORMANCE (HUMAN) (U)
IDENTIFIERS: DELPHI TECHNIQUE, JOSS, ON-LINE
(STEPS) (U)

THE REPORT DISCUSSES BASIC PRINCIPLES AND SOME
APPLICATIONS FOR THE DELPHI TECHNIQUE, FOR
OBTAINING OPINIONS CONCERNING COMPLICATED ISSUES. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-662 419 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
QUPP USER'S MANUAL.

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
SEP 67 149P SHIBAN, J. R. I
REPT. NO. TM-2711/000/02
CONTRACT: DAHC15-02-C-0079

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN COPYRIGHTED
JOURNAL.
SUPPLEMENTARY NOTE: RESEARCH SUPPORTED IN PART BY
ARPA.

DESCRIPTORS: (PROGRAMS) (COMPUTERS),
INSTRUCTION MANUALS), SIM SHARING, TEXTBOOKS,
MAN-MACHINE SYSTEMS
IDENTIFIERS: ON-LINE SYSTEMS, QUPP

THE MANUAL IS DESIGNED FOR USE WITH QUPP. THE
Q-32 ON-LINE QUERY AND UPDATE CAPABILITY FOR YSS-
LUCID DATA BASES, IT DESCRIBES ALL INPUT RULES
AND FORMATS AS WELL AS THE RETRIEVAL AND OUTPUT
CAPABILITIES OF THE PROGRAM. THE MANUAL IS
ORGANIZED IN TWO SECTIONS. THE FORMAT SECTION
CONTAINS ALL INPUT FORMATS AND IS TABBED FOR
INTERACTIVE USE. THE DISCUSSION SECTION CONTAINS
A COMPREHENSIVE TEXTUAL DISCUSSION OF THE PROGRAM
ITS CAPABILITIES, AND ITS OUTPUT. (AUTHOR)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-662 665 6/5 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
A SYSTEM FOR COMPUTER-AIDED DIAGNOSIS. (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
SEP 67 256P LORRY, GEORGE ANTHONY :
REPT. NO. MAC-TR-44
CONTRACT: NONR-4102(01)
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*DIAGNOSIS, *COMPUTER PROGRAMS),
REAL TIME, TIME SHARING, COMPUTERS,
MODELS(SIMULATIONS), THESES, PROBABILITY,
PATTERN RECOGNITION (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE THESIS DESCRIBES A MODEL DIAGNOSTIC PROBLEM AND
A COMPUTER PROGRAM DESIGNED TO DEAL WITH THIS
PROBLEM. THE MODEL DIAGNOSTIC PROBLEM IS AN
ABSTRACT PROBLEM. A MAJOR CONTENTION OF THIS
THESIS, HOWEVER, IS THAT THIS PROBLEM SUBSUMES THE
PRINCIPAL FEATURES OF A NUMBER OF OSTENSIBLY
DIFFERENT REAL DIAGNOSTIC PROBLEMS INCLUDING CERTAIN
PROBLEMS OF MEDICAL DIAGNOSIS AND THE DIAGNOSIS OF
MACHINE FAILURES. A SECOND MAJOR CONTENTION OF
THIS THESIS IS THAT STRATEGIES FOR THE SOLUTION OF
THE MODEL DIAGNOSTIC PROBLEM CAN BE FORMULATED IN
TERMS SUFFICIENTLY EXPLICIT TO PERMIT THEIR
INCORPORATION IN A COMPUTER PROGRAM. THE
DIAGNOSTIC PROGRAM WAS IMPLEMENTED ON THE TIME-
SHARING SYSTEM AT PROJECT MAC. IT WAS APPLIED
TO TWO MEDICAL PROBLEMS, THE DIAGNOSIS OF CONGENITAL
HEART DISEASE, AND THE DIAGNOSIS OF PRIMARY BONE
TUMORS. THE RESULTS OBTAINED HERE SUGGEST (1)
THAT A COMPUTER PROGRAM CAN BE OF CONSIDERABLE VALUE
AS A DIAGNOSTIC TOOL, AND (2) THAT IT IS QUITE
ADVANTAGEOUS FOR SUCH A PROGRAM TO PERFORM SEQUENTIAL
DIAGNOSIS AS IT INTERACTS WITH THE USER.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-662 666 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
SYMBOLIC INTEGRATION, (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
DEC 67 271P MOSES, JOEL I
REPT. NO. MAC-TR-47
CONTRACT: NONR-4102(01)
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMING(COMPUTERS)),
(DIFFERENTIAL EQUATIONS), PROBLEM SOLVING,
TIME SHARING, THESES, SYMBOLS, COMPUTER
PROGRAMS, ARTIFICIAL INTELLIGENCE, ALGEBRA (U)
IDENTIFIERS: MAC PROJECT, LISP, ON-LINE
SYSTEMS (U)

SIN AND SOLDIER ARE HEURISTIC PROGRAMS WRITTEN IN
LISP WHICH SOLVE SYMBOLIC INTEGRATION PROBLEMS.
SIN (SYMBOLIC INTEGRATOR) SOLVES INDEFINITE
INTEGRATION PROBLEMS AT THE DIFFICULTY APPROACHING
THOSE IN THE LARGER INTEGRAL TABLES. SIN CONTAINS
SEVERAL MORE METHODS THAN ARE USED IN THE PREVIOUS
SYMBOLIC INTEGRATION PROGRAM SAINT, AND SOLVES MOST
OF THE PROBLEMS ATTEMPTED BY SAINT IN LESS THAN ONE
SECOND. SOLDIER (SOLUTION OF ORDINARY
DIFFERENTIAL EQUATIONS ROUTINE) SOLVES FIRST-
ORDER, FIRST-DEGREE, ORDINARY DIFFERENTIAL EQUATIONS
AT THE LEVEL OF A GOOD COLLEGE SOPHOMORE AND AT AN
AVERAGE OF ABOUT FIVE SECONDS PER PROBLEM ATTEMPTED.
THE DIFFERENCES IN PHILOSOPHY AND OPERATION BETWEEN
SAINT AND SIN ARE DESCRIBED, AND SUGGESTIONS ARE
MADE FOR EXTENDING THIS WORK. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-662 872 972

WOLF RESEARCH AND DEVELOPMENT COMP WEST CONCORD MASS
SPECIAL UTILITY PROGRAMS TO ENHANCE THE PERFORMANCE
OF AN ON-LINE MEDIUM SIZE PROCESSOR USED FOR
STATISTICAL INFORMATION EXTRACTION AND EVALUATION. (U)

DESCRIPTIVE NOTE: FINAL REPT, 1 OCT 66-30 SEP 67,
SEP 67 76P ARSENAULT, RAYMOND L. ;

FLYNN, VIRGINIA M., METRICK, LEE S., I
PITBLADO, NANCY V., WRIGHT, J., RICHARD ;

CONTRACT, D19628-67-C-0095

PROJ: AF-4648, AF-8661

TASK: 464805, 866104

MONITOR: AFCL 67-0605

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMING) COMPUTERS, DESIGN, DISPLAY SYSTEMS, SUBROUTINES, FLOW CHARTING, PERFORMANCE ENGINEERING, MAINTENANCE (U)

IDENTIFIERS: ON-LINE SYSTEMS, FLOATING-POINT OPERATION (U)

A NEW METHOD FOR DETERMINING EIGENVECTORS AND EIGENVALUES IN THE ATTRIBUTE EXTRACTION PROCESS IS DESCRIBED. A SOFTWARE PACKAGE FOR THE NEW FLOATING POINT ARITHMETIC UNIT OF THE EXPERIMENTAL DYNAMIC PROCESSOR, A VISUAL DOCUMENTATION SYSTEM FOR DEXTER PROGRAMS, AND A GENERAL DATA DISPLAY ARE DESCRIBED. SEVERAL DEBUGGING PROGRAMS, GRAPHIC SOFTWARE, SPECIAL DISPLAY PROGRAMS, AND UTILITY ROUTINES ARE PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

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UNCLASSIFIED

DL REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-663 325 9/5 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE RESEARCH LAB OF
ELECTRONICS
A PROGRAM FOR ON-LINE ANALYSIS OF NONLINEAR
ELECTRONIC CIRCUITS, (U)
67 6P KATZENELSON, JACOB I
EVANS, DAVID S. LEE, HARRY B. I
CONTRACT: DA-34-039-AMC-03200(E), NSG-496
PROJ: DSR-6152, DSP-94

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN IEEE INTERNATIONAL
CONVENTION RECORD PT. 5 P89-94 1967.
SUPPLEMENTARY NOTES: RESEARCH SUPPORTED IN PART BY AIR
FORCE, ARPA, AND NQNR,

DESCRIPTORS: (ELECTRICAL NETWORKS, ANALYSIS),
DATA PROCESSING SYSTEMS, TIME SHARING, COSTS,
NONLINEAR SYSTEMS, REMOTE CONTROL SYSTEMS,
PROGRAMMING (COMPUTERS), DISPLAY SYSTEMS,
INPUT-OUTPUT DEVICES (U)
IDENTIFIERS: COMPATIBLE TIME-SHARING SYSTEM, ON-
LINE SYSTEMS, AEDNET, BATCH PROCESSING (U)

USERS HAVE FOUND THAT AEDNET PROGRAM TO BE
ATTRACTIVE BECAUSE OF THE EASE WITH WHICH IT CAN BE
USED, THE SPEED OF RESPONSE, AND THE FACT THAT A USER
NEED NOT SPECIFY THE COURSE OF HIS ANALYSIS AT THE
OUTSET. THE COST OF TERMINAL HARDWARE AND PROGRAM
DEVELOPMENT PRESENTLY IS HIGH, HOWEVER, COSTS
SHOULD BE GREATLY REDUCED WHEN ON-LINE COMPUTATIONAL
FACILITIES BECOME COMMERCIALY AVAILABLE AND USERS
COOPERATE IN PROGRAM DEVELOPMENT, THUS IT APPEARS
LIKELY THAT ON-LINE CIRCUIT ANALYSIS PROGRAMS WILL
FIND EXTENSIVE USE IN BOTH INDUSTRY AND EDUCATION,
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-664 039 15/5 9/2
RAND CORP SANTA MONICA CALIF
COMBAT -- A SERIES OF ON-LINE COMPUTER PROGRAMS FOR
FORCE COST ANALYSIS, (U)
DEC 67 28P TENG, C. ITENZER, A. J. I
REPT. NO. P-3646

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1967 COMPUTER
SUMMER WORKSHOP SPONSORED BY THE INDUSTRIAL COLLEGE
OF THE ARMED FORCES AND THE UNITED STATES MILITARY
ACADEMY, WEST POINT, N. Y., JUL 20 1967,

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, ARMED
FORCES OPERATIONS), (*ARMED FORCES OPERATIONS,
COST EFFECTIVENESS), COSTS, COMPUTER PROGRAMS,
DATA PROCESSING SYSTEMS, MILITARY REQUIREMENTS,
DECISION MAKING, EFFECTIVENESS, MATHEMATICAL
MODELS, ITERATIVE METHODS (U)
IDENTIFIERS: ON-LINE SYSTEMS, COMBAT (COST
ORIENTED MODELS BUILT TO ANALYZE TRADE-
OFFS), TRADE OFFS (U)

THE REPORT DESCRIBES A NEW FORCE STRUCTURE COST-
ESTIMATING MODEL CALLED COMBAT, IT IS PROGRAMMED
FOR AN ON-LINE COMPUTER SYSTEM. AND DESIGNED WITH THE
WAR GAMING ACTIVITY IN MIND, COMBAT STANDS FOR
COST ORIENTED MODELS BUILT TO ANALYZE TRADE-OFFS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700328

AD-664 337 9/2
MITRE CORP BEDFORD MASS
A USER'S GUIDE TO THE ADAM SYSTEM, (U)
DEC 67 252P
REPT. NO. MTR-268
CONTRACT: AF 19(628)-5165
PROJ: 502F
MONITOR: ESD TR-66-644

UNCLASSIFIED REPORT

DESCRIPTORS: (DATA PROCESSING SYSTEMS,
INSTRUCTION MANUALS), COMMAND + CONTROL
SYSTEMS, PROGRAMMING (COMPUTERS), PROGRAMMING
LANGUAGES, COMPIERS, SYSTEMS ENGINEERING,
COMPUTER PROGRAMS, INFORMATION RETRIEVAL,
SYNTAX, REAL TIME, SUBROUTINES (U)
IDENTIFIERS: ON-LINE SYSTEMS, IBM 7030, ADAM
SYSTEM, FABLE PROGRAMMING LANGUAGE, DANSEL
PROGRAMMING LANGUAGE (U)

THE REPORT DESCRIBES THE KINDS OF CAPABILITIES
AVAILABLE IN THE ADAM SYSTEM AND THE WAY IN WHICH
THEY ARE USED, THE PROCESSES FOR CREATING AND
MAINTAINING A DATA BASE, SPECIFYING FORMATS,
MODIFYING THE FORM OF THE INPUT, AND SPECIFYING
PROCEDURES ARE DESCRIBED, THE FABLE, IFGL, AND
DANSEL LANGUAGES ARE ALSO DESCRIBED, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT: BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-666 409 5/7 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TGT: TRANSFORMATIONAL GRAMMAR TESTER, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
NOV 67 33P LONDE, D, L, ISCHOENE, W.
J. I
REPT. NO. TM-3759/000/00
CONTRACT: F19628-67-C-0004

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRANSFORMATIONAL GRAMMARS,
ANALYSIS), COMPUTER PROGRAMS, LINGUISTICS,
TIME SHARING, PHRASE STRUCTURE GRAMMARS (U)
IDENTIFIERS: TRANSFORMATIONAL GRAMMAR TESTER,
ON-LINE SYSTEMS (U)

THE TRANSFORMATIONAL GRAMMAR TESTER (TGT)
IS A PROGRAM SYSTEM FOR ON-LINE INTERACTIVE USE WITH
A TIME-SHARED COMPUTER, A SYSTEM ESPECIALLY DESIGNED
TO RELIEVE THE LINGUIST OF MANY MECHANICAL OPERATIONS
AND BOOKKEEPING PROCESSES ASSOCIATED WITH BUILDING
AND VALIDATING TRANSFORMATIONAL GRAMMARS. WITH
TGT, THE LINGUIST CAN BUILD FILES OF RULES AND
TREES REPRESENTING SENTENCE STRUCTURES, AND CAN
ACHIEVE RAPID TESTING, EXECUTION AND MODIFICATION OF
HIS FILES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00320

AD-666 530 9/2

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
MERCURY MINIJOSSE MULTI-ACCESS INTERACTIVE USE OF
THE MERCURY COMPUTER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,,
OCT 67 18P GILBEY, D. M. I
REPT. NO. RAE-TR-68272

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING (COMPUTERS),
MULTIPLE OPERATION), REMOTE CONTROL SYSTEMS,
PROGRAMMING LANGUAGES, FLOW CHARTING, TIME
SHARING, COMPILERS, GREAT BRITAIN (U)

IDENTIFIERS: MERCURY COMPUTERS, ON-LINE
SYSTEMS (U)

A SIMPLE JOSS-TYPE SYSTEM IS DESCRIBED WHEREBY
THE R.A.E. MERCURY COMPUTER CAN BE MADE
AVAILABLE TO UP TO FIVE INDEPENDENT USERS
SIMULTANEOUSLY FOR ON-LINE EVALUATION OF SIMPLE
EXPRESSIONS AND FOR PROGRAM DEVELOPMENT TESTING,
EDITING AND RUNNING IN A SPECIAL LANGUAGE,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-667 634 9/2

CALIFORNIA UNIV BERKELEY
REFERENCE MANUAL TIME-SHARING SYSTEM. (U)
DESCRIPTIVE NOTE: REVISED ED.,
NOV 67 99P DEUTSCH, L, PETER ;
DURHAM, LARRY ; LAMPSON, BUTLER W. ;
REPT. NO. R-21

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, TIME SHARING), (*PROGRAMMING (COMPUTERS), MULTIPLE OPERATION), (*TIME SHARING, INSTRUCTION MANUALS), SCHEDULING, TELETYPE SYSTEMS, REMOTE CONTROL SYSTEMS, DATA STORAGE SYSTEMS (U)
IDENTIFIERS: FLOATING-POINT OPERATION, ON-LINE SYSTEMS (U)

THE BERKELEY TIME-SHARING SYSTEM IS DIVIDED INTO THREE MAJOR PARTS: THE MONITOR, THE EXECUTIVE, AND THE SUBSYSTEMS, ONLY THE FIRST TWO OF THESE ARE DISCUSSED IN DETAIL IN THIS MANUAL. THE MANUAL ATTEMPTS TO DESCRIBE EXHAUSTIVELY ALL THE FEATURES OF THE MONITOR AND IN ADDITION TO GIVE A NUMBER OF IMPLEMENTATION DETAILS, IT ALSO DESCRIBES THOSE FEATURES OF THE EXECUTIVE WHICH CAN BE INVOKED BY A PROGRAM, THE WORD MONITOR IS USED TO REFER TO THAT PORTION OF THE SYSTEM WHICH IS CONCERNED WITH SCHEDULING, INPUT-OUTPUT, INTERRUPT PROCESSING, MEMORY ALLOCATION AND SWAPPING, AND THE CONTROL OF ACTIVE PROGRAMS, THE EXECUTIVE IS CONCERNED WITH THE CONTROL OF THE DIRECTORY OF SYMBOLIC FILE NAMES AND BACKUP STORAGE FOR THESE FILES, AND VARIOUS MISCELLANEOUS MATTERS, OTHER PARTS OF THE EXECUTIVE HANDLE THE COMMAND LANGUAGE BY WHICH THE USER CONTROLS THE SYSTEM FROM HIS TELETYPE, THE IDENTIFICATION OF USERS AND SPECIFICATION OF THE LIMITS OF THEIR ACCESS TO THE SYSTEM, THESE SUBJECTS ARE DISCUSSED IN THE EXECUTIVE REFERENCE MANUAL, AD-667 635. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-667 635 9/2
CALIFORNIA UNIV BERKELEY
REFERENCE MANUAL FOR THE TIME-SHARING EXECUTIVE, (U)
JAN 68 26P DURHAM L, TETHERTON, M, I
REPT, NO. R-22
CONTRACT: SD-185

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, TIME SHARING), (*PROGRAMMING (COMPUTERS), MULTIPLE OPERATION), (*TIME SHARING, INSTRUCTION MANUALS), TELETYPE SYSTEMS, REMOTE CONTROL SYSTEMS, PROGRAMMING LANGUAGES, INPUT-OUTPUT DEVICES (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE PROJECT GENIE OPERATING SYSTEM IS A MEDIUM SCALE MULTI-ACCESS COMPUTATIONAL SYSTEM WHICH IMPLEMENTS A POWERFUL AND COMPLEX USER MACHINE, IT IS THE ROLP OF THE COMMAND LANGUAGE (HERE CALLED THE EXECUTIVE) TO PROVIDE SOME TOOLS TO CONTROL THIS USER MACHINE, AND TO PROVIDE THOSE SERVICES WHICH USERS HAVE COME TO EXPECT OF CONVERSATIONAL SYSTEMS, THIS DOCUMENT DESCRIBES THE SYSTEM COMMAND LANGUAGE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00328

AD-667 639 9/2
CALIFORNIA UNIV BERKELEY
A USER MACHINE IN A TIME-SHARING SYSTEM, (U)
DESCRIPTIVE NOTE: REVISED ED.,
AUG 66 12P LAMPSON, B. W. ;
LICHTENBERGER, W. W. ; PIRTLER, M. W. ;
CONTRACT: SD-185

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PROCEEDINGS OF THE
IEEE, V34 N12 P1766-74 1966,
SUPPLEMENTARY NOTE: REPORT ON PROJ. GENIE, REVISION
OF REPORT DATED 12 JUL 66.

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, *TIME
SHARING), (*PROGRAMMING(COMPUTERS), MULTIPLE
OPERATION), DATA STORAGE SYSTEMS, REMOTE CONTROL
SYSTEMS, INPUT-OUTPUT DEVICES, MAN-MACHINE
SYSTEMS (U)
IDENTIFIERS: GENIE PROJECT, MULTIPROCESSING,
ON-LINE SYSTEMS (U)

THE PAPER DESCRIBES THE DESIGN OF THE COMPUTER SEEN
BY A MACHINE-LANGUAGE PROGRAMMER IN A TIME-SHARING
SYSTEM DEVELOPED AT THE UNIVERSITY OF CALIFORNIA
AT BERKELEY. SOME OF THE INSTRUCTIONS IN THIS
MACHINE ARE EXECUTED BY THE HARDWARE, AND SOME ARE
IMPLEMENTED BY SOFTWARE. THE USER, HOWEVER, THINKS
OF THEM ALL AS PART OF HIS MACHINE, A MACHINE HAVING
EXTENSIVE AND UNUSUAL CAPABILITIES, MANY OF WHICH
MIGHT BE PART OF THE HARDWARE OF A (CONSIDERABLY
MORE EXPENSIVE) COMPUTER. AMONG THE IMPORTANT
FEATURES OF THE MACHINE ARE THE ARITHMETIC AND STRING
MANIPULATION INSTRUCTIONS, THE VERY GENERAL MEMORY
ALLOCATION AND CONFIGURATION MECHANISM, AND THE
MULTIPLE PROCESSES WHICH CAN BE CREATED BY THE
PROGRAM. FACILITIES ARE PROVIDED FOR COMMUNICATION
AMONG THESE PROCESSES AND FOR THE CONTROL OF
EXCEPTIONAL CONDITIONS. THE INPUT-OUTPUT SYSTEM IS
CAPABLE OF HANDLING ALL OF THE PERIPHERAL EQUIPMENT
IN A UNIFORM AND CONVENIENT MANNER THROUGH FILES
HAVING SYMBOLIC NAMES. PROGRAMS CAN ACCESS FILES
BELONGING TO A NUMBER OF PEOPLE, BUT EACH PERSON CAN
PROTECT HIS OWN FILES FROM UNAUTHORIZED ACCESS BY
OTHERS. SOME MENTION IS MADE AT VARIOUS POINTS OF
THE TECHNIQUES OF IMPLEMENTATION, BUT THE MAIN
EMPHASIS IS ON THE APPEARANCE OF THE USER'S MACHINE.
(AUTHOR) (U)

INFORMATION RETRIEVAL

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-255 086

MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
REMOTE DISPLAY CONSOLE FOR COMPUTER PROCESSED
DATA

JAN 61 14 ZIEMAN, H.E.; UNDERWOOD, D.I.;
REPT. NO. TR237
CONTRACT: AF19 604 7400

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA TRANSMISSION SYSTEMS, *DIGITAL
COMPUTERS, *DIGITAL SYSTEMS, *DISPLAY SYSTEMS,
*MAGNETIC CORES, CATHODE RAY TUBES, CODING, COMPUTER
STORAGE DEVICES, DATA STORAGE SYSTEMS

(U)

IDENTIFIERS: AN/F50-7, SAGE

(U)

THE REMOTE DISPLAY CONSOLE SIMULATES AN F50-7
SITUATION DISPLAY BUT CAN BE LOCATED REMOTELY FROM
THE PROCESSING COMPUTER WITH ONLY A TELEPHONE-LINE OR
RADIO-LINK CONNECTION. THE SYSTEM HAS A 1300-CPS,
92-BIT MESSAGE FORMAT WHICH PERMITS THE TRANSMISSIO.
OF APPROXIMATELY 14 MESSAGES/SEC. A FERRITE CORE
MEMORY STORES 62 OF THESE MESSAGES, EACH OF WHICH CAN
CONSIST OF 4, 8, OR 13 SYMBOLS. THE CONSOLE IS
COMPLETELY SELFCONTAINED EXCEPT FOR THE DIGITAL DATA
RECEIVER, WHICH WOULD NORMALLY BE SUPPLIED BY THE
TELEPHONE COMPANY. AT 50 FRAMES/SEC THE DISPLAY IS
ESSENTIALLY FLICKER FREE AND BRIGHT ENOUGH TO BE
VIEWED COMFORTABLY IN A WELL-LIGHTED ROOM. THE TUBE
USED PROVIDES A RESOLUTION EQUIVALENT TO 5000 TO 8000
TV LINES AND PRESENTS NEGLIGIBLE DISTORTION OF
SYMBOLS TO THE EXTREME EDGES OF THE 19-IN. TUBE.
(AUTHOR)

(U)

63

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700329

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-296 532

THOMPSON RAMO WOOLDRIDGE INC CANOGA PARK CALIF
AN ON-LINE COMPUTING CENTER FOR SCIENTIFIC
PROBLEMS (U)

JAN 63 IV CULLER, GLEN J, FRIED, BURTON D, I
REPT. NO. M19 303
CONTRACT: AF30 602 2762

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL SYSTEMS, *INFORMATION
RETRIEVAL, *LIVER VIRUSES, COMPUTER LOGIC, COMPUTERS,
DIGITAL COMPUTERS, RESEARCH PROGRAM ADMINISTRATION (U)

AN ON-LINE DIGITAL SYSTEM ALLOWING AN UNUSUALLY
DIRECT COUPLING BETWEEN THE USER (PHYSICIST,
MATHEMATICIAN, ENGINEER) AND THE COMPUTER IS
DESCRIBED. THIS SYSTEM, WHICH HAS BEEN
SUCCESSFULLY OPERATED DURING THE PAST SIX MONTHS, WAS
DESIGNED PRINCIPALLY TO PROVIDE ASSISTANCE FOR
PROBLEMS WHOSE STRUCTURE IS PARTIALLY UNKNOWN (AND
FREQUENTLY SURPRISING). THESE TYPICALLY REQUIRE
THE DEVELOPMENT OF NEW METHODS OF ATTACK, AND HENCE
AN AMOUNT OF PROGRAM EXPERIMENTATION NOT FEASIBLE
WITH CLASSICAL COMPUTER CENTER ORGANIZATIONS. WITH
THE SYSTEM DESCRIBED HERE, THE INTERACTION BETWEEN
USER AND COMPUTER IS CLOSE ENOUGH TO PERMIT EFFECTIVE
USE OF A SCIENTIST'S INTUITION AND OF HIS DETAILED
UNDERSTANDING OF TECHNIQUES AND PROCEDURES, MACHINE
REPRESENTATIONS OF THOSE TOOLS HE CONSIDERS ESSENTIAL
TO HIS AREA, AND THEN USE THESE, ON-LINE, TO STUDY
OR SOLVE PROBLEMS OF INTEREST. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-400 349

ZATOR CO CAMBRIDGE MASS

WANTED: A REACTIVE TYPEWRITER (U)

OCT 62 IV MOGERS, CALVIN D., I

REPT. NO. ZTB 142

CONTRACT: AF49 638 376

MONITOR: AFOSR 2711

UNCLASSIFIED REPORT

DESCRIPTORS: *INFORMATION RETRIEVAL (U)

FUTURE USE OF REMOTE COMPUTERS BY MEANS OF TYPEWRITERS WITH WIRE CONNECTION TO THE COMPUTER, PROGRAMMING LANGUAGE FOR THE REACTIVE TYPEWRITER, AND THE FEATURES OF THE TRAC LANGUAGE.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-432 098

STANFORD RESEARCH INST MENLO PARK CALIF
RESEARCH ON COMPUTER AUGMENTED INFORMATION
MANAGEMENT,

(U)

NOV 63 59P BOURNE, CHARLES F. :

CONTRACT: AF19 628 2914

PROJ: 4304

MONITOR: ESD TR64 177

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (INFORMATION RETRIEVAL, MANAGEMENT
ENGINEERING), (MANAGEMENT ENGINEERING, COMPUTERS),
OPERATION, INPUT-OUTPUT DEVICES, MAGNETIC TAPE (U)

IDENTIFIERS: AN/F80-32, MACHINE FILE, INFORMATION-
MANAGEMENT SUBSYSTEM (U)

THE WORK REPORTED WAS CONCERNED PRIMARILY WITH THE DESIGN AND DEVELOPMENT OF AN INFORMATION MANAGEMENT SUBSYSTEM THAT WOULD OPERATE IN THE ENVIRONMENT OF A COOPERATIVE MAN/COMPUTER SYSTEM FOR THE PRODUCTION OF OPERATING COMPUTER PROGRAMS. AN EXPERIMENTAL SYSTEM WAS DEVELOPED WHICH UTILIZED THE AN/F80-32 COMPUTER IN A TIME-SHARING MODE OF OPERATION, AS WELL AS A CATHODE RAY TUBE DISPLAY AND ASSOCIATED INPUT-OUTPUT FACILITIES FOR REAL-TIME MACHINE USE BY A PROGRAMMER. A NUMBER OF SYMBOL MANIPULATION TECHNIQUES (E.G., INSERT, DELETE) DEVELOPED ON THE ARPA PROJECT WERE USED FOR THE EDITING AND MANIPULATION OF TEXT AND PROGRAMMING MATERIAL ON THE DISPLAY. METHODS OF FILE ORGANIZATION WERE STUDIED AND ESTABLISHED FOR THE MACHINE FILE. PROCEDURES WERE ESTABLISHED FOR OBTAINING AND USING MACHINEREADABLE RECORDS FROM ALL OF THE PROJECT RECORDS (E.G., MEMOS, CORRESPONDENCE, BIBLIOGRAPHIES, REPORTS) GENERATED BY THE USER GROUP. TO SERVE AS THE BASIS FOR AN EXPERIMENTAL MACHINE FILE, THIS MACHINE FILE WAS ESTABLISHED, ALONG WITH APPROPRIATE FILE SEARCH ROUTINES, TO PERMIT THE READING OF THE NATURAL TEXT OF THE FILE MATERIAL. STUDIES WERE MADE OF METHODS TO AUTOMATICALLY DETERMINE ALTERNATE SEARCH PRESCRIPTIONS, AND DISPLAY THESE TO THE INQUIROR. PROCEDURES WERE ESTABLISHED TO PERFORM SOME COPY EDITING OF THE TEXT MATERIAL (E.G., CHECK FOR CORRECT SPELLING), (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-467 356

PENNSYLVANIA UNIV PHILADELPHIA MOORE SCHOOL OF
ELECTRICAL ENGINEERING
A PROBLEM SOLVING FACILITY,
DESCRIPTIVE NOTE: TECHNICAL REPT., APR 63-JUL 65,
JUL 65 62P WEXELBLAT, RICHARD L. I
REPT. NO. 66-02
CONTRACT: NONR55148

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (=DECISION MAKING, COMPUTERS),
(=REASONING, COMPUTERS), REAL TIME,
INFORMATION RETRIEVAL, PROGRAMMING (COMPUTERS),
PROGRAMMING LANGUAGES, COMPUTER STORAGE SYSTEMS,
DATA STORAGE SYSTEMS, LEARNING, COMPUTER LOGIC,
DIGITAL COMPUTERS, HUMAN ENGINEERING
IDENTIFIERS: MULTILANG, PROBLEM SOLVING

(U)

(U)

THE OBJECTIVE OF THE REPORTED WORK IS TO SET UP A
COMPUTER WITH A LARGE MEMORY FOR ON-LINE, REAL TIME
USE TO AID IN HUMAN PROBLEM SOLVING, COMBINING THE
COMPUTATIONAL ABILITIES OF THE COMPUTER AND ITS
ABILITY TO STORE, RETRIEVE AND MANIPULATE LARGE
MASSES OF DATA. INFORMATION RETRIEVAL PROGRAMS USE
MULTILIST TECHNIQUES TO SIMULATE AN ASSOCIATIVE
MEMORY. MULTILANG, THE EXECUTIVE LANGUAGE, SERVES
BOTH AS A CONTROL LANGUAGE AND AS A PROGRAMMING
LANGUAGE. (AUTHOR)

(U)

UNCLASSIFIED

DD FORM REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-608 344

GENERAL ELECTRIC CO SANTA BARBARA CALIF TECHNICAL MILITARY
PLANNING OPERATION
THE APPLICATION AND IMPLEMENTATION OF DEACON TYPE
SYSTEMS, (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. FOR APR-
SEP 64,

OCT 64 947 THOMPSON, FREDERICK B, I
REPT, NO, RM64TMP-11
CONTRACT: NONR4101 00
PROJ: NRO11 03 02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (MILITARY INTELLIGENCE, INFORMATION
RETRIEVAL), (COMMAND AND CONTROL SYSTEMS, INFORMATION
RETRIEVAL), (INFORMATION RETRIEVAL, COMMAND AND
CONTROL SYSTEMS), LANGUAGE, DECISION MAKING,
COMPUTERS, ARTIFICIAL INTELLIGENCE, DATA PROCESSING
SYSTEMS (U)

IDENTIFIERS: DEACON (DIRECT ENGLISH ACCESS AND
CONTROL), SAGE, SYNTAX, LIST PROCESSING, BAYES
THEOREM, SEMANTICS, INFORMATION SYSTEMS (U)

DEACON (DIRECT ENGLISH ACCESS AND CONTROL) IS
AN ADVANCED DIRECT-ACCESS TYPE OF MANAGEMENT
INFORMATION SYSTEM DERIVING FROM A PROJECT CONCERNING
DEVELOPMENT OF TECHNIQUES FOR COMPUTING WITH A
COMPUTER IN ESSENTIALLY UNCONSTRAINED ENGLISH.
DEACON-TYPE SYSTEMS RESPOND TO INSTRUCTIONS AND
QUERIES CONCERNING THE SUBJECT MATTER OF THEIR DATA
BY APPROPRIATELY MANIPULATING AND ORGANIZING THE DATA
INTERNALLY, THE CLUES THAT GUIDE THE ORGANIZING
ACTIVITY ARE THE SYNTACTIC RULES OF THE LANGUAGE AND
THEIR SEMANTIC TRANSFORMATIONS, THREE EXAMPLES OF
DEACON SYSTEMS ARE GIVEN, THE 'DEACON
BREADBOARD SUMMARY' OF F. B. THOMPSON (RM
64TMP-9) ACCEPTS QUERIES IN ENGLISH CONCERNING
ITS DATA BASE (REPRESENTING LIST STRUCTURES) AND
RESPONDS BY PRINTING OUT THE ANSWER, THE SECOND
DEACON-TYPE SYSTEM IS THE ON-LINE COMPUTING CENTER
FOR SCIENTIFIC PROBLEMS OF G. J. CULLER AND B. D.
FRIED (AD-296 532), THE THIRD IS 'SKETCHPAD,
A MAN-MACHINE GRAPHICAL COMMUNICATION
SYSTEM' (AFIPS CONFERENCE PROCEEDINGS, VOL. 23,
SPRING JOINT COMPUTER CONFERENCE, 1963),
MILITARY APPLICATIONS OF THE SYSTEMS ARE DISCUSSED,
THE CENTRAL NATION BEING ORGANIZATION OF OTHERWISE
DISCONNECTED OBSERVATIONS INTO RELEVANT STRUCTURES,

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-612 614

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
RESEARCH AND TECHNOLOGY DIVISION REPORT FOR
1964.

