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

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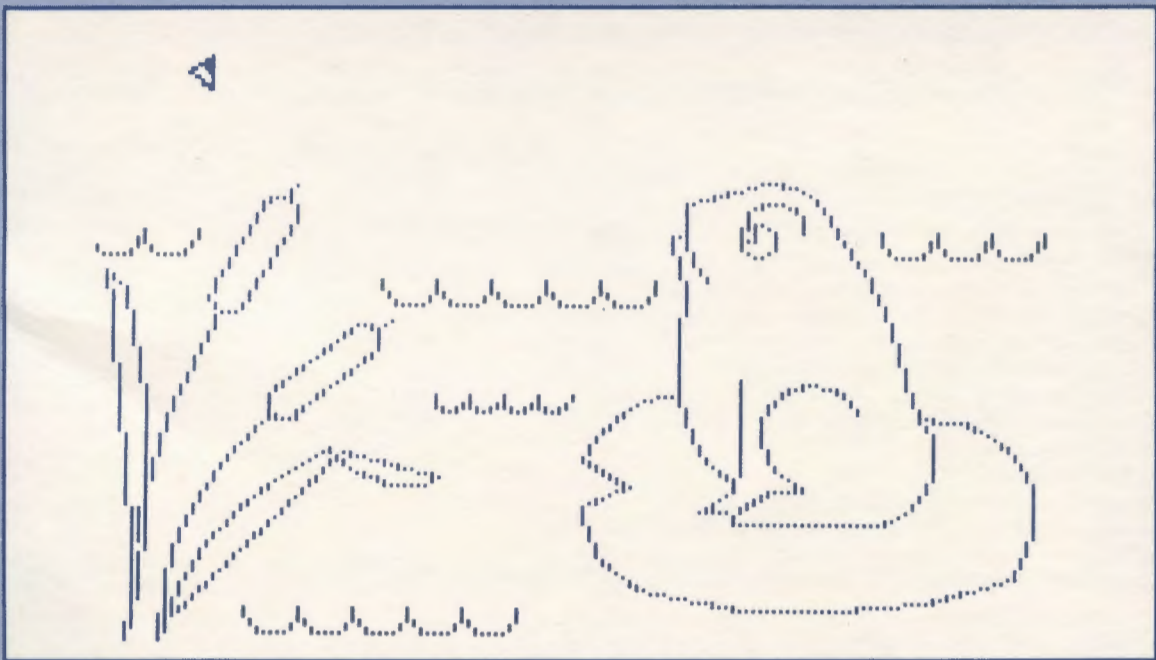
# LOGO EXCHANGE

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SEPTEMBER 1988

VOLUME 7 NUMBER 1

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International Council for Computers in Education



Publications

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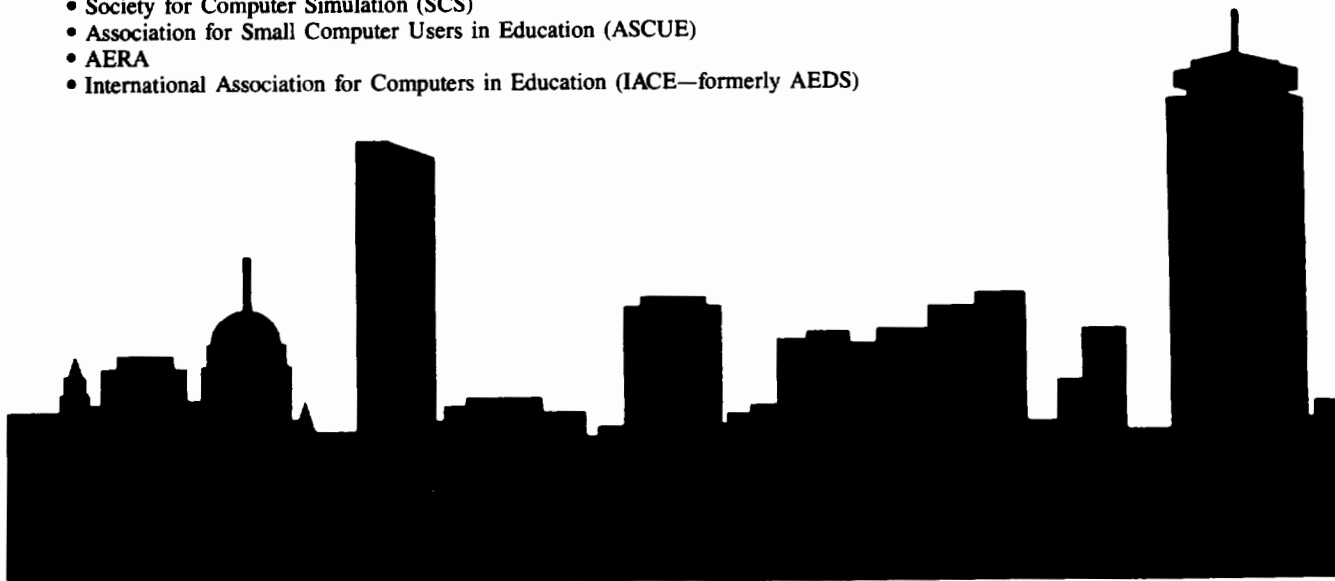
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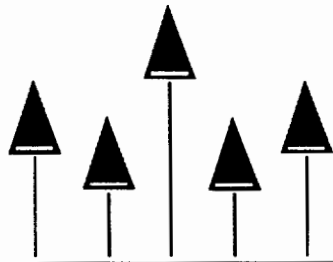
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# LOGO EXCHANGE

VOLUME 7 NUMBER 1

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

September 1988

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## From the Editor

### Take Some Time

Early this summer I had the opportunity to see the United States, from ocean to ocean. In mid-May, I packed my belongings and my cat, Moonwatcher, into a 14 foot U-haul truck, put my car on a dolly and began my journey to my new home in Oregon. The trip began in downtown Manhattan where we packed the truck midst honking taxis, rushing New Yorkers, and busy freight elevators in the 50 story building in which I lived. Once packed, I drove out of the City, connected with Interstate 80, and headed west. Soon I found myself in familiar territory in Pennsylvania and then Ohio, where I had taught for over 10 years. After a brief stop in Ohio to see friends and relatives, Moonwatcher and I continued west, following I-80 all the way to Utah where we picked up I-84 and finally connected with I-5 in Portland on the last leg of our journey to Eugene.

