TECHNICAL NOTE

*A TECHNIQUE FOR PROGRAMMING
LONG INTERVAL SCHEDULES¹*

Variable-interval schedules are normally provided by a film-tape programmer. The programmer moves a 16-mm film loop through a hold-detecting reader at a constant speed. Very long variable-interval schedules present a programming problem because the film loop must be suspended from the reader. The total length of the film loop is limited by how far the film-tape reader is mounted above the floor. The length of the longest film loop determines the number of intervals that can be placed on it, hence the length and variability of the variable-interval schedule.

Solutions to the problem typically involve some mechanical change in the film-tape programmer. These could be described as hardware solutions. This note describes a technique for producing variable-interval schedules of almost indefinite mean length. It is essentially a software solution because it involves no modification of commercially available tape readers.

Several techniques for handling long film tapes have been reported. Kaplan and Martin (1961) described a small wooden box with a plastic front that could be used to hold reasonably long tapes. The "buffer box" catches the film as it comes off the film sprocket and feeds it back up to the reader as needed. The main difficulty, in our experience, with the buffer box is that occasionally a tape will "crawl out" of the box. Lysons and Lander (1968) suggested mounting the hole reader on one side of the film then twisting the film to form a Mobius strip. By punching holes on one half of the film the effective length of the film is doubled. A holding cartridge that feeds and rewinds the film has also been described (Hudston and Houten, 1970). Both the Mobius strip and the cartridge techniques require careful modification of the film-tape programmer and careful adjustment.

The technique described here employs a two-channel film-tape programmer. Such a programmer has two

hole-detecting readers. These readers report holes either in two synchronized film tapes or in each side of a single tape. We have successfully employed the technique with a two-channel solid state film reader (FP6, BRS-Foringer, Inc.) although any two-channel solid state or electromechanical (e.g., Gerbrands, Model PT-2A) film reader could be used.

If channel two is programmed to set up reinforcement in the usual way, and if channel one is programmed to stop the film-tape motor for 1 min each time a hole is detected, very long intervals may be obtained with a short length of tape. For example, for a 5-min 30-sec interval the experimenter measures 30 sec between two holes in channel two and punches five holes in a row in channel one such that all five holes fall between the two holes on channel two. Every time a hole is encountered in channel one, the film-tape motor stops for 1 min; thus, channel one provides for the 5 min. After the fifth hole in channel one, channel two reads a hole and reinforcement is set up. Holes are required in channel one only for intervals longer than 1 min. This technique can be used in conjunction with any of the mechanical modifications cited earlier or often can be used in place of them.

REFERENCES

- Kaplan, M. and Martin, J. M. A coupled tape programmer and buffer box. *Journal of the Experimental Analysis of Behavior*, 1961, 4, 322.
- Hudston, R. and Houten, R. V. A cartridge for running long variable-interval tapes. *Journal of the Experimental Analysis of Behavior*, 1970, 14, 165-166.
- Lysons, A. M. and Lander, D. G. Construction of film-loop programs: a new twist. *Journal of the Experimental Analysis of Behavior*, 1968, 11, 62.

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