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AN INVESTIGATION OF SOME INFLUENCES OF STIMULUS CONTROL AND REINFORCER CONTINGENCY ON BEHAVIOR

by

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ABSTRACT

AN INVESTIGATION OF SOME INFLUENCES OF STIMULUS CONTROL AND REINFORCER CONTINGENCY ON BEHAVIOR

by

Gail Evra

Advisor: Professor Brett K. Cole

Eight pigeons were exposed to the following four-component multiple schedule: Random Interval (RI) 30 sec [T=6 sec, $\underline{p}(S^R)=0.2$], Fixed Interval (FI) 30 sec [T=30 sec, $\underline{p}(S^R)=1.0$], Variable Delay (VD) 30 sec [T=30 sec, $\underline{p}(S^R)=1.0$], and Random Delay (RD) 30 sec [T=6 sec, $\underline{p}(S^R)=0.2$]. Reinforcers were presented immediately following the qualified response in both FI and RI, and at the end of the time cycle, T, in VD and RD if at least one response had occurred in T. Each component of the multiple schedule was in effect for 10 min, and the order of the components in each session was randomized.

For purposes of data collection and stimulus placement, each T-cycle was subdivided into six equal sub-intervals of 5sec duration in FI and VD, and 1 sec in RD and RI. Response rate in the sub-intervals of T was measured throughout the experiment.

Following the initial 44 days of training on the schedule outlined above, 6 subjects were exposed for 32 sessions to the identical component reinforcement schedules but with an added stimulus (S^N) occurring for the duration of one sub-interval in each T-cycle on each schedule. For 3 subjects S^N occurred in the fourth sub-interval of the T-cycle (S^N_4) and for the other 3 subjects S^N appeared in the sixth sub-interval (S^N_6). Two subjects were maintained on the original reinforcement schedule with no added stimulus.

Reinforcement contingency was manipulated for the S^N_4 and S^N_6 subjects by increasing the probability of a T-cycle in which non-contingent reinforcement could occur [*p*(NC T-cycle)] i.e., a response was not required for S^R eligibility. When a T-cycle could contain a non-contingent reinforcer, a randomly generated pulse was substituted for the response in meeting the reinforcement probability. When a T-cycle could contain a contingent reinforcer, the first R in each T-cycle was applied to the reinforcement probability. While *p*(NC T-cycle) was increased as follows; *p* (NC T-cycle)= 0.50, 0.75, 0.90, each value was in effect for 16 sessions. When *p*(NC T-cycle)=1.00 was reached this value was continued for 28 sessions. The two subjects maintained on the fully contingent schedule for a total of 124 days were exposed during the last 28 sessions to a fully non- contingent [*p*(NC T-cycle)-1.00] procedure.

Some prominent effects of the foregoing procedures were:

1. Responding on the original baseline reinforcement schedule was relatively uniform within the T-cycle in RI and RD, and scalloped or break-run in FI and VD for all subjects.

2. Intrusion of S^N in the fourth sub-interval of the T-cycle resulted in pronounced "double scalloping" in FI and VD, and a similar but less pronounced effect in RI and RD.

3. Intrusion of S^N in the sixth sub-interval of the T-cycle resulted in accentuated "break-run" patterns of responding in FI and VD, and distinct scalloping in RI and RD.

4. Increasing p(NC T-cycle) resulted in the maintenance of substantial rates of responding in all components for all S^N_4 and S^N_6 subjects. Decreases in rate were usually greater in RI and FI components than in RD and VD.

5. The two subjects maintained on the original baseline schedule showed stable patterns of responding in all components for the 124 sessions at this point. For both subjects the abrupt change to non-contingent reinforcement resulted in larger decreases in rate in RI and FI components than in RD and VD. These findings replicated those resulting from the gradual increase in non-contingency for S^N_4 and S^N_6 subjects.

6. Regardless of response rate changes, similar distributions of responding within the T-cycle in all component schedules were recognizable throughout the p(NC T-cycle)

manipulation for all subjects.

