In this newsletter we discuss the current BALMSETL imple-
mentation and how to run BALMSETL programs. We also mention a
few features of the BALM system of interest to BALMSETL users.

The implementation is available on two permanent files:

BIA4293 - which contains the procedure definitions for the
basic SETL operations; and

BIB4293 - which provides for the use of SETL operators in
infix form.

Both files should be input using the EXECUTE procedure (details
below). After "executing" BIA4293, one may write:

1) A = MAKSET (10,20,30); B = WITHP(A,40); C = ARBP(A); etc.

After "executing" BIB4293, one could write 1) as

A = MAKSET (10,20,30); B = A WITH 40; C = ARB A; etc.

Note that the operator precedence established by BIB4293 is as
follows (in decreasing order):

a) monadic operators giving boolean values from non-boolean
arguments: ATOM, PAIR.

b) infix operators giving boolean values: EQ, LT, EL, etc.

c) monadic operators except as in a)

d) infix operators except as in b). Note that the func-
tional application operators are in this group, so that

G OF X   LT   1

is interpreted as

G OF (X LT 1).

Operator precedences may be specified by users (for details,
see Dave Shields).

Note the following limitations in the current implementation:

a) Function application is defined for only one argument;
thus, G OF X, or OFP(G,X) is legal, while G OF (X,Y) is not.

b) Character strings are available. The SETL string 'ABC'
is written ⟨ABC⟩; the null string " is ⟨ ⟩. All character string
operations except OCT are available. Bit strings are not available;
for the present, use BALM octal constants;

c) No indication of error is given if an attempt is made to
add UNDEF (_Ω_) to a set; the value of S with UNDEF is S.

d) Avoid operations which treat a set as an ordered pair,
and vice versa. Note that if the BALM TL (CDR) is used instead of
the BALMSETL TL (TLP), then TL MAKTUP(A,B) is (B), (the list con-
taining B), and not B.

e) <u>Assignments to arguments of a procedure (PROC) will be
in effect only during the execution of the procedure.</u> For this
reason, the functions IS, FROM, and IN are not available. Note
that after executing

    ISP = PROC(X,Y), X=Y END; A=10; B=20; C=30;
            A=ISP(B,C);

A will have the value 30; B will have value 20, (not 30) and C
will have value 30. However, one may define IS as an infix func-
tion associating to the right, executing

    INFIX (=IS, 2002, 2003, =SETQ)

f) The implementation is very inefficient; don't worry about
optimizing your BALMSETL programs.

BALMSETL USING ˣINTERCOM

CR indicates "Return" Key.

LOGIN.

TYPE VALID USER NAME-SHL1413   CR
████████ TYPE VALID PASSWORD-
 03/08/71 LOGGED IN AT 13.20.34.
COMMAND - CONNECT(INPUT,OUTPUT)   CR

COMMAND - EFL,60000.   CR
COMMAND - ATTACH(BIA,BIA4293) CR
 ATTACH(BIA,BIA4293)
COMMAND - BALM,TTY.   CR
BALM 3.2 - 1JUN70
FREESPACE LENGTH   13424B
STACK LENGTH   3616B
BLOCKSPACE LENGTH   2752B

 BIA = FILE(&BIA&); ERRS=FILE(&ERRS&); EXECUTE(BIA,ERRS);   CR

< BUGS IN HD, TL, EQL,FIRST, LAST FIXED >
< UOF, NEWAT, INCS ADDED 8 MARCH   (D S) >
<IMPLEMENTATION ROUTINES INPUT>

 U=MAKSET(10,20,30); V=MAKSET(10,30); PRINT(INCSP(U,V));   CR

TRUE   (V is subset of U)

 EXIT();   CR
 BALM DONE
COMMAND - LOGOUT.   CR
YOU NO LONGER OWN ANY PRIVATE FILES.
CP TIME   6.673
PP TIME   28.081
 03/08/71 OFF AT 13.23.53.

Running BALMSETL programs under SCOPE (batch).

Here is a recommended dec' for submitt running

BALMSETL programs:

JOB1234,T30,CM60000. *your name *

ATTACH(BIA,BIA4293)

ATTACH(BIB,BIB4293)

BALM.

E-O-R

BIA ← FILE(≠BIA≠); EXECUTE(BIA,OUTPUT);

BIB=FILE(≠BIB≠); EXECUTE(BIB,OUTPUT);

(insert program here)

EXIT(); (used to exit from BALM)

E-O-F

— CODES FOR BALM SPECIAL SYMBOLS —

DISPLAY		PRINTER	TTY		PUNCH CODE
60	≡	"	'		0-8-6
61	[	[			8-7
62	]	]			0-8-2
63	:	:			8-2
64	≠	&			8-4
65	→		•		0-8-5
66	∨				11-0
67	∧	@			0-8-7
70	↑				11-8-5
71	↓				11-8-6
72	<	<			12-0
73	>	>			11-8-7
74	≤	'	/		8-5
75	≥	z	\		12-8-5
76	¬			SHIFT L	12-8-6
77	;		,		12-8-7
Abort	Blank	#			Blank
Backspace	Blank	←			Blank
Erase	Blank	CTRL+X			Blank
EOL	Blank	CR			Blank