(U)

JAN 65 157P
REPT. NO. TN-330/008/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•INFORMATION RETRIEVAL, SCIENTIFIC RESEARCH), (•PROGRAMMING (COMPUTERS), SCIENTIFIC RESEARCH), (•OPERATIONS RESEARCH, SCIENTIFIC RESEARCH), (•DECISION MAKING, SCIENTIFIC RESEARCH), (•EDUCATION, SCIENTIFIC RESEARCH), COMPILERS, SUBJECT INDEXING, ABSTRACTING, CLASSIFICATION, REPORTS, LABORATORIES, PROGRAMMING LANGUAGES, COMMAND AND CONTROL SYSTEMS, DISPLAY SYSTEMS, TRAFFIC, MONTE CARLO METHOD, TRAINING (U)

IDENTIFIERS: UNCOL LANGUAGE, HEURISTIC APPROACH, WATER, TIME SHARING (COMPUTERS), ON-LINE SYSTEMS, LUCID LANGUAGE, SYNTEX, BOLD, PIP PROCESSING, HEMP MODEL, LEVIATHAN, SIMNAVLOT, VARDIS PROGRAM (U)

CONTENTS: INFORMATION PROCESSING RESEARCH
PROGRAMMING SYSTEMS PROGRAMMING TECHNOLOGY
LANGUAGE PROCESSING AND RETRIEVAL MATHEMATICS AND
OPERATIONS RESEARCH ANALYTIC MODELING COMMAND
POST SIMULATION DECISION PROCESSES RESEARCH
EDUCATION AND TRAINING LABORATORY COMPLEX. (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

D-413 718

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE CONCEPTUAL FOUNDATIONS OF INFORMATION
SYSTEMS,

(U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
MAY 65 37P BORKO, H. I
REPT. NO. SP-2057

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PAPER TO BE READ AT THE SYMPOSIUM:
THE FOUNDATIONS OF ACCESS TO KNOWLEDGE TO BE HELD AT
SYRACUSE UNIVERSITY, JULY 28-30, 1965,

DESCRIPTORS: (•INFORMATION RETRIEVAL, SYSTEMS
ENGINEERING), (•DOCUMENTATION, SYSTEMS ENGINEERING),
LIBRARIES, STATISTICAL ANALYSIS, REPORTS, SUBJECT
INDEXING, CLASSIFICATION, LANGUAGE, ANALYSIS,
AUTOMATION, AUTOMATIC

(U)

IDENTIFIERS: BOLD RETRIEVAL SYSTEM INFORMATION
SCIENCES, COMPUTER CONSOLES, INFORMATION CENTERS,
COMPUTATIONAL LINGUISTICS

(U)

INFORMATION SYSTEMS CONSIST OF COLLECTIONS OF
RECORDED INFORMATION, CUSTODIANS WHO ORGANIZE AND
MAINTAIN THE COLLECTIONS, RETRIEVAL PROCEDURES AND
USERS, THE CONCEPTUAL FOUNDATIONS FOR THESE
SYSTEMS ARE DERIVED FROM MATHEMATICS, ENGINEERING,
BEHAVIORAL SCIENCE AND THE MANY OTHER DISCIPLINES
WHICH TOGETHER MAKE UP INFORMATION SCIENCE, THE
CONCEPTS ARE THE THEORETICAL FORMULATIONS OR
PRINCIPLES CONCERNING METHODS OF STORAGE, INDEXING,
AND RETRIEVING INFORMATION WHICH ARE USED IN THE
DESIGN OF INFORMATION STORAGE AND RETRIEVAL SYSTEMS,
SEVEN CONCEPTS ARE ENUNCIATED, THESE DEAL WITH
THE NEED, EQUIPMENT USER RESPONSIVENESS, LANGUAGE
PROCESSING, INDEXING, CLASSIFICATION AND STORAGE,
THE SYSTEM DESIGN IMPLICATIONS OF EACH CONCEPT ARE
DISCUSSED SEPARATELY AND THEN ORGANIZED TOGETHER TO
FORM AN INFORMATION STORAGE AND RETRIEVAL SYSTEM OF
THE FUTURE CALLED BOLD, (AUTHOR) (BIBLIOGRAPHIC
ON-LINE DISPLAY)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-623 794 5/10 5/8
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
PROBING BEHIND THE HUMAN DECISION, (U)
JUL 65 14P SHURE, GERALD H, I
MEEKER, ROBERT J, I
REPT, NO, SP-1698/001/00
CONTRACT: SD-786

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT
MILITARY OPERATIONS RESEARCH SYMPOSIUM (15TH),
NORFOLK, VA., 27-29 APR 65.

DESCRIPTORS: (•DECISION MAKING, MAN-MACHINE
SYSTEMS), (•MAN-MACHINE SYSTEMS, DECISION
MAKING), COMPUTERS, COMMAND + CONTROL SYSTEMS,
PERCEPTION, GAME THEORY, BARGAINING (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

A TECHNIQUE IS DESCRIBED FOR THE SYSTEMATIC
COLLECTION OF INFORMATION ABOUT HUMAN DECISION
MAKING-INFORMATION WHICH HAS HITHERTO BEEN UNTAPPED
BY EXISTING DATARECORDING AND EVALUATION PROCEDURES
AND WHICH HOLDS PROMISE OF INCREASING THE VALUE OF
CURRENTLY RECORDED ACTION AND DECISION DATA, THE
TECHNIQUE WAS DEVELOPED INITIALLY TO ASSIST IN THE
COLLECTION AND INTERPRETATION OF DATA IN ONLINE
COMPUTER STUDIES OF EXPERIMENTAL GAME BEHAVIOR,
SAMPLE FINDINGS FROM THESE STUDIES AND AN ANALYSIS
OF DECISION PROCESS BASED ON EARLIER STUDIES ARE
PRESENTED TO DEMONSTRATE THE POTENTIAL FEASIBILITY
AND VALUE OF THE PROPOSED PROCEDURES FOR THE
EVALUATION OF DECISION-MAKING BEHAVIOR IN COMPUTER-
BASED COMMAND AND CONTROL SYSTEMS, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70329

AD-625 417 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
PROCEEDINGS OF THE SYMPOSIUM ON COMPUTER-CENTERED DATA
BASE SYSTEMS (2ND), (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
DEC 65 351P BAUM, C, IGORSUCH, L. I
REPT. NO. SDC-7M-2624/100/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS,
SYMPOSIA), DATA, COMPUTERS, STATE-OF-THE-ART
REVIEWS, COMMAND + CONTROL SYSTEMS,
PROGRAMMING (COMPUTERS), DATA STORAGE SYSTEMS,
HOSPITALS, INFORMATION RETRIEVAL, COMPUTER
STORAGE DEVICES, INPUT-OUTPUT DEVICES, COMPUTER
LOGIC, MANAGEMENT CONTROL SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, ECCO PROGRAM,
COLINGO, SHARING (COMPUTERS), LUCID LANGUAGE,
FILESTRUCTURES, DATA BASE SYSTEMS (U)

CONTENTS: TUTORIAL PAPERS: STATE-OF-THE-ART
SURVEY OF DATA BASE SYSTEMS; IMPACT OF HARDWARE
DEVELOPMENTS ON DATA BASE SYSTEMS; COMPUTER-
CENTERED DATA BASE SYSTEMS IN SUPPORT OF HIGH
MILITARY COMMAND, FIVE APPROACHES TO THE SAME DATA
BASE PROBLEM; DESCRIPTION OF THE DATA BASE
PROBLEM, THREE COLINGO-LIKE APPROACHES TO THE
DATA BASE PROBLEM, COLINGO D, COLINGO C-10, AND
ADAMI MARK III FILE MANAGEMENT SYSTEM; ON-LINE
DATA MANAGEMENT SYSTEM FOR THE MASSACHUSETTS
GENERAL HOSPITAL; BEST SYSTEM; AND INTEGRATED
DATA STORE, DESCRIPTION OF SDC DATA BASE SYSTEMS
DEMONSTRATED AT SYMPOSIUM; LUCID; GENERAL PURPOSE
DISPLAY SYSTEM; AND ECCO AND EPIC, REPORTS OF
THE WORK GROUP CHAIRMEN; CRITERIA FOR GOING ON-
LINE; ENTRY AND QUERY LANGUAGE DESIGN; FILE
ORGANIZATION; FILE SHARING AND PROTECTION; THEORY
OF DATA BASE PROBLEM DEFINITION; CRITERIA FOR
EVALUATING DATA MANAGEMENT SYSTEMS; AND RECORDING
FOR ANALYSIS, COSTING, AND CONTROL, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-628 206 5/2 5/5
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
HUMAN ENGINEERING THE GPDS/LUCID SYSTEM:
CONSIDERATIONS AND PLANS,
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
NOV 65 30P SIMON, CHARLES W. I
REPT, NO. TM-2776,
CONTRACT: AF 19(628)-5166,

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•INFORMATION RETRIEVAL, DISPLAY
SYSTEMS), (•HUMAN ENGINEERING, INFORMATION
RETRIEVAL), DATA PROCESSING SYSTEMS, DATA STORAGE
SYSTEMS, SYSTEMS ENGINEERING, PROGRAMMING
LANGUAGES

(U)

IDENTIFIERS: GPDS PROJECT, LUCID LANGUAGE

(U)

HUMAN ENGINEERING CONSIDERATIONS AND PLANS FOR THE
STUDY AND EVALUATION OF THE GPDS/LUCID SYSTEM ARE
DISCUSSED. SPECIFIC PROJECT GOALS ARE: (1) TO
DETERMINE HOW WELL THE CURRENT SYSTEMS MATCH USERS'
NEEDS, AND (2) TO MAKE RECOMMENDATIONS FOR
IMPROVING THE SYSTEM WHERE THESE NEEDS ARE NOT MET.
AN ULTIMATE PROJECT GOAL WILL BE TO DETERMINE HUMAN
ENGINEERING DESIGN PRINCIPLES USEFUL FOR THE
DEVELOPMENT OF USER-ORIENTED, ON-LINE INFORMATION
PROCESSING SYSTEMS IN GENERAL. PROJECT
INVESTIGATION WILL EXAMINE THE GPDS/LUCID SYSTEMS
FROM THE POINT OF VIEW OF A USER WHO IS ESSENTIALLY
UNSOPHISTICATED IN COMPUTER PROGRAMMING.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-632 185 5/2
MOORE SCHOOL OF ELECTRICAL ENGINEERING UNIV OF
PENNSYLVANIA PHILADELPHIA
ESTABLISHMENT OF THE ACM REPOSITORY AND PRINCIPLES OF
THE IR SYSTEM APPLIED TO ITS OPERATION, (U)
JUL 65 BP RUBINOFF, MORRIS ; WHITE, JOHN
F., JR.;
CONTRACT: AF 49(628)-1421,
PROJ: AF-9769,
TASK: 976901,
MONITOR: AFOSR , 66-0011

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN COMMUNICATIONS OF THE
ACM V8 N10 P595-601 OCT 1965, COPIES TO DDC USERS
ONLY.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA STORAGE SYSTEMS, *INFORMATION,
RETRIEVAL), DOCUMENTATION, ELECTRICAL ENGINEERING,
UNIVERSITIES, PENNSYLVANIA (U)

THE HISTORY OF THE ESTABLISHMENT OF THE ACM
REPOSITORY AT THE MOORE SCHOOL, U. OF
PENNSYLVANIA, IS REVIEWED BRIEFLY. THE
ORGANIZATIONAL AND PROCEDURAL PLAN FOR A MECHANIZED
INFORMATION CENTER HAS BEEN BASED ON TWO FUNDAMENTAL
PRINCIPLES: (1) THAT INFORMATION BE MADE EASILY
ACCESSIBLE TO THE CUSTOMER, PREFERABLY ON A SELF-
SERVE BASIS, AND (2) THAT THE VALUE OF THE
SERVICES EXCEED USER COSTS. THE SYSTEM IS DESIGNED
FOR REMOTE TELETYPEWRITER ON-LINE ACCESS TO AN
INFORMATION FILE IN A 1201 DISK STORAGE WHICH IS
AUXILIARY TO THE IBM 7040/ 7401 SYSTEM AT THE
UNIVERSITY COMPUTER CENTER. SIGNIFICANT FEATURES
OF THE PLANNED SYSTEM INCLUDE: (A) DIRECT
ACCESS VIA THE CONSOLE, (B) SYSTEM STORAGE OF A
COMPLETE DESCRIPTION OF ITSELF IN ADDITION TO
DOCUMENT CATALOG AND INDEXING DATA TO ENABLE USERS TO
DESIGN THEIR OWN SEARCH STRATEGIES, (C) USE OF
AN UNRESTRICTED SEARCH VOCABULARY, (D) ACCESS
THROUGH ONE OR MORE OF A LARGE NUMBER OF ENTRY PORTS
TO ENABLE ADAPTIVE MAN-MACHINE INTERFACING WITH THE
INDEXING STRUCTURE, AND (E) STOCHASTIC TYPE
SEARCHING THROUGH RELATED CATEGORIES, SECTIONS, AND
CLASSES OF DATA. THESAURI AND MICROTHESAURI ARE
EMBEDDED IN THE SYSTEM AND KEPT DYNAMIC AND OPEN -
ENDED. THE INDEX TERMS HAVE BEEN GENERATED
PRIMARILY WITH REGARD TO THE DOCUMENT FILE RATHER
THAN WITH REGARD TO A PHILOSOPHICAL PARTITIONING OF
KNOWLEDGE, AND WITH A VIEW TO INTERESTS OF POTENTIAL
USERS AND THE NATURE OF FUTURE ACCESSIONS. THE (U)

UNCLASSIFIED

700329

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-632 320 9/2

MITRE CORP BEDFORD MASS

AESOP: A PROTOTYPE FOR ON-LINE USER CONTROL OF ORGANIZATIONAL DATA STORAGE, RETRIEVAL AND PROCESSING,

(U)

NOV 65 24P BENNETT, EDWARD I

HAINES, EDWARD C. | SUMMERS, JOHN K. I

REPT. NO. MTP-23,

CONTRACT: AF 19(620)-5165,

PROJ: AF-510G,

MONITOR: ESD , TR-65-143

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PROCEEDINGS - FALL JOINT COMPUTER CONFERENCE 9435-55 1965, COPIES TO DDC USERS ONLY.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (1) INFORMATION RETRIEVAL, CONTROL SYSTEMS), (2) DATA PROCESSING SYSTEMS, CONTROL SYSTEMS), CATHODE RAY TUBE SCREENS, PROGRAMMING LANGUAGES, PROGRAMMING (COMPUTERS)

(U)

IDENTIFIERS: ON-LINE SYSTEMS, LIST PROCESSING, LIGHTPENS, IBM 7030, COMPUTER CONSOLES

(U)

AESOP IS AN EXPERIMENTAL ON-LINE INFORMATION CONTROL SYSTEM SERVING AS A PROTOTYPE FOR A CLASS OF MANAGEMENT OR COMMAND INFORMATION SYSTEMS CAPABLE OF GIVING THE MEMBERS OF THE USING ORGANIZATION AS MUCH ON-LINE CONTROL OVER SYSTEM PERFORMANCE AS POSSIBLE. IT IS A CRT DISPLAY-ORIENTED SYSTEM IN THAT THE USER EXPERIENCES THE INFORMATION SYSTEM PRIMARILY THROUGH HIS CRT DISPLAYS AND EXERCISES HIS CONTROL THROUGH HIS LIGHT PENCIL. THE CURRENT VERSION OF THE AESOP PROTOTYPE OPERATES ON AN IBM 7030 (STRETCH) COMPUTER (65K MEMORY WITH 64-BIT WORDS) WITH A 353 DISK STORAGE UNIT HOLDING TWO MILLION WORDS. EACH OF THE FOUR USER STATIONS CONSISTS OF AN ON-LINE DATA-DISPLAY-13 DISPLAY CONSOLE WITH A PHOTOELECTRIC LIGHT PENCIL, AN ON-LINE TYPEWRITER, AND A STROMBERG-CARLSON 3070 MEDIUM- FEED PRINTER. THE AESOP SYSTEM IS DESIGNED TO TAKE ADVANTAGE OF THE RANGE OF CAPABILITIES IMPLIED BY THIS CENTRAL PROCESSOR AND THE USER STATION EQUIPMENT.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-632 473 5/2 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE BOLD (BIBLIOGRAPHIC ON-LINE DISPLAY) SYSTEM, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
APR 66 27P BURNAUGH, HOWARD P. I
REPT. NO. SP-2338/000/01,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-615 718.

DESCRIPTORS: (*INFORMATION RETRIEVAL, REAL TIME),
(*BIBLIOGRAPHIES, *DISPLAY SYSTEMS),
CLASSIFICATION, SUBJECT INDEXING, COMPUTATIONAL
LINGUISTICS, PROGRAMMING (COMPUTERS), MAGNETIC
TAPE, TELETYPE SYSTEMS (U)
IDENTIFIERS: FILE STRUCTURES, TIME SHARING, ON-
LINE SYSTEMS, LIGHT PENS, BOLD (BIBLIOGRAPHIC ON-
LINE DISPLAY) (U)

THE BOLD (BIBLIOGRAPHIC ON-LINE DISPLAY)
SYSTEM SERVES AS A GENERAL PURPOSE VEHICLE FOR
RESEARCH ON THE COMPONENTS OF A REAL-TIME RETRIEVAL
SYSTEM. SPECIFIC SUBJECTS FOR INVESTIGATION ARE
INDEXING, CLASSIFICATION AND CATEGORIZING SCHEMES,
FILE ORGANIZATION, AND USER-SYSTEM COMMUNICATION.
THE PROGRAM OPERATES IN A 'TIME-SHARING'
ENVIRONMENT DOING INDEPENDENT RETRIEVAL FOR MULTIPLE
SIMULTANEOUS USERS. A RETRIEVAL STATION MAY BE ANY
TELETYPE CONNECTED TO THE TIME-SHARING SYSTEM. A
STATION MAY BE AUGMENTED WITH A CRT CONSOLE AND A
LIGHT PEN FOR RAPID DISPLAYING OF THE RETRIEVAL
INFORMATION. RETRIEVAL IS EFFECTED BY THE
SPECIFICATION OF CATEGORIES AND/OR RETRIEVAL PHRASES.
USING BOOLEAN CONNECTORS, THERE ARE TWO MODES
FOR RETRIEVAL OPERATION: THE BROWSE MODE AND THE
SEARCH MODE. IN THE BROWSE MODE THE USER MAY
SPECIFY BROAD CATEGORIES AND RETRIEVAL TERMS AND THEN
BROWSE THROUGH THE RETRIEVAL INFORMATION ENTRY BY
ENTRY. THE USER DESIGNATES WHAT INFORMATION IS TO
BE RETURNED. THIS MAY BE ANYTHING THAT IS DEFINED
IN THE DATA BASE, AND MAY RANGE FROM A SINGLE
COMPONENT (SUCH AS AUTHOR, TITLE, ETC., FOR A
BIBLIOGRAPHIC DATA SET) TO A COMPLETE BODY OF TEXT
(I.E., ABSTRACT), (AUTHOR) (FOR PRESENTATION
AT THE THIRD ANNUAL COLLOQUIUM ON INFORMATION
RETRIEVAL, UNIV. OF PENNSYLVANIA, MAY 12-13,
1966) (U)

UNCLASSIFIED

DDC REP RT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-632 587 5/2 9/2
MITRE CORP BEDFORD MASS
PROCEEDINGS OF THE CONGRESS ON THE INFORMATION SYSTEM
SCIENCES (2D), (U)
MAR 66 308P
REPT. NO.
CONTRACT: AF 19(628)-2390,
MONITOR: ESD , TR-65-366

UNCLASSIFIED REPORT

DISTRIBUTION: SPARTAN BOOKS, INC, 1250
CONNECTICUT AVENUE N.W, WASHINGTON, D, C,
823,75.

SUPPLEMENTARY NOTES:

DESCRIPTORS: (+DATA PROCESSING SYSTEMS,
SYMPOSIA), COMMAND + CONTROL SYSTEMS,
PROGRAMMING LANGUAGES, INFORMATION RETRIEVAL,
MANAGEMENT PLANNING, DESIGN, TECHNICAL
INFORMATION CENTERS, MAN-MACHINE SYSTEMS,
DECISION MAKING, GRAPHICS, SUBJECT INDEXING,
COMPUTERS, COSTS, FILMS, BEHAVIOR,
SCIENTIFIC PERSONNEL, ENGINEERING PERSONNEL,
ADAPTIVE SYSTEMS, LINGUISTICS,
TRANSFORMATIONAL GRAMMARS (U)

IDENTIFIERS: ON-LINE SYSTEMS, INFORMATION
SCIENCES, TIME SHARING (COMPUTERS), INFORMATION
SYSTEMS, COLINGO, BAYES' THEOREM, SELF-ORGANIZING
SYSTEMS, MAC PROJECT, FILE STRUCTURES (U)

THE PAPERS FORMED THE BASIS FOR DISCUSSION IN
SIXTEEN TECHNICAL SESSIONS AT THE SECOND CONGRESS
ON THE INFORMATION SYSTEM SCIENCES (NOV
1964). THE CONGRESSES, NOW ESTABLISHED AS
BIENNIAL EVENTS, WERE FORMED TO INCREASE
COMMUNICATION AMONG SCIENTISTS, ENGINEERS, AND
MILITARY PERSONNEL IN THE TECHNOLOGY OF INFORMATION
SYSTEMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-633 364 9/2

OREGON STATE UNIV CORVALLIS COMPUTER CENTER
PROGRESS REPORT ON THE NEBULA COMPUTER, (U)
DESCRIPTIVE NOTE: DOCUMENT,
JAN 66 84P NICKODEMUS, W. A, BOLES, J. A, I
HOSELTON, G. A, IRUX, P. T, ISHEPARD, D. B, I
REPT. NO, CC-66-1,
CONTRACT: NONR-1286(111),

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (DIGITAL COMPUTERS, DESIGN), DELAY
LINES, GLASS, COMPUTER STORAGE DEVICES,
COMPUTER LOGIC, RELAXATION OSCILLATORS,
GATES(CIRCUITS), TELETYPE SYSTEMS, READING
MACHINES, PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: NEBULA COMPUTER, COMPUTER
CONSOLES, COMPUTER WORDS (U)

A MEDIUM SPEED, SERIAL DIGITAL COMPUTER WAS
CONSTRUCTED USING GLASS DELAY LINES CIRCULATING AT 22
MC, AS MEMORY, AN ARRANGEMENT OF INFORMATION WITHIN
THE 22 MC, MEMORY ALLOWS A SIMPLE INTERFACE WITH THE
340 KC, ARITHMETIC UNIT, WHICH RESULTS IN AN
EFFECTIVE ZERO LATENCY TIME AND PROVIDES
POSSIBILITIES FOR AN ASSOCIATIVE MEMORY, THE
ARITHMETIC UNIT HAS A COMMAND STRUCTURE SIMILAR TO
LARGE PARALLEL MACHINES AND USES FLIP-FLOP ARITHMETIC
AND CONTROL REGISTERS THROUGHOUT, ALL HARDWARE
DEVELOPMENT HAS BEEN AIMED TOWARD THE CONCEPT OF EASY
MODIFICATION, ELABORATE CONSOLE CONTROLS FOR
EFFECTIVE MAN-MACHINE INTERACTION, AND LOW COST,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-634 371 9/2 5/2 5/1
MITRE CORP BEDFORD MASS
AESOP: A GENERAL PURPOSE APPROACH TO REAL-TIME,
DIRECT ACCESS MANAGEMENT INFORMATION SYSTEMS, (U)
JUN 66 38P SPIEGEL, J, SUMMERS, J. K. ;
BENNETT, E. M. ;
REPT. NO. MTP-33,
CONTRACT: AF 19(628)-5165,
PROJ: AF-3030,
MONITOR: ESD TR-66-289

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-632 320

DESCRIPTORS: (*INFORMATION RETRIEVAL, *MANAGEMENT
PLANNING); (*DATA PROCESSING SYSTEMS, INFORMATION
RETRIEVAL), TELEVISION DISPLAY SYSTEMS, COMMAND +
CONTROL SYSTEMS, LIGHT COMMUNICATION SYSTEMS,
CATHODE RAY TUBES, COMPUTERS, REAL TIME,
PROGRAMMING (COMPUTERS), MILITARY
REQUIREMENTS (U)
IDENTIFIERS: AESOP, ON-LINE SYSTEMS, LIST
PROCESSING, LIGHT PENS, COMPUTER CONSOLES (U)

AESOP, A LABORATORY-BASED PROTOTYPE OF A GENERAL
PURPOSE, ON-LINE, VISUALLY-ORIENTED INFORMATION
SYSTEM, IS USED TO INVESTIGATE WAYS OF HANDLING MANY
DIFFERENT TYPES AND LEVELS OF COMMAND AND MANAGEMENT
PROBLEMS SPANNING ORGANIZATIONAL LEVELS FROM THE
EXECUTIVE SUITE DOWN THROUGH THE STAFF AND OPERATIONS
ANALYSTS TO THE ACTUAL SYSTEM DESIGNERS AND
PROGRAMMERS. IN PARTICULAR, IT DEALS WITH THOSE
ORGANIZATIONAL ACTIVITIES THAT REQUIRE HIGHLY
FLEXIBLE, DIRECT-ACCESS CAPABILITIES. THE SYSTEM IS
CONFIGURED FOR EASY USE BY THE INEXPERIENCED AS WELL
AS BY THE SOPHISTICATED, AND UTILIZES A VARIETY OF
USER STATION DEVICES TO FACILITATE SUCH FLEXIBILITY,
INCLUDING A CATHODE-RAY-TUBE DISPLAY, A LIGHTGUN, A
TYPEWRITER, AND ASSOCIATED PUSH-BUTTONS. AT EACH
STATION, IT IS CAPABLE OF GENERATING, EDITING, AND
FORMATTING INFORMATION ON-LINE, AS WELL AS BUILDING,
EXECUTING, AND DEBUGGING ON-LINE THE ANALYTIC AND
MATHEMATICAL PROCEDURES AND ALGORITHMS OF BOTH THE
USERS AND THE SYSTEM ITSELF, DEPENDING UPON THE
ORGANIZATIONAL AREA OR LEVEL OF THE USER, ALTHOUGH
THE BASIC PROTOTYPE SYSTEM WAS DEVELOPED FOR USE IN
MILITARY COMMAND AND MANAGEMENT PLANNING AND
INFORMATION SYSTEMS, ITS PHILOSOPHY AND CONCEPTS ARE
APPLICABLE TO INDUSTRIAL AND ACADEMIC ORGANIZATIONS.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-640 647 5/8 5/2 5/7 4/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
ON-LINE INTERACTIVE DISPLAYS IN APPLICATION TO
LINGUISTIC ANALYSIS AND INFORMATION PROCESSING AND
RETRIEVAL. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
SEP 66 22P SIMMONS, R, F, I
REPT, NO, SP-2432/001/00,
CONTRACT: AF 19(628)-5166,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
SYMPOSIUM ON MAN/MACHINES INTERACTION, PARIS
(FRANCE), 10-17 OCT 66, SEE ALSO AD-615 718,
AD-632 473,

DESCRIPTORS: (MAN-MACHINE SYSTEMS, DISPLAY
SYSTEMS), INFORMATION RETRIEVAL, COMPUTATIONAL
LINGUISTICS, REPORTS, BIBLIOGRAPHIES (U)
IDENTIFIERS: ON-LINE SYSTEMS,
KERNELIZATION(SENTENCES), BOLD, SENTENCES (U)

AS COMPUTERS ARE USED FOR INCREASINGLY COMPLEX
OPERATIONS SUCH AS RETRIEVING DOCUMENTS AND ANALYZING
SENTENCES, IT BECOMES APPARENT THAT HUMAN DECISION-
MAKING IS STILL AN ESSENTIAL ELEMENT OF THE PROCESS,
THE USE OF THE ON-LINE INTERACTIVE CAPABILITY OF
TODAY'S THIRD-GENERATION COMPUTERS SUPPORTED BY
TYPEWRITER AND DISPLAY SCOPE TERMINALS MAKES THE
CONSTRUCTION OF COMPUTER-AIDED SYSTEMS FOR THESE
COMPLEX TASKS AN ATTRACTIVE APPROACH, TWO SUCH
SYSTEMS ARE DESCRIBED IN THE PAPER, ONE IS BOLD,
A DOCUMENT RETRIEVAL SYSTEM THAT OFFERS THE USER AN
ON-LINE BROWSING CAPABILITY AS WELL AS THE ABILITY TO
RETRIEVE DOCUMENTS OR CONSTRUCT BIBLIOGRAPHIES USING
COMPUTER-DRIVEN DISPLAY SCOPES AND TYPEWRITERS,
THE OTHER IS A SENTENCE-ANALYSIS SYSTEM THAT
COMPUTES DEPENDENCY ANALYSES, PHRASE STRUCTURE
ANALYSES AND KERNEL SETS FOR EACH SENTENCE IT IS
GIVEN, THIS SYSTEM PRODUCES AND DISPLAYS MULTIPLE
ANALYSES AND ALLOWS THE USER TO CORRECT THEM OR TO
SELECT THOSE WHICH ARE SATISFACTORY, THE CONCLUSION
IS THAT FOR SOME TIME TO COME COMPLEX INFORMATION
PROCESSING SYSTEMS--PARTICULARLY THOSE CONCERNED WITH
NATURAL LANGUAGES--WILL REMAIN AT THE LEVEL OF
SEMI-AUTOMATIC COMPUTER AIDS TO HUMAN INFORMATION
PROCESSING, AS SUCH, THEIR USEFULNESS CAN BE
MAXIMIZED BY OPTIMAL USE OF INTERACTIVE DISPLAY
TECHNOLOGY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-640 652 5/2 5/2 9/2
SYSTEM DEVELOPMENT COR. SANTA MONICA CALIF
UTILIZATION OF ON-LINE INTERACTIVE DISPLAYS. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
AUG 66 35P BORKO, H. I
REPT. NO. SP-2575,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
CONGRESS ON INFORMATION SYSTEM SCIENCE AND
TECHNOLOGY (3RD), BUCK HILL FALLS, PENNSYLVANIA,
NOVEMBER 20-23 1966.

