A PROGRAMMER FOR DISCRIMINATION LEARNING STUDIES¹

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The study of the attention processes associated with discrimination learning calls for precise control of stimulus and temporal parameters. The present apparatus controls numerous individual circuits that may be selected in discrete steps while exact phase is preserved. At present it is used to control digital display projectors in a two-choice operant situation with retarded children as subjects (Ss).

Figure 1 is a photograph of the present apparatus mounted on a stand. Figure 2 shows a sketch of one section. A number of backing plates (1) carry a film guide (2) grooved to take 35mm film and drilled with two holes (3) into which the microswitch (4, type BZ-2RW80-A2) actuators fall when holes in the film strips are reached. The film is kept in engagement with a sprocket (5, Simplex, 35mm thin tooth) by a roller (6) pivoted on an arm. The 6 rpm motor (7, Hurst PC-DA-6, Cost \$13.20) has an internal clutch-brake mechanism. It is specified as providing 120

inch oz torque at 1 rpm with a start-stop latency of 10 msec. On a given trial up to 20 station switches may be opened, closed or left undisturbed. The design may be simply extended to provide more stations. The film strips are made of Mylar film leader which, unlike ordinary celluloid film, does not easily crack, tear or split. The result is an easily made and extremely durable program.

For continuous movement of the film the electromagnetic clutch and brake are connected to the motor so that the brake is released and the clutch continuously engaged when the motor is running. The duration between trials is then controlled by the distance between punchings and their duration by the length of the punchings in the film.

For a trial-by-trial action the leads from the electromagnetic brake and clutch are taken to one of the stations so that it disengages the clutch and applies the brake when the punching for a new trial is reached. If S's response key is connected to short-out this station, then a response will restart the drive and the film will advance to the next punching (trial). The distance between punchings controls the intertrial interval and the trial duration is under S's control. A similar arrangement can control trial duration.

Fig. 1. Photograph of the programmer.

Fig. 2. Plan of the programmer. View A shows the motor and the first unit of the programmer. View B shows a side view of the unit. The numbering is referred to in the text.

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