It goes without saying that driving provides an entirely different perspective from flying. The sheer hours of travel made me acutely aware of the size of this country. The plains of Nebraska and the mountains of Utah provide a striking contrast to the streets of New York City. I saw rolling hills, mountains, and endless plains. I saw farm land and ranch land. I saw cities and villages. Every hour brought a change in scenery as the miles and the hours rolled by.

I had to make frequent stops for fuel, particularly in hilly or mountainous areas. Still in my New York hurry-up mode, I initially found these interruptions frustrating, until I realized that each stop connected me to the people who lived in the part of the country where I had stopped. The "pit stops" varied from highly efficient gas station-assembly lines, to little one-pump general stores. The attendants varied from young to old, their accents and dress reflecting their environs. As I began to slow down, I found myself contemplating how alike all these people are, and yet how different. How strange the New Yorker's bustling would seem to the quiet young woman who helped me in Utah. How foreign the relaxed, friendly atmosphere in Nebraska might be to the busy attendants in Cleveland.

With lots of time to think, I found myself contemplating my career changes from the public schools to private industry, and now to the university. I thought a lot about education in general. I thought about the schools that the children I saw attended. How different they must be. I thought about their teachers and the tremendous responsibility they have to convey what I was experiencing of this country to their charges. Increasingly the educational system about which we often complain seemed like a miracle. How does it work at all in such a variety of settings?

And what about technology? Were computers in those schools? What were they used for? How many of the classrooms used Logo...and what did they do with it? Were the Logo drawings of the rural student in Iowa dramatically different from the urban student in Pennsylvania? As I pondered those differences, I found myself re-realizing that Logo is a kind of universal language. Young people from different cultural settings may draw different pictures, but they all understand how to move the turtle.

I know that my words can't adequately convey the sense of wonder that I felt as I arrived in Oregon. In a world condensed by jet travel, we forget the wondrous details of our own city or country. We are often in too much of a hurry to appreciate what is right about where we live, be it a village in Africa, a small town in South America, or a city in Canada. Make it your goal this year to take some time from your own rat race. Look at the best in yourself, your school, your students, and your community. Think about how you can effect positive change? Take some time to be in awe of the world, and share your wonder with others. (Perhaps your contemplative moments can produce the core of an optimistic classroom Logo project. I'd love to hear from you if you give it a try!)

Since my arrival in Eugene, I've spent my summer falling in love with Oregon and learning about all facets of publishing *LX*. If you've never put a newsletter or magazine together, it's hard to convey how much is involved in getting 32 pages to you every month! The ICCE staff has been a wonderful help, teaching me what I needed to know and helping me get caught up so that we can get Volume 7 out on time — indeed a miracle for you who have patiently endured late issues of *LX* all year.

As we begin this new year, I certainly hope that you will find *LX* even more helpful and enjoyable than in the past. I particularly want to welcome our two new columnists, Dan Watt and Leslie Thyberg. Dan is going to address the issue of assessing Logo learning, while Leslie will provide ideas for those of your working with primary aged children. I'm sure you'll delight in these two additions to *LX*. Like last year, I would love to hear from you. Send an article — we can work on refining it together. Send some student work for the cover. Write me a letter and tell me what you like and don't like about *LX*. But most important, take some time for reflection. My days of travel and thought were a wonderful opportunity for redirection that I will value for many years to come.

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## Monthly Musings

### Forward and Back: A Special Trip

by Tom Lough

Welcome back! I can hardly believe this is the beginning of the seventh year of publication! And we now have more subscribers than ever. But, as you will see in the next several issues, we are just getting started.

One of the most significant reasons for such rosy health is the energy of the ICCE's Special Interest Group for Logo (SIGLogo). At the SIGLogo meeting held during the 1988 National Educational Computing Conference in Dallas, TX, there was no doubt that the SIG was alive, well, and growing. The bylaws were discussed and adopted. The Logo Exchange magazine was designated as the official SIG publication, I am proud to report. Several exciting projects were planned. One such project involved exploring ways to use telecommunications for sharing Logo information among SIGLogo members. If you have any ideas or suggestions for this, please send them to me at the address below. And, naturally, if you are not yet a member of SIGLogo, I'd like to suggest that you join immediately. As a member of SIGLogo, you will receive your very own LX copy each month!

\* \* \* \* \*

A friend once told me, "Sometimes you have to take a step back before you can go forward." At the time the remark was offered, it was in the context of a complicated personal situation. Upon later reflection, I noticed a bit of Logo in it also. In fact, that bit of Logo has led me to do some additional thinking which I would like to share with you.

On the face of it, the remark seems to suggest a procedure similar to the following.

```
TO ADJUST :AMOUNT
BACK :AMOUNT
FORWARD :AMOUNT
END
```

After some thought, I decided that a related procedure would be much more useful, and seemed to contain more grist for the mental mill.

```
TO FB :AMOUNT
FORWARD :AMOUNT
BACK :AMOUNT
END
```

The FB procedure does essentially the same thing as

ADJUST, but the commands are in a different order. It is state transparent; that is, the turtle has the same position and the same heading after the FB procedure is run as it had before. It is an interesting utility procedure, helping you to draw flower patterns

```
TO FLOWER
REPEAT 36 [FB 30 RIGHT 10]
END
```

and produce lines with tick marks on them.

```
TO TICKLINE :LENGTH :DIVISIONS
REPEAT :DIVISIONS
[TICK FORWARD :LENGTH / :DIVISIONS]
TICK
END
```

```
TO TICK
LEFT 90
REPEAT 2 [FB 10 RIGHT 180]
RIGHT 90
END
```

An outstanding teacher in the Los Angeles area named Parnelli Sharp developed a catchy little song for preschool and kindergarten children to sing. One of the lines goes, "The turtle moves forward and back." The FB procedure in action!