DESCRIPTORS: (•MAN-MACHINE SYSTEMS, DISPLAY
SYSTEMS), (•INFORMATION RETRIEVAL, MAN-MACHINE
SYSTEMS), PROGRAMMING (COMPUTERS), PROBLEM
SOLVING, DECISION MAKING, DATA PROCESSING SYSTEMS,
SYNTAX, TELETYPE SYSTEMS, CATHODE RAY TUBES,
COMPUTERS (U)

THE VERSATILITY AND ADVANTAGES OF USING ON-LINE
INTERACTIVE DISPLAYS ARE ILLUSTRATED BY EXAMPLES FROM
(1) THE GENERAL PURPOSE DISPLAY SYSTEM
(GPDS), (2) THE PATTERN LEARNING PARSER
(PLP II), AND (3) THE BIBLIOGRAPHIC ON-
LINE DISPLAY SYSTEM (BOLD). ALTHOUGH THESE
SYSTEMS ARE DESIGNED FOR DIFFERENT PURPOSES THEY ALL
UTILIZE DISPLAYS AS COMMUNICATION CHANNELS BY WHICH
THE MAN AND THE MACHINE ARE ABLE TO ENGAGE IN A
DIALOG AND WORK TOGETHER TO SOLVE PROBLEMS. THE
COMPUTER PROCESSES DATA RAPIDLY AND DISPLAYS THE
RESULTS. THE INFORMATION PROVIDED IN THE DISPLAYS
ENABLES THE USER TO STEER AND CONTROL THE STEP-BY-
STEP PROGRESS OF THE PROGRAM. NOT ONLY ARE
PROBLEMS SOLVED MORE EFFICIENTLY, BUT THE USERS ARE
MORE SATISFIED BY THE RESULTS ACHIEVED. (AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-642 255 9/2 5/2
PENNSYLVANIA UNIV PHILADELPHIA MOORE SCHOOL OF
ELECTRICAL ENGINEERING
THE PDP-5 AS A SATELLITE PROCESSOR, (U)
MAY 66 15P WEINBERG, PAUL R. I
WOLFBERG, MICHAEL S. I
CONTRACT: NONR-551(40)

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN DECUS PROCEEDINGS P51-64
MAY 1966.

DESCRIPTORS: (+DATA PROCESSING SYSTEMS,
*INFORMATION RETRIEVAL), REAL TIME, MULTIPLE
OPERATION, REMOTE CONTROL SYSTEMS, INPUT-OUTPUT
DEVICES, COMPUTERS (U)
IDENTIFIERS: PDP-5, IBM 7040 (U)

A PDP-5 AT THE UNIVERSITY OF PENNSYLVANIA IS
ATTACHED TO AN IBM 7040 THROUGH A HIGH SPEED DATA
CHANNEL. IN THIS CONFIGURATION IT SERVES AS AN
INTERMEDIARY BETWEEN THE 7040 AND SEVERAL REMOTE
CONSOLES INCLUDING CHARACTER DISPLAYS AND
TELETYPES. THE PURPOSE IS TO PROVIDE REAL-TIME
INFORMATION RETRIEVAL SYSTEMS WITH A REMOTE CONSOLE
CAPABILITY. THIS PAPER CONSISTS OF TWO PARTS:
THE FIRST SECTION DESCRIBED THE INTERACTION AMONG
THE VARIOUS SUBSYSTEMS, AND THE SECOND SECTION
PRESENTS AN ACCOUNT OF THE ASSEMBLY OF PDP-5
PROGRAMS ON THE 7040. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-647 196 5/2 9/2
PENNSYLVANIA UNIV PHILADELPHIA MOORE SCHOOL OF
ELECTRICAL ENGINEERING
DESIGN PRINCIPLES FOR AN ON-LINE INFORMATION
RETRIEVAL SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 66 136P LOWE, THOMAS C. I
REPT. NO. 67-14
CONTRACT: AF 49(638)-1421, DA-31-124-ARO(D)-352
PROJ: AF-9769
TASK: 976901
MONITOR: AFOSR 67-0423

UNCLASSIFIED REPORT

DESCRIPTORS: (INFORMATION RETRIEVAL, DESIGN),
DECODING, COMPUTER STORAGE DEVICES, REAL TIME,
DATA, MAN-MACHINE SYSTEMS, DATA STORAGE SYSTEMS,
COMPUTER OPERATORS, TYPEWRITERS (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

AREAS INVESTIGATED INCLUDE SLOW MEMORY DATA STORAGE, THE PROBLEM OF DECODING FROM AN INDEX TO A SLOW MEMORY ADDRESS, THE STRUCTURE OF DATA LISTS AND DATA LIST OPERATORS, COMMUNICATIONS BETWEEN THE HUMAN USER AND THE SYSTEM, PROCESSING OF RETRIEVAL REQUESTS, AND THE USER'S CONTROL OVER THE RETURN OF INFORMATION RETRIEVED. LINEAR, LINKED AND INVERTED FILE STRUCTURES ARE CONSIDERED, EMPIRICAL DATA FROM THE REPOSITORY OF THE ASSOCIATION FOR COMPUTING MACHINERY ARE USED FOR ILLUSTRATIVE PURPOSES. THESE DATA ARE ALSO USED IN THE PORTION OF THE DECODING MECHANISM STUDY WHICH DEALS WITH THE EFFECTS OF TRUNCATION OF INDEX TERMS. FOLLOWING THE FILE ORGANIZATION STUDY, THE NECESSARY LIST STRUCTURES AND LIST OPERATORS ARE DESIGNED, AN EDITING LANGUAGE FOR USE BY THE HUMAN OPERATOR IN COMMUNICATING WITH THE SYSTEM IS SPECIFIED, AS ARE REQUIREMENTS FOR THE EXECUTION OF 'BACKGROUND' PROGRAMS WHEN A USER'S INFORMATION RETRIEVAL REQUEST IS NOT BEING PROCESSED. FINALLY, A SIMPLE SEQUENCE OF MAN-MACHINE COMMUNICATIONS WHICH ALLOW THE USER OF THE SYSTEM TO SPECIFY WHAT CLASSES OF DATA ARE TO BE RETURNED TO HIM IS OUTLINED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-653 279 5/2
LEHIGH UNIV BETHLEHEM PA CENTER FOR THE INFORMATION
SCIENCES
EXPERIMENTAL RETRIEVAL SYSTEMS STUDIES, REPORT NO.
2; SYSTEMS MANUAL FOR EXPERIMENTAL LITERATURE
COLLECTION AND REFERENCE RETRIEVAL SYSTEM, (U)
APR 67 59P ANDERSON, RONALD R. I
AMICO, ANTHONY F. GREEN, JAMES S. I
CONTRACT: NONR-610(08), AF-AFOSR-724-65
MONITOR: AFOSR 67-1676

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTES: REPT, NO. 1, PB-173 2181 REPT, NO.
3, AD-653 280.

DESCRIPTORS: (*INFORMATION RETRIEVAL, REPORTS),
INSTRUCTION MANUALS, TECHNICAL INFORMATION
CENTERS, PROGRAMMING LANGUAGES, TELETYPE SYSTEMS,
SUBJECT INDEXING, TRAINING, COMPUTER
PROGRAMS (U)
IDENTIFIERS: GE 225 COMPUTER (U)

THE MANUAL DESCRIBES AND DOCUMENTS THE RETRIEVAL
SYSTEM USED BY THE CENTER FOR THE INFORMATION
SCIENCES FOR SELECTED CURRENT LITERATURE OF THE
INFORMATION SCIENCES, ABOUT 2,500 DOCUMENT
REFERENCES. THE SYSTEM IS PRESENTLY ON-LINE VIA
TELETYPE AND CONVERSION IS IN PROCESS FROM TAPE TO
DISK. BOTH ASSOCIATIVE AND NON-ASSOCIATIVE SEARCH
SYSTEMS ARE IN OPERATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-653 280 5/2
LEHIGH UNIV BETHLEHEM PA CENTER FOR THE INFORMATION
SCIENCES
EXPERIMENTAL RETRIEVAL SYSTEMS STUDIES, REPORT NO.
3, (U)
APR 67 88P ANDERSON, RONALD R. I
MASARDA, ANDREW J. FREED, DAVID M. I
CONTRACT: NONR-610(08), NSF-GE-2569

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPT, NO. 2, AD-653
279.

DESCRIPTORS: (INFORMATION RETRIEVAL, REPORTS),
SUBJECT INDEXING EFFECTIVENESS, SEARCH THEORY,
AUTOMATIC, DOCUMENTATION, DESIGN, SYNTAX,
SEMANTICS, COMPUTER PROGRAMS, STATISTICAL
ANALYSIS, ARTIFICIAL INTELLIGENCE, LEARNING,
TECHNICAL INFORMATION CENTERS (U)

CONTENTS: AN ASSOCIATIVITY TECHNIQUE FOR
AUTOMATICALLY OPTIMIZING RETRIEVAL RESULTS; A
SYNTACTICALLY ORIENTED NATURAL LANGUAGE DOCUMENT
RETRIEVAL SYSTEM WITH A BROWSABILITY FEATURE;
PHRASE INDEXING. (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-653 463 9/2 9/5 12/2
PENNSYLVANIA UNIV PHILADELPHIA MOORE SCHOOL OF
ELECTRICAL ENGINEERING
THE INPUT/OUTPUT AND CONTROL SYSTEM OF THE MOORE
SCHOOL PROBLEM SOLVING FACILITY, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 67 150P HORTON, RICHARD P. ;
WOLFBERG, MICHAEL S. 1
REPT. NO. 67-30
CONTRACT: NONR-551(40)

UNCLASSIFIED REPORT

DESCRIPTORS: (TELETYPE SYSTEMS, INPUT-OUTPUT
DEVICES), (PROBLEM SOLVING, DIGITAL
COMPUTERS), INFORMATION RETRIEVAL, REAL TIME,
INTERACTIONS, PROGRAMMING (COMPUTERS),
SCHEDULING, REMOTE CONTROL SYSTEMS, MANAGEMENT
ENGINEERING, COMPUTER PROGRAMS, CODING,
INSTRUCTION MANUALS, DOCUMENTATION,
BIBLIOGRAPHIES, GRAPHICS, PICTURES,
PROCESSING (U)

THE REPORT DOCUMENTS THE EFFORT WHICH HAS TO DATE
GONE INTO PROVIDING THE ON-LINE, REAL-TIME CAPABILITY
NEEDED FOR THE MOORE SCHOOL PROBLEM SOLVING
FACILITY. THE FACILITIES DESCRIBED ALLOW A USER AT
A REMOTE TERMINAL TO PREPARE INPUT, EXECUTE PROGRAMS
ON A COMPUTER AND EXAMINE HIS OUTPUT. THE PROGRAMS
DESCRIBED ARE RESPONSIBLE FOR CONTROLLING THIS
PROCESS BY TRANSMITTING AND BUFFERING THE DATA TO AND
FROM THE COMPUTER, TRANSLATING BETWEEN EXTERNAL AND
INTERNAL CODES, AND SCHEDULING THE COMPUTERS'
EFFORTS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-654 766 5/2
REDSTONE SCIENTIFIC INFORMATION CENTER REDSTONE ARSENAL
ALA
AUTOMATION IN LIBRARIES (FIRST ATLAS WORKSHOP), 15-17
NOVEMBER 1966. (U)
JUN 67 185P
REPT. NO. RSIC-625
MONITOR: ATLAS 13

UNCLASSIFIED REPORT

DESCRIPTORS: (LIBRARIES, AUTOMATION),
INFORMATION RETRIEVAL, DISSEMINATION, DATA
PROCESSING SYSTEMS, TECHNICAL INFORMATION CENTERS,
SYMPOSIA, PROGRAMMING LANGUAGES (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

CONTENTS: GENERAL SYSTEMS (ALPHA IN GENERAL,
PATRON CONTROL SYSTEM, THE LANGUAGE CONTROL SUBSYSTEM
OF ALPHA, AUTOMATED BOOK ORDERING AND RECEIVING,
BOOK CATALOGING, BOOK CIRCULATION, SERIALS - BASIC
SYSTEM, SERIALS - HOLDINGS RECORDS, SUPERVISORS' VIEW
OF IMPLEMENTING ALPHA I, MARCI); CURRENT
DISSEMINATION PROGRAMS (SELECTIVE DISSEMINATION OF
INFORMATION PROGRAM, SELECTIVE DISSEMINATION OF
INFORMATION, A LIBRARY SYSTEM FOR SELECTIVE
DISSEMINATION OF INFORMATION, NASA/SDI USER
REACTIONS); RETROSPECTIVE SEARCHING (DEFENSE
DOCUMENTATION CENTER, RSIC USERS AND THE DDC
SEARCHES, NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION, USE OF NASA TAPES FOR
RETROSPECTIVE SEARCHING AT RSIC); ON-LINE
APPLICATIONS (ALPHA-2 AND NAPALM). (U)

UNCLASSIFIED

700329

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-656 340 5/2 12/1
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
EFFECTIVENESS OF INFORMATION RETRIEVAL METHODS, (U)
JUN 67 52P FWEYS, JOHN A, I
REPT, NO. SCIENTIFIC-8, BBN-1499
CONTRACT: AF 19(628)-5065, ARPA ORDER-627-2
PROJ: AF 8468
MONITOR: AFRL 67-0412

UNCLASSIFIED REPORT

DESCRIPTORS: (•INFORMATION RETRIEVAL,
EFFECTIVENESS), DECISION THEORY, ANALYSIS,
STATE-OF-THE-ART REVIEWS, STATISTICAL ANALYSIS,
MATHEMATICAL MODELS, EXPONENTIAL FUNCTIONS,
INDEXES, DOCUMENTATION (U)
IDENTIFIERS: EVALUATION, ON-LINE SYSTEMS,
DENSITY FUNCTIONS (U)

RESULTS OF SOME FIFTY DIFFERENT RETRIEVAL METHODS
APPLIED IN THREE EXPERIMENTAL RETRIEVAL SYSTEMS WERE
SUBJECTED TO THE ANALYSIS SUGGESTED BY STATISTICAL
DECISION THEORY. THE ANALYSIS VALIDATES A
PREVIOUSLY-PROPOSED MEASURE OF EFFECTIVENESS AND
DEMONSTRATES ITS SEVERAL DESIRABLE PROPERTIES. THE
EXAMINATION OF A WIDE RANGE OF DATA IN RELATION TO
THIS ONE METRIC PROVIDES A CLEAR AND GENERAL
ASSESSMENT OF THE CURRENT STATE OF THE RETRIEVAL ART,
AND SHOWS THAT THE ART IS STILL FAR FROM WHAT MIGHT
BE CONSIDERED A DESIRABLE STATE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-657 812 5/8 9/2 5/11 5/2
RAND CORP SANTA MONICA CALIF
THE COMPUTER--HERO OR VILLAIN, (U)
AUG 67 17P GREENBERGER, MARTIN I
REPT. NO. P-3656

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN JOHNS HOPKINS
MAGAZINE, FALL 1967.

DESCRIPTORS: (MAN-MACHINE SYSTEMS, ATTITUDES),
(EDUCATION, COMPUTERS), (INFORMATION
RETRIEVAL, COMPUTERS), (COMPUTERS,
ATTITUDES), DECISION MAKING, AUTOMATION,
PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION, ON-LINE
SYSTEMS (U)

IT IS HUMAN TO BE FEARFUL AND DISTRUSTFUL OF A
STRANGER, THE COMPUTER, LESS THAN TWENTY YEARS
SINCE ITS APPEARANCE UPON THE COMMERCIAL SCENE, IS
STILL A RELATIVE STRANGER TO OUR TIMES. STRANGERS
TEND TO LOOK GRAY TO US (AT BEST) AND OUR
INCLINATION IS TO WANT TO MAKE THEM BLACK OR WHITE.
PEOPLE LOOK FOR SCAPEGOATS, AND THE AWESOME
COMPUTER IS A CONVENIENT ONE, WHAT IS SAD IS THAT
IT HAS BECOME A SCAPEGOAT IN CERTAIN SEGMENTS OF THE
SCHOLARLY COMMUNITY, INCLUDING PEOPLE WITH THE
ABILITY TO APPLY THE COMPUTER TO HUMANITARIAN ENDS.
THE COMPUTER'S POTENTIAL FOR GOOD IS VAST, BUT IT
IS LIKE AN EMPTY TABLET THAT MUST BE FILLED IN BY MAN
TO BE MADE USEFUL AND MEANINGFUL, TO FILL IT IN
WELL REQUIRES UNDERSTANDING, AND THE BIAS THAT
UNDERLIES SCAPEGOATING IS THE ENEMY OF UNDERSTANDING.
IN THE LAST ANALYSIS, THE QUESTION WITH WHICH WE
STARTED (THE COMPUTER--HERO OR VILLAIN) IS A
QUESTION ABOUT MEN, NOT MACHINES, WE CAN LOOK TO
OURSELVES IN ANSWERING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-639 304 9/2
OREGON STATE UNIV CORVALLIS COMPUTER CENTER
PROGRESS REPORT ON THE NEBULA COMPUTER, (U)
DESCRIPTIVE NOTE: REPT, FOR 1 JAN 66-21 AUG 67,
AUG 67 42P BOLES, J. A; ICHEEVES, V.
L. ; MAEK, J. N. ; HOSELTON, G. A. ; PROGOFF, B.
L. ;
REPT, NO. C-67-8
CONTRACT: NONR-1286(111)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-633 364.

DESCRIPTORS: (*DIGITAL COMPUTERS, DESIGN),
(*COMPUTER STORAGE DEVICES, DELAY LINES),
(*DATA STORAGE SYSTEMS, DESIGN), GLASS,
RELAXATION OSCILLATORS, SHIFT REGISTERS, CONTROL
SYSTEMS, INPUT-OUTPUT DEVICES, COMPUTER LOGIC,
PROGRAMMING(COMPUTERS), TELETYPE SYSTEMS,
DISPLAY SYSTEMS, SUBROUTINES (U)
IDENTIFIERS: NEBUL COMPUTER, ASSOCIATIVE MEMORY,
ON-LINE SYSTEMS (U)

OREGON STATE UNIVERSITY HAS DESIGNED AND
CONSTRUCTED A MEDIUM SPEED, SERIAL DIGITAL COMPUTER
USING GLASS DELAY LINES CIRCULATING AT 22 MC. AS
MEMORY, THE DESIGN OBJECTIVES AS ORIGINALLY
CONCEIVED IN A SPECIAL SEMINAR WERE: (1) TO
BE A RESEARCH PROJECT IN COMPUTER DESIGN, (2)
TO BE USED AS AN EDUCATIONAL MACHINE, (3) TO
HAVE EASILY MODIFIABLE HARDWARE FOR BASIC RESEARCH IN
COMPUTER SYSTEMS DESIGN, AN UNUSUAL ARRANGEMENT OF
INFORMATION WITHIN THE 22 MC, MEMORY ALLOWS A SIMPLE
INTERFACE WITH THE 340 KC, ARITHMETIC UNIT, WHICH
RESULTS IN AN EFFECTIVE ZERO LATENCY TIME AND
PROVIDES POSSIBILITIES FOR AN ASSOCIATIVE MEMORY,
THE ARITHMETIC UNIT HAS A COMMAND STRUCTURE SIMILAR
TO LARGE PARALLEL MACHINES AND USES FLIP-FLOP
ARITHMETIC AND CONTROL REGISTERS THROUGHOUT, ALL
HARDWARE DEVELOPMENT HAS BEEN AIMED TOWARD THE
CONCEPT OF EASY MODIFICATION, ELABORATE CONSOLE
CONTROLS FOR EFFECTIVE MAN-MACHINE INTERACTION, AND
LOW COST, THIS REPORT DESCRIBES THE STATUS OF THE
PROJECT AS OF AUGUST 21, 1967. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-659 468 5/2
LEHIGH UNIV BETHLEHEM PA CENTER FOR THE INFORMATION
SCIENCES
QUESTION-NEGOTIATION AND INFORMATION-SEEKING IN
LIBRARIES; (U)
DESCRIPTIVE NOTE: FINAL REPT.,
JUL 67 BRF TAYLOR, ROBERT S. I
REPT. NO. 3
CONTRACT: AF-AFOSR-724-66
PROJ: AF-9769
TASK: 976901
MONITOR: AFOSR 67-2365

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON 'STUDIES IN THE MAN-
SYSTEM INTERFACE IN LIBRARIES', SEE ALSO AD-637
7131 AD-635 020.

DESCRIPTORS: (•LIBRARIES, EFFECTIVENESS),
(•INFORMATION RETRIEVAL, EFFECTIVENESS),
DOCUMENTATION, MAN-MACHINE SYSTEMS, TECHNICAL
INFORMATION CENTERS, SOCIAL COMMUNICATION, SEARCH
THEORY (U)

THE REPORT IS A STUDY OF TWO TYPES OF THE PROCESS
OF QUESTION-NEGOTIATION IN LIBRARIES AND INFORMATION
CENTERS, THROUGH TAPED INTERVIEWS WITH SPECIAL
LIBRARIANS AND INFORMATION SPECIALISTS, FIVE LEVELS
OF INFORMATION WERE ISOLATED WHICH ARE CONSCIOUSLY
SOUGHT AND RECEIVED BY THE LIBRARIAN IN THE
NEGOTIATION PROCESS, THESE ARE (1) SUBJECT
DEFINITION; (2) OBJECTIVE AND MOTIVATION; (3)
PERSONAL CHARACTERISTICS OF THE INQUIRER; (4)
RELATIONSHIP OF INQUIRY DESCRIPTION TO FILE
ORGANIZATION; (5) ANTICIPATED OR ACCEPTABLE
ANSWERS, THE SECOND TYPE OF NEGOTIATION, SELF-
HELP, IS THAT IN WHICH THE INQUIRER ALONE NEGOTIATES
WITH THE TOTAL INFORMATION SYSTEM, UNDERGRADUATE
STUDENTS IN COURSES IN THE INFORMATION SCIENCES
REPORTED ON THIS PROCESS RESULTING FROM A 5"
GENERATED INFORMATION NEED; THE DECISIONS AND
STRATEGIES; THE SOURCES USED, BOTH HUMAN AND PRINT;
THE COMPLEXITIES AND FAILURES OF THEIR PROCESSES; AND
THE AMBIGUITIES OF THEIR QUESTION-ASKING STRATEGIES,
FOUR SUCH REPORTS, INCLUDING SYSTEMS CHARTS, ARE
SHOWN, THE TWO TYPES ARE COMPARED WITH
RECOMMENDATIONS FOR IMPROVING THE DISPLAYS AT THE
INTERFACE BETWEEN INQUIRER AND SYSTEM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-660 089 5/2 9/2
LEHIGH UNIV BETHLEHEM PA CENTER FOR THE INFORMATION
SCIENCES
GRINS, AN ON-LINE STRUCTURE FOR THE NEGOTIATION OF
INQUIRIES. (U)
DESCRIPTIVE NOTE: MASTER THESIS,
SEP 67 66P GREEN, JAMES SPROAT I
REPT, NO. 4
CONTRACT: AF-AFOSR-724-66
PROJ: AF-9769
TASK: 976901

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT, ON 'STUDIES IN THE MAN-
SYSTEMS INTERFACE IN LIBRARIES,' SEE ALSO AD-659
468.

DESCRIPTORS: (LIBRARIES, INFORMATION
RETRIEVAL); (*INFORMATION RETRIEVAL, *COMPUTER
PROGRAMS), SEARCH THEORY, EFFECTIVENESS,
EFFICIENCY, MAN-MACHINE SYSTEMS, TECHNICAL
INFORMATION CENTERS, DOCUMENTATION (U)
IDENTIFIERS: GRINS, ON-LINE SYSTEMS (U)

IN GENERAL, PROBLEMS ARE SOLVABLE ALONG A CONTINUUM
OF ABSTRACTION, THERE IS, AT ANY GIVEN POINT IN
THE DEVELOPMENT OF THE SOLUTION, A MOST EFFICIENT OR
OPTIMUM STRATEGY. IN INFORMATION RETRIEVAL SYSTEMS
THE ULTIMATE SOLUTION IS OBTAINED AT A MORE SPECIFIC
RATHER THAN AT A MORE ABSTRACT LEVEL, THE QUESTION
NEGOTIATION PROCESS IS VIEWED AS AN EFFICIENT
PRELIMINARY STRATEGY WHICH ENABLES AN INFORMATION
SEEKER TO OBTAIN HIS INFORMATION GOAL WITH THE LEAST
AMOUNT OF OVERALL EFFORT, IN ORDER FOR A PROBLEM
SOLUTION PROCEDURE TO REMAIN EFFICIENT A MEANS FOR
PREDICTING WHEN TO CHANGE STRATEGIES MUST BE
PROVIDED, IN THE PARTICULAR EXAMPLE OF QUESTION
NEGOTIATION THIS PREDICTION IS BASED ON THE RATE AT
WHICH THE DEFINITION OF THE USER'S NEED DEVELOPS,
AN ON-LINE COMPUTER PROGRAM CALLED GRINS IS
DESCRIBED WHICH IMPLEMENTS THE INFORMATION
SPECIALIST'S ROLE IN THE NEGOTIATING OF A USER'S
NEED, THIS PROGRAM COMMUNICATES WITH THE USER IN
HIS NATURAL CONVERSATIONAL IDIOM, WHEN THE
NEGOTIATION IS JUDGED BY GRINS TO BE AS WELL
DEVELOPED AS IT IS LIKELY TO GET, A SEARCH IS MADE OF
THE AVAILABLE DOCUMENTS, THIS SEARCH PRODUCES AN
ORDERED LIST OF THE SIXTY-THREE BEST DOCUMENTS WHICH
COME CLOSEST TO THE USER'S EXPRESSED NEED, THE
STRUCTURE OF THE PROGRAM IS MODULAR SO THAT
IMPROVEMENTS MAY BE EASILY MADE, SOME SUCH (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-661 861 9/2 5/1
TRACOR INC AUSTIN TEX
DATA MANAGEMENT: A COMPARISON OF SYSTEM
FEATURES, (U)
OCT 67 43P ZIEHE, THEODORE W. I
REPT. NO. TRACOR-67-904-U
CONTRACT: N00014-67-C-0396
PROJ: NR-048-239, 007-001-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS,
MANAGEMENT PLANNING), MAN-MACHINE SYSTEMS,
TIME SHARING, INDEXES, DOCUMENTATION,
INFORMATION RETRIEVAL, DESIGN (U)
IDENTIFIERS: DATA MANAGEMENT, ON-LINE SYSTEMS (U)

FEATURES OF FOUR DATA MANAGEMENT SYSTEMS UNDER
DEVELOPMENT ARE COMPARED. THE FOUR SYSTEMS ARE THE
TIME-SHARED DATA MANAGEMENT SYSTEM
(SYSTEM DEVELOPMENT CORPORATION) AND A
VARIANT OF IT, THE REMOTE FILE MANAGEMENT
SYSTEM (COMPUTATION CENTER, THE UNIVERSITY
OF TEXAS); DATA MANAGER - I (AUERBACH
CORPORATION); THE GENERALIZED INFORMATION
SYSTEM (IBM) AND THE CATALOG SYSTEM (THE
RAND CORPORATION). COMPARISONS ARE DRAWN IN
TWO AREAS: EXTERNAL AND INTERNAL DATA STRUCTURING
AND ORGANIZATION. SEVERAL DIFFERENCES AMONG THE
SYSTEMS ARE NOTED AND BRIEFLY DISCUSSED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-66: 966 5/2 5/7 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AN APPROACH TO THE ON-LINE INTERROGATION OF
STRUCTURED FILES OF FACTS USING NATURAL LANGUAGE, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
APR 66 88P KELLOGG, CHARLES H. I
REPT. NO. SP-2431/000/00
CONTRACT: AF 19(628)-5166, ARPA ORDER-773

UNCLASSIFIED REPORT

DESCRIPTORS: (•INFORMATION RETRIEVAL,
•GRAMMARS), (•DATA PROCESSING SYSTEMS,
PROGRAMMING(COMPUTERS)), (•MAN-MACHINE
SYSTEMS, GRAMMARS), TIME SHARING, SYNTAX,
PROBLEM SOLVING, ALGORITHMS, SEMANTICS (U)
IDENTIFIERS: DATA MANAGEMENT, ON-LINE SYSTEMS (U)

THE ADVENT OF TIME-SHARED COMPUTER SYSTEMS PRESENTS THE COMPUTING COMMUNITY WITH THE NEW AND CHALLENGING OPPORTUNITY OF PROVIDING USERS WITH MORE POWERFUL AND EFFECTIVE TOOLS FOR PROBLEM SOLVING, FOR EXAMPLE, HAVING FACILITIES FOR RAPIDLY ACCESSING LARGE FILES OF STORED INFORMATION IMPLIES A CONCOMITANT NEED FOR DEVELOPING BETTER METHODS FOR INTERROGATING THE CONTENT OF THESE FILES, USER/COMPUTER INTERACTION IN FORMULATING PROBLEMS DEPENDS ON SUCH IMPROVEMENTS IN COMMUNICATION EFFECTIVENESS AND, CONSEQUENTLY, THE COOPERATIVE PROBLEM SOLVING VENTURE ITSELF, ON-LINE INTERROGATION OF STRUCTURED FILES IS VALUABLE ONLY IN PROPORTION TO A USER'S ABILITY TO GET AT SETS OF RELEVANT FACTS, TO PERCEIVE PERTINENT RELATIONSHIPS AMONG THESE FACTS, AND TO MANIPULATE, REARRANGE, AND COMBINE THEM AS REQUIRED BY THE TASK AT HAND, THIS PAPER IS CONCERNED WITH DEVELOPMENT OF AN APPROACH AND IMPLEMENTATION OF A VEHICLE TO ENABLE USERS TO FORMULATE REQUESTS MORE CONVENIENTLY AND TO GAIN ACCESS TO RELEVANT FACTS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-664 350 9/2 12/1
SYRACUSE UNIV RESEARCH INST N Y
THEORY OF ADAPTIVE MECHANISMS, PART III,
APPLICATIONS OF THE ITERATIVE ARRAY COMPUTER RADCIAC
PART IV, A SUPPLEMENT TO RADICAL MANUAL, (U)
DESCRIPTIVE NOTE: PARTS 3/4 OF INTERIM REPT.,
DEC 67 253P ARIMOT, K MOORE, F. R. I
CANTARELLA, R. G. I
CONTRACT: F30602-67-C-0011
PROJ: AF-5581
TASK: 558104
MONITOR: RADC TH-67-521-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-664 351.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE,
AUTOMATA), (*MATHEMATICAL LOGIC, INFORMATION
THEORY), (*LEARNING MACHINES, ARTIFICIAL
INTELLIGENCE), ANALOG COMPUTERS, SIMULATION,
DIFFERENTIAL EQUATIONS, SUBROUTINES, PROBLEM
SOLVING, ALGORITHMS (U)

IDENTIFIERS: ON-LINE SYSTEMS, RUNGE-KUTTA
METHOD, FLOATING-POINT OPERATION (U)

PART III - THE REPORT PRESENTS THE FOLLOWING
APPLICATIONS OF THE ITERATIVE ARRAY COMPUTER
RADCIAC: (1) SIMULATION OF ANALOG
COMPUTERS ON AN ITERATIVE ARRAY COMPUTER,
(2) FIRING SQUAD SIMULATION PROGRAM
(3) MATRIX MULTIPLICATION ON AN ITERATIVE
ARRAY, AND (4) AN ITERATIVE ARRAY
PSEUDO-RANDOM NUMBER GENERATOR. PART IV
- THE REPORT IS A SUPPLEMENT TO THE REPORT,
RADICAL MANUAL AND SUBROUTINES, BY FRANK
MOORE. ONLY FIXED POINT SUBROUTINES WERE
PROVIDED IN THAT REPORT, THIS SUPPLEMENT CONTAINS
FLOATING POINT SUBROUTINES OF TWO DIFFERENT FORMATS
AND ALSO INPUT-OUTPUT SUBROUTINES FOR AN ON-LINE IBM
TYPEWRITER. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-664 351 9/2 9/4 12/2
SYRACUSE UNIV RESEARCH INST N Y
THEORY OF ADAPTIVE MECHANISMS, PART I, SELECTED
TOPICS IN AUTOMATA THEORY, PART II, IDEALIZED
MACHINES, FORMAL SYSTEMS, AND RECURSIVE FUNCTIONS. (U)
DESCRIPTIVE NOTE: PART I OF INTERIM REPT.,
DEC 67 222P HAMACHER, V. C. MOORE, F.
R. LANGDON, G. G. CANTARELLA, R. G. I
CONTRACT: F30602-67-C-0011
PROJ: AF-5581
TASK: 558104
MONITOR: RADC TR-67-521-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-664 350.