While the initial exposure to the intruded S^N schedule replicated various procedures and effects which may be compared to a number of stimulus control phenomena, (Martin, 1971) the manipulation of the p(NC T-cycle) variable and the inclusion of p(NC T-cycle)=1.00 among the values studied allows the procedure to be compared to any of several Pavlovian paradigms including trace and delay. The variables identified in this work point to a dimension of continuity between the two conditioning paradigms based on a set of clearly defined independent variables.

Traditionally, behavior theories have attributed the control of behavior to two distinguishable categories of stimuli: Those which seemed "naturally" to have influence (sometimes called unconditioned stimuli or reinforcers) and those whose influence derived through association with the former (called conditioned stimuli or conditioned reinforcers). Demonstrations of control have always occurred with a specific and restricted temporal relationship between these stimuli and the behavior measured, whether in the "Pavlovian" or "operant" cases. In both of these paradigms the stimulus-response relationship designated as the reflex served as a unit of analysis and provided a basis for a systematic framework within which behavioral data from various sources could be placed.

While a common stimulus-response (reflex) terminology was applied to both operant and Pavlovian paradigms, there seemed at the same time to be irreconcilable differences between the two. The first, and theoretically less defensable distinction concerned the responses which were sensitive to each procedure. Pavlovian procedures were applicable only to behaviors correlated with specific eliciting stimuli, to responses made by glands or smooth muscles, and mediated by the autonomic nervous system (Skinner, 1938 p. 112).

Operant procedures were effective only in controlling responses of the skeletal or striate muscles, which were mediated by the central nervous system, and which were "emitted" in the absence of an identifiable eliciting stimulus (Skinner, 1938 p. 21). Many theoretical objections have been made to this dichotomy, for example: a) any stimulus event must affect all types of responses since several responses may occur simultaneously; b) from a behavioral point of view, a response cannot be said to be mediated solely by the autonomic nervous system to the exclusion of the central nervous system, and vice versa; c) the distinction between "elicitation" and "emission" of a response is not clear (Schoenfeld, 1972). On the empirical side of the issue exist demonstrations of the control by operant procedures of responses once thought of as exclusively susceptible to the Pavlovian procedure (Miller, 1969; Kimmel and Hill, 1960). These demonstrations, however, beg the reductionist question by assuming from the outset, a fundamental operational difference between the paradigms, exactly the opposite of the reductionist goal (Schoenfeld, 1972). In any case, whether one finds one or another source of evidence convincing, the response distinction between the conditioning paradigms cannot be supported.

The second major distinction between the two types of conditioning is based on apparently basic differences in the rules governing the occurrence of stimulus events, i.e., the independent variable operations. It is the resolution of these procedural disparities, if this is indeed possible, which will accomplish the reduction (Schoenfeld, 1972, 1971, 1970, 1966).

The present work is an attempt to identify a set of independent variables common to the Pavlovian and operant paradigms. Any particular procedure (operant, Pavlovian, or whatever) could then be defined as a specific combination of particular values of independent variables drawn from the same continuous parameters. When this is accomplished, each "paradigm" becomes a variation of a single underlying operation.

Recent attempts to systematize the procedural variables of conditioning in terms of the temporal relationships among stimulus events, as well as between stimulus events and behavior (Schoenfeld, Cole, Blaustein, Lachter, Martin and Vickery, 1972) provide a framework describing the continuous independent variables manipulated in the present study.[1]

The use of a reflex model has specific meaning in terms of the relationship between the stimulus and response. The term "reflex" is used to describe a stimulus-response relationship in which R reliably follows S closely in time, with the added implication of a physiological connection between the two (Skinner, 1931). In the Pavlovian conditioning paradigm a neutral stimulus is paired with an eliciting stimulus, with the result that the reflexive behavior occurs some time shortly thereafter. Pavlov was willing to say that a "new reflex" had been acquired when a reliable temporal relationship developed between the originally neutral stimulus and a response that was similar to the response which initially occurred only after the presentation of the eliciting stimulus. A parallel but hypothetical connection between the new S and R acted as the logical agent of mediation. This new reflex was, however, acquired only under conditions in which the neutral stimulus preceded both the eliciting stimulus and the unconditioned response by a brief interval of time. The reliability of the relationship between the eliciting stimulus and the unconditioned response made this condition easy to achieve; E merely had to specify an interval of time between the presentation of the two stimuli, and the response would follow at the "proper" time automatically.