Even though the turtle is going nowhere in the FB procedure, I discovered that this can be used to my advantage in some situations. For example, sometimes I need to draw a line from the turtle's current position to a spot I can see on the screen. I do not know the coordinates of the spot nor do I know how far it is from the turtle. I want a tool which will allow me to "play" with various lines until I find the one I want. With a small change, FB gives me that tool.

```
TO FB :AMOUNT
FORWARD :AMOUNT
WAIT 10
PENERASE
BACK :AMOUNT
PENDOWN
END
```

Now I am able to explore lines of different lengths before drawing the one I select. Also, I can now adjust the heading of the turtle between FB's, and get the line oriented exactly as I want it. I have used the above FB procedure numerous times with success. Moreover, I find that many Logo beginners have enjoyed using it, too, since they often want to erase a line they have drawn. Give it a try for yourself.

### Monthly Musings --continued

It was much later in the game that I paid more attention to the name of the procedure. I had selected FB because of the FORWARD and BACK commands. However, the letters FB also reminded me of the word "FeedBack." By using the FB procedure as a probe of sorts, I was getting feedback on the various lines, enabling me to adjust the heading and line length until I had exactly what I wanted. Then I realized something.

Many times in my life, I have felt as if I were going nowhere. Everything I tried to do was met with frustration. The phrase, "Butting your head against a brick wall," took on a special meaning. Progress seemed impossible. But, somehow, I decided to make adjustments between attempts. And, sooner or later, things started to happen, just like using the FB procedure. Sometimes it was a breakthrough with a student who was not motivated. At other times, it involved more personal aspects of my life. What I had been doing was running my own FB-like procedure, testing and adjusting the parameters until I found something that worked.

It may sound strange, but after I saw how this aspect of the FB procedure helped me muddle through the more stagnant parts of my life, I have become more patient with myself. I find a curious comfort in the realization that, if I can view a setback as FeedBack and keep making adjustments, I will find the right combination of variables sooner or later. Then I can take positive definite action.

Sometimes going nowhere is just what is needed. It provides feedback and an opportunity for adjustment. But you must supply the patience, persistence, and faith.

#### FB 100!

\* \* \* \* \*

During the National Educational Computing Conference this past June, I enjoyed asking people about their favorite Logo commands. The variety of responses was wonderful. I especially enjoyed learning the reasons behind their favorite command choices.

I would like to hear from even more people. Do you have a favorite Logo command? Why is it your favorite? How do you feel about it? (I'm talking affective here!) I would be delighted to hear from you. Just send me your name, hometown, favorite Logo command, and why. I hope to incorporate all responses into a future article, just for fun. Many thanks.

P.S.: I would be particularly happy to hear from your students!

*Tom Lough, PO Box 5341, Charlottesville, VA 22905*

## Little Kids and Logo

### A Bushel and a Peck

by Leslie F. Thyberg

Welcome back to school! As a former classroom teacher I can recall the zeal with which my colleagues and I grabbed up any and all ideas for our kids that we could. It is my intention to write a monthly column for you that is chock full of practical, readily useable ideas to use with younger age elementary students. I will try to take into account the broad range of environments that each of your classroom settings represent. Hopefully, the ideas will be adaptable such that whether you have one computer and thirty kids, a lab situation or are blessed with an abundance of computers, you will find something of immediate value. My orientation toward classroom learning is that of an integrated or thematic learning environment. From my perspective this is much more consistent with the kind of informal learning that our young pupils have engaged in prior to their arrival at school. Now that you know some of my biases, let's get on with the show!

#### Apple-ology without Apples

This month's column features bushels of learning fun. What could be better than a thematic study of apples? Apple-ology has cross-curricular applicability in areas ranging from math to reading to social studies with applications that are as easy as pie. September is a fruitful time of year. Students are refreshed from their summer vacations and are ripe for learning. Note: These apple-happy-tasks do not require an Apple computer!

Your activity could begin with a trip to a local orchard or cider mill. Prior to the field trip, be certain to work with your students on vocabulary development. A learning center can be set up that has task cards asking such questions as "What is the difference between an orchard and a forest?" Kids can compile apple-shaped booklets made from construction paper or on computer generated apples using the pattern given later in this article. Depending on computer availability, you might choose to have the whole class construct a chart story describing the field trip experience, or have each student compose a story or story part. At a sharing or group time, the chart story developed by the class (or by teams if you have used small groups) can then be read. Discussions can be had based on the vocabulary words or by singling out specific parts of speech. Better yet, take dictation from the students while seated at the computer. It will give them a chance to see your modelling the use of the computer as a word processor. You can use any word processing

package for this, or LogoWriter, or even straightforward print statements entered in the Logo editor.

## Make an Orchard

No orchard? Make one! How? There are a variety of ways you can create an orchard. One is by using play doh or clay. Some twigs and other natural tidbits can be added to create a realistic effect. Children can be divided into teams. Give the groups the names of different kinds of apples. During the opening weeks of school, these same groups can be the core that you use for rotating them on and off computer or in and out of learning stations. Another idea is to gather some larger branches and plant them in sand inside coffee cans. The construction paper or computer generated apples can then be hung from the trees. Just as there are varieties of apples, so too you can have different trees. For example, one might be a poet-tree on which student generated poetry (about apples or the season) can be hung.

Another variety of tree might be reflective of students; artis-trees in which they experiment with still-life drawings in the style of such greats as Van Gogh and Cezanne. Other possible artis-trees include such off computer activities as making apple prints (much the same one does for potato prints) or apple batiking, which is the combined use of bright crayons or oil pastels on manila construction paper, that are washed with tempera paint. After coloring the paper, it can be crunched up or crinkled for a better batik effect. After the tempera wash and the outline of an apple shape can be mounted around it. On computer artistry can be as open ended as you choose to make it. Have students design their own apples or gardens of eatin'. If you prefer, use the following Apple program to allow the kids to branch out on their own. As individuals or in teams, the children can illustrate its interior. The objective, of course, is to allow each student's creativity to blossom.

```

TO LEAF
  SETPC 2
  PU
  SETPOS [0 60]
  SETPOS [5 70]
  SETPOS [10 77]
  SETPOS [15 80]
  SETPOS [20 82]
  SETPOS [25 90]
  SETPOS [25 80]
  SETPOS [22 75]
  SETPOS [20 70]
  SETPOS [15 65]
  SETPOS [10 60]
  SETPOS [0 60]
END