DESCRIPTORS: (A)ARTIFICIAL INTELLIGENCE,
AUTOMATA), (A)MATHEMATICAL LOGIC, INFORMATION
THEORY), (A)LEARNING MACHINES, ARTIFICIAL
INTELLIGENCE), ALGORITHMS, SYMBOLS, ADAPTIVE
SYSTEMS, PATTERN RECOGNITION, INFORMATION
RETRIEVAL, GAME THEORY, SET THEORY, RECURSIVE
FUNCTIONS, CONTROL, SEMANTICS, SYNTAX,
DECISION THEORY, THEOREMS (U)
IDENTIFIERS: AUTOMATA THEORY, TURING MACHINES,
FIRING SQUAD (U)

IN THIS PROJECT, THE VARIOUS SUBJECTS COVERED ARE:
(1) COMPUTATIONAL COMPLEXITY AND ITERATIVE
ARRAYS, (2) A GENERALIZED FIRING SQUAD
PROBLEM, (3) ASYNCHRONOUS SYSTEMS FOR
INFINITE ARRAYS, (4) COMPUTER THEOREM
PROVING, (5) IDEALIZED MACHINES FORMAL
SYSTEMS, AND RECURSIVE FUNCTIONS, (6)
SIMULATION OF ANALOG COMPUTERS ON AN
ITERATIVE ARRAY COMPUTER, (7) FIRING
SQUAD SIMULATION PROGRAM, (8) MATRIX
MULTIPLICATION ON AN ITERATIVE ARRAY, (9)
AN ITERATIVE ARRAY PSEUDO-RANDOM NUMBER
GENERATOR, (10) A SUPPLEMENT TO RADICAL
MANUAL, THE STUDIES ARE ISSUED IN FOUR SEPARATE
INTERIM TECHNICAL REPORTS: (1) THROUGH (4),
(5), (6) THROUGH (9), AND (10) ARE
THE GROUPINGS, PART II - THE THEORIES OF
TURING MACHINES, W-MACHINES, MARKOV
ALGORITHMS, POST SYSTEM, RECURSIVE
FUNCTIONS, AND THE CALCULUS OF LAMBDA
CONVERSION ARE PRESENTED, EACH OF THESE HAS IN
COMMON THE USE OF A FINITE ALPHABET, A FINITE NUMBER
OF RULES, AND A POTENTIALLY INFINITE AMOUNT OF
WORKING SPACE, AND EACH MAY BE CONSIDERED AS A (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-665 451 1575 9/2
RAND CORP SANTA MONICA CALIF
DESIGN CONSIDERATIONS FOR A COMPUTER-ASSISTED
MAINTENANCE PLANNING AND CONTROL SYSTEM, (U)
FEB 68 61P DREZNER, S. M, IVAN
HORN, R. L. ;
REPT. NO. P-3765

UNCLASSIFIED REPORT

DESCRIPTORS: (AIR FORCE OPERATIONS,
MAINTENANCE), (DATA PROCESSING SYSTEMS,
MAINTENANCE), (INVENTORY CONTROL, DATA
PROCESSING SYSTEMS), MILITARY REQUIREMENTS,
MANAGEMENT PLANNING, REMOTE CONTROL SYSTEMS,
REAL TIME, FEASIBILITY STUDIES, INFORMATION
RETRIEVAL, LOGISTICS, AUTOMATION, DECISION
MAKING, SCHEDULING, INPUT-OUTPUT DEVICES,
COMMAND & CONTROL SYSTEMS (U)

IDENTIFIERS: QUANTUM ELECTRONICS, AUTOMATA
THEORY, THIN FILMS, LATTICE VIBRATIONS,
SEQUENTIAL MACHINES, THRESHOLD, THIN FILMS
ELECTRONICS (U)

THE PAPER DESCRIBES THE DESIGN CONSIDERATIONS FOR A
'COMPUTER-ASSISTED MAINTENANCE PLANNING AND
CONTROL SYSTEM,' CALLED CAMCOS, TO SUPPORT AN
AIR FORCE BASE-LEVEL MAINTENANCE ORGANIZATION IN
THE PLANNING AND CONTROL OF ITS ACTIVITIES. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-646 336 5/2 15/3 17/2 /2
MITRE CORP BEDFORD MASS
INFORMATION SYSTEM SCIENCE AND TECHNOLOGY; THIRD
CONGRESS, (U)
67 388P
MONITOR: ESD TR-68-115

UNCLASSIFIED REPORT
AVAILABILITY: HARD COPY AVAILABLE FROM THOMPSON
BOOK CO., NATIONAL PRESS BLDG, ROOM 383, 14TH
AND F STS., N. W., WASHINGTON, D. C.,
\$12.75.

DESCRIPTORS: (*DOCUMENTATION, *COMPUTERS),
(*COMMAND * CONTROL SYSTEMS, SYSTEMS
ENGINEERING), MILITARY ORGANIZATIONS, MAN-
MACHINE SYSTEMS, DATA PROCESSING SYSTEMS,
OPERATIONS RESEARCH, MANAGEMENT ENGINEERING,
MILITARY TACTICS, MILITARY INTELLIGENCE, DESIGN,
COMPATIBILITY, SIMULATION, AUTOMATION,
SYMPOSIA, INFORMATION RETRIEVAL (U)
IDENTIFIERS: *INFORMATION SYSTEMS, ON-LINE
SYSTEMS (U)

CONTENTS: INFORMATION SYSTEMS AND OPERATIONS
ANALYSIS; MAN/COMPUTER INFORMATION INTERCHANGE;
TACTICAL COMMAND AND CONTROL; FIELD SYSTEMS;
MANAGEMENT OF MILITARY INFORMATION SYSTEMS WITHIN
THE FRAMEWORK OF PL89-306; COMMAND SYSTEM
SIMULATION AND DESIGN; ON-LINE MAN/COMPUTER
INTERACTIVE SYSTEMS; TACTICAL COMMAND AND CONTROL
SYSTEMS COMPATIBILITY; IMPACT OF AUTOMATED
INFORMATION SYSTEMS UPON ORGANIZATION AND MISSIONS;
ORGANIZATION FOR THE DESIGN OF MILITARY INFORMATION
SYSTEMS; THE COMPUTER UTILITY AND ITS USER
COMMUNITY; MILITARY COMMAND INFORMATION SYSTEMS;
COMMAND CONTROL SYSTEMS FIELD EXPERIMENTATION;
INFORMATION SYSTEMS FOR INTELLIGENCE; TEXT
PROCESSING SYSTEMS; LABORATORY SIMULATION OF
TACTICAL SYSTEMS AND THE QUEST FOR CRITERIA; NEW
DIRECTIONS FOR AUTOMATED INFORMATION SYSTEMS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-666 556 5/2
FRANKFORD ARSENAL PHILADELPHIA PA
INFORMATION RETRIEVAL, A CRITICAL VIEW, (U)
67 294P SCHECTER, GEORGE ;

UNCLASSIFIED REPORT

AVAILABILITY: HARD COPY AVAILABLE FROM THOMPSON
BOOK STORE, 14TH AND F ST. N. W., WASHINGTON,
D. C. 20004, \$11.00.

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
ANNUAL COLLOQUIUM ON INFORMATION RETRIEVAL
(3RD), MAY 12-13, 1966, PHILADELPHIA, PA.

DESCRIPTORS: (INFORMATION RETRIEVAL, REVIEWS),
COMPUTERS, BIBLIOGRAPHIES, SEARCH THEORY,
SUBJECT INDEXING, CHEMISTRY, PSYCHOLOGY, DATA
PROCESSING SYSTEMS, SYMPOSIA (U)
IDENTIFIERS: ON-LINE SYSTEMS, INFORMATION
SYSTEMS (U)

CONTENTS: MOVING CONGRESS INTO THE AGE OF
THE COMPUTER; INFORMATION SYSTEM NETWORKS--LETS
PROFIT FROM WHAT WE KNOW; THE BOLD (BIBLIOGRAPHIC
ON-LINE DISPLAY) SYSTEM; THE DESIGN AND
TESTING OF A FULLY AUTOMATIC INDEXING-SEARCHING
SYSTEM FOR DOCUMENTS CONSISTING OF EXPOSITORY TEXT;
THE TIP RETRIEVAL SYSTEM AT MIT; A LIST-
STRUCTURED CHEMICAL INFORMATION RETRIEVAL SYSTEM;
PERFORMANCE OF IR SYSTEMS; PSYCHOLOGY AND
INFORMATION RETRIEVAL; USER APPRAISAL OF AN
INFORMATION SYSTEM AND SERVICES THROUGH A PROGRAM OF
JOINT APPLIED RESEARCH; INFO: A GENERALIZED
LANGUAGE FOR INFORMATION STORAGE AND RETRIEVAL
APPLICATIONS; GETTING IT OUT OF OUR SYSTEM;
RELATIONAL DATA FILE II: DESIGN PHILOSOPHY;
RELATIONAL DATA FILE III: IMPLEMENTATION; THE
SOLAR SYSTEM II: A GENERAL METHOD FOR ORGANIZING
AND SEARCHING FILES, (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-666 666 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
ON MAN-COMPUTER INTERACTION: A MODEL AND SOME
RELATED ISSUES. (U)
SEP 67 42P CARBONELL, JAIME R. I
REPY. NO. SCIENTIFIC-1, BBN-1593
CONTRACT: F19628-68-C-0123, ARPA ORDER-627
PROJ: 8668
TASK: 866801
MONITOR: AFCL 68-0053

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTERS, MAN-MACHINE SYSTEMS),
BEHAVIOR, TIME SHARING, INTERACTIONS, COSTS,
DECISION THEORY, PROGRAMMING (COMPUTERS),
MATHEMATICAL MODELS (U)
IDENTIFIERS: ON-LINE SYSTEMS,
DEBUGGING (COMPUTERS), OPTIMAL CONTROL THEORY (U)

A SURVEY OF THE LITERATURE RELATED TO MAN-COMPUTER INTERACTION REVEALS THE MANY ASPECTS OF THIS PROBLEM, WHICH APPEARS TO BE IN THE CROSSROADS AMONG SUCH DIVERSE FIELDS AS COMPUTER LANGUAGES, COMPUTER SYSTEMS OPERATIONAL CHARACTERISTICS, CONTROL THEORY, DECISION THEORY, INFORMATION THEORY, APPLIED PSYCHOLOGY, COMPUTER DISPLAY AND INTERFACE ENGINEERING, ETC. IN THIS PAPER WE HAVE CHOSEN TO PRESENT THE ON-LINE INTERACTION FROM AN INFORMATION AND DECISION POINT OF VIEW. A MODEL IS GIVEN OF THE CASE IN WHICH A HUMAN OPERATOR IS ENGAGED ON-LINE IN THE SOLUTION OF A PROBLEM LIKE DEBUGGING A PROGRAM, TESTING A MODEL IN A SCIENTIFIC APPLICATION, OR PERFORMING A LIBRARY SEARCH. IN THIS MODEL THE HUMAN OPERATOR IS CONSIDERED TO SEEK TO MINIMIZE OVERALL COST. THIS COST IS OBTAINED BY ADDING THE OPERATIONAL COST OF BOTH MAN AND COMPUTER TO A REMNANT TERMINAL COST ORIGINATED BY THE REMAINING UNCERTAINTY. THIS ANALYSIS, PERFORMED FOR EACH OF A SET OF POSSIBLE ALTERNATIVES FOR ACTION, MAY LEAD TO SELECT AND EXECUTE ONE OF THEM, TO TERMINATE THE PROCESS, OR TO RE-EVALUATE THE POSSIBLE ALTERNATIVES AND/OR HYPOTHESES IN A SEARCH FOR NEW ONES. SOME PRACTICAL APPLICATIONS IN TERMS OF RESPONSE TIME AND OTHER CHARACTERISTICS OF A COMPUTER UTILITY ARE PRESENTED, AS WELL AS SOME THEORETICAL IMPLICATIONS FROM AN INFORMATIONAL POINT OF VIEW. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-667 170 5/2 9/2
SYSTEM DEVELOPMENT CORP FALLS CHURCH VA
DEFENSE DOCUMENTATION CENTER FIVE YEAR PLAN STUDY,
VOLUME I, FIVE YEAR PLAN, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO,
AUG 66 65P
REPT. NO. TM-WD-268/001/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-667 171.

DESCRIPTORS: (DOCUMENTATION, STATE-OF-THE-ART
REVIEWS), (DATA PROCESSING SYSTEMS,
DOCUMENTATION), INFORMATION RETRIEVAL,
DEPARTMENT OF DEFENSE, MANAGEMENT PLANNING,
TECHNICAL INFORMATION CENTERS, DIGITAL COMPUTERS,
PUNCHED CARDS, ABSTRACTS, BIBLIOGRAPHIES,
EFFECTIVENESS, REAL TIME, AUTOMATION (U)
IDENTIFIERS: DEFENSE DOCUMENTATION CENTER, (U)
ON-LINE SYSTEMS, INFORMATION MANAGEMENT (U)

THIS DOCUMENT IS THE RESULT OF A THREE-MONTH STUDY
BY THE SYSTEM DEVELOPMENT CORPORATION,
CONDUCTED FOR THE DEFENSE DOCUMENTATION CENTER
(DDC), THE REPORT CONSISTS OF THREE VOLUMES:
VOLUME I - FIVE YEAR PLAN; VOLUME II -
NEEDS AND REQUIREMENTS; VOLUME III - STATE
OF THE ART STUDY, VOLUME I CONTAINS THREE
ALTERNATIVE COURSES OF ACTION FOR THE TIME PERIOD
FISCAL YEARS 1967 - 1971, ESTIMATES OF
WORKLOAD, EQUIPMENT, PERSONNEL, AND COSTS ARE GIVEN
TO FISCAL YEAR 1971 FOR EACH OF THE ALTERNATIVES,
THE VOLUME INCLUDES SYSTEM IMPROVEMENTS WHICH
SHOULD BE MADE REGARDLESS OF THE ALTERNATIVE CHOSEN
AND THOSE WHICH COULD BE POSSIBLE FUTURE
DEVELOPMENTAL EFFORTS AT DEFENSE DOCUMENTATION
CENTER. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-667 171 5/2 9/2
SYSTEM DEVELOPMENT CORP FALLS CHURCH VA
DEFENSE DOCUMENTATION CENTER FIVE YEAR PLAN STUDY,
VOLUME II, NEEDS AND REQUIREMENTS, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.
AUG 66 87P
REPT, NO. TM-WD-268/002/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-667 170.

DESCRIPTORS: (DOCUMENTATION, STATE-OF-THE-ART
REVIEWS), (DATA PROCESSING SYSTEMS,
DOCUMENTATION), INFORMATION RETRIEVAL,
DEPARTMENT OF DEFENSE, MANAGEMENT PLANNING,
TECHNICAL INFORMATION CENTERS, DIGITAL COMPUTERS,
COMPUTER OPERATORS, COMPUTER PROGRAMS,
PROCESSING, AUTOMATIC, REAL TIME, FLOW
CHARTING, BIBLIOGRAPHIES (U)
IDENTIFIERS: DEFENSE DOCUMENTATION CENTER,
ANNOUNCEMENT BULLETINS, UNIVAC 1107 COMPUTERS (U)

THIS VOLUME CONTAINS DESCRIPTIONS OF CURRENT
OPERATIONS OF THE DOCUMENT SYSTEM, THE MANAGEMENT
INFORMATION SYSTEMS AND THE AUTOMATIC DATA
PROCESSING (ADP) SYSTEM, AN ASSESSMENT OF THE
ADP SYSTEM IS INCLUDED, CURRENT REQUIREMENTS
ARE DELINEATED IN THE FORM OF EXISTING DIRECTIVES AND
WORKING AGREEMENTS, FUTURE REQUIREMENTS ARE
STATED AS POSSIBLE ALTERNATIVE MISSIONS THAT COULD BE
UNDERTAKEN BY DDC IN THE NEXT FIVE YEARS,
CURRENT NEEDS ARE POSTULATED AS THOSE NEEDS WHICH
SHOULD BE MET IN THE FIRST TWO OR THREE YEARS TO
INCREASE THE EFFECTIVENESS OF THE OPERATIONS AT
DDC, FUTURE NEEDS CONTAINS SIMILAR NEEDS FOR
IMPROVEMENTS AND DEVELOPMENTS IN THE THREE-TO-FIVE
YEAR PERIOD, (AUTHOR) (U)

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700329

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700329

AD-667 172 5/2 9/2
SYSTEM DEVELOPMENT CORP FALLS CHURCH VA
DEFENSE DOCUMENTATION CENTER FIVE YEAR PLAN STUDY,
VOLUME III, STATE OF THE ART STUDY, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.
AUG 66 164P
REPT. NO. TM-WD-260/003/00

UNCLASSIFIED REPORT

DESCRIPTORS: (*DOCUMENTATION, STATE-OF-THE-ART
REVIEWS), (*DATA PROCESSING SYSTEMS,
DOCUMENTATION), INFORMATION RETRIEVAL,
DEPARTMENT OF DEFENSE, MANAGEMENT PLANNING,
TECHNICAL INFORMATION CENTERS, DIGITAL COMPUTERS,
PROGRAMMING LANGUAGES, COMPUTER STORAGE DEVICES,
PUNCHED CARDS, CATHODE RAY TUBES, MULTIPLE
OPERATION, TIME SHARING, COMPILERS (U)
IDENTIFIERS: DEFENSE DOCUMENTATION CENTER,
MULTIPROCESSING, FORTRAN, COBOL, PL/I
PROGRAMMING LANGUAGES, INFORMATION MANAGEMENT (U)

THIS VOLUME CONTAINS MATERIALS WHICH ARE INTENDED
TO PROVIDE AID TO DEFENSE DOCUMENTATION CENTER
(DDC) IN ITS EVALUATION, SELECTION AND UTILIZATION
OF COMPUTER HARDWARE AND SOFTWARE, SECTION B
DEPICTS THE MOST LIKELY DEVELOPMENT OF COMPUTER
HARDWARE IN ITS ORGANIZATION, CAPABILITIES, AND
APPLICATION DURING THE NEXT FIVE YEARS, SECTION
C ANALYZES ASPECTS OF COMPUTER SOFTWARE OF CONCERN
TO DDC, (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00329

AD-667 173 5/2 9/2
SYSTEM DEVELOPMENT CORP FALLS CHURCH VA
DEFENSE DOCUMENTATION CENTER FIVE YEAR PLAN STUDY:
APPENDIX. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
SEP 66 16P WATSON, R. J.
REPT. NO. TM-WD-268/004/00

UNCLASSIFIED REPORT

DESCRIPTORS: (*DOCUMENTATION, *STATE-OF-THE-ART
REVIEWS), (*DATA PROCESSING SYSTEMS,
DOCUMENTATION), INFORMATION RETRIEVAL,
DEPARTMENT OF DEFENSE, DIGITAL COMPUTERS,
COMPUTER PERSONNEL, PROGRAMMING LANGUAGES,
TECHNICAL INFORMATION CENTERS, SUBROUTINES, TIME
SHARING, MAGNETIC TAPE, PRINTING, MICROFILM,
CLASSIFICATION, STATISTICAL DATA (U)
IDENTIFIERS: DEFENSE DOCUMENTATION CENTER,
THESAURI, ON-LINE SYSTEMS (U)

THIS APPENDIX CONTAINS RECOMMENDATIONS FOR COMPUTER
RELATED DEVELOPMENTS IN THE NEXT FIVE YEARS, MANY
OF THE DEVELOPMENTS ARE LISTED OR IMPLIED UNDER
FUNCTIONAL HEADINGS IN OTHER SECTIONS OF THE REPORT,
FOR THE SAKE OF CLARITY THEY ARE LISTED HERE IN A
SINGLE SECTION. SOME OF THESE DEVELOPMENTS ARE
EXPECTED TO EXTEND BEYOND THE FIVE YEAR PERIOD. (U)

TIME SHARING

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-465 088

MASSACHUSETTS INST OF TECH CAMBRIDGE COMPUTATION
CENTER

PROJECT MAC,

(U)

DESCRIPTIVE NOTE: ANNUAL PROGRESS REPT. NO. 1 FOR PERIOD
ENDING JUL 64.

JUL 64 171P

REPT. NO. MAC-PR-1

CONTRACT: NONR410201

PROJ: NR048 189

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (ENGINEERING PERSONNEL,
COMPUTERS), (SCIENTIFIC PERSONNEL, COMPUTERS),
(DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS),
EDUCATION, SCIENTIFIC RESEARCH, ENGINEERING,
CIVIL ENGINEERING, ELECTRONICS LABORATORIES,
SOCIAL SCIENCES, MANAGEMENT ENGINEERING,
PROGRAMMING (COMPUTERS), DOCUMENTATION,
ARTIFICIAL INTELLIGENCE, CYBERNETICS,
OPTIMIZATION, TIME

(U)

IDENTIFIERS: MAC PROJECT (MULTIPLE-ACCESS-
COMPUTER SYSTEMS)

(U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL
INVESTIGATION OF NEW WAYS IN WHICH DIRECT LINKS TO
ON-LINE COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL
WORK: WHETHER RESEARCH, ENGINEERING DESIGN,
MANAGEMENT, OR EDUCATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-608 302

MASSACHUSETTS INST OF TECH CAMBRIDGE

THE M. I. T. TECHNICAL INFORMATION PROJECT, I.

SYSTEM DESCRIPTION, (U)

NOV 64 25P KESSLER, M. M. *

CONTRACT: NONR4102 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (DATA STORAGE SYSTEMS, PROGRAMMING
(COMPUTERS)), (INFORMATION RETRIEVAL, TELETYPE
SYSTEMS), (PHYSICS, DATA STORAGE SYSTEMS), MODELS
(SIMULATIONS), PROGRAMMING LANGUAGES, COMPUTERS,
MONITORS, MAGNETIC TAPES, PERIODICALS, STATISTICAL
ANALYSIS (U)

IDENTIFIERS: SHARE, TIME-SHARING PROGRAMMING SYSTEMS,
MAC PROJECT (U)

A WORKING MODEL OF A TECHNICAL INFORMATION SYSTEM
WAS DESIGNED AND CONSTRUCTED. THE WORKING
LITERATURE WAS TAKEN FROM TWENTY-ONE JOURNALS IN THE
FIELD OF PHYSICS. THE SYSTEM UTILIZES REMOTE
CONSOLES TO ACCESS A TIME SHARING COMPUTER FACILITY
(PROJECT MAC). PROGRAMS WERE DEVELOPED FOR A
LARGE VARIETY OF SEARCH AND PROCESSING TECHNIQUES IN
REAL TIME AS WELL AS FOR DELAYED OUTPUT. THE
SYSTEM IS INTENDED TO BE A PROTOTYPE OPERATING IN A
REALISTIC TEST ENVIRONMENT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-609 288

MASSACHUSETTS INST OF TECH CAMBRIDGE

A NEW METHODOLOGY FOR COMPUTER SIMULATION, (U)

64 30P GREENBERGER, MARTIN ;

REPT, NO. MAC-TR-13

CONTRACT: NONR410201

PROJ: NR048 189

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT, ON PROJ, MAC PRESENTED AT THE CONFERENCE ON COMPUTER METHODS IN THE ANALYSIS OF LARGE-SCALE SOCIAL SYSTEMS, SPONSORED BY THE JOINT CENTER FOR URBAN STUDIES OF THE MASSACHUSETTS INST, OF TECH, AND HARVARD UNIV, CAMBRIDGE, MASS., 19-21 OCT 64, SEE ALSO AD-604 681.

DESCRIPTORS: (COMPUTERS, SIMULATION), SPECIAL PURPOSE COMPUTERS, OPERATIONS RESEARCH, DATA PROCESSING SYSTEMS, SCIENTIFIC RESEARCH (U)

IDENTIFIERS: MAC PROJECT, OPS-2, TIME-SHARING PROGRAMMING SYSTEMS, ON-LINE SYSTEMS (U)

COMPUTER SIMULATION IS A COOPERATIVE VENTURE BETWEEN RESEARCHER AND INFORMATION PROCESSOR, BUT THE PROCESSOR'S ROLE CUSTOMARILY BEGINS TOO LATE, THE RESEARCHER CAN BENEFIT SUBSTANTIALLY BY BRINGING THE COMPUTER UP INTO THE EARLIER, CREATIVE PHASES OF THE SIMULATION PROCESS, AN ON-LINE COMPUTER SYSTEM THAT MAKES THIS POSSIBLE IS DESCRIBED, THE OPS SYSTEM IS OPEN-ENDED AND MODULAR IN A VERY FUNDAMENTAL SENSE, THE USER CAN ADD HIS OWN PARTS OVER A PERIOD OF DAYS OR MONTHS AS HE INCREASES HIS UNDERSTANDING OF HIS PROBLEM, THE OPS SYSTEM IS RELATIVELY FREE OF RULES AND FORMATS, THE USER CREATES HIS OWN LANGUAGE AND HIS OWN CONVENTIONS, HE HAS THE WIDEST LATITUDE TO EXPRESS HIS PROBLEM IN ITS NATURAL TERMS AND TO BE INVENTIVE, GRADUALLY HIS SYSTEM TAKES ON AN INDIVIDUAL CHARACTER APPROPRIATE TO THE PURPOSE IT IS TO SERVE, THE USER CAN CREATE HIS OWN SYMBOLS AND HIS OWN MAPPING OF COMMON STORAGE BY MEANS OF STANDARD OPERATORS, HE CAN ALSO CREATE HIS OWN OPERATORS AND ADD THEM WITHOUT LIMIT TO THE SET OF STANDARD OPERATORS SUPPLIED TO HIM, OPERATORS ARE FUNCTIONAL SUBROUTINES PROGRAMMED IN ANY LANGUAGE THAT THE COMPUTER CAN COMPILE, SUCH AS FORTRAN, MAD, OR FAP, OPS-2 PROVIDES THE USER WITH A SIMPLE MECHANISM FOR COMPOUNDING OPERATORS OR CREATING K-OPS, A K-OP TABLE IN COMMON STORAGE HAS ONE LINE FOR EACH OPERATOR IN THE CONCATENATION OF (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-610 698

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
REMOTE COMPUTER USAGE: IMPLICATIONS FOR
EDUCATION.

(U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
JAN 65 13P ROWANIT, C. I
REPT. NO. SP-1653

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1964 TMS-ORSA
JOINT NATIONAL MEETING SEP 64.

DESCRIPTORS: (EDUCATION), (COMPUTERS), (COMPUTERS,
EDUCATION), TEACHING MACHINES, SIMULATION, INFORMATION
RETRIEVAL, INSTRUCTORS, REMOTE CONTROL SYSTEMS,
CYBERNETICS

(U)

IDENTIFIERS: TIME SHARING (COMPUTERS), PROGRAMMED
INSTRUCTION

(U)

EXPERIMENTAL OPERATION OF COMPUTERS BY MULTIPLE
USERS LOCATED REMOTELY IS BEING EXTENDED WITH
INCREASING MOMENTUM INTO A VARIETY OF FIELDS.
PROBLEMS WITH EQUIPMENT, COMPUTER PROGRAMS, AND
OTHER SYSTEM ELEMENTS ARE BEING EXAMINED, AND
PRELIMINARY SOLUTIONS ARE BEING TESTED AND EVALUATED.
THE PAPER BRIEFLY REVIEWS THESE DEVELOPMENTS AND
DISCUSSES THE FOLLOWING AND SEVERAL OTHER IMPORTANT
IMPLICATIONS FOR EDUCATION: THE IMPACT ON CLASSROOM
PROCEDURES, CURRICULUM DESIGN, AND PROGRAMMED
INSTRUCTION; THE CONSEQUENT CENTRALIZATION OF
ADMINISTRATIVE SUPPORT AND EFFECTS ON LOCAL AUTONOMY;
THE RESULTING ACCELERATION IN THE INTRODUCTION OF
COMPUTERS IN TECHNICAL EDUCATION AT THE UNIVERSITY,
COLLEGE, AND SECONDARY-SCHOOL LEVEL, ALTHOUGH

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-612 702

MASSACHUSETTS INST OF TECH CAMBRIDGE

CTSS TECHNICAL NOTES,

MAR 65 BHP FALTER, J, H, I

REPT. NO. MAC-TR-16

CONTRACT: NONR410201

PROJ: DSR9457

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT, ON PROJ, MAC,

DESCRIPTORS: (PROGRAMMING (COMPUTERS), MULTIPLE
OPERATION), (COMPUTERS, SYSTEMS ENGINEERING), REAL
TIME, COMPUTER STORAGE DEVICES, INPUT-OUTPUT
DEVICES

IDENTIFIERS: MAC PROJECT, IBM 7094, MULTI-ACCESS
COMPUTERS, ON-LINE SYSTEMS, TIME SHARING (COMPUTERS),
FAT

THIS REPORT IS A TECHNICAL DESCRIPTION OF THE 7094
COMPATIBLE TIME SHARING SYSTEM IN USE AT
PROJECT MAC AND THE M.I.T. COMPUTATION
CENTER. IT IS DESIGNED TO ACQUAINT A SYSTEM
PROGRAMMER WITH THE TECHNIQUES OF CONSTRUCTION WHICH
WERE USED IN THIS PARTICULAR TIMESHARING SYSTEM.
SEPARATE CHAPTERS DISCUSS THE OVERALL SUPERVISOR
PROGRAM FLOW; CONSOLE MESSAGE INPUT AND OUTPUT; THE
SCHEDULING AND STORAGE ALGORITHMS; AND A THUMBNAIL
SKETCH IS GIVEN OF EACH OF THE SUBROUTINES WHICH MAKE
UP THE SUPERVISOR PROGRAM. THIS REPORT WAS
PREPARED WITH THE AID OF THE COMPATIBLE TIMESHARING
SYSTEM AND THE TYPESET AND RUNOFF COMMANDS.