When Thorndike began the study of "voluntary" behavior, he noted in the Law of Effect that the temporal relationship between response and stimulus was a major variable in the acquisition of control by S: responses "...which are accompanied or closely followed by satisfaction...will be more likely to recur..." (Thorndike, 1911 p.244). Adhering to a reflex model, Thorndike said the "connection between R and S was being "stamped in" whenever the correct R-S sequence in time occurred. Arranging the occurrence of this temporal sequence in the case of "voluntary" behavior was, however, not so easily achieved as in the Pavlovian case. Voluntary behavior has been defined as behavior for which a reliable antecedent stimulus cannot be identified (Skinner, 1938 p.20), making any stimulus-stimulus pairing impossible. Instead, Thorndike arranged the effective sequence in time by assigning to R the power to produce the stimulus, thus assuring that S occurred only after R had occurred. The production of the stimulus by the response was interpreted as serving the same connective function as the hypothesized physiological connection between CR and CS in the Pavlovian reflex (Schoenfeld, Cole, Lang and Mankoff, 1973). Skinner (1938, 1931) was also committed to the reflex model in the description of "voluntary behavior, a fact clearly seen in his notation "s.R" to indicate his conviction that some stimulus (albeit unidentifiable) did precede the occurrence of an operant. In describing the Pavlovian and Thorndikian procedures, Skinner noted what he considered to be a crucial difference between the two: "The essence of Type S [Pavlovian] is the substitution of one stimulus for another...it prepares the organism [for the stimulus]...the conditioned response of Type R [operant] does not prepare for the reinforcing stimulus, it produces it" (Skinner, 1938 p.111).

With this emphasis on the production of the stimulus by the response, Skinner (1938) restated the Law of Effect as the concept of contingency.

The first analysis of the production requirement was Skinner's (1948) demonstration of "superstitious" conditioning. Pigeons which were exposed to periodic food presentations made without reference to their behavior nonetheless developed stable repetitive behavior patterns during the inter-food intervals. This result could have been interpreted as a demonstration of operant conditioning without any contingency. Skinner (1948), however, chose instead to conclude that an effective contingency was reliably established, based on accidental temporal sequences of R and S^R: "To say that a reinforcement is contingent upon a response may mean nothing more than to say that it follows the response...conditioning occurs presumably because of the order and proximity of responses and reinforcement" (Skinner, 1948 p.168), In this way, Skinner could explain the systematic change in behavior by assuming that some behavior must have preceded the food in the correct temporal position to be affected by the reinforcer and emerge as the conditioned response. However, as Lachter, Cole and Schoenfeld (1971) have pointed out, this manner of redefining contingency weakens the concept, making any distinction between contingent and non-contingent schedules impossible, certainly not

Skinner's objective. Instead a two part definition, taking into account both of Skinner's points can be suggested. Contingency is the combination of two principles: 1) the temporal relationship which specifies that the response to be conditioned is followed immediately by the reinforcer (immediacy), and 2) R is necessary to produce S^R (production).

While a case might seemingly be made for the importance of production in determining the topography of the behavior to be conditioned, a number of demonstrations exist in which the response to be acquired following non-contingent reinforcement procedures was identified in advance of the non-contingent procedure (Rosenberg, 1973; Brown and Jenkins, 1968). These results produce what Schoenfeld <u>et al</u> (1972) have characterized as an apparent contradiction in terms: "the 'superstitious' conditoning of a pre-selected R" (p.157) which forces behavior theory to recognize that the production requirement of contingency is not among the necessary parameters of conditioning (Schoenfeld, Cole, Lang and Mankoff, 1973).