```

```

TO APPLE
  PU
  SETPOS [0 50]
  PD
  SETPOS [10 52]
  SETPOS [20 55]
  SETPOS [30 57]
  SETPOS [40 55]
  SETPOS [50 50]
  SETPOS [60 40]
  SETPOS [55 35]
  SETPOS [50 30]
  SETPOS [47 25]
  SETPOS [46 20]
  SETPOS [47 15]
  SETPOS [50 10]
  SETPOS [55 5]
  SETPOS [60 0]
  SETPOS [64 -10]
  SETPOS [63 -20]
  SETPOS [62 -30]
  SETPOS [58 -40]
  SETPOS [50 -53]
  SETPOS [40 -61]
  SETPOS [30 -60]
  SETPOS [20 -59]
  SETPOS [10 -57]
  SETPOS [0 -57]
  SETPOS [-10 -59]
  SETPOS [-20 -60]
  SETPOS [-30 -61]
  SETPOS [-40 -60]
  SETPOS [-50 -50]
  SETPOS [-55 -40]
  SETPOS [-60 -30]
  SETPOS [-62 -20]
  SETPOS [-65 -10]
  SETPOS [-67 0]
  SETPOS [-67 10]
  SETPOS [-65 20]
  SETPOS [-62 30]
  SETPOS [-57 40]
  SETPOS [-50 50]
  SETPOS [-40 52]
  SETPOS [-30 55]
  SETPOS [-20 55]
  SETPOS [-10 52]
  SETPOS [0 50]
END

```

No cider mill? Pour some! Marvelous math opportunities can develop from learning about measurement and volume using cups, pints, quarts and gallons. Open a cider stand. Maybe your students can actually make some money and with your juicy profits you can purchase some Logo related support materials.

In another part of the orchard you might choose to cultivate a golden rules tree. This is a tree that can grow and develop as the school year progresses. Initially, you might want to hold a class discussion wherein you and the students

## Logo for Little Kids -- continued

establish the rules for using the computer equipment. Golden Apple Rules might be what you choose to hang from the tree. Of course, my favorite golden rule is "Ask three before me." Or, you could make it a primitive tree which displays the most frequently used commands and their abbreviations. These are particularly good ideas for first-time users. Creating a constructive and collaborative environment is critical to the success of your program. Next month's column will include some management techniques and strategies for a successful Logo program in your classroom.

### Apple-ology and Logo

Still another approach to the study of apple-ology is to hang apples or discovery task cards that are Logo and computer related on a tree that can serve as the Learning Tree (a learning center.) You might choose to have a series of precomputer readiness activities which will help familiarize your students with Logo and the particular machines you are using. Or, if you prefer hands-on activities, you can create a set of open-ended discovery activities (original or borrowed from one of the many Logo guides now available.) For example, you could have an apple task card or set of cards with different components of an apple tool kit posted on them. Such a kit can be teacher or student generated. Students can then visit a microworld of apples. Remember the poet-tree? You could lead the class during a sharing session or during the reading and language arts period in a discussion of the vocabulary words or learning experiences gained from the field trip. A simple discussion of parts of speech can lead to the construction of the tool kit. Ask the children to list all the different kinds of nouns (objects, persons, places, things) and related actions that they saw at the orchard (or that are related to the production of cider.) For example

```
TO ORCHARD
OUTPUT PICK [[APPLE TRESS WERE RIPE.]
[APPLES TASTE GOOD.]
[ORCHARDS LOOK WONDERFUL.]]
END
```

Next ask for a list of adjectives that describe the objects.

```
TO ADJECTIVES
OUTPUT PICK [CRUNCHY JUICY CRISP TART
RED DELICIOUS]
END

TO FIELD.TRIP
OUTPUT (SENTENCE ADJECTIVES ORCHARD)
END
```

The superprocedure becomes a part of your apple tool kit. You will have to enter a utility for the children to make it run.

```
TO PICK :LIST
OUTPUT
ITEM 1 + RANDOM COUNT :LIST :LIST
END
```

Test the results by typing

```
PRINT FIELD.TRIP
```

several times. Some possible results may be

```
CRUNCHY APPLES TASTE GOOD.
RED APPLE TREES WERE RIPE.
```

Different descriptors can be used. Several simple social studies examples would be to change the lists to describe the equipment used for harvesting (ladders, bushels) or all of different persons involved in the growing, harvesting, marketing, and consumption of apples. Still another idea would be to list kinds of apple juice available on the market and conduct taste tests with consumer responses. Science can be woven in, by extending the vocabulary discussion to include terms such as graft, pistil, and mulch.

A science classroom in Tarentum, Pennsylvania did a project involving the five seasons of the apple. four were the seasons of the calendar year. The fifth was when the apples are sent to market and eaten! Apple math might take place in a learning center where you have placed a bushel or bucket of apples. Students can estimate the number of apples or how much they weigh. Better yet, the class can make applesauce or caramel apples (or if you are very brave, apple pie.)

Apple-ology can be a bushel of fun. Good luck!

#### Resources:

- Gibbons, G. (1984) *The seasons of Arnold's apple tree*. San Diego: Harcourt, Brace, Jovanovich.
- Green, C. and Jaeger, C. (1984) *Teacher, kids, and Logo*. Irvine CA: EduComp Publications.
- Hogrogian, Nonny. *Apples*. New York, MacMillan.
- Hunt, B. (1976) *Apples: A bushel of fun and facts*. New York: Parents Magazine Press.
- Johnson, H. (1977) *From apple seed to applesauce*. New York: Lothrop.
- Scheer, J. (1964) *The rain makes applesauce*. New York: Holiday House.

I welcome your correspondence and comments. This column is, afterall, for you,. If you have a neat idea, sent it to me. I'll cite you and you can brag to all of your friends that you are now famous and widely read!

*Dr. Leslie F. Thyberg, 5637 Rippey Street,  
Pittsburgh, PA 15206, AppleLink ALS 038*



## Logo Ideas

### (Almost) all you need to know about subdirectories in LogoWriter 2.0

by Eadie Adamson

Subdirectories are nothing more than "organizers" for your files. Just as you might sort your cancelled checks into groups (medical, business, publications, educational expense, and so on) you can subdivide the files on your disk into appropriate groupings.

If you have a multi-page project, think of a subdirectory as a project organizer. The subdirectory will contain all the shapes and pages for that particular project. Each subdirectory in LogoWriter 2.0 has its own Shapes page. This means you can have many shape pages on a single disk. Each page in a subdirectory uses the shapes for that subdirectory. (GETSHAPES loads the Shapes page quickly, without leaving the page you are on.)

