

PROGRAM ABSTRACTS/ALGORITHMS

Pictorial stimuli for the Apple Macintosh computer

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Many investigations in both applied and experimental psychology require the use of pictorial stimuli. Pictures are presented in a variety of ways, including in booklets, on index cards, on slides, or by tachistoscopes. Recent technological advances have made it possible for researchers to present fairly high-quality pictures on computers. The Macintosh computer is particularly well suited for this purpose in that it has ROM routines that allow easy manipulation of picture size and orientation. Drawing pictures individually on a computer, however, is still very time-consuming. This paper presents a way around this problem: It describes software that provides a set of pictorial stimuli prepared for computer presentation.

Description of Stimuli. As shown in Figure 1, the stimuli are digitized versions of the set of 260 line drawings published by Snodgrass and Vanderwart (1980). These drawings are rated on name agreement, image agreement, familiarity, and visual complexity. Because the digitized stimuli are fairly accurate representations of the originals, they can be assumed to be reasonably well described by the Snodgrass and Vanderwart ratings.

The New Image Technology digitizing package and a high-quality 50 mm lens were used to create the stimuli. The digitizing application creates a file that may be viewed and edited with graphics applications. To improve clarity, each stimulus was edited with the graphics editor Macpaint.

The stimuli are stored in 58 Macpaint documents, each containing from 2-6 stimuli. Although the stimuli are not numbered, the file names correspond directly to Snodgrass and Vanderwart's (1980) numbers. The stimuli may be separated easily with Macpaint and then placed into individual files. Because Macpaint is a powerful graphics editor, stimuli stored in Macpaint documents may be modified to suit the needs of a particular experiment. For example, a degraded version of a stimulus could be created by superimposing a noise pattern on the stimulus or by fragmenting the stimulus. Figure 2 illustrates these two types of modifications.

The greatest height of a stimulus is 135 pixels (4.8 cm) and the greatest width is 186 pixels (6.6 cm). However, word processors, graphics editors, and high-level

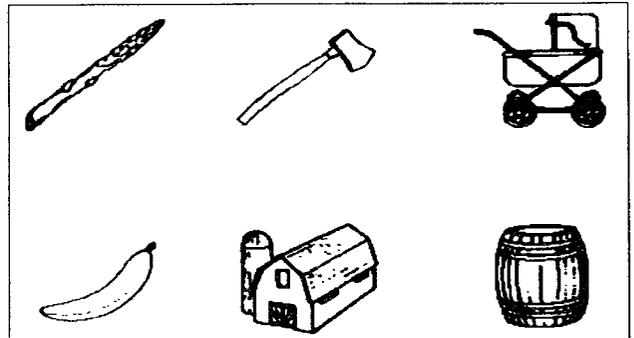


Figure 1. Six examples of the pictorial stimuli.

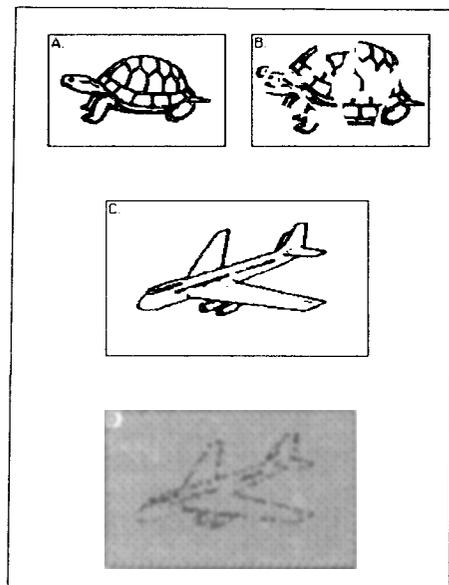


Figure 2. A stimulus before (Figure 2A) and after (Figure 2B) fragmentation. Figures 2C and 2D illustrate how a noise pattern may be superimposed on a stimulus.

programming languages are all capable of rescaling a stimulus because the Macintosh ROM contains a routine to rescale graphics to fit within a rectangle of a specified size. For example, Figure 3A shows the digitized version of Snodgrass and Vanderwart's (1980) fish; Figure 3B shows the same picture of a fish rescaled to fit a rectangle of the same height but greater width.

Accessing the Stimuli from Microsoft Basic. Graphics for the Macintosh may be stored in several ways: as bit images, as encoded graphics instructions, and as Macpaint documents. Bit images and encoded graphics instructions are available to programming languages. Macpaint documents contain graphics in the form of a compressed

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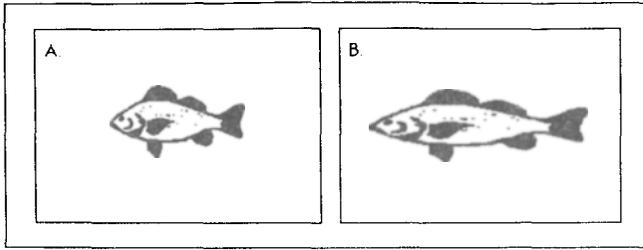


Figure 3. A stimulus before (Figure 3A) and after (Figure 3B) increasing the width of the presentation rectangle.

bit image and are accessible by Macpaint.

In order to be accessed from Microsoft Basic, the stimuli must be converted to sequential, random access, or resource files. Resource files have several advantages over sequential and random access files: They (1) require the least amount of storage space; (2) allow stimuli to be accessed individually either by name or by number; and (3) permit replacement of a single stimulus. As implemented on the Macintosh, Microsoft Basic allows the Basic language to be extended through the use of a library of machine language programs. The programs to create and use resource files will be part of a library written by

Lane and Ashby (1985, unpublished manuscript). The programs for handling resource files are supplied with the disks. Although resource files are generally the best way to store the stimuli, there are circumstances in which one may wish to use either sequential or random files. For this reason, programs that demonstrate the use of each of the three types of files are provided with the stimuli.

Hardware and Software Requirements. The Apple Macintosh and the Macpaint editor that is packaged with the Macintosh are required to use and manipulate the stimuli. Any programming language must be purchased separately.

Availability. The 260 line drawings are on two disks and may be obtained for a total of \$12.00 by writing to the author.

REFERENCES

- LANE, D. M., & ASHBY, A. B. (1985). *A machine language library for psychological experimentation on the Macintosh*. Unpublished manuscript.
- SNODGRASS, J. G., & VANDERWART, M. A. (1980). A standardized set of 260 pictures: Norms for name agreement, image agreement, familiarity, and visual complexity. *Journal of Experimental Psychology: Human Learning & Memory*, *6*, 174-215.

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