Commonly the procedure for comparing "contingent" and "non-contingent" schedules in their ability to maintain behavior has been to switch from some ongoing contingent procedure to a non-contingent one (Lachter, Cole and

and Schoenfeld, 1971; Lachter, 1970; Zeiler, 1968; Herrnstein, 1966; Skinner, 1938). All of these studies report a substantial decrease in response rate on the non-contingent schedule. A single critical assumption underlies these studies, whether they involve switching to a non-contingent schedule with a similar inter-reinforcement-time (IS^RT) distribution (Herrnstein, 1966; Skinner, 1938) or to a schedule with a different IS^RT distribution from the baseline schedule (Lachter, Cole and Schoenfeld, 1971; Lachter, 1970; Zeiler, 1968). The common assumption is that the only important variable being manipulated by the switch from contingent to non-contingent schedules is the production rule of the contingency. This, however, is not the case. In all of the studies mentioned, the baseline schedule was one in which the reinforcer immediately followed the response which produced it. By eliminating the power of the response to produce the reinforcer, the immediate temporal relationship between R and S^R could no longer be maintained. Since production and immediacy are inseparable in the schedules used in this group of studies, conclusions drawn from them about the power of the production rule alone must be examined further in a situation which allows for separate control over both elements of contingency.

Additional support for the view that the two elements of contingency must be separated for a complete analysis comes from the observation that exposure to non-contingent reinforcement does not universally result in low to zero response rate. Neuringer (1970) reports substantial responding under a non-contingent procedure following exposure to only three contingent reinforcements. The non-contingent schedule was initiated with a short mean $IS^{R}T$ which was gradually increased, while responding was maintained. Cole (1971) and Schoenfeld, Cole, Lang and Mankoff (1973), after gradually increasing the proportion of non-contingent reinforcers, found "...maintenance of the R that had been immediately reinforced occurred only when an R was included in the pattern of behaviors which stabilized between successive S^{R}s on the non-contingent schedule" (Schoenfeld, et al, 1973 p.170). This observation leads to the conclusion that the introduction of non-contingent reinforcers would result in little disruption in the behavior sequence only when the pattern of behavior initially controlled by the contingent schedule included behaviors in addition to R immediately before S^{R}.

There is an existing set of schedules of stimulus presentation which does allow for behaviors other than R (called "not-R", and symbolized as R̸, [Schoenfeld and Farmer, 1970]) to occur immediately before the reinforcer.

These are delay of reinforcement schedules. Variable Delay (Schoenfeld *et al*, 1973, Expt. 1) schedules require one response in each time cycle (T), but the reinforcer, instead of occurring immediately following the qualified R, occurs at the end of T. The required response can occur at any time during T and can be followed by $\not{R}$ immediately before S^R.

The use of delay schedules as a baseline against which to assess the effects of non-contingency eliminates the objection raised to the previous group of studies (Lachter, *et al*, 1971; Lachter, 1970; Zeiler, 1968; Herrnstein, 1966; Skinner, 1938). In both contingent and non-contingent phases of this procedure, the response-reinforcer interval can take the same values. Response-reinforcer interval (R-S^R interval) is defined as the period of time from the last response before reinforcement to the occurrence of the reinforcer. Delay of reinforcement schedules allow for the easy separation of the two elements of the contingency rule, production and R-S^R contiguity. Lang and Mankoff (Schoenfeld, *et al*, 1973, Expt. 2) switched from a VD schedule to a non-contingent schedule of identical IS^RT distribution and found, after 55 days of exposure, no change in response rate. This finding is further evidence that the production of S^R by R is not necessary to maintain the control which S^R exerts over R, and that instead, this control must be within the temporal relationship of R and S^R.