(AUTHOR)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-612 940

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TIME-SHARING SYSTEMS: REAL AND IDEAL, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
MAR 65 20P GALLENSON, LOUIS I
WEISSMAN, CLARK I
REPT. NO. SP-1872
CONTRACT: SD97

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTIONS: (1) DATA PROCESSING SYSTEMS, REAL TIME,
(2) PROGRAMMING (COMPUTERS), SCHEDULING, (3) SCHEDULING,
PROGRAMMING (COMPUTERS), COMMAND AND CONTROL SYSTEMS,
SYSTEMS ENGINEERING, DIGITAL COMPUTERS, REMOTE CONTROL
SYSTEMS, COMPUTER STORAGE DEVICES, OPTIMIZATION,
MANAGEMENT ENGINEERING
IDENTIFIERS: ANFS -32, TIME SHARING,
TELEGRAPH SYSTEMS, ELECTROSTATIC ACCELERATORS (U)

TO AID IN FUTURE DESIGN FOR LARGE-SCALE, GENERAL-PURPOSE, COMPUTER TIME-SHARING SYSTEMS, AN APPRAISAL OF THE EXISTING SDC TIME-SHARING SYSTEM (TSS) SHOWS THAT IMPROVEMENTS FOR INCREASED USER SATISFACTION MAY BE MADE IN CONTINUITY OF SYSTEM OPERATION, RESPONSIVENESS OF THE SYSTEM TO INTERROGATION, AND ACCESSIBILITY TO USERS' PROGRAMS THROUGH MANY DIFFERENT LANGUAGES AND AT INPUT-OUTPUT CONSOLES LOCATED REMOTE FROM THE COMPUTER. CONTINUITY OF OPERATION DEPENDS UPON RELIABLE EQUIPMENT, PARTICULARLY PERIPHERAL INPUT-OUTPUT DEVICES, AND UPON A RELIABLE TSS EXECUTIVE PROGRAM, ONE OF WHICH IS DEVOTED TO RESPONDING TO A WIDE VARIETY OF HARDWARE PROGRAMS AND USER'S ERRORS. THOUGH THE MEAN-TIME-BETWEEN-FAILURES OF THE SYSTEM IS IMPORTANT, THE MEAN-TIME-TO-DISCONTINUITY (SHORT PERIODS OF LESS THAN A MINUTE WHEN THE SYSTEM STOPS OPERATING) IS ALSO OF SERIOUS IMPORTANCE. ABOUT 75% OF THE TSS EXECUTIVE AND ABOUT 25% OF THE EXECUTIVE OPERATE TIME IS DEVOTED TO THE SCHEDULING OF USER'S PROGRAMS, SO THAT SYSTEM RESPONSIVENESS, CALLED THE "RESPONSE CYCLE," IS WITHIN 2 SECONDS OF A USER'S QUERY. THE TSS RESPONSE CYCLE IS DEPENDENT UPON MANY THINGS: PARTICULARLY, HOW MUCH OPERATE TIME, CALLED A QUANTUM, IS GIVEN TO EACH USER AND HOW MUCH TIME IS SPENT SHARING PROGRAMS BETWEEN DRUMS AND CORE FOR EACH USER.

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-618 931

SYSTEM DEVELOPMENT CORP SANIA MONICA CALIF
A USER-ORIENTED PRIORITY SCHEME FOR A TIME-SHARING
SYSTEM, (U)

JUN 65 35P TOTSCHKE, ROBERT A. ;

REF, NO. SP-2111

CONTRACT: SD-97

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
SCHEDULING), (*COMPUTERS, SCHEDULING),
AUTOMATIC (U)

IDENTIFIERS: TIME SHARING(COMPUTERS), ON-LINE
SYSTEMS (U)

TIME-SHARING SYSTEMS HAVE YIELDED LARGE PAYOFFS IN
COMPUTER PROGRAM PRODUCTION BY PROVIDING FAST
TURNAROUND AND INTERACTIVE DEBUGGING. CORPORATIONS
OR INSTITUTES THAT INSTALL TIME-SHARING SYSTEMS WILL
FIND THAT THEIR SYSTEMS WILL SOON BE SATURATED WITH
USERS. UNTIL THE SYSTEM CAPACITY IS EXPANDED, BY
MEANS OF HARDWARE OR SOFTWARE CHANGES, IT MAY BE
DESIRABLE TO IMPLEMENT A PRIORITY SYSTEM THAT WILL
FACILITATE WORK ON CRITICAL PROJECTS AND INSURE THE
MEETING OF DEADLINES. THIS PAPER DISCUSSES THE
CRITERIA FOR A TIME-SHARING PRIORITY SCHEME AND
PRESENTS SOME TECHNIQUES FOR SUPERIMPOSING A PRIORITY
SCHEME UPON A TYPICAL TIMESHARING CONFIGURATION.
THE SCHEME HAS THREE PRIMARY PRIORITIES: HIGH,
LOW, AND NO. US RS ARE ALLOCATED BUDGETS OF
HIGH AND LOW PRIORITY TIME FOR THE SUCCEEDING
MONTH BASED UPON THEIR CURRENT FORECAST AND PREVIOUS
USAGE. ALL USERS ARE GIVEN UNLIMITED NO PRIORITY
TIME. THE SALIENT FEATURE OF THE SCHEME IS THAT THE
USERS DETERMINE WHEN AND AT WHICH PRIORITY THEY WILL
OPERATE. SOME EXAMPLES OF THE BUDGET ALLOCATION
PROCESS ARE INCLUDED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-622 013

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
OBSERVATIONS ON TIME-SHARED SYSTEMS, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
SEP 65 28P SCHWARTZ, JULES I. I
REPT. NO. SP-2046
CONTRACT: SD97

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE NATIONAL ACM
CONFERENCE (20TH), CLEVELAND, OHIO, 24-6 AUG 65.

DESCRIPTORS: (*COMPUTERS, SCHEDULING), (*DATA
PROCESSING SYSTEMS, SCHEDULING), (*SCHEDULING,
COMPUTERS), TIME, OPERATION (U)
IDENTIFIERS: ON-LINE SYSTEMS, TIME
SHARING(COMPUTERS) (U)

THE PAPER DISCUSSES VARIOUS CONSIDERATIONS FOUND
NECESSARY WHEN PLANNING AN ON-LINE TIME-SHARED
INSTALLATION, PARTICULARLY FROM THE POINT OF VIEW OF
USERS OF SUCH SYSTEMS, BASED MAINLY ON EXPERIENCE
WITH THE TIME-SHARING SYSTEM AT THE SYSTEM
DEVELOPMENT CORPORATION, ACTUAL SITUATIONS ARE
DESCRIBED IN ORDER TO SHOW WHERE PROBLEMS EXIST, AND
HOW ADVANTAGES OF SUCH SYSTEMS MAY BE ACCRUED,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-622 020

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TRACE MODEL 1, TIMESHARED ROUTINES FOR ANALYSIS.
CLASSIFICATION AND EVALUATION, (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO,,
SEP 65 58P MOORE, WILLIAM H., JR.,
HEEKER, ROBERT J., SHURE, GERALD H.,
REPT, NO, TM-2621
CONTRACT: SD286

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING (COMPILERS),
SCHEDULING), (*COMPUTERS, SCHEDULING, DATA,
ANALYSIS, CLASSIFICATION, TELETYPE SYSTEMS,
FEEDBACK, OPTIMIZATION (U)
IDENTIFIERS: AN/F50-32, TIM,
SHARING (COMPUTERS), ON-LINE SYSTEMS, JOVIAL,
EVALUATION (U)

THE DOCUMENT PRESENTS A USER'S AND PROGRAMMER'S
DESCRIPTION OF THE TRACE PROGRAM, WHICH PROVIDES
THE USER WITH AN ON-LINE TECHNIQUE FOR SCANNING DATA
AND DERIVING VARIABLES. THE TECHNIQUE ASSISTS IN
CREATING AND EVALUATING OPTIMAL INDICES FOR
EXHIBITING RELATIONS AMONG EMPIRICAL DATA. TRACE
IS WRITTEN IN THE TIMESHARING SYSTEM VERSION OF THE
JOVIAL LANGUAGE (JTS) FOR THE AN/F50-32
COMPUTER AT SOC. THE ON-LINE CAPABILITY OF THE
PROGRAM PERMITS IMMEDIATE FEEDBACK TO THE USER ABOUT
THE RELATIVE UTILITY OF DERIVED INDICES AND PERMITS
ADOPTION OR MODIFICATION OF THESE FOR FURTHER
ANALYSES. THE TIME-SHARING CAPABILITY OF THE
PROGRAM PERMITS EFFICIENT USE OF THE COMPUTER IN THIS
PROCESS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-622 021

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE TINT USERS' GUIDE.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

JUL 65 182P KENNEDY, PHYLLIS R. I

REPT, NO. TM-1933-000-03

CONTRACT: SD97

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (COMPUTERS, INSTRUCTION MANUALS),
(SCHEDULING, COMPUTERS), TELETYPE SYSTEMS,
COMPIERS, REAL TIME, MULTIPLE OPERATION,
PROGRAMMING(COMPUTERS), COMPUTER PERSONNEL,
COMPUTER OPERATORS

(U)

IDENTIFIERS: TIME SHARING(COMPUTERS), JOVIAL,
TINT, ON-LINE SYSTEMS

(U)

THE USERS' GUIDE INSTRUCTS THE PROSPECTIVE
TIMESHARING USER ON HOW TO USE TINT, THE ON-
LINE TELETYPE JOVIAL INTERPRETER, THE GUIDE
PRESENTS A BRIEF INTRODUCTION TO THE TIME-SHARING
SYSTEM, A COMPLETE DESCRIPTION OF THE DIALECT OF
THE JOVIAL LANGUAGE THAT TINT INTERPRETS, AND THE
TSS COMMANDS THAT ARE REQUIRED WHEN OPERATING
TINT. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-624 110 9/2 5/2
LINCOLN LAB MASS INST OF TECH LEXINGTON
ON LINE DOCUMENTATION OF THE COMPATIBLE TIME-SHARING
SYSTEM, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 65 SOP WINETT, JOEL M. ;
REPT, NO, TR-387
CONTRACT: AF19(628)-500 ,NONR-4102(01)
PROJ: AF-649L
MONITOR: ESD , TRD-65-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING(COMPUTERS),
DOCUMENTATION), COMPATIBILITY, INFORMATION
RETRIEVAL, DATA STORAGE SYSTEMS, PROGRAMMING
LANGUAGES, COMPUTERS (U)
IDENTIFIERS: ON-LINE SYSTEMS, TIME
SHARING(COMPUTERS),COMIT PROGRAMMING LANGUAGE,
DESCRIPTORS, MAC PROJECT (U)

THE DISSEMINATION OF INFORMATION ABOUT COMPUTER
PROGRAMS IS HAMPERED BECAUSE OF THE LACK OF
CONFORMITY IN DOCUMENTATION, THE DELAYS INHERENT IN
ANY DISTRIBUTION SYSTEM, AND THE INABILITY TO SELECT
ONLY DESIRED INFORMATION WITHOUT BEING FLOODED WITH
INFORMATION WHICH IS NOT OF PRESENT INTEREST, AN
ON-LINE SYSTEM FOR STORING AND RETRIEVING INFORMATION
ABOUT THE PROGRAMS ASSOCIATED WITH THE COMPATIBLE
TIME-SHARING SYSTEM (CTSS) HAS BEEN DEVELOPED
TO BE INCLUDED AS A CTSS COMMAND, THIS SYSTEM
WILL HELP TO DOCUMENT THE SYSTEM COMMANDS, SUPERVISOR
ENTRIES, LIBRARY SUBPROGRAMS, AND PUBLIC PROGRAMS,
THESE TYPES OF PROGRAMS HAVE BEEN CHOSEN SINCE
THERE IS AN URGENT NEED FOR HAVING THIS DOCUMENTATION
AVAILABLE ON DEMAND, I.E., ON-LINE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-625 728 9/2 3/1
MASSACHUSETTS INST OF TECH CAMBRIDGE
THE PRIORITY PROBLEM, (U)
NOV 65 35P GREENBERGER, MARTIN ;
REPT. NO. MAC-TR-22
CONTRACT: NONR-4102(01)
PROJ: NR-048-189

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT, ON PROJ, MAC, PRESENTED AT
THE NATIONAL MEETING OF THE OPERATIONS SOCIETY OF
AMERICA (27TH), BOSTON, 6 MAY 65.

DESCRIPTORS: (COMPUTERS, SCHEDULING),
MATHEMATICAL ANALYSIS, REAL TIME, COSTS,
NONLINEAR SYSTEMS (U)

IDENTIFIERS: MAC PROJECT, TIME
SHARING(COMPUTERS), ON-LINE SYSTEMS, MULTIPLE
ACCESS SYSTEM (U)

PRIORITY DECISIONS ARISE WHENEVER LIMITED
FACILITIES MUST BE APPORTIONED AMONG COMPETITIVE
DEMANDS FOR SERVICE, A PRIORITY OPERATION OF
CONTEMPORARY INTEREST IS SCHEDULING A TIME-SHAPED
COMPUTER AMONG ITS CONCURRENT USERS, SERVICE
REQUIREMENTS ARE NOT KNOWN IN ADVANCE OF EXECUTION,
TO KEEP RESPONSE TIMES SHORT FOR SMALL REQUESTS,
SERVICE INTERVALS ARE PARTITIONED AND SE MENTS ARE
SERVED SEPARATELY IN ROUND-ROBIN FASHION, A
MATHEMATICAL ANALYSIS PINPOINTS THE TRADEOFF BETWEEN
OVERHEAD AND DISCRIMINATION, IMPLICIT IN THIS
PROCEDURE, AND ALLOWS ALTERNATE STRATEGIES TO BE
COSTED, EXTENSIONS OF THE SIMPLE ROUND-ROBIN
PROCEDURE ARE SUGGESTED, THE OBJECTIVES OF THE
SHARING ARE REVIEWED, AND IMPLICATIONS ARE DRAWN FOR
THE DESIGN OF FUTURE PRIORITY AND PRICING SYSTEMS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-629 494 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
PROJECT MAC; PROGRESS REPORT II; JULY 1964 TO JULY
1965. (U)
DESCRIPTIVE NOTE: ANNUAL PROGRESS REPT,
JUL 65 211P
REPT, NO, MAC-PR-2,
CONTRACT: NONR-4102(01)
PROJ: NR-048-189,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (COMPUTERS, MAN MACHINE SYSTEMS),
INFORMATION RETRIEVAL, DATA TRANSMISSION SYSTEMS,
TEACHING MACHINES, ARTIFICIAL INTELLIGENCE,
TIME (U)
IDENTIFIERS: TIME SHARING(COMPUTERS). LISP, MAC
PROJECT, ON-LINE SYSTEMS, MULTIPLE ACCESS
SYSTEM (U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL
INVESTIGATION OF NEW WAYS IN WHICH ON-LINE USE OF
COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL WORK;
WHETHER RESEARCH, ENGINEERING DESIGN, MANAGEMENT, OR
EDUCATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-629 867 9/2

GENERAL ELECTRIC CO WASHINGTON D C
THE APPLICATION OF LARGE-SCALE COMPUTERS TO U.S. AIR
FORCE INFORMATION SYSTEMS, (U)
DESCRIPTIVE NOTE: FINAL REPT., 15 JAN 65-15 JAN 66,
MAR 66 77P CAMPBELL, JOHN B. ;
MCCABE, JOHN P. ; NEVANS, ESSIE S. ;
CONTRACT: AF 19(628)-4963,
ROJ: AF-2801
TASK: 280101
MONITOR: ESO , TE-66-137

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (AIR FORCE, WAGES), (COMPUTERS,
PERSONNEL MANAGEMENT), (AIR FORCE PERSONNEL,
COMPUTERS), MATHEMATICAL MODELS, ALGORITHMS
FEASIBILITY STUDIES, REMOTE CONTROL SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, TIME
SHARING (COMPUTERS) (U)

TWO AIR FORCE FUNCTIONS WERE EXAMINED TO
DETERMINE THE FEASIBILITY OF CENTRALIZING THE TASKS
AT A COMPUTER CENTER WITH REMOTE ACCESS. THE
APPLICATIONS EXAMINED: (1) AN OVERALL PAY SYSTEM,
AND (2) A SYSTEM TO AID IN THE ASSIGNMENT OF
PERSONNEL TO JOBS, PROVED INTERESTING IN THEIR
DEMANDS UPON LARGE-SCALE DATA-HANDLING AND
MANIPULATION CAPABILITIES. FEASIBILITY OF BOTH THE
PAY AND MAN-JOB MATCH SYSTEMS WAS SHOWN AND EACH WAS
EXAMINED AS A TIME-SHARING TYPE OF APPLICATION.
THE GENERALIZED TIME-SHARING MODEL SHOWED
CENTRALIZATION OF ALL COMPUTATIONAL POWER TO BE MORE
ECONOMICAL THAN DISTRIBUTING LOGICAL CAPABILITY TO
REMOTE STATIONS. THREE SUPPORTING ANALYTIC STUDIES
WERE PERFORMED. THE FIRST DEALS WITH A MEANS FOR
PARTITIONING A LARGE FILE TO PERMIT, IN SOME CASES,
GREATLY REDUCED SEARCHING TIMES. THE SECOND DEALS
WITH A MATHEMATICAL MODEL FOR A TIME-SHARED COMPUTER
SYSTEM WHICH ALLOWS FOR ANALYTICAL CALCULATION OF
PROCESSING TIMES AT EACH TERMINAL AS A FUNCTION OF
SYSTEM LOADING. THE THIRD INVESTIGATES THREE
COMPUTATIONAL ALGORITHMS FOR PERFORMING MAN-JOB MATCH
CALCULATIONS. ESTIMATES OF PROCESSING TIMES ARE
GIVEN, AND THE METHODS COMPARED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-631 269 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF ELECTRICAL
ENGINEERING
DESIGN OF A LOW-COST CHARACTER GENERATOR FOR REMOTE
COMPUTER DISPLAYS. (U)
DESCRIPTIVE NOTE: MASTER'S THESIS.
FEB 66 71P CREEK, THOMAS BURRELL ;
REPT. NO. MAC-TR-26 (THESIS),
CONTRACT: NONR-4102 (01)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMPUTERS, DISPLAY SYSTEMS),
REMOTE CONTROL SYSTEMS, COMPUTER STORAGE DEVICES,
REAL TIME, RESISTORS, INTEGRATED CIRCUITS,
COSTS, COMPUTER LOGIC, STORAGE TUBE (U)
IDENTIFIERS: TIME SHARING (COMPUTERS), ALPHA-
NUMERIC SYMBOLS, SYMBOLS, ON-LINE SYSTEMS,
MULTIPLE ACCESS SYSTEM, SHIFT REGISTERS, MAC
PROJECT (U)

A REQUIREMENT EXISTS FOR A LOW-COST REMOTE DISPLAY
TERMINAL WITH ALPHANUMERIC AND LINE-DRAWING
CAPABILITIES FOR USE WITH TIME-SHARED COMPUTER
SYSTEMS. A SURVEY OF EXISTING DEVICE AND
CHARACTER GENERATION TECHNIQUES WAS CARRIED OUT, AND
A DESIGN APPROACH WAS CHOSEN WHICH TAKES ADVANTAGE OF
MASS-FABRICATION TECHNIQUES. THIS INCLUDES USING A
FIVE-BY-SEVEN DOT MATRIX RASTER AND A RESISTOR ARRAY
'READ-ONLY' CHARACTER MEMORY FOR THE 96 PRINTABLE
SYMBOLS OF THE REVISED PROPOSED ASCII CODE.
CIRCUITS DESIGNED INCLUDED A DOT MATRIX GENERATOR,
AND A RESISTOR ARRAY MEMORY WITH SELECTION LOGIC
SENSE AMPLIFIERS, AND A SHIFT REGISTER OUTPUT BUFFER.
AN EXPERIMENTAL CHARACTER GENERATOR WITH AN EIGHT-
WORD MEMORY WAS BUILT, LARGELY USING INTEGRATED
CIRCUITS AND WAS FOUND TO WORK AS DESIRED. IT IS
CONCLUDED THAT THE DESIGN APPROACH WILL YIELD A
CHARACTER GENERATOR THAT IS OF LOW ENOUGH COST TO
FIND WIDE USE IN REMOTE COMPUTER TERMINALS.
(AUTHOR) (U)

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-648 346 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE
PROJECT MAC PROGRESS REPORT III, JUL 1965 TO JULY
1966. (U)
DESCRIPTIVE NOTE: PROGRESS REPT., NO. 3 JUL 65-JUL 66
ON PROJ. MAC.
JUL 66 306P
CONTRACT: NONR-4102101
PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-465 088, AD-629
494.

DESCRIPTORS: (COMPUTERS, MAN-MACHINE SYSTEMS),
INFORMATION RETRIEVAL, DATA TRANSMISSION SYSTEMS,
TEACHING MACHINES, ARTIFICIAL INTELLIGENCE, TIME
SHARING, MANAGEMENT ENGINEERING, CIVIL ENGINEERING (U)
IDENTIFIERS: MAC PROJECT (U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL
INVESTIGATION OF NEW WAYS IN WHICH ON-LINE USE OF
COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL WORK;
WHETHER RESEARCH, ENGINEERING DESIGN, MANAGEMENT, OR
EDUCATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-650 847 9.2
AND CORP SANTA MONICA CALIF
SYSTEM IMPLICATIONS OF INFORMATION PRIVACY, (U)
APR 67 43P PETERSEN, H. E. ITURN, R. I.
REPT. NO. P-3504

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT SPRING
JOINT COMPUTER CONFERENCE, ATLANTIC CITY, N.
J. 17-19 APR 1967.

DESCRIPTORS: (COMPUTERS, CONTROL SYSTEMS,
TIME SHARING, REMOTE CONTROL SYSTEMS,
PROTECTION, COUNTERMEASURES, VULNERABILITY (U)

VARIOUS QUESTIONS OF PROVIDING INFORMATION PRIVACY
FOR REMOTELY ACCESSIBLE ON-LINE, TIME-SHARED
INFORMATION SYSTEMS ARE EXPLORED, SUCH SYSTEMS,
ESPECIALLY THE REMOTE TERMINALS AND THE COMMUNICATION
NETWORK, ARE VULNERABLE TO THREATS TO PRIVACY RANGING
FROM ACCIDENTAL DUMPING OF INFORMATION AS A RESULT OF
HARDWARE OR SOFTWARE FAILURES TO DELIBERATE
PENETRATION USING SOPHISTICATED EQUIPMENT,
DELIBERATE ATTACKS ARE TO BE EXPECTED SINCE PAYOFF
FROM OBTAINED, ALTERED, OR ERASED INFORMATION COULD
BE HIGH, THE RESOURCES REQUIRED VARY FROM THE COST
OF A TAPE RECORDER TO A LARGE INVESTMENT IN EQUIPMENT
AND KNOW-HOW, THE PROTECTIVE TECHNIQUES DISCUSSED
IN THIS PAPER INCLUDE: SHIELDING TO REDUCE ELECTRO-
MAGNETIC EMANATIONS; USE OF ONCE-ONLY PASSWORDS FOR
ACCESS CONTROL; APPLICATION OF PRIVACY
TRANSFORMATIONS TO CONCEAL INFORMATION IN USER-
PROCESSOR COMMUNICATIONS AND IN DATA FILES; RECORDING
OF ATTEMPTED PENETRATIONS; AND SYSTEMATIC
VERIFICATION OF THE HARDWARE AND SOFTWARE INTEGRITY,
IT APPEARS POSSIBLE TO ENGINEER VARIOUS PRIVACY
PROTECTION TECHNIQUES INTO INFORMATION SYSTEMS SO
THAT THE COST OF PROTECTION IS PROPORTIONAL TO THE
AMOUNT RECEIVED, AND IS BORNE LARGELY BY THOSE USERS
WHO DESIRE PRIVACY FOR THEIR COMMUNICATIONS AND/OR
FILES. (AUTHOR) (U)

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700330

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-654 624 972 51,
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXPERIMENTAL INVESTIGATION OF USER PERFORMANCE IN
TIME-SHARED COMPUTING SYSTEMS: RETROSPECT, PROSPECT,
AND THE PUBLIC J. FROST, (U)
DESCRIPTIVE NOTES: PROFESSIONAL PAPER,
MAY 67 105P SACKMAN, H. I
REPT. NO. SP-2846
CONTRACT: F19628-57-C-0004

UNCLASSIFIED REPORT

DESCRIPTORS: TIME SHARING, DATA PROCESSING
SYSTEMS, DATA PROCESSING SYSTEMS,
PERFORMANCE (HUMAN), MAN-MACHINE SYSTEMS,
MANAGEMENT PLANNING, PREDICTIONS, PROGRAM
SOLVING, REVIEWS, HUMAN ENGINEERING, REAL TIME
STATISTICAL ANALYSIS
IDENTIFIERS: EVALUATION, INCLUDING BY TESTS, OFF-
LINE SYSTEMS

THIS STUDY WAS CONDUCTED TO SUMMARIZE THE FIELD OF
USER STUDIES IN TIME-SHARING AND TO DEVELOP A
CONCEPTUAL FRAMEWORK FOR COOPERATIVE CONFORMANCE
APPLIED RESEARCH IN THIS AREA. ULTIMATELY TO SERVE
THE PUBLIC INTEREST IN THE DEVELOPMENT OF THE
COMPUTER UTILITY, THE INTRODUCTION TRACES THE
HISTORICAL ROOTS OF USER PROBLEMS AND DEVELOPS THE
NEED FOR EXPERIMENTAL STUDIES OF USER PERFORMANCE IN
TIME-SHARING SYSTEMS. THE LITERATURE REVIEW
REVEALS A GROWING AND EVOLVING EXPERIMENTAL LINK BETWEEN
THE EXTENSION OF INFORMATION SERVICES AND VERIFIED
KNOWLEDGE OF USER PERFORMANCE. A CONCEPTUAL
FRAMEWORK FOR USER STUDIES IN TIME-SHARING IS
CONSTRUCTED FOLLOWING THREE BASIC STEPS. THE FIRST
DEFINES THIS FIELD OF INQUIRY. THE DEFINITION
ESSENTIALLY PORTRAYS THIS AREA AS EXPERIMENTALLY
DERIVED TECHNIQUES AND FINDINGS COMPRISING THE SHARED
AND VERIFIED EXPERIENCES OF THE USER COMMUNITY.
THE SECOND STEP BUILDS AN EVOLUTIONARY SYSTEMS
FRAMEWORK FOR USER STUDIES, ENCOMPASSING THE DESIGN,
DEVELOPMENT AND OPERATION OF USER SYSTEMS, AND
RELATING TIME-SHARED USER SYSTEMS TO OTHER TYPES OF
COMPUTER-AIDED SYSTEMS. THE LAST IS A
CLASSIFICATION OF USER PROBLEMS INTO FOUR BROAD
AREAS--METHODS, SOCIAL, INTERACTIVE, BEHAVIORAL, AND
SOCIAL EFFECTIVENESS. NUMEROUS PROBLEMS,
HYPOTHESES AND RECOMMENDATIONS FOR EXPERIMENTAL
INVESTIGATION OF USER PERFORMANCE ARE MADE FOR EACH
OF THESE FOUR CATEGORIES. THE STUDY CONCLUDES WITH
A PLEA FOR INTERDISCIPLINARY APPLIED RESEARCH TO TRAIL

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-654 678 9/2 15/7 17/2
RAND CORP SANTA MONICA CALIF
USE OF MULTIPLE ON-LINE, TIME-SHARED COMPUTER
CONSOLES IN SIMULATION AND GAMING, (U)
JUN 67 63P NORTHROP, G. M. I
REPT. NO. P-3606

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT
SYMPOSIUM ON NATIONAL GAMING COUNCIL, WASHINGTON,
D. C. 8-9 JUN 1967.

DESCRIPTORS: (WAR GAMES, SIMULATION), (DATA
PROCESSING SYSTEMS, SIMULATION), TIME SHARING,
CONTROL SYSTEMS, PROGRAMMING (COMPUTERS),
REAL TIME, COMMUNICATION SYSTEMS, PROGRAMMING
LANGUAGES (U)
IDENTIFIERS: ON-LINE SYSTEMS, JOSS (U)

SOME PRESENT-DAY ON-LINE, TIME-SHARED, MULTIPLE-
CONSOLE COMPUTER SYSTEMS PROVIDE FOR USE OF A COMMON
FILE SYSTEM, ONE CONSOLE CAN FILE A MESSAGE
(I.E., 'INFORMATION') WHICH CAN BE RECALLED BY
ANOTHER CONSOLE, BY PROGRAMMING CONSOLES TO
PERIODICALLY INTERROGATE CERTAIN FILES, A CRUDE, BUT
HIGHLY SERVICEABLE, STORE-AND-FORWARD COMMUNICATION
SYSTEM CAN BE CREATED AND LARGE NUMBERS OF ON-LINE,
TIME-SHARED COMPUTER CONSOLES CAN BE USED TO ENTER,
RECALL, PROCESS, AND DISPLAY INFORMATION TYPICAL OF
THAT USED IN COMMAND AND CONTROL SYSTEMS AND THE PLAY
OF GAMES, THE RAND CORPORATION'S JOSS SYSTEM
PROVIDES THE CAPABILITY DESCRIBED, IN ADDITION TO
ITS USE FOR THE SOLUTION OF SCIENTIFIC PROBLEMS, IT
IS PRESENTLY BEING EMPLOYED TO SIMULATE IN REAL TIME
ELEMENTS OF AN AUTOMATED TACTICAL AIR CONTROL SYSTEM
AND IN THE PLAY OF TACTICAL GAMES AND GAMES OF GLOBAL
STRATEGY, THE SIMPLE, EASY-TO-LEARN PROGRAMMING
LANGUAGE MAKES FEASIBLE CONSIDERABLE EXPERIMENTATION
WITH SCHEDULING ALGORITHMS, DECISION RULES, ETC.
THIS PAPER DESCRIBES THE BASIC FEATURES OF THE
USE OF MULTIPLE JOSS CONSOLES IN SIMULATION AND
GAMING AND DISCUSSES SOME OF THE ADVANTAGES,
LIMITATIONS, AND LESSONS LEARNED TO DATE.
(AUTHOR) (U)

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DD. REPORT BIBLIOGRAPHY SEARCH CONTROL NO, /00330

AD-657 041 9/2 12/1
STATE UNIV OF NEW YORK STONY BROOK
DISCREET SYSTEMS AND DIGITAL COMPUTER CONTROL, (U)
67 9P CHANG, SHELDON S. L. I
CONTRACT: AF-AFOSR-542-67
MONITOR: AFOSR 67-1883

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN APPLIED MECHANICS
REVIEWS V20 N5 P429-37 MAY 1967.

