



Journal of the ISTE Special Interest Group for Logo-Using Educators



LOGO EXCHANGE

December 1989

Volume 8 Number 4

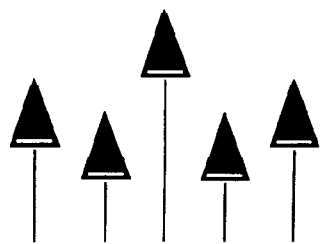
Snowmen
Children make snowmen with snowflakes
in winter time. Children think
making a snowman is fun.



International Society for Technology in Education



Publications



LOGO EXCHANGE

Volume 8 Number 4

Journal of the ISTE Special Interest Group for Logo-Using Educators

December 1989

Founding Editor

Tom Lough

Editor-In-Chief

Sharon Yoder

International Editor

Dennis Harper

International Field Editors

Jeff Richardson

Jun-ichi Yamashita

Harry Pinxteren

Fatimata Seye Sylla

Jose Armando Valente

Hillel Weintraub

Contributing Editors

Eadie Adamson

Gina Bull

Glen Bull

Doug Clements

Sandy Dawson

Dorothy Fitch

Judi Harris

International Society for Technology in EducationAnita Beal, *Managing Editor*Vincent Elizabeth Fain, *Advertising*Dave Moursund, *CEO*Mark Horney, *SIG Coordinator*Cathy Gunn, *PageMaker Layout***SIG Logo Board of Directors**Gary Stager, *President*Lora Friedman, *Vice-President*Beverly and Lee Cunningham, *Communications*Frank Matthews, *Treasurer***Publisher**

International Society for Technology in Education

Advertising space in each issue of *Logo Exchange* is limited. Please contact the Advertising Mgr. for availability and details.

Logo Exchange is the journal of the International Society for Technology in Education Special Interest Group for Logo-using Educators (SIGLogo), published monthly September through May by ISTE, University of Oregon, 1787 Agate Street, Eugene, OR 97403-9905, USA.

POSTMASTER: Send address changes to *Logo Exchange*, Uofo, 1787 Agate St., Eugene, OR 97403. Second-class postage paid at Eugene OR. USPS #000-554.

Contents**From the Editor — Happy Holidays**

Sharon Yoder

2

Monthly Musings — ST, HT

Tom Lough

4

Logo Ideas — Time, Numbers, and Other Things

Eadie Adamson

5

A Primary Instant Program Leads to Theme Booklets

Glenda Bentz

9

Beginner's Corner — Holiday Wrappings

Dorothy Fitch

11

Cooperative Creations

Jandy Bird

14

LogoLinX — Turtle Out of Bounds: Terrapins Off-Screen

Judi Harris

16

MathWorlds — Clime Report: A Problem, a Plea, and Some Activities

Igor Charischak, Bob Jonsen & Richard Binswanger

18

Logo & Company — Sight and Sound: The Next Decade Part I, The Sounds of Tomorrow

Glen Bull, Gina Bull

21

A New Primitive for Logowriter

Charles Crume

25

Centering on Logo — The 1989 International Computer Solving Contest: Junior Logo Results

Donald Piele and Sharon Yoder

27

Search and Research — Recurrent Recursion Misconceptions

Douglas H. Clements

31

ISTE Basic Membership(8 issues of *Update* and *The Computing Teacher*)

	U.S.	Non-U.S.
1 year membership	28.50	36.00

SIG Logo Membership (includes *The Logo Exchange*)

	U.S.	Non-U.S.
ISTE Member Price	25.00	30.00
Non-ISTE Member Price	30.00	35.00

Send membership dues to ISTE. Add \$2.50 for processing if payment does not accompany your dues. VISA and Mastercard accepted. Add \$18.00 for airmail shipping.

© All papers and programs are copyrighted by ISTE unless otherwise specified. Permission for republication of programs or papers must first be gained from ISTE c/o Talbot Bielefeldt.

Opinions expressed in this publication are those of the authors and do not necessarily reflect or represent the official policy of ISTE.



if phrase such as "Logo Exchange" requires 25,000 bytes of storage on average, it would be possible to store 4 phrases on an Apple II disk and 10,000 phrases on the NeXT disk.

<u>Computer</u>	<u>Price</u>	<u>Bytes Storage</u>	<u>Phrases</u>
Apple II	\$1500	100,000	4
NeXT	\$6000	250,000,000	10,000

In short, digitized speech is a practical tool on the NeXT computer. When these capabilities become standard in the classroom, it will be possible to use digitized speech and sounds to accompany text.