There has been a suggestion (Schoenfeld and Farmer, 1970) for a redinition of contingency in order to produce a continuum of relationships between Rs and S^Rs which eliminates the necessity of distinguishing between contingent and non-contingent schedules. Every schedule of reinforcer presentation can be characterized by the degree of variability which it allows in the R-S^R interval distribution (Schoenfeld, _et al_, 1973). Schedules of immediate reinforcement set both the upper and lower limits of this distribution at zero, while non-contingent and variable and random delay schedules allow for maxima equal to the IS^RT and minima equal to zero. Fixed Delay (Ferster, 1953) schedules set both maximum and minimum R-S^R intervals equal to the delay value. Schoenfeld and Farmer (1970) define contingency as any case in which a conditional probability exists between Rs and S^Rs in their temporal sequence, causing the distribution of S^Rs in time to depend on the distribution of Rs in time. The foregoing conditional probability statement $[p(S^R|R)]$ can be specified temporally in terms of the upper and lower limits of the R-S^R interval distribution which are produced by a given schedule, with contingency seen as a limiting case of some non-contingent schedule (Schoenfeld, _et al_, 1973).

Any attempt to specify a set of variables common to the operant and respondent paradigms must include a systematic approach to procedures in which stimuli in addition to the reinforcer are presented. All procedures which include both a neutral stimulus (S^N) and a reinforcer [procedures of stimulus discrimination (Skinner, 1938), conditioned reinforcement (Kelleher and Gollub, 1962; Skinner, 1938), sensory superstition (Morse and Skinner, 1957), and the Pavlovian trace and delay procedures (Pavlov, 1928)] can be characterized as the concurrent operation of two schedules of stimulus intrusion, one for the reinforcer and the other for the neutral stimulus. A limited number of relationships are generated by these two schedules: 1) the temporal relationship between the stimuli (S^N-S^R interval, or "phase angle" [Martin, 1971]); 2) the degree or correlation between stimuli [$p(S^R|S^N)$ or $p(S^N|S^R)$]; and 3) the temporal relationship between the behavior and the stimuli (R-S^R interval or R-S^N interval), which has been previously shown to be part of the contingency. These three sets of variables can be used to describe any procedure which includes both S^R and S^N and can themselves be defined in terms of the basic parameters of the t-system (Schoenfeld, Cole, _et al_, 1972).

Initial efforts to subsume double stimulus intrusion paradigms within the t-system were made by Weissman (1963, 1961, 1958). However, because of limitations within the structure of the t-system at that time, the continuity which had been hoped for was not demonstrated. Farmer and Schoenfeld (1966 a and b), in what they characterized as an "irreducibly primitive paradigm" (1966 b, p.15), investigated parametrically the effects of S^N-S^R interval. Using Fixed Interval 60 sec as the baseline schedule, a stimulus of six seconds duration was intruded both "non-contingently" (1966 a) and "contingently" (1966 b) in successive tenths of the FI cycle. In both studies, as the distance in time between the S^N and the S^R increased, changes in the apparent "function" of S^N from a discriminative stimulus, to a conditioned reinforcer, and then to an S^Δ were seen. The continuity of effects attributed to the neutral stimulus caused Farmer and Schoenfeld (1966 a) to suggest an expansion of the definition of "stimulus control" to include the behavior which precedes, occurs within and follows the stimulus. This definition would generalize others (Ray and Sidman, 1970; Terrace, 1966) which depend upon a single relationship between an antecedent stimulus and responding. Using this definition, a single intruded stimulus might simultaneously be considered a conditioned reinforcer for behavior which occurred before the stimulus and as an S^D

for behavior which occurred during or following the stimulus.

Following refinements in the t-system (Farmer, 1963, 1962), it was possible to expand the intruded stimulus design of Farmer and Schoenfeld (1966 a and b) to investigate parametrically both phase angle and probability of S^R and S^N (Martin, 1971). This expansion of the intruded stimulus design can, at various experimental points, be identified with a variety of stimulus control procedures, including discrimination, conditioned reinforcement, and sensory superstition.

The present work combined some of the major variables of the intruded stimulus design [$\underline{p}(S^R|S^N)$ and S^N-S^R interval] with a manipulation of the R-S^R contingency relationship (immediacy and production) to produce at specific values, many operant stimulus control procedures as well as Pavlovian trace and delay paradigms.