DESCRIPTORS: (*CONTROL SYSTEMS, *DIGITAL
COMPUTERS), SAMPLING, TIME SHARING, ERRORS,
LINEAR SYSTEMS, FEEDBACK, INTEGRAL TRANSFORMS,
RANDOM VARIABLES, OPTIMIZATION, NONLINEAR
SYSTEMS, ADAPTIVE SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE DIGITAL COMPUTER GREATLY MULTIPLIES THE
ADAPTIVE AND LEARNING CAPABILITIES OF CONTROL
SYSTEMS. WITH THE RAPID DEVELOPMENT OF HIGH SPEED
COMPUTERS, THE DAY SOON MAY COME THAT ANY ENGINEERING
PROCEDURE OF MEASUREMENT AND DESIGN WHICH CAN BE
WRITTEN INTO AN ALGORITHM CAN BE USED AS PART OF AN
ON-LINE ADAPTIVE OR LEARNING SYSTEM. IN SUCH A
SYSTEM, THE CONTROL LAW IS ALWAYS THE BEST WITHIN
LIMITS OF ENGINEERING KNOW-HOW AND THE LIMITED ON-
LINE AS WELL AS PRIOR-TEST KNOWLEDGE ABOUT THE
SYSTEM, A BASIC LIMITATION IS THAT IN WRITING THE
ALGORITHM, THE ENGINEER HAS TO FORESEE ALL POSSIBLE
DEVELOPMENTS, AND SPECIFIES THE IMMEDIATE AS WELL AS
LEARNING RESPONSE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-657 782 9/2
CARNEGIE INST OF TECH PITTSBURGH PA DEPT OF COMPUTER
SCIENCE
BULK CORE IN A 360/67 TIME-SHARING SYSTEM, (U)
67 340 LAUER, RUGH C, I
CONTRACT: SD-146
PROJ: AF-9718
MONITOR: AFOSR 67-1968

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTER STORAGE DEVICES, TIME
SHARING), MAGNETIC CORE STORAGE,
MODELS(SIMULATIONS), STOCHASTIC PROCESSES,
RANDOM VARIABLES, MATHEMATICAL ANALYSIS (U)
IDENTIFIERS: ON-LINE SYSTEMS, MAGNETIC DRUM
STORAGE (U)

IN TIME-SHARING SYSTEMS WHERE PROGRAMS AND DATA
MOVE FREQUENTLY BETWEEN STORAGE MEDIA, PERFORMANCE
MEASURED IN TERMS OF RESPONSE TIME, AVAILABILITY,
CAPACITY, AND GENERALITY DEPENDS ON THE ABILITY OF
THE SYSTEM TO MOVE INFORMATION QUICKLY AND PROMPTLY
UPON DEMAND, ANALYSIS OF AND EARLY EXPERIENCES
WITH TSS/360 REVEAL THAT A DRUM-ORIENTED SYSTEM
CANNOT MEET THE DEMANDS IMPOSED BY USER TASKS,
CONSEQUENTLY, CARNEGIE INSTITUTE OF
TECHNOLOGY HAS REPLACED THE DRUM ON ITS 360/67 WITH
LARGE CAPACITY CORE STORAGE. A MODEL OF
THE DRUM SYSTEM WAS CONSTRUCTED, AND IT WAS
DISCOVERED THAT IT COULD NOT SUPPORT ITS MAXIMUM
PAGING RATE EXCEPT UNDER CONDITIONS WHICH IMPOSE HIGH
SYSTEM COSTS. IT WAS ALSO FOUND THAT BECAUSE OF
ITS ROTATING NATURE, IT ACTUALLY WITHDRAWS
SIGNIFICANT PORTIONS OF MEMORY FROM THE USABLE MAIN
MEMORY OF THE SYSTEM, BULK CORE, WHEN OPERATED
WITH A SIMPLE CORE-TO-CORE CHANNEL, HAS NEITHER OF
THESE FAULTS, IT PROVIDES THE ADDED ADVANTAGE THAT
NOT ALL PAGES NEED BE SWAPPED--THOSE WHICH ARE NOT
HEAVILY USED MAY BE REFERENCED DIRECTLY BY THE CP,
BY OPERATING SELECTIVELY IN BOTH MODES WE EXPECT
NEARLY AN ORDER OF MAGNITUDE BETTER PERFORMANCE THAN
IS POSSIBLE WITH A DRUM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-657 783 9/2 17/2
CARNegie INST OF TECH PITTSBURGH PA DEPT OF COMPUTER
SCIENCE
TOWARD ECONOMICAL REMOTE COMPUTER ACCESS, (U)
JUL 67 18P GOLD, MICHAEL M. ;
SELWYN, LEE L. ;
CONTRACT: SD-146, NONR-4102(01)
PROJ: AF-9718
MONITOR: AFOSR 67-2018

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTERS, *REMOTE CONTROL
SYSTEMS), (*TIME SHARING, ECONOMICS),
(*COMMUNICATION SYSTEMS, TIME SHARING), COSTS,
TELETYPE SYSTEMS, TELEPHONE COMMUNICATION SYSTEMS,
EFFICIENCY (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE COMMUNICATIONS SERVICES AVAILABLE TO A USER
REMOtELY ACCESSING A TIME-SHARED COMPUTER SYSTEM ARE
CONSIDERED IN LIGHT OF THE REQUIREMENTS OF SUCH
USAGE, WHILE TIME-SHARED SYSTEMS ARE DESIGNED TO
PROVIDE THE COMPUTER USER WITH THE OPPORTUNITY TO
WORK AT HIS MOST ADVANTAGEOUS SPEED AND INTERACT WITH
THE COMPUTER AT HIS CONVENIENCE, AVAILABLE
COMMUNICATIONS SERVICES HAVE NOT AS YET BEEN DESIGNED
FOR EFFICIENT AND ECONOMIC TIME-SHARING COMPUTER
USAGE, A PLAN IS SUGGESTED WHICH WOULD SHARE
COMMUNICATION FACILITIES AMONG MANY USERS; EACH USER
ACCESSING THE FACILITY FOR BRIEF PERIODS OF TIME,
ALTHOUGH PRESENT TECHNOLOGY WOULD ALLOW A GROUP OF
USERS TO CONSTRUCT A SHARED-CARRIER OR LINATION BY
LEASING CONVENTIONAL CIRCUITS FROM THE COMMON
CARRIERS, IT IS SUGGESTED THAT THE COMMON CARRIERS
OFFER A SHARING SERVICE, CHARGING FOR COMMUNICATIONS
BY THE AMOUNT OF INFORMATION TRANSMITTED RATHER THAN
THE TIME THE CIRCUIT IS OPEN, UNLESS SUCH A SYSTEM
IS IMPLEMENTED, THE FULL ECONOMIC ADVANTAGES OF TIME-
SHARING CANNOT BE ATTAINED, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-658 477 9/2

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE SDC TIME-SHARING SYSTEM REVISITED. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
AUG 67 30P SCHWARTZ, JULES I. I
WEISSMAN, CLARK I
REPT. NO. SP-2876

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1967 NATIONAL ACM
CONFERENCE, WASHINGTON, D. C., 29-31 AUGUST
1967.

DESCRIPTORS: (*TIME SHARING, REVIEWS), (*DATA
PROCESSING SYSTEMS, TIME SHARING), PREDICTIONS,
COMPUTER STORAGE DEVICES, INPUT-OUTPUT DEVICES,
PROGRAMMING LANGUAGES, MANAGEMENT PLANNING,
COSTS, FLOW CHARTING, MAGNETIC CORE STORAGE,
EFFICIENCY, MAINTENANCE (U)
IDENTIFIERS: ON-LINE SYSTEMS, LISP, LIST
PROCESSING (U)

THE SDC TIME-SHARING SYSTEM (TSS), WHICH
OPERATES ON AN IBM AN/P50-32 COMPUTER AT SYSTEM
DEVELOPMENT CORPORATION, SANTA MONICA, WAS
ORIGINALLY DESCRIBED IN A PAPER ENTITLED 'A
GENERAL-PURPOSE TIME-SHARING SYSTEM,'
PUBLISHED IN 1964. TSS HAS NOW BEEN IN OPERATIONAL
USE FOR FOUR YEARS, SERVING A LARGE AND VARIED
COMMUNITY OF LOCAL AND REMOTE USERS. THIS PAPER
DESCRIBES THE PRESENT CAPABILITIES OF TSS,
DISCUSSES THE CRITICAL PROBLEMS OF RESOURCE
MANAGEMENT (AND THE SOLUTIONS TO THOSE PROBLEMS
EMPLOYED IN TSS), AND REVIEWS THE AUTHORS' ORIGINAL
STATEMENTS REGARDING THE ADVANTAGES OF TIME-SHARING
FOR SUCH TASKS AS ON-LINE PROGRAMMING AND DEBUGGING.
THE TECHNIQUES FOR MANAGING CPU TIME, STORAGE
MEDIA, AND USER/SYSTEM INTERACTION ARE DESCRIBED IN
SOME DETAIL. AN ATTEMPT IS MADE TO POINT OUT THE
WEAK AS WELL AS THE STRONG POINTS OF TSS, AND TO
INDICATE SOME OF THE EFFECTS THAT SYSTEMS SUCH AS
TSS HAVE HAD UPON COMPUTING TECHNOLOGY,
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-661 604 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TRACE--MODEL II USER'S GUIDE, TIMESHARED ROUTINES FOR
ANALYSIS. CLASSIFICATION AND EVALUATION. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
OCT 67 190P ESADA, RICHARD P. I
REPT. NO. TM-2621/003/00
CONTRACT: DAHC15-67-C-0277

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, INSTRUCTION
MANUALS), (*TIME SHARING, DATA PROCESSING
SYSTEMS), PROGRAMMING LANGUAGES, SUBROUTINES,
PROBLEM SOLVING, MAN-MACHINE SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, TRACE (U) DIAL (U)

THE DOCUMENT PRESENTS A USER'S DESCRIPTION OF THE
TRACE SYSTEM, WHICH PROVIDES AN ON-LINE TECHNIQUE
FOR SCANNING DATA AND DERIVING VARIABLES. IT IS
DIVIDED INTO TWO MAIN SECTIONS: THE FIRST A
TUTORIAL GUIDE INTRODUCING THE USER TO THE BASIC
PRINCIPLES OF THE SYSTEM, AND THE SECOND A REFERENCE
GUIDE TO THE ENTIRE BODY OF THE TRACE PROGRAM.
THE USER IS SHOWN HOW TO INITIATE AN INTERACTION
WITH THE TIME-SHARING SYSTEM, HOW TO EMPLOY EVERY
CAPABILITY OF TRACE, WHAT ERRORS MAY BE EXPECTED IN
OPERATION, AND WHAT STATISTICAL PRODUCTS MAY BE
DERIVED THROUGH USE OF THE PROGRAM. A COMPLETE
INDEX ALLOWS THE USER TO REFER READILY TO ANY PORTION
OF THE DOCUMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-661 645 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TIME-SHARING VERSUS BATCH PROCESSING: THE
EXPERIMENTAL EVIDENCE, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
OCT 67 43P SACKMAN, H. I.
REPT. NO. SP-2975

UNCLASSIFIED REPORT

DESCRIPTORS: (TIME SHARING,
PERFORMANCE(ENGINEERING)), DATA PROCESSING
SYSTEMS, MAN-MACHINE SYSTEMS, EFFICIENCY, COST
EFFECTIVENESS, MOTIVATION, REVIEWS (U)
IDENTIFIERS: ON-LINE SYSTEMS, OFF-LINE SYSTEMS,
BATCH PROCESSING, EVALUATION (U)

THE CONTINUING CONTROVERSY OVER THE RELATIVE MERITS
OF TIME-SHARING VERSUS BATCH PROCESSING HAS TAKEN A
NEW AND SIGNIFICANT TURN FROM PREDISCIPLINARY
SPECULATION TO APPLIED SCIENTIFIC EXPERIMENTATION.
WITHIN THE LAST TWO YEARS, FIVE EXPERIMENTAL
STUDIES HAVE APPEARED IN THE LITERATURE, EACH
COMPARING SOME FORM OF ONLINE AND OFFLINE DATA
PROCESSING WITH RESPECT TO MAN-MACHINE MEASURES OF
SYSTEM PERFORMANCE. THESE FIVE PIONEERING STUDIES
COMPRISE THE FIRST SUBSTANTIVE DATA BASE FOR
COMPARING AND EVALUATING EXPERIMENTAL METHODOLOGY AND
FINDINGS BEARING ON THE GROWING AND CHANGING
COMPETITION BETWEEN TIME-SHARING AND BATCH PROCESSING
SYSTEMS. THIS PAPER PROVIDES A CRITICAL REVIEW OF
THESE FIVE EXPERIMENTS, SUMMARIZED FINDINGS, PROBLEMS
AND PITFALLS, AND OFFERS RECOMMENDATIONS FOR FUTURE
EXPERIMENTAL WORK. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-661 744 9/2 6/3
CALIFORNIA UNIV LOS ANGELES BRAIN RESEARCH INST
A USER-ORIENTED TIME-SHARED ONLINE SYSTEM, (U)
DESCRIPTIVE NOTE: REVISED ED.,
FEB 67 7P BETYAR, LASZLO I
CONTRACT: NONR-233(9), PHS-NB-02501-05

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN COMMUNICATIONS OF THE
ACM V10 N7 P413-9 1967.
SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT RECEIVED JUL
66, RESEARCH SUPPORTED IN PART BY NAS, GRANT
NSG-505.

DESCRIPTORS: (*TIME SHARING, DATA PROCESSING
SYSTEMS), (*DIGITAL COMPUTERS, *BIOLOGY),
ANALOG-TO-DIGITAL CONVERTERS, INPUT-OUTPUT
DEVICES, PROGRAMMING LANGUAGES, MAN-MACHINE
SYSTEMS, DATA STORAGE SYSTEMS (U)
IDENTIFIERS: LIST PROCESSING, ON-LINE SYSTEMS,
MULTIPROCESSING (U)

AN EXISTING SYSTEM AND PLANNED ADDITIONS WITHIN THE
DATA PROCESSING LABORATORY OF THE BRAIN
RESEARCH INSTITUTE AT UCLA IS DESCRIBED. THE
SYSTEM REPRESENTS AN ATTEMPT TO PROVIDE RESEARCH
WORKERS OF THE INSTITUTE WITH THE ABILITY TO
INTERACT DIRECTLY WITH A HIGHLY SOPHISTICATED DIGITAL
COMPUTING COMPLEX IN THE MOST DIRECT AND SIMPLE
FASHION POSSIBLE. IT IS ANTICIPATED THAT, WITH THE
ACCUMULATION OF EXPERIENCE USING THE PRESENT SYSTEM,
SIGNIFICANT ADVANCES WILL BE POSSIBLE IN THE SYSTEM
DESIGN THROUGH DETERMINATION OF INTERFACE PARAMETERS
BETWEEN THE BIOLOGICAL SCIENTIST AND THE DIGITAL
COMPUTER. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-651 665 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TIME-SHARING VERSUS BATCH PROCESSING: THE
EXPERIMENTAL EVIDENCE, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
OCT 67 43P SACKMAN, H. J.
REPT. NO. SP-2975

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIME SHARING,
PERFORMANCE(ENGINEERING)), DATA PROCESSING
SYSTEMS, MAN-MACHINE SYSTEMS, EFFICIENCY, COST
EFFECTIVENESS, MOTIVATION, REVIEWS (U)
IDENTIFIERS: ON-LINE SYSTEMS, OFF-LINE SYSTEMS,
BATCH PROCESSING, EVALUATION (U)

THE CONTINUING CONTROVERSY OVER THE RELATIVE MERITS
OF TIME-SHARING VERSUS BATCH PROCESSING HAS TAKEN A
NEW AND SIGNIFICANT TURN FROM PREDISCIPLINARY
SPECULATION TO APPLIED SCIENTIFIC EXPERIMENTATION.
WIT IN THE LAST TWO YEARS, FIVE EXPERIMENTAL
STUDIES HAVE APPEARED IN THE LITERATURE, EACH
COMPARING SOME FORM OF ONLINE AND OFFLINE DATA
PROCESSING WITH RESPECT TO MAN-MACHINE MEASURES OF
SYSTEM PERFORMANCE. THESE FIVE PIONEERING STUDIES
COMPRISE THE FIRST SUBSTANTIVE DATA BASE FOR
COMPARING AND EVALUATING EXPERIMENTAL METHODOLOGY AND
FINDINGS BEARING ON THE GROWING AND CHANGING
COMPETITION BETWEEN TIME-SHARING AND BATCH PROCESSING
SYSTEMS. THIS PAPER PROVIDES A CRITICAL REVIEW OF
THESE FIVE EXPERIMENTS, SUMMARIZED FINDINGS, PROBLEMS
AND PITFALLS, AND OFFERS RECOMMENDATIONS FOR FUTURE
EXPERIMENTAL WORK. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700330

AD-661 744 9/2 6/3
CALIFORNIA UNIV LOS ANGELES BRAIN RESEARCH INST
A USER-ORIENTED TIME-SHARED ONLINE SYSTEM, (U)
DESCRIPTIVE NOTE: REVISED ED.,
FEB 67 7P BETYAR, LASZLO I
CONTRACT: N0NR-233(91), PHS-NB-02501-05

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN COMMUNICATIONS OF THE
ACM V10 N7 P413-9 1967,
SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT RECEIVED JUL
66, RESEARCH SUPPORTED IN PART BY NASA, GRANT
NSG-305.

DESCRIPTORS: (*TIME SHARING, DATA PROCESSING
SYSTEMS), (*DIGITAL COMPUTERS, *BIOLOGY),
ANALOG-TO-DIGITAL CONVERTERS, INPUT-OUTPUT
DEVICES, PROGRAMMING LANGUAGES, MAN-MACHINE
SYSTEMS, DATA STORAGE SYSTEMS (U)
IDENTIFIERS: LIST PROCESSING, ON-LINE SYSTEMS, (U)
MULTIPROCESSING

AN EXISTING SYSTEM AND PLANNED ADDITIONS WITHIN THE
DATA PROCESSING LABORATORY OF THE BRAIN
RESEARCH INSTITUTE AT UCLA IS DESCRIBED. THE
SYSTEM REPRESENTS AN ATTEMPT TO PROVIDE RESEARCH
WORKERS OF THE INSTITUTE WITH THE ABILITY TO
INTERACT DIRECTLY WITH A HIGHLY SOPHISTICATED DIGITAL
COMPUTING COMPLEX IN THE MOST DIRECT AND SIMPLE
FASHION POSSIBLE. IT IS ANTICIPATED THAT, WITH THE
ACCUMULATION OF EXPERIENCE USING THE PRESENT SYSTEM,
SIGNIFICANT ADVANCES WILL BE POSSIBLE IN THE SYSTEM
DESIGN THROUGH DETERMINATION OF INTERFACE PARAMETERS
BETWEEN THE BIOLOGICAL SCIENTIST AND THE DIGITAL
COMPUTER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-661 807 9/2 5/9
MASSACHUSETTS INST OF TECH CAMBRIDGE DEPT OF CIVIL
ENGINEERING
USE OF CTSS IN A TEACHING ENVIRONMENT, (U)
NOV 64 35P ROOS, DANIEL J
REPT. NO. MAC-TR-14
CONTRACT: NONR-4102(01)
PROJ: NR-048-109, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIME SHARING, *TEACHING
MACHINES), (*TEACHING METHODS, COMPUTERS),
RELIABILITY, REAL TIME, STUDENTS, MOTIVATION,
INPUT-OUTPUT DEVICES,
PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: MAC PROJECT, ON-LINE SYSTEMS,
BATCH PROCESSING, COMPUTER-AIDED INSTRUCTION,
COMPATIBLE TIME-SHARING SYSTEM (U)

COMPUTER TIME-SHARING OFFERS MANY INTERESTING
POSSIBILITIES FOR USE IN TEACHING COMPUTER
TECHNOLOGY. IT MIGHT BE EXPECTED THAT WITH PROPER
HARDWARE AND SOFTWARE, STUDENTS USING TIME-SHARING AS
A TEACHING MACHINE COULD ACQUIRE PROFICIENCY IN THE
FUNDAMENTALS OF PROGRAMMING MORE EASILY THAN USING
BATCH-PROCESSING. TO TEST THIS HYPOTHESIS, THE
M.I.T. DEPARTMENT OF CIVIL ENGINEERING
DIVIDED A FRESHMAN PROGRAMMING CLASS, SO THAT HALF
THE STUDENTS USED BATCH-PROCESSING METHODS, AND HALF
USED THE PROJECT MAC TIME-SHARING SYSTEM TO DO
THE SAME WORK. THE PAPER DESCRIBES THE EXPERIMENT
AND ITS TENTATIVE RESULTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-662 027 9/2

MASSACHUSETTS INST OF TECH CAMBRIDGE
A LOW-COST OUTPUT TERMINAL FOR TIME-SHARED
COMPUTERS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

MAR 67 31P ROSENBERG, RONALD C. I

KENNEDY, DANIEL W. HUMPHREY, ROGER A. I

REPT. NO. MAC-TR-38

CONTRACT: NONR-4102(01)

PROJ: NR-048-189

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIME SHARING, INPUT-OUTPUT
DEVICES), (*REMOTE CONTROL SYSTEMS, TIME
SHARING), DIGITAL COMPUTERS, REAL TIME,
COMMUNICATION SYSTEMS, ANALOG SYSTEMS, DISPLAY
SYSTEMS, DATA STORAGE SYSTEMS, WIRING
DIAGRAMS (U)

IDENTIFIERS: ON-LINE SYSTEMS (U)

A LOW COST REMOTE TERMINAL WHICH PROVIDES OUTPUT IN
SWITCH FORM FROM A TIME-SHARED DIGITAL COMPUTER IS
DESCRIBED. THE TERMINAL CONSISTS OF A MODIFIED
MODEL 35 KSR TELETYPE AND A LOCAL MEMORY UNIT.
THE UNIT IS INDEPENDENT OF THE PARTICULAR COMPUTER,
AND IS EASY TO TEST AND MAINTAIN. THE STATES OF
THE MEMORY CONTROL AND MEMORY WORDS ARE OBSERVABLE
DIRECTLY BY INDICATOR LIGHTS. AN APPLICATION OF
THE MEMORY TO THE AUTOMATIC SET-UP AND CONTROL OF AN
ANALOG COMPUTATION ARE DISPLAYED ON AN OSCILLOSCOPE;
THIS MAKES POSSIBLE, FOR EXAMPLE, THE RAPID DISPLAY
OF TIME RESPONSE OF LINEAR SYSTEMS, UNDER DIGITAL
PROGRAM CONTROL. (AUTHOR) (U)

UNCLASSIFIED

GDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-662 225 9/2

MASSACHUSETTS INST OF TECH CAMBRIDGE
INCREMENTAL SIMULATION ON A TIME-SHARED
COMPUTER, (U)

DESCRIPTIVE NOTES: DOCTORAL THESIS,
67 353P JONES, MALCOLM M. ;
REPT. NO. MAC-9-48
CONTRACT: NONR-4102(01)
PROJ: MR-648-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (TIME SHARING, COMPUTERS),
(SIMULATION, COMPUTERS), PROGRAMMING
LANGUAGES, REAL TIME, THESES, DISPLAY SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, LIST PROCESSING (U)

THE THESIS DESCRIBES A SYSTEM WHICH ALLOWS
SIMULATION MODELS TO BE BUILT AND TESTED
INCREMENTALLY. IT IS CALLED OPS-4 AND IS
SPECIFICALLY DESIGNED TO OPERATE IN THE ENVIRONMENT
OF THE MULTICS SYSTEM. IT REPRESENTS A MAJOR
EXPANSION AND IMPROVEMENT OF THE OPS-3 SYSTEM
IMPLEMENTED IN CTSS AND ALSO INCLUDES MANY FEATURES
ADAPTED FROM OTHER CURRENT SIMULATION SYSTEMS. THE
PL/I LANGUAGE, AUGMENTED BY MANY ADDITIONAL
STATEMENTS AND NEW DATA OBJECTS, PROVIDES THE BASIS
FOR DEFINING MODELS IN OPS-4. A LIST OF
DESIRABLE FEATURES FOR AN INCREMENTAL SIMULATION
SYSTEM IS PRESENTED AND IT IS SHOWN HOW OPS-4
INCORPORATES THESE FEATURES, WHEREAS OTHER CURRENT
SIMULATION SYSTEMS SATISFY ONLY SOME OF THEM AND ARE
NOT SUITABLE FOR USE IN TIME-SHARED ENVIRONMENT. A
SIMPLIFIED MODEL OF PAGE AND SEGMENT FAULT HANDLING
IN MULTICS ILLUSTRATES SOME OF THE FEATURES OPS-4
PROVIDES TO ALLOW THE USER TO CONTINUOUSLY INTERACT
WITH A MODEL DURING ITS CONSTRUCTION, TESTING AND
RUNNING PHASES. IT ALSO ILLUSTRATES HOW THE USER
HIMSELF MAY PORTRAY PORTIONS OF A MODEL THAT ARE NOT
YET DEFINED. (AUTHOR) (U)

UNCLASSIFIED

DCC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-666 373 9/2 5/10
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TIME-SHARING AND SELF-TUTORING: AN EXPLORATORY CASE
HISTORY AND AN EXPERIMENTAL CRITIQUE, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
NOV 67 33P SACKMAN, HAROLD I
REPT. NO. SP-3000

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIME SHARING,
PERFORMANCE(HUMAN)), ERRORS, EFFECTIVENESS,
BEHAVIOR, LEARNING, PROGRAMMING LANGUAGES,
PROGRAMMING(COMPUTERS), MAN-MACHINE SYSTEMS,
TELETYPE SYSTEMS (U)
IDENTIFIERS: COMPUTER LANGUAGE, TINT COMPUTER
LANGUAGE, ON-LINE SYSTEMS (U)

THE STUDY IS CONCERNED WITH THE EFFECTIVENESS OF
INDIVIDUAL USER PERFORMANCE FOR AN EXTENDED SELF-
TUTORING TASK IN A TIME-SHARED FACILITY. THE
INVESTIGATION IS AN EXPERIMENTAL CASE HISTORY OF ONE
INDIVIDUAL (THE AUTHOR) FOLLOWING THE TINT
SELF-TUTORING USER MANUAL FROM BEGINNING TO END IN
THE SDC Q-32 TIME-SHARING SYSTEM AT A
TELETYPE CONSOLE. (TINT IS A USER-ORIENTED
DIALECT OF JOVIAL, AND INTERPRETIVE LANGUAGE
ADAPTED TO TIME-SHARING WITH MANY SELF TEACHING
FEATURES.) THE METHODOLOGY EMPHASIZED EXPERIMENTAL
MEASUREMENT OF NATURAL USER BEHAVIOR IN WHICH THE
USER SERVED AS HIS OWN CONTROL IN SUCCESSIVE CONSOLE
SESSIONS. THE EXPERIMENTAL SAMPLE INCLUDED 1,861
USER INPUT COMMANDS WITH 230 ERRONEOUS COMMANDS,
COLLECTED OVER 10 HOURS AT THE TELETYPE TERMINAL.
THE QUANTITATIVE RESULTS REVEALED SOME EVIDENCE FOR
SYSTEMATIC LEARNING AND REINFORCEMENT EFFECTS. THERE
WERE PROGRESSIVE TENDENCIES TOWARD HIGHER
PRODUCTIVITY AND LOWER ERROR RATES WITH INCREASING
TINT EXPERIENCE. THE QUALITATIVE FINDINGS
REVEALED THAT THE NUMEROUS AND DIVERSIFIED EXERCISES
FACILITATED FAMILIARITY WITH THE ELEMENTS AND THE
VARIED SERVICES OF THE TINT SYSTEM. THE PAPER
CONCLUDES WITH A CRITIQUE OF MORE GENUINE INTERACTIVE
INVOLVEMENT BETWEEN THE USER, THE CENTRAL SYSTEM, AND
SELF-TUTORING AIDS FROM AN EXPERIMENTAL VIEWPOINT.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO: 700330

AD-666 730 9/2
CARNEGIE INST OF TECH PITTSBURGH PA
TIME SHARING, PART ONE, THE FUNDAMENTALS OF TIME
SHARING, PART TWO, AN EVALUATION OF COMMERCIAL TIME
SHARING COMPUTERS, PART THREE, OPERATIONAL
MANAGEMENT OF TIME SHARING SYSTEMS, (U)
DESCRIPTIVE NOTE: DATA PROCESSING MONOGRAPH SERIES,
67 130P BELL, C, GORDON GOLD, M,
M. ISTEADRY, A, C, ILINDE, RICHARD M, I
CHANEY, PAUL E, I
CONTRACT: NONR-760(24), SD-146

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: RESEARCH SUPPORTED IN PART BY AIR
FORCE SYSTEMS COMMAND, PREPARED IN COOPERATION WITH
AIT, AND SYSTEM DEVELOPMENT CORPORATION,

DESCRIPTORS: (TIME SHARING, STATE-OF-THE-ART
REVIEWS), DATA STORAGE SYSTEMS, INPUT-OUTPUT
DEVICES, PROGRAMMING (COMPUTERS), REMOTE
CONTROL SYSTEMS, DIGITAL COMPUTERS, REAL TIME,
OPERATION, SCHEDULING, ECONOMICS, MANAGEMENT
PLANNING, CORRELATION TECHNIQUES, MULTIPLE
OPERATION (U)
IDENTIFIERS: ON-LINE SYSTEMS, BATCH PROCESSING, (U)
PRIVACY (COMPUTERS) (U)
CONTENTS: THE FUNDAMENTALS OF TIME SHARING; AN
EVALUATION OF COMMERCIAL TIME SHARING COMPUTERS;
OPERATIONAL MANAGEMENT OF TIME SHARING SYSTEMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00330

AD-667 693 9/2
CALIFORNIA UNIV BERKELEY
A FACILITY FOR EXPERIMENTATION IN MAN-MACHINE
INTERACTION, (U)
JAN 68 11P LICHTENBERGER, W. W. I
PITTLER, W. I.
REPT. NO. #3
CONTRACT: SD-185

UNCLASSIFIED REPORT

DESCRIPTORS: (+DATA PROCESSING SYSTEMS, TIME
SHARING), (+TIME SHARING, DIGITAL COMPUTERS),
(+PROGRAMMING(COMPUTERS), MULTIPLE
OPERATION), MAN-MACHINE SYSTEMS, REMOTE CONTROL
SYSTEMS, DATA STORAGE SYSTEMS, TELETYPE SYSTEMS (U)
IDENTIFIERS: ON-LINE SYSTEMS,
MULTIPROGRAMMING (U)

THE TIME-SHARING SYSTEM INVOLVING MEMORY
RELABELING, COMMON ROUTINES, AND DUPLEX TELETYPE
OPERATION HAS BEEN IN OPERATION SINCE APRIL, 1965.
THE SYSTEM IS HIGHLY FLEXIBLE AND CAN PROVIDE A
RESPONSE TIME OF LESS THAN ONE SECOND. MEMORY
RELABELING IS ACCOMPLISHED WITH NO INCREASE IN ACCESS
TIME. THE NUMBER OF PROCESSOR MODES IS SMALL
(TWO), AND MODE TRANSITIONS ARE DONE IN SUCH A
WAY AS TO ENABLE INTERRUPT AND USER-CALLED SYSTEM
ROUTINES TO BE INDEPENDENT OF MODE. THE USER
MACHINE IS CLEAN AND WELL DEFINED. INPUT/OUTPUT IS
SIMPLER, MORE TOOLPROOF, AND DEVICE-INDEPENDENT.
THE USER IS GIVEN A VARIETY OF OTHER SERVICES
RANGING FROM GENERALIZED FILE-HANDLING CAPABILITY TO
STRING PROCESSING TO ASSEMBLERS, COMPIERS,
DEBUGGERS, AND EDITORS. (AUTHOR) (U)

GRAPHICS

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00331

AD-625 181 9/2 3/8

ADAMS (CHARLES W) ASSOCIATES INC CAMBRIDGE MASS
RESEARCH ON ADVANCED DYNAMIC ATTRIBUTE EXTRACTION
TECHNIQUES, (U)

DESCRIPTIVE NOTE: FINAL REPT, APR 62-MAY 63,
JUL 63 54P GILMORE, JOHN T, JR,;

GREATOREX, FRANK S, JR, CHASE, EDWARD N. ;

CONTRACT: AF19(628)-453

PROJ: AF-5632

TASK: 563201

MONITOR: AFRL , 65-736

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (0)DISPLAY SYSTEMS, COLORS), (0)MAN-
MACHINE SYSTEMS, SPECIAL PURPOSE COMPUTERS),
GRAPHICS, COMPUTER STORAGE DEVICES, RADIOGRAPHY,
ANALOG-TO-DIGITAL CONVERTERS, EARTH MODELS,
PROGRAMMING(COMPUTERS), REAL TIME (U)

IDENTIFIERS: FLOAYING-POINT OPERATION, PDP-1
COMPUTER, FLINT COMPUTER PROGRAM, ON-LINE SYSTEMS,
LIGHT PENS, COMPUTER WORDS, FILE STRUCTURES,
DIGIGRAPHIC DISPLAYSYSTEMS (U)

TWO MAIN AREAS OF EFFORT ARE DESCRIBED. THE
FIRST IS THE DEVELOPMENT OF A COLOR DISPLAY SYSTEM
WHICH ALLOWS FOR THE DEFINITION AND MODIFICATION OF
DATA STORED IN A LIST STRUCTURE. THE SECOND AREA
IS THE DEVELOPMENT OF A MAN-GRAPHIC COMMUNICATION
SYSTEM WHICH UTILIZES A BUFFERED DISPLAY SCOPE,
LIGHT PEN AND PUSH-BOTTOM PANEL TO PROVIDE THE
CONSOLE USER WITH THE BASIC ABILITY TO DRAW CHARTS,
DIAGRAMS, CURVES, ETC., ON THE FACE OF THE DISPLAY
SCOPE. THE DRAWINGS MAY CONTAIN GRAPHIC AND
ALPHANUMERIC INFORMATION, WHICH IS REDUCED TO A
CONDENSED DIGITAL FORMAT CALLED AN ENTITY TABLE.
THE TABLE CAN BE OPERATED ON BY SPECIAL-PURPOSE
SOFTWARE OPERATORS EITHER DURING THE DRAWING ACTION
OR AFTER THE DRAWING IS COMPLETED, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700331

AD-626 882 9/2
LINCOLN LAB MASS INST OF TECH LEXINGTON
GRAPHICAL COMMUNICATION AND CONTROL LANGUAGES, (U)
64 7P ROBERTS, L. G. I
REPT. NO. MS-1173
CONTRACT: AF 19(628)-5167
MONITOR: ESD TDR-65-600

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN INFORMATION SYSTEM
SCIENCES P211-7 NO, COPIES TO DDC USERS ONLY,
SUPPLEMENTARY NOTE: SUPPORTED BY U. S. AIR FORCE.