At first, subdirectories seem quite mysterious. The process of creating them is very "un-Logo-like." Just follow the steps carefully and in no time you will be quite comfortable with creating and using subdirectories.

#### Creating Your First Subdirectory

Choose NEWPAGE and then type

```
CREATEDIR "NAME.OF.SUBDIRECTORY
          (Use whatever name you want)
```

Check to see that that directory was created by pressing Esc or by typing CONTENTS. On the Contents page below the LogoWriter pages, you should see a blank space, then the name you gave your subdirectory, preceded by %, LogoWriter's substitute for the slash used in ProDos.

```
%NAME.OF.SUBDIRECTORY
```

If you created a new subdirectory, this is all you need to do. Now choose that subdirectory just as you would choose a page. When you press return, instead of a new page, you will see the contents of that subdirectory. Note that the Contents page shows you the directory name, preceded by %, in the upper left corner. You may edit your shapes in that subdirectory without affecting the Shapes page on the main contents page.

Choose a new page, name it, and then go back to CONTENTS. Go to the Shapes page and change a shape. Press Esc. Note that each time you pressed Esc you returned

to the contents of the subdirectory. You need to press Esc again to get back to the main Contents page. (Erase the page as usual, if you don't want to keep it, with Apple - 6.) Check the Shapes page on the main directory. You will see that the change you made in the subdirectory has not affected the main Shapes page.

#### Creating a Subdirectory from Previously Created Work Using a Single Disk Drive

When you first think about organizing subdirectories, take a 2.0 disk on which you already have a number of files which you wish to organize in subdirectories. Start by using only a single drive. Put your disk in the first drive, the primary drive.

First, create the subdirectory, as outlined above. Then follow these instructions to copy the pages into the subdirectory:

Choose NEWPAGE from the main Contents page on your old disk.

First, be sure you know the "name" or "prefix" of your disk. (Every ProDos disk has a name; in ProDos it is preceded by a /; in LogoWriter it is preceded by a %.) Type

```
SHOW ONLINE
```

You will see a list that includes the name of your disk, e.g., [%MY.DISK%]

Get a list of your pages. Type

```
PRINT PAGELIST
```

(PRINT puts the PAGELIST on the page; SHOW places it in the COMMAND CENTER.)

Decide which of these pages are to go in the new subdirectory.

You are now ready to copy the pages one at a time into the subdirectory, using the following command line as a pattern:

```
COPYFILE "%MY.DISK%"PAGENAME
          "%MY.DISK%NEW.SUBDIR.NAME"PAGENAME
```

COPYFILE is the command to copy a file (a LogoWriter page). Inputs for COPYFILE are as follows:

After the first "%:

the first input: the name of the disk (which you got by typing SHOW ONLINE).

the second input: the name of the page to copy.

## Logo Ideas -- continued

After the second "%:

the first input: the name of the disk (which you got by typing SHOW ONLINE).

the second input: the name of the new subdirectory you just created.

the third input: the name of the page you want to copy into the subdirectory.

The PAGENAME in the new subdirectory can have any name you wish; it does not have to be the same name as the page you are copying. When you press Return, the drive will go on and the copying will take place.

When your cursor returns, you can delete the pagename from the command line and substitute the next page (rather than retyping the entire COPYFILE "%MY.DISK, etc. each time). Try using Control-D or Delete to delete the first pagename, Apple-6 to delete the last one.

When you are finished copying the files, press Esc and choose your new subdirectory from the contents page. (Type LEAVEPAGE so you don't have to name your page.) Check to be sure you copied all the pages. If you wish, return to the main directory and erase the pages which you have copied into the new subdirectory (you don't need two copies on a single disk).

### Using Two Drives Copying from One Disk to Another

First, create a new subdirectory on the disk. Be sure you are working on the correct drive. It is less confusing if you place the disk to copy from in A, the first disk drive. Place the disk to copy to in B, the second drive. Move from drive to drive by typing:

```
SETDISK "A (for Drive 1)
```

and

```
SETDISK "B (for Drive 2)
```

First, move to the drive holding the disk on which you want the new subdirectory (Drive 2).

Type:

```
SETDISK "B
CREATEDIR "NEWDIR
(notice there is no percent sign)
```

Find out the the names of the disks in the two drives:

```
SHOW ONLINE
```

Now follow this pattern in which the first set of inputs is the disk copied from, the second is the disk copied to (you can do this from either drive since you are specifying the "from" and the "to" by giving the prefix each time):

```
COPYFILE "%FROM%SUBDIR%PAGENAME
"%TO%SUBDIR%PAGENAME
```

to copy from a disk with a subdirectory to another disk with a subdirectory, or

```
COPYFILE "%FROM%PAGENAME
"%TO%SUBDIR%PAGENAME
```

to copy from a disk with no subdirectories into a subdirectory on the other disk.

The inputs required are the following:

First set:

```
"%DISK FROM
```

—the disk name you are copying from

```
%SUBDIRECTORY—the subdirectory name you
are copying from, if any
```

```
%PAGENAME—the name of the page to copy
```

Second set:

```
"%DISK TO—the disk name you are copying to
```

```
%SUBDIRECTORY—the subdirectory name you
are copying to, if any
```

```
%PAGENAME—the name of the page in the new
subdirectory
```

### Copying an Entire Subdirectory to Another Disk

Create the subdirectory on the second disk, placed in the second drive, drive B.

Move back to the first drive, drive A:

```
SETDISK "B
NEWPAGE
CREATEDIR "NEWSUBDIR
SETDISK "A
```

Go to the subdirectory you want to copy from. Choose NEWPAGE in the subdirectory.

```
PRINT PAGELIST
```

Use this pattern (type as one line, although it will wrap to a second line):

```
COPYFILE
"%DISK.FROM%SUBDIR.FROM%PAGENAME
"%DISK.TO%SUBDIR.TO%PAGENAME
```

Be sure to copy the Shapes page also.

## Using the Copy Tools

You can also use the COPY.TOOLS procedure COPYEH to copy a subdirectory from one disk to another (this will copy all files in the subdirectory). It takes fewer steps once the procedure is loaded.