METHOD

Subjects: Eight cull Silver King pigeons served as subjects. Upon arrival in the laboratory the animals were assigned individual cages and given "free" access to food and water for thirty days, to determine the *ad libitum* weights. Following this period the birds were fed limited amounts once each day and reduced to 80% of the *ad libitum* weight, at which they were maintained for the duration of the experiment.

Apparatus: A Lehigh Valley Electronics chamber was used as the experimental space (Model 1519, Panel B). An in-line display unit (Grason-Stadler, Model E4580-16/0) trans-illuminated the key with red, green, blue or amber light and occasionally with a white cross on a black surround. The center key served as operandum; the other two keys were replaced with air conditioner filter material to improve ventilation (Martin, 1971). A "white" overhead light was on at all times except during the 3 sec hopper presentation of mixed grains which served as the reinforcer.

Experimental conditions were programmed by a system of BRS (Digi-Bit) logic modules, a precision clock (BRS MV-4), and probability generators (BRS PP-1). Data were recorded on Sodeco impulse counters and a Gerbrands (Harvard C3) cumulatvie recorder.

Procedure:

1. Hopper Training and Shaping - All subjects were hopper trained and shaped to peck a red illuminated key. Reinforcement frequency was reduced from continuous reinforcement to RI 30 sec by increasing the duration of the T-cycle from zero to 6 seconds and decreasing the p value from 1.0 to 0.70 to 0.50 and finally to 0.20. All subjects were run on the RI 30 sec schedule for 20 S^Rs per day for four days and then switched immediately to the baseline schedule.

2. Baseline - The components of the baseline multiple schedule are diagrammed in Table 1. Each component was in effect for 10 minutes in a session, with order randomized over days. The four schedules can be divided into two classes. In the RI and FI schedules reinforcers are delivered immediately following the appropriate response, while in the two delay schedules (RD and VD), the reinforcers are delivered at the end of the T-cycle. The schedules can also be characterized by the IS^RT distributions, FI and VD having relatively fixed distributions, and RI and RD having geometrically distributed IS^RTs with a mean of 30 seconds.

The baseline procedure was in effect for a total of 44 days. A forced break followed the first 28 sessions; 16 sessions were then added to assure that no systematic

TABLE 1

Four-component Multiple Schedule

	RI	FI	VD	RD
Stimulus	red	green	amber	blue
T-cycle	6 sec	30 sec	30 sec	6 sec
$\underline{p}(S^R)$	0.20	1.00	1.00	0.20
S^R Delivery	immediate	immediate	end of T	end of T

changes had occurred in the behavior as a result of the pause.

3. The Intruded Stimulus - The S^N was a white cross on a black surround. The stimulus was presented on a Fixed Time (FT [Zeiler, 1968]) schedule in each reinforcement T-cycle at a fixed position determined in the following manner. Each S^R T-cycle was divided into six equal sub-intervals of 5 sec duration in the FI and VD components, and of 1 sec duration in RI and RD components. The S^N was intruded for the duration of the sub-interval, either in sub-interval 4 (S^N_4) or sub-interval 6 (S^N_6). This arrangement can be thought of as the concurrent scheduling of two stimulus events, S^N and S^R, with the schedule for S^N out of phase with the S^R schedule by 180° (S^N_4) or 300° (S^N_6).

Subjects were divided into experimental groups as follows: three sets of two birds were matched by both running rate (total responses/total time - S^R time - PS^RP, [Farmer, 1963]) and the pattern of responding within T-cycles in each of the four component schedules of the baseline. One subject from each pair was then randomly assigned to a treatment group (S^N_4 or S^N_6), making three subjects in each group. A third group of two subjects was maintained throughout this portion of the experiment on the baseline schedule without an intruded S^N. The intruded stimulus procedure was in effect for 32 sessions.