DESCRIPTORS: (GRAPHICS, DATA PROCESSING
SYSTEMS), (PROGRAMMING LANGUAGES, GRAPHICS),
COMPUTERS, COMPUTER STORAGE DEVICES, COMPUTER
LOGIC, PROBLEM SOLVING, CONTROL SYSTEMS,
DISPLAY SYSTEMS (U)
IDENTIFIERS: LIST PROCESSING, ON-LINE SYSTEMS,
TXCOMPUTERS, SKETCHPAD, CORAL SYSTEM AND
LANGUAGE, COMPUTER CONSOLES (U)

THE FUTURE FOR COMPUTER PROCESSING OF GRAPHICS IS
ALLEGED TO BE MANIPULATION OF DATA FILES AND PROGRAMS
EXTERNAL TO THE GRAPHICAL PACKAGE. PICTURES ARE
REGARDED AS ABSTRACTIONS THAT ARE USED AS LABELS FOR
EXTERNAL ENTITIES SO THAT IT IS POSSIBLE TO CREATE
INTERCONNECT, AND REARRANGE THE ENTITIES WITH A 2-
DIMENSIONAL LANGUAGE RATHER THAN THE NORMAL 1-
DIMENSIONAL TEXT STREAM. THE CORAL (CLASS-
ORIENTED RING ASSOCIATION LANGUAGE) LIST
STRUCTURE SYSTEM FOR GRAPHICAL AND OTHER PROBLEMS IS
DESCRIBED. THE LIST STRUCTURE CONCEPTS ARE SIMILAR
TO THESE USED TO IMPLEMENT SKETCH PAD ON THE TX-2
COMPUTER, BUT STORAGE SPACE IS REDUCED AND A MORE
COMPLETE LIST STRUCTURE SYSTEM AND LANGUAGE IS
GENERATED. THE CORAL LIST TIES ARE FORMED AS
RINGS, EACH ELEMENT IN THE RING REQUIRING ONE 36-BIT
WORD AND CONTAINING A 17-BIT POINTER TO THE NEXT
ELEMENT. BLOCKS OF ELEMENTS ARE USED THAT COLLE
MAY TIES TOGETHER AND ALLOW THE MULTI-DIMENSIONAL
ASSOCIATIONS REQUIRED FOR GRAPHICAL DATA STRUCTURES.
THIS PAPER ALSO DISCUSSES STORAGE, CLASS
STRUCTURES, ON-LINE PROBLEM SOLVING BY USE OF
GRAPHICAL TECHNIQUES, AND DISPLAY CONSOLES, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700331

AD-639 734 9/2
LINCOLN LAB MASS INST OF TECH LEXINGTON
ON-LINE GRAPHICAL SPECIFICATION OF COMPUTER
PROCEDURES,
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 66 36P SUTHERLAND, W. R. ;
REPT. NO. TR-405,
CONTRACT: AF 19(628)-5167,
PROJ: AF-649L,
MONITOR: ESD TR-66-211

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (GRAPHICS,
PROGRAMMING (COMPUTERS)), DOCUMENTATION,
AUTOMATIC
IDENTIFIERS: ON-LINE SYSTEMS

(U)

(U)

A PROMISING AREA OF APPLICATION FOR RECENTLY DEVELOPED COMPUTER GRAPHICS TECHNIQUES IS COMPUTER PROGRAMMING. TWO IMPORTANT CONSIDERATIONS IN USING AN INTERACTIVE GRAPHICS SYSTEM FOR DRAWING PROGRAMS ARE (1) THE FORM OF A PICTORIAL PROGRAMMING NOTATION AND (2) METHODS FOR MAKING A COMPUTER EXECUTE THE PROGRAM ONCE DRAWN. THESE TOPICS ARE DISCUSSED IN THE CONTEXT OF AN EXPERIMENTAL GRAPHICAL PROGRAMMING SYSTEM RUNNING ON THE LINCOLN LABORATORY TX-2 COMPUTER. THIS SYSTEM USES A BLOCK NOTATION FOR PROGRAMS AND CAN EXECUTE THE DRAWN PROGRAM WITH AN INTERPRETER. IMPROVED GRAPHICAL INPUT LANGUAGES FOR DRAWING PROGRAMS AND PROGRAM NOTATIONS WHICH COMBINE APPROPRIATE FEATURES OF PICTORIAL AND WRITTEN LANGUAGES ARE NEEDED BEFORE APPLICATIONS IN THIS AREA ARE PRACTICAL. THE BENEFITS TO BE EXPECTED FROM A GRAPHICAL APPROACH TO PROGRAMMING INCLUDE (1) AUTOMATIC DOCUMENTATION, (2) DEBUGGING ASSISTANCE, AND (3) NATURAL EXPRESSION OF PARALLEL PROCESSES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700331

AD-645 483 5/8 9/2 22/4
RAND CORP SANTA MONICA CALIF
THE APPLICATION OF ON-LINE GRAPHICAL TECHNIQUES FOR
PROGRAMMING AND OPERATING A 'MOVING NETWORK'
MONITORING DISPLAY. (U)
JAN 67 95P CHESLER, L. TURNER, J.
REPT. NO. RM-5183-PR
CONTRACT: F44620-67-C-0043

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, CHECKOUT
PROCEDURES), (*CHECKOUT PROCEDURES, *SPACECRAFT),
SIMULATION, REAL TIME, GRAPHICS, CHECKOUT
EQUIPMENT, MAN-MACHINE SYSTEMS (U)
IDENTIFIERS: IBM 7040/44, ON-LINE SYSTEMS (U)

THE REPORT DESCRIBES THE STRUCTURE AND OPERATING
PROCEDURES OF EXPERIMENTAL COMPUTER PROGRAMS USED TO
SIMULATE A REAL-TIME MOVING NETWORK DISPLAY OF
SPACECRAFT CHECKOUT OPERATIONS, PROPOSED IN RM-
4678-NASA (N63-35377) FOR USE BY THE HUMAN
MONITOR OF AN AUTOMATED PRELAUNCH CHECKOUT, THE
SYSTEM DYNAMICALLY SHOWS, IN NETWORK FORM, THE
SUCCESSIVE AND CONCURRENT STAGES OF A COMPLEX
PROCESS, THE PROGRAMS WERE WRITTEN IN MAP FOR THE
IBM 7040/7044 COMPUTER SYSTEM TO BE USED WITH THE
RAND GRAPHIC INPUT TABLET AND A CATHODE RAY
TUBE DISPLAY SCREEN, THE TABLET IS USED FOR ON-
LINE CONSTRUCTION OF THE INITIAL NETWORK AND FOR
OPERATION OF THE SIMULATION PROGRAMS, (A COMPLETE
PROGRAM LISTING IS AVAILABLE ON REQUEST.)
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00331

AD-6 857 9/2
IIT RESEARCH INST CHICAGO ILL COMPUTER SCIENCES DIV
DIALOG: A CONVE SATIONAL PROGRAMMING SYSTEM WITH A
GRAPHICAL ORIENTATION. (U)
DESCRIPTIVE NOTE: TECHNICAL NOTE,
SEP 66 SOP CAMERON, SCOTT H. I
EWING, DUNCAN I LIVERIGHT, MICHAEL I
REPT. NO. IITRI-TN-109
CONTRACT: NONR-3392(00)
PROJ: RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMING LANGUAGES,
*GRAPHICS), (*MAN-MACHINE SYSTEMS, COMPILERS),
OPERATION, ALGEBRA, INPUT-OUTPUT DEVICES,
PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: DIALOG, ON-LINE SYSTEMS (U)

DIALOG IS AN ALGEBRAIC LANGUAGE FOR ON-LINE USE WITH A GRAPHICAL INPUT-OUTPUT CONSOLE DEVICE. IT IS A COMPUTATIONAL AID FOR THE CASUAL USER, WHICH PROVIDES BASIC FACILITIES FOR GRAPHICAL AND NUMERIC INPUT AND DISPLAY, ON AND OFF-LINE PROGRAM PREPARATION AND STORAGE, AND HARD COPY PRESENTATION OF RESULTS. USE OF THE SYSTEM REQUIRES A MINIMUM OF EXPERIENCE OR INSTRUCTION, SINCE THE GROWTH OF AN OVERLAYING SYSTEM CONTROL LANGUAGE HAS BEEN PREVENTED, AND THERE ARE NO PROCESSOR-ORIENTED STATEMENTS, LIKE VARIABLE TYPE OR DIMENSION DECLARATIONS. MOREOVER, IN THE ON-LINE SITUATION, THE PROCESSOR INTERACTS WITH THE GRAPHICAL KEYBOARD ON A CHARACTER BY CHARACTER BASIS SO AS TO RESTRICT THE PROGRAMMER'S CHOICE OF INPUT SYMBOLS TO THOSE WHICH ARE SYNTACTICALLY CORRECT. DIALOG HAS BEEN IN DAILY OPERATION AT THE IIT RESEARCH INSTITUTE SINCE FEBRUARY, 1966. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00331

AD-680 932 13/13 9/2
LOCKHEED MISSILES AND SPACE CO PALO ALTO CALIF LOCKHEED
PALO ALTO RESEARCH LAB
DEVELOPMENT OF IMPROVED STRUCTURAL DYNAMIC ANALYSIS,
VOLUME II, COMPUTER GRAPHICS, (U)
DESCRIPTIVE NOTES: FINAL REPT., JUL-NOV 66,
APR 67 92P FORSBERG, K. J. I
FERRIERA, S. K. I
REPT. NO. LMSC-L-30-66-2
CONTRACT: AF 33(615)-3131
PROJ: AF-1370
TASK: 137008
MONITOR: AFFDL TR-66-187-VCL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-445 461.

DESCRIPTORS: (*STRUCTURAL PROPERTIES,
DYNAMICS), (*GRAPHICS, COMPUTERS),
ANALYSIS, BEAMS(STRUCTURAL), CATHODE RAY
TUBE SCREENS (U)

THE WORK IS CONCERNED WITH THE APPLICATION OF A NEW
TOOL (COMPUTER GRAPHICS) RATHER THAN THE
DEVELOPMENT OF A NEW ANALYTICAL TECHNIQUE. THE
PROBLEM OF THE DYNAMIC RESPONSE OF A NONUNIFORM BEAM
WAS TREATED USING THE CURRENTLY STANDARD TECHNIQUES
OF LUMPED MASS-SPRING REPRESENTATION OF THE
STRUCTURE. A GRAPHIC INPUT AND OUTPUT CAPABILITY
WAS ATTACHED TO STANDARD DIGITAL COMPUTER PROGRAMS SO
THAT ONE CAN DISPLAY ON THE FACE OF A CATHODE RAY
TUBE THE INPUT PARAMETERS, MODIFY THESE IF DESIRED,
AND THEN COMPUTE THE MODAL BEHAVIOR OF THE BEAM.
THE ENGINEER CAN RETURN TO THE INITIAL INPUT DATA,
MAKE CHANGES, AND RERUN THE PROGRAM IF HE SO DESIRES.
FOR THE FORCED RESPONSE PROBLEM, HE CAN INPUT HIS
FORCING FUNCTIONS, COMPUTE THE FORCED RESPONSE, AND
PRESENT THE RESULTS IN AN ANIMATED DISPLAY. THIS
TECHNIQUE FOR COMMUNICATING WITH THE COMPUTER GIVES
IMMEDIATE REDUCTION AND INTERPRETATION OF THE RESULTS
FROM THE FORCED RESPONSE PROGRAM, A TASK WHICH IN THE
DIGITAL FORM REQUIRES MANY HOURS OR EVEN DAYS,
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700331

AD-633 191 9/2 12/1 5/8
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
GRAPHICS. (U)
DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL SUMMARY REPT., 1
DEC 66-31 MAY 67,
MAY 67 8P RAFFEL, JACK I. I
CONTRACT: AF 19(628)-5167, ARPA ORDER-691
MONITOR: ESD TR-67-275

UNCLASSIFIED REPORT

DESCRIPTORS: (*TIME SHARING, *GRAPHICS),
(*MAN-MACHINE SYSTEMS, COMPUTER PROGRAMS),
DISPLAY SYSTEMS, PROGRAMMING(COMPUTERS),
COMPILERS, SCANNING, INPUT-OUTPUT DEVICES,
CONTROL SEQUENCES, PROGRAMMING LANGUAGES (U)

THE OBJECTIVE THE GRAPHICS PROGRAM AT LINCOLN
LABORATORY IS THE DEVELOPMENT OF COMPUTER HARDWARE
AND PROGRAMS WHICH WILL ENABLE USERS TO WORK ON-LINE
IN AN INTERACTIVE MODE EMPLOYING GRAPHICAL TECHNIQUES
FOR THE INPUT, MANIPULATION AND REPRESENTATION OF
GRAPHICAL DATA. THE WORK INCLUDES THE
INVESTIGATION OF PROBLEMS RELATED TO USING A TIME-
SHARED COMPUTER, SUCH AS TX-2, FOR GRAPHICS, AND
THE DESIGN OF GENERAL-PURPOSE SYSTEM PROGRAMS TO
PROVIDE GRAPHICS CAPABILITY FOR A VARIETY OF
SCIENTIFIC, MILITARY AND CONTROL PROBLEMS. DURING
THE LAST REPORTING PERIOD, THE FOLLOWING HAS BEEN
ACCOMPLISHED: A GENERAL-PURPOSE FRON-TEND SYSTEM
HAS BEEN DESIGNED BASED ON THE VITAL SYSTEM.
VITAL ITSELF HAS BEEN EXPANDED TO ALLOW A COMPILER
TO CONTROL THE SCANNING OF A SOURCE PROGRAM AND
OUTPUTTING OF MESSAGES. AN ALGOL-LIKE LANGUAGE,
LABGOL, HAS BEEN IMPLEMENTED; WITH THE ADDITION OF
MEANS FOR BUILDING AND MANIPULATING A STORE OF
EXPLICIT RELATIONS BETWEEN OBJECTS AND THEIR
ATTRIBUTES, A NEW LANGUAGE, LEAP, HAS ALSO BEEN
SPECIFIED. THE NEW HYBRID CONIC GENERATOR HAS BEEN
OPERATED SUCCESSFULLY ON-LINE. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00331

AD-638 314 9/2
CALIFORNIA UNIV LOS ANGELES DEPT OF ENGINEERING
THE DESIGN OF A GRAPHIC DISPLAY SYSTEM, (U)
DESCRIPTIVE NOTE: MASTER'S THESIS,
AUG 67 1967 COGGAN, BARRY B. I
REPT. NO. 67-36
CONTRACT: NONR-233132), SD-184

UNCLASSIFIED REPORT

DESCRIPTORS: (DISPLAY SYSTEMS, GRAPHICS),
(INPUT-OUTPUT DEVICES, DIGITAL COMPUTERS),
TOPOLOGY, SUBROUTINES, COMPILERS,
PROGRAMMING (COMPUTERS), FLOW CHARTING,
THESES (U)
IDENTIFIERS: ON-LINE SYSTEMS, LIGHT PENS,
MULTIPROCESSING (U)

THE STUDY DESCRIBES THE BASIC SPECIFICATIONS FOR A GRAPHIC DISPLAY SYSTEM THAT IS DESIGNED TO HANDLE TWO AREAS OF APPLICATION: (1) USE AS A SPECIAL-PURPOSE DEVICE FOR THE CONTROL OF AN INSTRUMENTATION SYSTEM, AND OBSERVATION, (2) USE AS A GENERAL PURPOSE DISPLAY DEVICE THAT IS CAPABLE OF DEFINING REASONABLY COMPLEX STRUCTURES WHICH WILL BE USEFUL TO A BROAD FIELD OF APPLICATION PROGRAMS, EXISTING SYSTEMS ARE FIRST SURVEYED, THE BASIC CONCEPTS OF ENGINEERING GRAPHICS ARE STUDIED, AND SPECIFIC INSTRUMENTATION DISPLAY REQUIREMENTS ARE DISCUSSED, FINALLY, THIS INFORMATION IS USED TO DERIVE THE BASIC SPECIFICATION FOR A VISUAL INFORMATION PROCESSOR (VIP) THAT WILL SATISFY THE CONSTRAINTS, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00331

AD-658 470 9/2 5/8
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A GRAPHIC TABLET DISPLAY CONSOLE FOR USE UNDER TIME-
SHARING, (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
AUG 67 18P GALLENSON, L. ;
REPT. NO. SP-2835/000/01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: FOR PRESENTATION AT THE FALL JOINT
COMPUTER CONFERENCE, ANAHEIM, CALIF., NOVEMBER 14-
16, 1967.

DESCRIPTORS: (*TIME SHARING, *INPUT-OUTPUT
DEVICES), (*DISPLAY SYSTEMS; TIME SHARING),
MAN-MACHINE SYSTEMS, DATA PROCESSING SYSTEMS,
MAGNETIC CORE STORAGE, GRAPHICS, FLOW CHARTING,
PROGRAMMING (COMPUTERS), COMPUTER STORAGE
DEVICES, COMPUTER LOGIC, CATHODE RAY BES (U)

THE PROBLEMS OF USING HIGHLY INTERACTIVE GRAPHIC
CONSOLES WITH A TIME-SHARED PROCESSOR ARE DISCUSSED
IN THIS PAPER, SOME SOLUTIONS TO THESE PROBLEMS
ARE GIVEN AND ARE ILLUSTRATED IN THE GRAPHIC TABLET
DISPLAY (GTD) CONSOLE USED WITH THE SDC TIME-
SHARING SYSTEM (TSS), ALSO DESCRIBED IN THIS
PAPER ARE THE COMPONENTS OF THE GTD, ITS INTERFACE
WITH THE TSS, AND ITS OPERATION, THE GTD
CONSOLE EMPLOYS A REAR-PROJECTION DISPLAY ON A RAND
TABLET, IMPROVING THE 'NATURALNESS' OF MAN-MACHINE
COMMUNICATION, THE GTD/TSS INTERFACE TAKES
ADVANTAGE OF AN EXISTING I/O PREPROCESSOR TO
PROVIDE THE NECESSARY RESPONSE TIME FOR MOST OF THE
CONSOLE'S HIGHLY INTERACTIVE FUNCTIONS, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700331

AD-659 807 8/2 9/2
UNITED AIRCRAFT CORPORATE SYSTEMS CENTER FARMINGTON
CONN
GRAPHIC DATA HANDLING TECHNIQUES, (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT, JUN 66-JUN 67,
JUN 67 233P WILLIAMS, CLIFFORD W, I
REPT, NO. SCR-351
CONTRACT: DA-44-009-AMC-1631(X)

UNCLASSIFIED REPORT

DESCRIPTIONS: (C)GRAPHICS, DATA PROCESSING
SYSTEMS), (C)MAPPING, DISPLAY SYSTEMS),
(C)MAN-MACHINE SYSTEMS, GRAPHICS), CATHODE RAY
TUBE SCREENS, INPUT-OUTPUT DEVICES, FLOW CHARTING,
COMPUTER PROGRAMS, HUMAN ENGINEERING, DIGITAL
COMPUTERS, AUTOMATION, MAPS (U)
IDENTIFIERS: ON-LINE SYSTEMS, LIGHT PENS,
COMPUTER AIDED GRAPHICS (U)

TECHNIQUES AND EQUIPMENT FOR HANDLING GRAPHIC DATA
WERE THE SUBJECTS OF THE STUDY. THE GRAPHIC DATA
WERE DERIVED FROM LINE MAPS, COLOR SEPARATION SHEETS,
ORTHOPHOTOGRAPHS AND CONTOUR SHEETS. EQUIPMENT WAS
TESTED, WHEREVER FEASIBLE, BY IMPLEMENTING HARDWARE
AND SOFTWARE TO ENABLE THE ON-LINE COMMUNICATION
BETWEEN A HUMAN OPERATOR AND A DIGITAL COMPUTER.
THE HUMAN FACTORS OF HANDLING CARTOGRAPHIC DATA
WITH A CATHODE RAY TUBE DISPLAY EQUIPPED WITH A LIGHT
PEN WERE STUDIED TO A DEGREE SUFFICIENT TO OBTAIN
SPECIFIC CONCLUSIONS. AN OPERATIONAL TEST SYSTEM
WAS USED TO OBTAIN RESULTS OF TESTS AND TO
EXTRAPOLATE THE DATA OBTAINED FROM THESE TESTS INTO
POSSIBLE SYSTEM AND EQUIPMENT CONFIGURATIONS. THE
TEST SYSTEM CONSISTED OF A COMPUTATIONAL COMPLEX
EQUIPPED WITH A GRAPHICAL DISPLAY WITH PROVISION FOR
HUMAN INTERFACE AND AUGMENTED BY A BREADBOARD
SCANNER-DIGITIZER. THE OUTPUT OF THE SYSTEM
CONSISTS OF AN X-Y PLOTTER CAPABLE OF TRANSLATING
DIGITAL DATA INTO HARD COPY, ALTHOUGH THE TESTS
EMPHASIZED THE HUMAN INTERFACE WITH A COMPUTATIONAL
COMPLEX. THE TYPES OF GRAPHICAL DATA TO BE PROCESSED,
THE SOURCES OF THIS DATA, METHODS OF HANDLING DATA,
AND SUGGESTIONS FOR SOLVING THE FILE CONVERSION
PROCESS WERE ALSO INVESTIGATED. THESE
INVESTIGATIONS ARE DIRECTLY RELATED TO THE GRAPHICAL
DATA HANDLING TECHNIQUES BECAUSE IT HAS BEEN
DETERMINED THAT ANY GIVEN TECHNIQUE OR EQUIPMENT WILL
HAVE MANY USES IN THE TOTAL CARTOGRAPHIC SYSTEM.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70033

AD-663 728 9/2 9/5 8/8
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB GRAPHICS, (U)
DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL SUMMARY REPT, 1
JUN-30 NOV 67,
NOV 67 34P RAFFEL, JACK I, I
CONTRACT: AF 19(628)-5167, ARPA ORDER-69;
MONITOR: ESD TR-67-570

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-653 191.

DESCRIPTORS: (MAN-MACHINE SYSTEMS, GRAPHICS),
(GRAPHICS, DATA PROCESSING SYSTEMS), REMOTE
CONTROL SYSTEMS, SCHEDULING, ALGORITHMS, INPUT-
OUTPUT DEVICES, DISPLAY SYSTEMS, COMPILERS,
PROGRAMMING (COMPUTERS), PROGRAMMING LANGUAGES,
MAINTENANCE, INTEGRATED CIRCUITS (U)
IDENTIFIERS: COMPUTER-AIDED DESIGN, COMPUTER
AIDED GRAPHICS, ON-LINE SYSTEMS, VITAL PROGRAMMING
LANGUAGE, LEAP PROGRAMMING LANGUAGE (U)

THE APEX DISPLAY EXECUTIVE HAS BEEN IN REGULAR OPERATION AND EXPERIENCE WITH NEW DISPLAY HARDWARE AND A REMOTE DISPLAY CONSOLE HAS BEEN HELPFUL IN PINPOINTING NEEDED CHANGES, THE APEX INTERRUPT EXECUTIVE HAS BEEN COMPLETED AND WILL BE EVALUATED DURING THE NEXT QUARTER, A NEW APEX SCHEDULING ALGORITHM HAS BEEN IMPLEMENTED IN ORDER TO IMPROVE THE SYSTEM RESPONSE TO USERS, THE 338 REMOTE CONSOLE IS OPERATIONAL IN WASHINGTON, D. C., AND IS BEING USED ON A ROUTINE BASIS, THE COMPILER-COMPILER SYSTEM VITAL IS IN REGULAR USE, THE PROGRAMMING LANGUAGE LEAP, IMPLEMENTED USING VITAL, HAS BEEN USED FOR PROGRAMMING CONSTRAINT PROBLEMS, A PORTION OF THE NEW VITAL SYSTEM, INTEGRATED CIRCUIT MASK LAYOUT, AND TWO DEBUGGING PACKAGES, THESE LATTER PRESENT THEIR DATA GRAPHICALLY TO THE USER, THE DESIGN OF AN IMPROVED VITAL SYSTEM IS UNDER WAY, THE EARTH DISPLAY PROGRAM CREATED EARLIER IN THE YEAR HAS BEEN USED ON ACTUAL DATA OBTAINED FROM LES-4, A NEW APPROACH FOR SOLVING CONSTRAINED SYSTEMS IS UNDER DEVELOPMENT WHICH USES A GEOMETRICAL MODEL, SEVERAL TRIAL APPLICATIONS OF THIS METHOD HAVE BEEN PROGRAMMED USING LEAP, A SPECIAL COMPILER AND LANGUAGE FOR TESTING INTEGRATED CIRCUITS HAVE BEEN DEVELOPED, A THEORY OF GENERALIZED SUPERPOSITION HAS BEEN APPLIED TO WAVEFORM PROCESSING, PROGRAMS HAVE BEEN DEVELOPED FOR SCANNING, PROCESSING, AND PHOTOGRAPHING PICTURES WHICH ARE SUBJECTED TO THIS NEW KIND OF (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00331

AD-664 673 9/2 17/2
MASSACHUSETTS INST OF TECH CAMBRIDGE ELECTRONIC SYSTEMS
LAB
A LOW-COST GRAPHIC DISPLAY FOR A COMPUTER TIME-
SHARING CONSOLE. (U)
DESCRIPTIVE NOTE! TECHNICAL MEMO.,
JUL 67 32P STOTZ, ROBERT H. I
CHEEK, THOMAS B. I
REPT. NO. ESL-TM-316
CONTRACT: NONR-4102(01)
PROJ: DSR-79474

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, *TIME
SHARING), (*INPUT-OUTPUT DEVICES, REMOTE CONTROL
SYSTEMS), (*GRAPHICS, DISPLAY SYSTEMS),
TELETYPE SYSTEMS, TYPEWRITERS, SYMBOLS,
EFFICIENCY, COSTS, DATA TRANSMISSION SYSTEMS,
TELEPHONE COMMUNICATION SYSTEMS, DATA STORAGE
SYSTEMS, LOGIC CIRCUITS, MAN-MACHINE SYSTEMS (U)
IDENTIFIERS: ALPHA-NUMERIC SYMBOLS, KEYBOARDS,
MAC PROJECT, TELETYPEWRITERS (U)

THE ADVENT OF TIME-SHARED COMPUTER SYSTEMS HAS
CREATED A NEED FOR A FLEXIBLE AND RELATIVELY LOW-COST
COMMUNICATION TERMINAL FOR REMOTE COMPUTER ACCESS.
MOST TIME-SHARED SYSTEMS NOW USE MECHANICAL
TELETYPEWRITERS WHICH ARE SLOW AND UNABLE TO PRESENT
GRAPHIC DISPLAYS--A SERIOUS LIMITATION IN MANY
SOPHISTICATED COMPUTER APPLICATIONS. THE BEST
CANDIDATE FOR A TELETYPEWRITER REPLACEMENT APPEARS TO
BE A CRT CONSOLE WITH AN ALPHANUMERIC KEYBOARD
INPUT WHICH CAN CONNECT AS A 'STAND ALONE' UNIT TO A
STANDARD TELEPHONE LINE. THE UNIT USES A DIRECT-
VIEW STORAGE TUBE (DVST) FOR A DISPLAY SCREEN AND
CONTAINS A VECTOR GENERATOR AND A SYMBOL GENERATOR
FOR THE FULL ASCII SYMBOL SET. IT CAN CONNECT TO
A CENTRAL COMPUTER VIA A 1200-2400 BAUD DATAPHONE
LINE. A MANUALLY-CONTROLLED ELECTRONIC CURSOR FOR
GRAPHICAL INPUT TO THE COMPUTER CAN ALSO BE ADDED.
(AUTHOR) (U)