Insert a disk with COPY.TOOLS in the first drive. Choose a NEWPAGE (not the COPY.TOOLS page!). Type:

```
GETTOOLS "COPY.TOOLS
```

Press Esc to go to the Contents page. Insert your disk with the subdirectory, press Esc, and choose a NEWPAGE again.

First, create the subdirectory on the disk you are transferring to, in the second drive. (Use SETDISK "A and SETDISK "B to move between drives.)

```
SETDISK "B
CREATEDIR "NEWSUBDIR
COPYEH "%DISK.FROM%SUBDIR
"%DISK.TO%SUBDIR
      (from either drive)
```

In this case you do not need pagenames, since COPYEH takes care of that. This really works well, but I often find it easier to do the copying manually rather than getting tools from another disk if I only need to copy a page or two. Suit yourself! After you have gone through the process a number of times it will not seem so complex.

### Note:

If you are copying shapes into an already created directory, you may encounter a problem. If you have used the Shapes page in that subdirectory, then you must first erase the shapes from that directory:

```
ERASEFILE "%MY.DISK%SUBDIR%SHAPES
```

Then you can copy the Shapes page from any other directory, including the main directory, into that subdirectory.

```
COPYFILE "%MY.DISK%SHAPES
"%MY.DISK%SUBDIR%SHAPES
```

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## QUICK SUMMARY FOR SUBDIRECTORIES

### MAKING A NEW SUBDIRECTORY AND COPYING PAGES TO IT

```
CREATEDIR "new subdirectory
SHOW ONLINE
      (gets the prefix of your disk)
COPYFILE "%MYDISK%PAGENAME
"%MYDISK%newsubdirectory%PAGENAME
```

### COPYING FROM ONE DISK TO ANOTHER

Place the second disk, the disk to copy TO, in the second drive:

```
SETDISK "B
CREATEDIR "NEWDIR
```

Move back to the first drive:

```
SETDISK "A
PRINT ONLINE
PRINT PAGELIST
```

```
COPYFILE "%MYDISK%PAGENAME
"%NEWDISK%NEWDIR%PAGENAME
```

If necessary, also copy the Shapes page:

```
COPYFILE "%MYDISK%SHAPES
"%NEWDISK%NEWDIR%SHAPES
```

If you get a message that there is already a page named SHAPES, use the command:

```
ERASEFILE "%NEWDISK%NEWDIR%SHAPES
```

Then copy the Shapes page.

```
COPYFILE "%MYDISK%SHAPES
"%NEWDISK%NEWDIR%SHAPES
```

### QUICK COPY OF AN ENTIRE SUBDIRECTORY

```
SETDISK "B
CREATEDIR "NEWSUBDIR
```

Load COPY.TOOLS as tool pages by inserting a disk with the COPY.TOOLS page in the first drive. On a NEWPAGE type:

**Logo Ideas -- CONTINUED**

```
SETDISK "A
GETTOOLS "COPY.TOOLS
```

Return to CONTENTS. Insert the disk with the subdirectory to be copied from in Drive A, choose a NEWPAGE:

```
SETDISK "A
SHOW ONLINE
COPYEH "%MYDISK%SUBDIR
"%NEWDISK%NEWSUBDIR
```

**A Footnote for Subdirectories****Neat Idea!**

Susan Hansen, a colleague of mine, was converting her second grade disks to 2.0. "Wouldn't it be neat to put all their old work in a subdirectory? Do you think it would work?" she asked.

My first response was to try the COPY.TOOLS. COPYEH turns out to be rather schizophrenic when it comes to putting pages on the same disk into a subdirectory on the same disk. Like the "Sorcerer's Apprentice" (remember the cartoon version with Mickey Mouse and millions of brooms?) COPYEH does the job once, then creates another subdirectory, copies again, and on and on until the disk is full! Our solution was to watch for the second round of copying, stop it, then erase the extra files and the extra subdirectory. There had to be an easier way!

I went home and wrote these procedures which put the pages into a subdirectory and then erase the pages outside the subdirectory afterwards. To use my program, simply type COPYTOSUB and press Return. You will be asked for the name of the subdirectory. The procedures listed below will then create the subdirectory, copy the pages into the subdirectory, tell you when the work is complete, and give you the option of having the now extraneous pages outside the subdirectory erased for you. One caution: if you do this, be sure to clear the disk of useless pages first. Remember that a subdirectory does take up space! Here are the procedures which organized Susan's student disks neatly and easily:

**COPY TO SUBDIRECTORY: SAME DISK, ALL FILES**

```
TO COPYTOSUB
CT
CC
TYPE [What name for the subdirectory?\ ]
```

```
NAME FIRST READLISTCC "SUBDIR
NAME FILELIST "FILES
TYPE CHAR 13
TYPE (SENTENCE [The subdirectory]
WORD "% :SUBDIR
[will now be created on this disk.])
TYPE CHAR 13
CREATEDIR :SUBDIR
COPYALL :FILES PREFIX
(WORD PREFIX :SUBDIR "%)
END

TO COPYALL :FILES :FROMPATH :TOPATH
IF EMPTY? :FILES [PRINT (SENTENCE
[COPIING TO]:SUBDIR "COMPLETE)
ERPAGES STOP]
PRINT (SENTENCE [COPIING] FIRST FIRST
:FILES [FROM] :FROMPATH [TO]
:TOPATH)
COPYFILE (WORD :FROMPATH FIRST FIRST
:FILES) (WORD :TOPATH FIRST
FIRST :FILES)
COPYALL BUTFIRST :FILES :FROMPATH :TOPATH
END

TO ERPAGES
CHECK
END

TO CHECK
PRINT [You are about to erase all pages
EXCEPT those in the subdirectory!!!]
PRINT "
PRINT [ARE YOU SURE YOU WANT TO DO THIS?]
NAME READLISTCC "ANS
IFELSE MEMBER? "Y :ANS [DOIT][PRINT "
PRINT [OKAY, pages will NOT be erased.]]
END

TO DOIT
NAME PAGELIST "PAGES
ERPS :PAGES
END

TO ERPS :PAGES
IF EMPTY? :PAGES [PRINT [WORK COMPLETE]
STOPALL]
ERPAGE FIRST :PAGES
ERPS BUTFIRST :PAGES
END
```

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## Stager's Stuff

### Another Bunch of Election Stuff

by Gary S. Stager

In April, we explored some of the ways in which Logo can be used as the centerpiece of a curriculum unit on elections. I shared with you a sophisticated voting booth program which can be used in your classroom by you and your students<sup>1</sup>. This month's article will begin with procedures, which when used in conjunction with last month's voting machine, will create pie charts illustrating the election results. The second part of this article will explore a Logo project that allows teachers and students to enter referendum questions, vote on these yes/no issues, tabulate, and graph the results of the polling.