Summary

As we enter the next decade it is evident that Rod Scrling's "dimension of sound" will enter the classroom. In next month's column at the beginning of the new year and new decade we will consider the dimension of sight in "Part II: Visions of the 90's."

Glen and Gina Bull
Curry School of Education
Ruffner Hall
University of Virginia
Charlottesville, VA 22903

BITNET addresses:
Glen: LB2B@ VIRGINIA. Gina: RLBOP@ VIRGINIA.

A New Primitive for LogoWriter

by Charles E. Crume, B.S

The Logo computer language differs from many other computer languages in that it provides the capability to work with words and lists. (A word is defined to as one or more characters with no intervening spaces and a list is defined as one or more words with intervening spaces.) Logo words and lists are dynamic entities — the number of elements they contain can change throughout the execution of a program.

To facilitate working with words and lists, Logo provides primitives such as FIRST, BUTFIRST, LAST, BUTLAST, and ITEM. As we will see, the primitives BUTFIRST and BUTLAST perform the opposite function of FIRST and LAST RESPECTIVELY. Most versions of Logo, however — including *LogoWriter* — do not provide a primitive to perform the opposite of ITEM (a function I often need). Therefore, I decided to write such a primitive. The procedure is called BUTITEM. The code for this primitive and an example program using it are shown at the end of this article. Before presenting BUTITEM however, a review of the primitives FIRST, BUTFIRST, LAST, BUTLAST, and ITEM might be helpful.

The primitive FIRST reports the first element of its input. For example, the command:

```
PRINT FIRST [THE WEATHER IS FINE
             TODAY]
```

prints the word

```
THE
```

In instances where everything except the first element of the input is needed, the primitive BUTFIRST is used. For example, the command:

```
PRINT BUTFIRST [THE WEATHER IS FINE
                TODAY]
```

prints the list

```
[WEATHER IS FINE TODAY]
```

Sometimes however, the last element instead of the first element is needed. In such a case the primitive LAST is he used. For example, the command:

```
PRINT LAST [THE WEATHER IS FINE
            TODAY]
```

A New Primitive for LogoWriter--continued

prints the word

```
TODAY
```

Just as the opposite of FIRST is BUTFIRST, the opposite of LAST is BUTLAST. To report everything except the last element of the input the primitive BUTLAST is used. For example, the command:

```
PRINT BUTLAST [THE WEATHER IS FINE TODAY]
```

prints the list

```
[THE WEATHER IS FINE]
```

In addition to these four primitives, Logo also provides the primitive ITEM (which reports any specific element contained in a word or list). For example, the command:

```
PRINT ITEM 3 [THE WEATHER IS FINE TODAY]
```

prints the word

```
IS
```

and the command:

```
PRINT ITEM 4 [THE WEATHER IS FINE TODAY]
```

prints the word

```
FINE
```

As mentioned earlier in this article, most versions of Logo do not provide a primitive that performs the opposite of ITEM. Thus, a procedure that reports everything except the specified item was developed. The procedure is called BUTITEM and the code is shown below:

```
TO BUTITEM :MYITEM :MYLIST
IFELSE :MYITEM = 1 [OUTPUT BUTFIRST
:MYLIST] [OUTPUT SENTENCE FIRST
:MYLIST BUTITEM :MYITEM - 1 BUT-
FIRST :MYLIST]
END
```

The procedure BUTITEM takes two inputs. The first input is a positive integer specifying which element is to be

removed. The second input is the word or list to be processed. For example, the command:

```
PRINT BUTITEM 3 [THE WEATHER IS FINE TODAY]
```

prints the list

```
[THE WEATHER FINE TODAY]
```

The following Logo program demonstrates how one could make use of the BUTITEM procedure:

```
TO DEMO
MAKE "PEOPLE [MOM DAD BROTHER SISTER
AUNT UNCLE]
DISPLAY :PEOPLE
END

TO DISPLAY :X
IF EMPTY? :X [STOP]
MAKE "I (RANDOM COUNT :X) + 1
PRINT ITEM :I :X
DISPLAY BUTITEM :I :X
END
```

The above program will display the various people in a random order each time the program is executed.

Additional information on this and other Logo topics can be found in *Computer Science Logo Style, Volume 1: Intermediate Programming*, written by Brian Harvey, and published by the MIT Press.

Charles E. Crume, B.S.
 Technical Consultant
 University of Nevada System Computing Services
 University of Nevada Reno