GENERAL APPLICATIONS

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700337

AD-610 121

ELECTRONIC SYSTEMS DIV L W HANSCOM FIELD MASS
CORTEX: A COMPUTER-BASED SYSTEM FOR AIDING DECISION
MAKING, (U)

DEC 64 43P SHUFORD, EMIR H. ;

REPT. NO. ESD-TR-64-677

PROJ: 4690

TASK: 469003

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN INFORMATION SYSTEM
SCIENCES: PROCEEDINGS OF THE SECOND CONGRESS,
SPARTAN BOOKS, INC., WASHINGTON, D. C., 1965

DESCRIPTORS: (*DECISION MAKING, THEORY), (*COMPUTERS,
DECISION MAKING), COMPUTERS, REAL TIME, STATISTICAL
ANALYSIS, DATA PROCESSING SYSTEMS, PROGRAMMING
(COMPUTERS), PROBABILITY, DISTRIBUTION, CATHODE RAY
TUBES, DECISION THEORY (U)

IDENTIFIERS: MAN-MACHINE SYSTEMS, ON-LINE SYSTEMS,
CORTEX, STAT PAC (U)

DECISION THEORY IS THE CONTEMPORARY MANIFESTATION
OF THE MATHEMATICS OF THE DECISION PROCESS AND THUS
CAN BE VIEWED AS A PRIMARY AID TO THE HUMAN DECISION
PROCESS. THE COSTS AND GAINS OF APPLYING THE
CONCEPTS AND ALGORITHMS OF DECISION THEORY ARE
CONSIDERED IN SOME DETAIL. A MAN/ COMPUTER SYSTEM
IS DESCRIBED WHICH IS DESIGNED TO MAKE THE CONCEPTS
AND ALGORITHMS OF DECISION THEORY AVAILABLE TO A
DECISION MAKER AT A GREATLY REDUCED PERSONAL COST.
THIS IS ACHIEVED, IN LARGE PART, BY SIGNIFICANTLY
REDUCING THE SPECIAL KNOWLEDGE REQUIRED OF THE
DECISION MAKER. THUS, THE DECISION MAKER NEEDS NO
KNOWLEDGE OF COMPUTER PROGRAMMING AND A MINIMAL
KNOWLEDGE OF DECISION THEORY AND MATHEMATICS IN ORDER
TO BEGIN USING THE SYSTEM IN HIS DAY-TO-DAY DECISION
MAKING ACTIVITIES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-611 753

MITRE CORP BEDFORD MASS

DESCRIPTION OF THE SYSTEMS DESIGN LABORATORY DISPLAY
CONSOLES. (U)

FEB 65 52P MITCHELL, J. I

REPT. NO. TM-03930

CONTRACT: AF19 628 2390

PROJ: 250 0

MONITOR: ESU , TOR-64-150

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMMAND AND CONTROL SYSTEMS,
TELEVISION DISPLAY SYSTEMS), (*TELEVISION DISPLAY
SYSTEMS, COMMAND AND CONTROL SYSTEMS), (*DATA
PROCESSING SYSTEMS, TELEVISION DISPLAY SYSTEMS),
SYSTEMS ENGINEERING, CATHODE RAY TUBES, COMPUTERS,
MAGNETIC CORE STORAGE, LIGHT COMMUNICATION SYSTEMS,
PHOTOELECTRIC EFFECT, GRAPHICS, TYPEWRITERS,
ELECTRONIC SWITCHES (U)

SIX DISPLAY CONSOLES WERE PURCHASED FOR THE
SYSTEMS DESIGN LABORATORY (SDL) TO FACILITATE
RAPID, ACCURATE COMMUNICATIONS BETWEEN THE SDL DATA
PROCESSING FACILITIES AND THE DISPLAY OPERATORS.
THESE CONSOLES MAY BE CONNECTED TO ANY COMPUTER
ABLE TO CONTROL TM 729 SERIES MAGNETIC TAPE
DRIVES. EACH CONSOLE CONTAINS A 2048-WORD MAGNETIC
CORE MEMORY FOR STORING DISPLAY DATA WHICH IS CODED
IN A HIGHLY EFFICIENT MANNER. IT ALSO CONTAINS
DISPLAY STORAGE IN THE FORM OF A 64-FRAME FILM STRIP
ANY FRAME OF WHICH MAY BE PRESENTED ON THE DISPLAY.
DISPLAY GENERATION IS VERY RAPID AND IS CAPABLE OF
SHOWING ALPHANUMERIC AND SPECIAL CHARACTERS, STRAIGHT
LINES, AND POINTS. THE APPEARANCE OF A NUMBER OF
THE SPECIAL CHARACTERS IS UNDER CONTROL OF THE DATA
PROCESSOR'S PROGRAM. THE DISPLAY OPERATOR IS
PROVIDED WITH SWITCHES, A LIGHT PENCIL, AND A
TYPEWRITER ABLE TO GENERATE INQUIRIES OR STATEMENTS
FOR ENTRY INTO THE DATA PROCESSOR'S PROGRAM.
(AUTHOR) (U)

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AD-621 277

MASSACHUSETTS GENERAL HOSPITAL BOSTON STANLEY COBB LABS
FOR PSYCHIATRIC RESEARCH

RESEARCH ON INFORMATION PROCESSING IN THE CENTRAL
NERVOUS SYSTEM. (U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

JUL 65 26P ERVIN, FRANK R., I

REPT. NO. SR-1

CONTRACT: AF19 628 408

PROJ: 5632

TASK: 563208

MONITOR: AFRL , 65-580

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SUPPLEMENTARY NOTE: A AVAILABLE COPY WILL NOT PERMIT FULLY
LEGIBLE REPRODUCTION, REPRODUCTION WILL BE MADE IF
REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC
SALE.

DESCRIPTORS: (CENTRAL NERVOUS SYSTEMS, DATA
PROCESSING SYSTEMS), (CEREBRAL CORTEX, VISION),
VISUAL PERCEPTION, VISUAL SIGNALS, DIGITAL
COMPUTERS, CATHODE RAY TUBES, STATISTICAL
ANALYSIS, CATS, STIMULATION, NERVE CELLS (U)

IDENTIFIERS: MICROGRAMS (U)

A SYSTEM OF AUTOMATIC RECEPTIVE FIELD MAPPING FOR
VISUAL CORTICAL NEURONS BY A DIGITAL COMPUTER, IT
CONSISTS OF (1) STIMULUS DISPLAY BY A DIGITAL
CRT, SIMULTANEOUS DATA SAMPLING AND ON-LINE DATA
PROCESSING INTO A POST-STIMULUS TIME HISTOGRAM AND AN
AVERAGED EVOKED POTENTIAL, AND (2) OFFLINE
READOUT OF NUMERICAL VALUES AND TABULATION. SEVERAL
PROBLEMS LYING BETWEEN THE NEUROPHYSIOLOGICAL OF
STATISTICAL NATURE OF THE RESPONSE AND DATA
PROCESSING TECHNIQUES ARE ALSO DESCRIBED AND
DISCUSSED. (AU (R)) (U)

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700332

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-626 467 22/3 22/2 17/8
LINCOLN LAB MASS INST OF TECH LEXINGTON
A STEREOSCOPIC DISPLAY FOR ON-LINE MONITORING OF
SIMULATED TERMINAL ENGAGEMENTS. (U)
DESCRIPTIVE NOTE: TECHNICAL NOTE,
DEC 65 27P HARRIS, W. P., MITCHELL, R. T., I
MORFIELD, M. A., ISCHULMAN, A. I., WIESEN, R. A., I
REPT, NO. TN-1965-48
CONTRACT: AF19(628)-5167
PROJ: AF-627A
MONITOR: ESD , TDR-65-562

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (RE-ENTRY VEHICLES, STEREOSCOPIC
DISPLAY SYSTEMS), (STEREOSCOPIC DISPLAY SYSTEMS,
RE-ENTRY VEHICLES), ATMOSPHERE ENTRY, SIMULATION,
CATHODE RAY TUBES, COMPUTERS, INTERCEPTOR
SPACECRAFT (U)
IDENTIFIERS: ON-LINE SYSTEMS, IBM 7094, PDP-1
COMPUTER (U)

A STEREOSCOPIC, DYNAMIC DISPLAY OF RE-ENTRY BODIES
IS DESCRIBED. INFORMATION FOR THE DISPLAY IS
GENERATED BY A SIMULATION PROGRAM ON AN IBM 7094
AND IS FED TO A D.E.C. PDP-1 COMPUTER. THE
PDP-1 DRIVES A D.E.C. TYPE 340 CRY DISPLAY
WHICH IS VIEWED THROUGH A SPECIAL DEVICE BY A SYSTEMS
ANALYST. THE BODY OF THE REPORT GIVES THE
PHILOSOPHY OF THE NEED FOR ON-LINE ANALYSIS AND A
GENERAL DESCRIPTION OF REQUIREMENTS FOR THE DISPLAY.
APPENDICES GIVE DETAILS ABOUT THE OPTICAL VIEWER,
THE MATHEMATICS OF STEREOSCOPIC VIEWING AND A SET OF
OPERATIONAL INSTRUCTIONS FOR THE DISPLAY. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00332

AD-626 733 9/2 9/5
HAWAII UNIV HONOLULU DEPT OF ELECTRICAL ENGINEERING
SOME RESULTS ON CAPABILITIES OF ONEDIMENSIONAL
ITERATIVE LOGICAL NETWORKS AND THEIR RELATED
PROBLEMS. (U)
DESCRIPTIVE NOTE: SCIENTIFIC REPT.,
AUG 65 24P KASAH, YADAO I
REPT. NO. SCIENTIFIC-4
CONTRACT: AF19(628)-4379
PROJ: AF-5628
TASK: 562801
MONITOR: AFRL , 65-602

UNCLASSIFIED REPORT

DESCRIPTORS: (COMPUTER LOGIC, ITERATIVE
METHODS), ELECTRICAL NETWORKS, THEORY,
AUTOMATA, PROGRAMMING LANGUAGES, CONTEXT FREE
GRAMMARS, MAGNETIC TAPE, SEQUENCE SWITCHES (U)
IDENTIFIERS: TURING MACHINE, PUSHDOWN STORAGE (U)

RESULTS ON CAPABILITIES OF ONE-DIMENSIONAL SYSTEMS
OF ITERATIVE LOGICAL NETWORKS ARE PRESENTED. IT IS
SHOWN THAT (1) KILNER'S RESULT (AD-425 943)
IMPLIES A POSITIVE ANSWER TO HENNIE'S CONJECTURE
('ITERATIVE ARRAYS OF LOGICAL CIRCUITS,' MIT
PRESS, CAMBRIDGE, MASS, 1961) THAT THE
UNILATERAL SYSTEMS WHICH ARE STABLE IN THE WIDE SENSE
ARE MORE POWERFUL THAN THE STRICTLY STABLE UNILATERAL
SYSTEMS, (2) THE UNILATERAL SYSTEMS WHICH ARE
STABLE IN THE WIDE SENSE ARE MORE POWERFUL THAN THE
NONDETERMINISTIC PUSH-DOWN AUTOMATA, (3) THE
STRICTLY STABLE UNILATERAL SYSTEMS ARE MORE POWERFUL
THAN THE DETERMINISTIC PUSH-DOWN AUTOMATA AND (4)
A PROPER SUBCLASS OF STRICTLY STABLE UNILATERAL
SYSTEMS IS MORE POWERFUL IN A SENSE THAN THE CLASS OF
TWO-TAPE ONE-WAY AUTOMATA. IT ALSO IS PROVED THAT
(1) A LANGUAGE GENERATED BY A LINEAR GRAMMAR IS N
SQUARED-RECOGNIZABLE BY A SINGLE-TAPE TURING
MACHINE IN THE SENSE OF HARTMANIS AND STEARNS
('COMPUTATIONAL COMPLEXITY OF RECURSIVE SEQUENCES,'
PROC. FIFTH ANNUAL SYMPOSIUM OF SWITCHING
CIRCUIT THEORY AND LOGICAL DESIGN', (OCT.
1964) P. 82-90, AND (2) THERE IS A LANGUAGE
WHICH IS GENERATED BY A LINEAR GRAMMAR AND IS NOT N-
RECOGNIZABLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /00332

AD-632 569 5/7 9/2 9/4
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
A NOTE ON COMPUTING TIME FOR RECOGNITION OF LANGUAGES
GENERATED BY LINEAR GRAMMARS, (U)
APR 66 13P KASAMI, TADA0 ;
REPT, NO. R-287,
CONTRACT: DA-28-043-AMC-00073(E), NSF-GK-690
PROJ: 20014501B31F,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-626 733.

DESCRIPTORS: (COMPUTATIONAL LINGUISTICS, TIME),
COMPUTERS, AUTOMATA, GRAMMARS, LINEAR SYSTEMS,
MAGNETIC TAPE (U)
IDENTIFIERS: TURING MACHINE, ON-LINE SYSTEMS (U)

IT IS SHOWN THAT (1) THERE EXISTS A LANGUAGE L
SUB O WHICH IS GENERATED BY A LINEAR GRAMMAR AND IS
NOT $\gamma(N)$ -RECOGNIZABLE BY ANY ON-LINE MULTI-TAPE
TURING MACHINE IF $\lim \gamma(N)/(N/\log N)$ SQUARED
(AS N APPROACHES INFINITY) EQUALS ZERO AND (2)
ANY LANGUAGE GENERATED BY A LINEAR GRAMMAR IS N
SQUARED-RECOGNIZABLE BY AN ON-LINE SINGLE-TAPE
TURING MACHINE IN THE SENSE OF HARTMANIS AND
STEARNS (COMPUTATIONAL COMPLEXITY OF RECURSIVE
SEQUENCES, PROC, THE FIFTH ANNUAL SYMP, OF
SWITCHING CIRCUIT THEORY AND LOGICAL
DESIGN, P, 82-90 (1964)), (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-635 431 9/2
RESEARCH LAB OF ELECTRONICS MASS INST OF TECH
CAMBRIDGE
ON-LINE TURING MACHINE COMPUTATIONS, (U)
DESCRIPTIVE NOTE: REVISED ED,
OCT 65 IOP HENNIE, F. C. I
CONTRACT: DA-36-039-AMC-03200(E), NSF-GP-2493

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN IEEE TRANSACTIONS ON
ELECTRONIC COMPUTERS VECIS N1 P35-44 FEB 1966.
SUPPLEMENTARY NOTE: GRANT NSG-496, REVISION OF
MANUSCRIPT SUBMITTED 19 JUN 65.

DESCRIPTORS: (AUTOMATA, OPERATION), TIME,
INPUT-OUTPUT DEVICES, DATA STORAGE SYSTEMS,
INFORMATION RETRIEVAL, DIGITAL COMPUTERS,
OPTIMIZATION, PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: TURING MACHINE, ON-LINE SYSTEMS (U)

THE PAPER INVESTIGATES (1) THE PROBLEM OF
FINDING LOWER BOUNDS ON THE COMPUTATION TIMES OF ON-
LINE TURING MACHINES, AND (2) THE TRADE-OFF
RELATIONSHIP BETWEEN COMPUTATION TIME AND TAPE
DIMENSIONALITY. IT CONSIDERS PROBLEMS IN WHICH A
TURING MACHINE IS SUPPLIED WITH A SEQUENCE OF
INPUTS REPRESENTING DATA TO BE STORED ON THE
MACHINE'S TAPE(S), FOLLOWED BY A SEQUENCE OF
INPUTS REQUESTING THE MACHINE TO FIND AND EXAMINE
VARIOUS PORTIONS OF THE STORED DATA. THE APPROACH
TAKEN IS TO ASSUME THAT THE MACHINE HAS BEEN DESIGNED
TO READ IN AND STORE DATA IN SUCH A WAY AS TO
MINIMIZE THE TIME REQUIRED TO SUBSEQUENTLY LOCATE
ARBITRARY PORTIONS OF THAT DATA. THIS APPROACH
SOMETIMES MAKES IT POSSIBLE TO FIND GOOD LOWER BOUNDS
ON THE COMPUTATION TIME (NUMBER OF MACHINE STEPS)
NEEDED TO PROCESS THE PORTION OF THE INPUT SEQUENCE
THAT CALLS FOR THE RETRIEVAL OF DATA. IT IS SHOWN
THAT THERE ARE SOME PROBLEMS IN WHICH AN INCREASE IN
TAPE DIMENSIONALITY APPRECIABLY REDUCES THE
COMPUTATION TIME NEEDED, BUT IT IS ALREADY KNOWN
THAT INCREASING THE NUMBER OF A MACHINE'S TAPES
(BEYOND TWO) DOES NOT APPRECIABLY DECREASE THE
COMPUTATION TIME NEEDED, THUS, TAPE DIMENSIONALITY
AND TAPE MULTIPLICITY ARE PARAMETERS THAT AFFECT
COMPUTATION TIME IN BASICALLY DIFFERENT WAYS.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-602 172 9/2
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
A DIGITAL SYSTEM FOR ON-LINE STUDIES OF DYNAMICAL
SYSTEMS, (U)
66 8P BARTEE, Y. C. ILENIS, J. B. I
REPT. NO. MX-1518
CONTRACT: DA 19(628)-5167
MONITOR: ESD TR-66-226

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PROCEEDINGS OF THE
SPRING JOINT COMPUTER CONFERENCE, BOSTON, 26-28
APRIL 1966.

DESCRIPTORS: (DIGITAL SYSTEMS, DYNAMICS),
DIGITAL COMPUTERS, DIGITAL DIFFERENTIAL ANALYZERS,
DIFFERENTIAL EQUATIONS (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE PAPER DESCRIBES THE DESIGN AND OPERATION OF A
DIGITAL SYSTEM WHICH IS USEFUL FOR ON-LINE STUDIES OF
DYNAMICAL SYSTEMS, I.E., SYSTEMS DESCRIBED BY
ORDINARY DIFFERENTIAL EQUATIONS. THE SYSTEM IS A
COMBINATION OF A SMALL, GENERAL-PURPOSE DIGITAL
COMPUTER AND A HIGH-SPEED DIGITAL DIFFERENTIAL
ANALYZER (DDA) WHICH USES A 1.5 MICROSEC, SPLIT-
CYCLE CORE MEMORY. THE INTERCONNECTION OF THE
INTEGRATORS OF THE DDA IS SPECIFIED AS PART OF AN
86-BIT WORD, AND THERE ARE 256 WORDS (OR
INTEGRATORS) IN THE MACHINE. INTERCONNECTION OF
THE SMALL GENERAL-PURPOSE COMPUTER TO A LARGE TIME-
SHARED SYSTEM MAKES AUTOMATIC MAPPING, SCALING, AND
INTERCONNECTION OF THE DDA POSSIBLE, AND THUS, ON-
LINE OPERATION WITH RELATIVELY SHORT TIMES FOR
SETTING UP AND RUNNING ARE ACHIEVED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-643 313 9/2 12/1
COMPUTER RESEARCH CORP NEWTON MASS
MAGIC PAPER - AN ON-LINE SYSTEM FOR THE MANIPULATION
OF SYMBOLIC MATHEMATICS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
APR 66 47P CLAPP, LEWIS C. ; JORDAN, DALE
E. ; WAX, ELLEN J. ; WOLF, ROBERT S. ;
REPT. NO. R-105-1
CONTRACT: AF 19(628)-3098
PROJ: U-105

UNCLASSIFIED REPORT

DESCRIPTORS: (*MATHEMATICS, *DATA PROCESSING
SYSTEMS), EQUATIONS, ALGEBRA, OPERATION (U)
IDENTIFIERS: ON-LINE SYSTEMS, MAGIC PAPER SYSTEM,
SYMBOLIC MATHEMATICS, LIGHT PENS, *DISPLAY
SYSTEMS (U)

THE REPORT DESCRIBES THE PRELIMINARY VERSION OF THE
MAGIC PAPER SYSTEM, THROUGH A CONVERSATIONAL
INTERACTION, THE SYSTEM AIDS THE SCIENTIST, ENGINEER
OR MATHEMATICIAN AS HE PERFORMS SYMBOLIC OPERATIONS
ON LINEAR ALGEBRAIC EQUATIONS, THE USER BEGINS BY
ENTERING HIS INITIAL EQUATIONS AND CONDITIONS THROUGH
A MATHEMATICAL KEYBOARD, AS HE TYPES THESE
EQUATIONS, THEY ARE DISPLAYED ON A FLICKER-FREE SCOPE
IN STANDARD MATHEMATICAL NOTATION, USING A PUSH-
BUTTON CONTROL PANEL AND A LIGHT PEN, HE MAY SELECT
EXPRESSIONS AND OPERATIONS WHICH ARE TO BE PERFORMED
ON THEM, IF THE OPERATION IS LEGAL, THE SYSTEM
GENERATES A NEW EQUATION WHICH IS THEN ADDED TO THE
SCOPE DISPLAY, WITH THE BASIC SET OF OPERATIONS,
THE USER MAY CREATE NEW OPERATORS WHICH CAN THEN BE
ADDED TO THE SYSTEM, HE CAN ALSO INTRODUCE SPECIAL
NOTATIONAL CONVENTIONS, THE USER HAS CONSIDERABLE
CONTROL WHICH ENABLES HIM TO PERSONALIZE THE SYSTEM
TO MEET HIS OWN PARTICULAR NEEDS, (AUTHOR) (U)

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AD-652 425 9/2

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)
CONTROL ARRANGEMENTS FOR ON-LINE OR OFF-LINE
OPERATION OF AN INCREMENTAL PLOTTER IN THE MERCURY
COMPUTER SYSTEM, (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 66 22P SANDERSON, K. ;
REPT. NO. RAE-TR-66285

UNCLASSIFIED REPORT

DESCRIPTORS: (PLOTTERS, DATA PROCESSING
SYSTEMS), INPUT-OUTPUT DEVICES, MAGNETIC TAPE,
DATA (U)

IDENTIFIERS: MERCURY COMPUTER, ON-LINE SYSTEMS,
OFF-LINE SYSTEMS (U)

A DIGITAL INCREMENTAL PLOTTER HAS BEEN INCORPORATED
INTO THE MERCURY COMPUTER SYSTEM IN MATHEMATICS
DEPARTMENT. TWO PLOTTING FACILITIES HAVE BEEN
PROVIDED - DIRECT ON-LINE OPERATION FROM THE COMPUTER
AND OFF-LINE OPERATION FROM COMPUTER OUTPUT RECORDED
ON MAGNETIC TAPE. THE REPORT IS PRIMARILY
CONCERNED WITH THE CONTROL ARRANGEMENTS PROVIDED TO
IMPLEMENT THE NEW FACILITIES. OUTLINE
CHARACTERISTICS AND OPERATION OF THE PLOTTER ARE ALSO
GIVEN. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-655 978 5/10 9/2
WESTERN AUSTRALIA UNIV NEDLANDS DEPT OF PSYCHOLOGY
A COMPUTER-LINKED RUNWAY FOR REAL TIME
OPERATION. (U)
67 4P NICHOLLS, IAN G. ;
CONTRACT: AF-AFOSR-968-65
PROJ: AF-9778
TASK: 977801
MONITOR: AFOSR 67-1751

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN PSYCHON SCI V7 N9
P319-20 1967.

DESCRIPTORS: (PSYCHOMETRICS, DATA PROCESSING
SYSTEMS), (TIME SHARING, EXPERIMENTAL
DESIGN), REAL TIME, COSTS, INPUT-OUTPUT
DEVICES, COMPUTER PROGRAMS, RATS, RUNWAYS,
VELOCITY, RELIABILITY (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE PAPER OUTLINES A SYSTEM FOR RECORDING THE
RUNNING TIMES OF RATS IN A STRAIGHT RUNWAY USING A
TIME-SHARED COMPUTER, A DESCRIPTION IS GIVEN OF
THE HARDWARE AND SOFTWARE USED, AND THE ADVANTAGES OF
THE SYSTEM ARE DISCUSSED. (AUTHOR) (U)

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700332

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DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-656 425 3/1

SACRAMENTO PEAK OBSERVATORY SUNSPOT N MEX
SOLAR RESEARCH AND INSTRUMENTATION PROGRAMS AT
SACRAMENTO PEAK OBSERVATORY AND HIGH ALTITUDE
OBSERVATORY, (U)

DESCRIPTIVE NOTE: FINAL REPT. (MAR 64-3) DEC 66,
JUN 67 21P SHUTT, ROBERT L. SWATSON, D.

KEITH I

CONTRACT: AF 19(628)-4078

PROJ: AF-7649

TASK: 764906

MONITOR: AFCL 67-0390

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH HIGH
ALTITUDE OBSERVATORY, BOULDER, COLO.

DESCRIPTORS: (SUN, SCIENTIFIC RESEARCH),
(DATA PROCESSING SYSTEMS, SUN), (OPTICAL
INSTRUMENTS, SUN), (JUPITER (PLANET),
RADIO ASTRONOMY), ASTRONOMICAL OBSERVATORIES,
INPUT-OUTPUT DEVICES, DIFFRACTION GRATINGS,
RESOLUTION, SOLAR RADIATION, CHROMOSPHERE,
SOLAR FLARES, INFRARED PHOTOGRAPHY (U)

IDENTIFIERS: SPECTROGRAPHS, ON-LINE SYSTEMS (U)

FOR SEVERAL YEARS THE STAFF OF THE SACRAMENTO
PEAK OBSERVATORY CONCENTRATED ON THE DEVELOPMENT
OF NEW INSTRUMENTS AND DATA ACQUISITION SYSTEMS FOR
SOLAR RESEARCH. DISCUSSED IN SOME DETAIL ARE THE
OPTO-MECHANICAL DESIGN FEATURES OF THE SIX-CHANNE
UNIVERSAL SPECTROGRAPHY NOW IN OPERATION AT
SACRAMENTO PEAK. BRIEF DESCRIPTIONS OF SOLAR
RESEARCH PROGRAMS AT SACRAMENTO PEAK
OBSERVATORY AND THE HIGH ALTITUDE OBSERVATORY
ARE ALSO GIVEN. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-657 977 2078 972
STANFORD UNIV CALIF HIGH ENERGY PHYSICS LAB
THE USE OF AN ON-LINE DIGITAL COMPUTER IN CLOSED-LOOP
HIGH-ENERGY PHYSICS EXPERIMENTS. (U)
67 18P CRANNELL, HALL YEARIAN, M,
R, FRIEDL, PAUL ISEDERHOLM, CHARLES I
DYE, WILLIAM I
RPT. NO. HEPL-139
CONTRACT: NONR-225(67)
PROJ: NR-022-026

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN THE JOURNAL OF
COMPUTATIONAL PHYSICS V1 N3 P205-20 FEB 1967,
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH IBM
CORP., PALO ALTO, CALIF. SCIENTIFIC CENTER.

DESCRIPTORS: (DIGITAL COMPUTERS, NUCLEAR
PHYSICS), (DATA PROCESSING SYSTEMS, NUCLEAR
PHYSICS), LINEAR ACCELERATORS, ELECTRONS,
INPUT-OUTPUT DEVICES, SUBROUTINES, PROGRAMMING
LANGUAGES, COMPUTER LOGIC (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

SINCE APRIL 1965, IBM AND THE W. N.
HANSEN HIGH-ENERGY PHYSICS LABORATORY AT
STANFORD UNIVERSITY HAVE BEEN ENGAGED IN A JOINT
STUDY OF USE OF ON-LINE COMPUTERS IN HIGH-ENERGY
PHYSICS EXPERIMENTS, IN THE HIGH-ENERGY
LABORATORY, ELECTRONS WITH ENERGIES UP TO 1.2
BEV, PRODUCED BY THE STANFORD MARK III 310-
FY LINEAR ACCELERATOR, ARE ALLOWED TO BOMBARD VARIOUS
TARGET MATERIALS, ELECTRONS, OR SECONDARY
PARTICLES PRODUCED BY THE ELECTRONS, ARE DETECTED
WITH SEVERAL DIFFERENT KINDS OF DETECTORS,
INFORMATION FROM THE DETECTORS IS RELAYED TO THE
DATA-ACQUISITION AREA WHERE IT IS PROCESSED AND
STORED, WHILE CONTROL INFORMATION IS FED BACK TO
NUCLEAR INSTRUMENTATION BY THE COMPUTER, THIS
PAPER NOT ONLY CONTAINS A DESCRIPTION OF THE COMPUTER
AND INSTRUMENT INTERFACES, BUT ALSO THE APPLICATION-
ORIENTED PROGRAMMING APPROACHES USED TO OPERATE THESE
DEVICES IN VARIOUS EXPERIMENTS, SEVERAL DIFFERENT
EXPERIMENTS USING THE DATA-ACQUISITION COMPUTER
SYSTEM ARE DESCRIBED, AND PLANS FOR FUTURE
MODIFICATIONS AND IMPROVEMENTS ARE DISCUSSED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-658 379 9/2

JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS
LAB

A DIRECT BINARY DIVIDER FOR SPECIAL PURPOSE DIGITAL
COMPUTERS, (U)

JAN 61 15F ZINK, H. D. I

REPT. NO. CF-2916

CONTRACT: NORD-7386

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL COMPUTERS, BINARY
ARITHMETIC, *COMPUTER LOGIC, *BINARY
ARITHMETIC, NUMERICAL METHODS AND PROCEDURES,
SHIFT REGISTERS, REAL TIME, ITERATIVE METHODS (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

THE REPORT DESCRIBES THE DIVIDER CIRCUIT DEVELOPED
IN AN ATTEMPT TO SOLVE THE PROBLEM OF DIVIDING
WITHOUT USING ITERATIVE TECHNIQUES AND WITHOUT UNDULY
SLOWING DOWN THE COMPUTATION PROCESS OF A DIGITAL
COMPUTER. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 700332

AD-668 626 6/3 9/2
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO
REAL-TIME DIGITAL ANALYSIS SYSTEM FOR BIOLOGICAL
DATA. (U)
66 6P MUNDIE, J. RYLAND ;
OESTREICHER, H. L. IVON GIERKE, W. E. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN IEEE SPECTRUM, P116-21
OCT 1966.

DESCRIPTORS: (DATA PROCESSING SYSTEMS,
BIOLOGY), DIGITAL COMPUTERS, BIOLOGICAL
LABORATORIES, REAL TIME, REMOTE CONTROL SYSTEMS
DISPLAY SYSTEMS, ANALOG-TO-DIGITAL CONVERTERS,
MULTIPLEX, NERVOUS SYSTEM, NERVE CELLS (U)
IDENTIFIERS: ON-LINE SYSTEMS (U)

IN THE SYSTEM DESCRIBED, A MEDIUM-SIZE DIGITAL
COMPUTER HAS BEEN BROUGHT INTO THE LABORATORY AND
MADE AN INTEGRAL PART OF THE EXPERIMENT TO PROVIDE A
MEASUREMENT TOOL WITH UNIQUE CAPABILITIES.
ALTHOUGH THE SYSTEM WAS DESIGNED FOR USE IN A
BIOLOGICAL LABORATORY, IT IS EQUALLY FEASIBLE FOR A
LABORATORY OF ANY DISCIPLINE. THE EASE OF CONTROL,
COUPLED WITH A VISUAL DISPLAY OF THE COMPUTED
RESULTS, HAVE LED TO THE APPELLATION, A 'THIRD
GENERATION' OSCILLOSCOPE. (AUTHOR) (U)

UNCLASSIFIED

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•CALIFORNIA UNIV BERKELEY

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• COMPUTER RESEARCH CORP CAMBRIDGE
 MASS•

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• COMPUTER RESEARCH CORP NEWTON MASS

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 ESD-TDR-65-168
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 ESD-TDR-65-456
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