#### Pie Chart Procedures for the Voting Machine

Add the following procedures to the flip-side of your voting machine page. If you have translated last month's project to run in other versions of Logo, then enter these additional procedures using the Logo editor. Remember that due to the size of the voting machine and graphing procedures you need to use a 128K version of Logo (LogoWriter 2.0, IBM Logo, LCSII Logo II, MacLogo, or Object Logo<sup>2</sup>).

Labeling the pieces of a pie graph from within procedures is a programming project that is a bit to cumbersome for this article. For this reason, I have decided to have Logo print the list of candidates with their corresponding vote counts and overall percentages. If you are using LogoWriter, you can easily label the pie manually from the command center.

After your class has voted you can type TOTALS to see a table of the vote totals by party in descending order. You may also use the new PLOT procedure to graph the results of one party at a time. PLOT is used in the following way:

```
PLOT :DEMOCRATIC
OR
PLOT :REPUBLICAN
```

The input to the plot procedure must be one of party lists created by the Voting Machine program in the April LX. In other words, if you told the voting machine program that you want a BLUE party and a RED party, then you would type:

```
PLOT :BLUE
PRINTSCREEN
PLOT :RED
PRINTSCREEN
```

The following quick reference to the procedures you

need to know to easily use the voting machine tools.

**VOTING.MACHINE:** Setup the party and candidate names and cast first vote

**VOTE:** VOTE should be executed once for every voter or REPEAT some number [VOTE]

**TOTALS:** Displays the election results — can be run at any time you wish to see the way the voting is going

**PLOT :party:** Draws a pie chart representing the votes for one party

#### THE ADDITIONAL PIE CHART PROCEDURES

```
TO PLOT :LIST
RG
CT
HT
PU
MAKE "RADIUS 360/PI/2
SETPOS [-50 0] PD
MAKE "TOTAL TOTAL :LIST
CIRCLE
PRINT (SENTENCE "PLOT :LIST)
PRINT []
PLOTTER :LIST
SETH 0
GO.FILL :LIST
SETH 0
END

TO RESULTS :LIST
PRINT (SENTENCE
FIRST :LIST LAST :LIST TABS "=" WORD
(ROUND (100 * LAST :LIST) / :TOTAL) "%)
END

TO PI
OUTPUT 3.14159
END

TO CIRCLE
REPEAT 360 [FORWARD 1 RIGHT 1]
RIGHT 90
PU
FORWARD :RADIUS
LEFT 90
END

TO PLOTTER :LIST
IF EMPTY? :LIST [STOP]
SEG (100 * LAST THING UNPARSE FIRST :LIST) / :TOTAL
RESULTS THING UNPARSE FIRST :LIST
PLOTTER BUTFIRST :LIST
END

TO SEG :PERCENT
```

### Stager's Stuff -- continued

```

PD
FILLSEG (:PERCENT / 100) * 360
END

TO TOTAL :LIST
IF EMPTY? :LIST [OUTPUT 0]
OUTPUT SUM (LAST THING UNPARSE FIRST :LIST)
(TOTAL BUTFIRST :LIST)
END

TO COLORER
IF COLOR = 5 [SETC 1 STOP]
SETC COLOR + 1
END

TO FILLSEG :TURN
IF :TURN < 1 [STOP]
REPEAT INT :TURN - 1 [RIGHT 1]
FORWARD :RADIUS
BACK :RADIUS
RIGHT 1
END

TO SUM :N1 :N2
OUTPUT :N1 + :N2
END

TO GO.FILL :LIST
PLOTTER1 :LIST
END

TO FILLER
COLORER
PU
FORWARD 25
PD
FILL
PU
BACK 25
END

TO PLOTTER1 :LIST
TONE 800 10
IF EMPTY? :LIST [STOP]
SEG1 (100 * LAST THING UNPARSE FIRST :LIST) / :TOTAL
PLOTTER1 BUTFIRST :LIST
END

TO SEG1 :PERCENT
PD
FILLSEG1 (:PERCENT / 100) * 360
END

TO FILLSEG1 :TURN
REPEAT (INT :TURN) / 2 [RIGHT 1]
FILLER
REPEAT (INT :TURN) / 2 [RIGHT 1]
END

TO TABS
OUTPUT [ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ ]
END

```

### The Referendum Ballot

Referendum questions are an important and often misunderstood part of the election process. I thought that it would be interesting to create a voting machine that would let you vote on referendum questions (questions with yes or no answers). What I have really created is a survey program which permits students to enter five questions (you can modify the program to allow more questions, but the screen is only large enough to graph five questions), tabulate the results, and create a bar graph of the results which can then be printed<sup>3</sup>. The LogoWriter print materials and the Terrapin Logo Data Toolkit contain an excellent variety of Logo activities for exploring survey taking, interpreting data, and graphing. The referendum project runs in a 64K version of LogoWriter and can be easily modified to run in other versions of Logo.

If you type

STARTUP

you see

**Enter up to 5 ballot questions. When you are done, type: DONE**

**QUESTION #1** Do you like ice cream?

**QUESTION #2** Do you have a dog?

**QUESTION #3** Do you have a cat?

**QUESTION #4** Should school be open during the summer?

**QUESTION #5** done

Then, typing

VOTE

gives you:

**Do you like ice cream?**

YES

**Do you have a dog?**

NO

**Do you have a cat?**

NO

**Should school be open during the summer?**

NO

You can type

RESULTS

any time you want to see the results so far:

**Do you like ice cream?**

YES = 22 NO = 3

Do you have a dog?  
YES = 8 NO = 17

Do you have a cat?  
YES = 5 NO = 20

Should school be open during the summer?  
YES = 0 NO = 25

By typing GRAPH, you can display the results of the referendum ballots in the form of a bar graph. If the number of yes or no votes for a particular question is greater than 30, a bar 28 units high is drawn and the correct number of votes is labeled above the bar. If a question didn't receive any yes or no votes, no bar will be drawn. I shaded the bars with a texture instead of filling them with color so that a printout would be more dramatic. If your version of Logo does not have SHADE, you may substitute FILL or leave the bar hollow in the FILLER procedure.

### Referendum Procedures

In the command center, type:

```
NAMEPAGE "REFERENDUM
```

then enter these procedures on the flip side of the page.

```
TO STARTUP
CLEARNAMES
GET.QUESTIONS
END
```

```
TO VOTE
CT
CG
ASK.QUESTIONS :Q.LIST
END
```

```
TO GET.QUESTIONS
MAKE "Q.LIST []
QUESTION.INFO
QUESTIONS 1
END
```

```
TO QUESTION.INFO
CC
TYPE (SENTENCE [Enter up to 5 ballot questions. When
you are done, type: DONE] CHAR 13)
END
```

```
TO QUESTIONS :COUNT
IF :COUNT > 5 [STOP]
TYPE SENTENCE "QUESTION (WORD "# :COUNT)
MAKE QN :COUNT (LIST READLISTCC 0 0)
IF (FIRST THING QN :COUNT) = [DONE]
[CLEARNAME (QN :COUNT) STOP]
MAKE "Q.LIST LPUT (QN :COUNT) :Q.LIST
QUESTIONS :COUNT + 1
END
```

```
TO ASK.QUESTIONS :LIST
IF EMPTY? :LIST [STOP]
PRINT FIRST THING FIRST :LIST
IFELSE "Y = READCHAR [YES FIRST :LIST] [NO FIRST
:LIST]
ASK.QUESTIONS BUTFIRST :LIST
END
```

```
TO YES :QUESTION
PRINT "YES
MAKE :QUESTION (LIST FIRST THING :QUESTION (FIRST
BUTFIRST THING :QUESTION) + 1 LAST THING :QUESTION)
END
```

```
TO NO :QUESTION
PRINT "NO
MAKE :QUESTION (LIST FIRST THING :QUESTION
(FIRST BUTFIRST THING :QUESTION)
(LAST THING :QUESTION) + 1)
END
```

```
TO RESULTS
CT
TOTALS :Q.LIST
END
```

```
TO TOTALS :LIST
IF EMPTY? :LIST [STOP]
PRINT FIRST THING FIRST :LIST
PRINT (SENTENCE
"YES "= FIRST BUTFIRST THING FIRST :LIST
"NO "= LAST THING FIRST :LIST)
```

```
PRINT []
TOTALS BUTFIRST :LIST
END
```

```
TO QN :COUNT
OUTPUT WORD "QUESTION. :COUNT
END
```

### Referendum Graphing Procedures

```
TO GRAPH
GRID
GRAPHER :Q.LIST
END
```

```
TO GRID
RG
HT
CT
PU
SETPOS [-110 -75]
PD
NOTCHES 0
BACK 160
RIGHT 90
FORWARD 240
PU
SETPOS [-95 85]
SETH 90
MARK 1
SETPOS [-100 -85]
REPEAT 5 [LABEL [Yes No] FORWARD 50]
PU
SETPOS [-100 -75]
```

### Stager's Stuff -- continued

```

SETH 0
END

TO NOTCHES :COUNT
IF :COUNT > 30 [STOP]
PD
RIGHT 90
FORWARD 5
BACK 10
PU
BACK 15
LABEL :COUNT
FORWARD 20
LEFT 90
PD
FORWARD 10
NOTCHES :COUNT + 2
END

TO GRAPHER :LIST
IF EMPTY? :LIST [STOP]
SETC 1
BAR1 FIRST BUTFIRST THING FIRST :LIST
SETC 1
MOVE 20
BAR2 LAST THING FIRST :LIST
MOVE 30
GRAPHER BUTFIRST :LIST
END

TO BAR1 :HEIGHT
IF :HEIGHT > 30 [SETC 4 BAR1 28 PU FORWARD 150
  LABEL :HEIGHT BACK 150 STOP]
IF :HEIGHT = 0 [MOVE 20 STOP]
SETSH 29
SETH 0
PD
REPEAT 2 [FORWARD :HEIGHT * 5 RIGHT 90
  FORWARD 15 RIGHT 90]
FILLER
END

TO BAR2 :HEIGHT
IF :HEIGHT > 30 [SETC 4 BAR2 28 PU FORWARD 150
  LABEL :HEIGHT BACK 150 STOP]
IF :HEIGHT = 0 [MOVE 30 STOP]
SETSH 30
SETH 0
PD
REPEAT 2 [FORWARD :HEIGHT * 5 RIGHT 90
  FORWARD 15 RIGHT 90]
FILLER
END

TO FILLER
PU
RIGHT 35
FORWARD 7
PD
SHADE
PU
BACK 7
LEFT 35
END

```

```

TO MARK :COUNT
IF :COUNT > 5 [STOP]
LABEL WORD "# :COUNT
FORWARD 50
MARK :COUNT + 1
END

```

```

TO MOVE :HOW.FAR
SETH 90
FORWARD :HOW.FAR
SETH 0
END

```

Although the procedures given in April and this month's column feature some nice examples of list processing, my purpose for writing them was to provide teachers and students with Logo tools they could use to get caught up in the democratic process. I would be very interested in hearing your reactions to these project ideas and would love to see what other types of "election stuff" you and your students may have created.

Hope you had a great summer! Did you take a Logo course, create a Logo project that is interesting to you, attend Dan and Molly Watt's Lesley College Logo Institute, get your modem working, re-read *Mindstorms*. Now it's time to apply all that you learned to a new school year. I hope you'll be delighted with the neat stuff that popped into my head during the summer!

#### Notes:

1. Jim Muller - Sysop of the CompuServe LogoForum has generously translated last month's voting machine program into IBM Logo. Both the LogoWriter 2.0 version and the IBM Logo version are available in Data Library 6 of the Logo Forum. Type GO LOGOFORUM at any CompuServe Prompt.
2. I will upload a scaled-down 64K version of the voting machine, a general purpose pie chart program, and this article to the Logo Forum on CompuServe. If you don't feel like typing, you can simply (well not too simply) download these programs from CompuServe.
3. In versions of Logo other than Apple LogoWriter, you may need to adjust the screen coordinates (SETPOS) to fit your screen dimensions.

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