4. Non-contingent Schedules - Using the Schoenfeld and Farmer (1970) definition, contingency was manipulated by varying the degree of influence which the distribution of responses had on the distribution of reinforcers. This was accomplished in the following manner: for every T-cycle in each of the four component schedules, a probability was set that the cycle could contain contingent or non-contingent reinforcers. In the event that a cycle could contain only contingent reinforcers, the first response in the cycle became eligible for reinforcement at the designated reinforcement probability. When a cycle could contain only non-contingent reinforcers, a randomly generated noise pulse was substituted for a response in determining reinforcement in that cycle. In this way the influence of responses on the distribution of reinforcers was gradually decreased, while the variability patterns of the $IS^{R}T$ distributions remained similar to those obtained under the fully contingent procedure. Four probabilities of non-contingent cycles were investigated in the following order: p=0.50, p=0.75, p= 0.90 and p=1.00. The predicted number of contingent and non-contingent reinforcers in each component at each experimental point can be found in Table 2.

The intruded stimulus schedule was in effect during all experimental points. Each non-contingent point was run for 16 sessions with the exception of p=1.00, which was run for

TABLE 2

Predicted Number of Contingent and Non-contingent Reinforcers in Each Component of the Multiple Schedule

Experimental Point	Contingent S^Rs	Non-contingent S^Rs
Baseline	20	0
Intruded Stimulus	20	0
p(NC T-cycle)=0.50	10	10
p(NC T-cycle)=0.75	5	15
p(NC T-cycle)=0.90	2	18
p(NC T-cycle)=1.00	0	20

28 sessions. In all cases data are reported for the last 8 days of the procedure.

The third group of subjects, which had been maintained on the baseline schedule (no S^N, fully contingent S^Rs) for 124 days was switched to a fully non-contingent schedule with no S^Ns for the last 28 days.

RESULTS

The naming of stimulus control phenomena is a complex process which depends not only upon a simple behavioral outcome, but on the interaction of a variety of variables including S^N-S^R interval, R-S^R and R-S^N intervals, and the conditional probabilities between Rs and S^Rs and S^Rs and S^Ns. Consider for example the report of an increase in response rate during S^N. This increase might lead to the conclusion that S^N was acting in a discrimination, conditioned reinforcement, sensory superstition, or classical trace or delay paradigm. The choice among paradigms would depend upon the particular configuration of the variables in force when the datum was obtained. Even then, selection of one descriptive paradigm by one experimenter might not prevent another experimenter from making a different choice.

In reviewing the data presented here it is possible to emphasize that particular phenomena are replicated, and some of these are pointed out as they occur. It is more to the point, however, to realize that the demonstration of a large variety of phenomena occurred as the result of a unified comprehensive procedure. This procedure presented a set of independent variables within which any procedures which intrude stimuli into ongoing behavior sequences may be defined. Among these are the procedures of classical and of operant conditioning.

The time course

Figures 1-8 show responding as a function of successive sixths of the T-cycle in each component of the multiple schedule. Baseline - The top panel across in each figure contains data from the baseline schedule. Random Interval (RI) data showed the expected relatively flat functions (Sussman, 1972) in the T-cycle. The small drop seen in the second sub-interval (bin) can be accounted for by the occasional $PS^{R}P$ which occurred at that time. The $PS^{R}P$ is seen in the second sub-interval of the T-cycle in the RI and FI schedules rather than at the beginning of T because the response required for reinforcement had to occur in the first sub-interval making a zero rate in this portion of the T-cycle impossible. In addition, the presentation of RI data used here combines T-cycles in which no reinforcer occurred with T-cycles which contained a reinforcer. This averaging tends to increase the rate in the first sub-interval. Rate as a function of time in the T-cycle for the Random Delay (RD) schedule was also relatively uniform for most subjects, with the occasional drop in rate from the sixth to the first bin attributable to the $PS^{R}P$ which occurred at that time. Fixed Interval (FI) data replicated the scalloping effect noted by Ferster and Skinner (1957), and also were similar to data represented in this format by Farmer and Schoenfeld (1966 a and b). Variable Delay (VD) data were generally similar to FI, although there

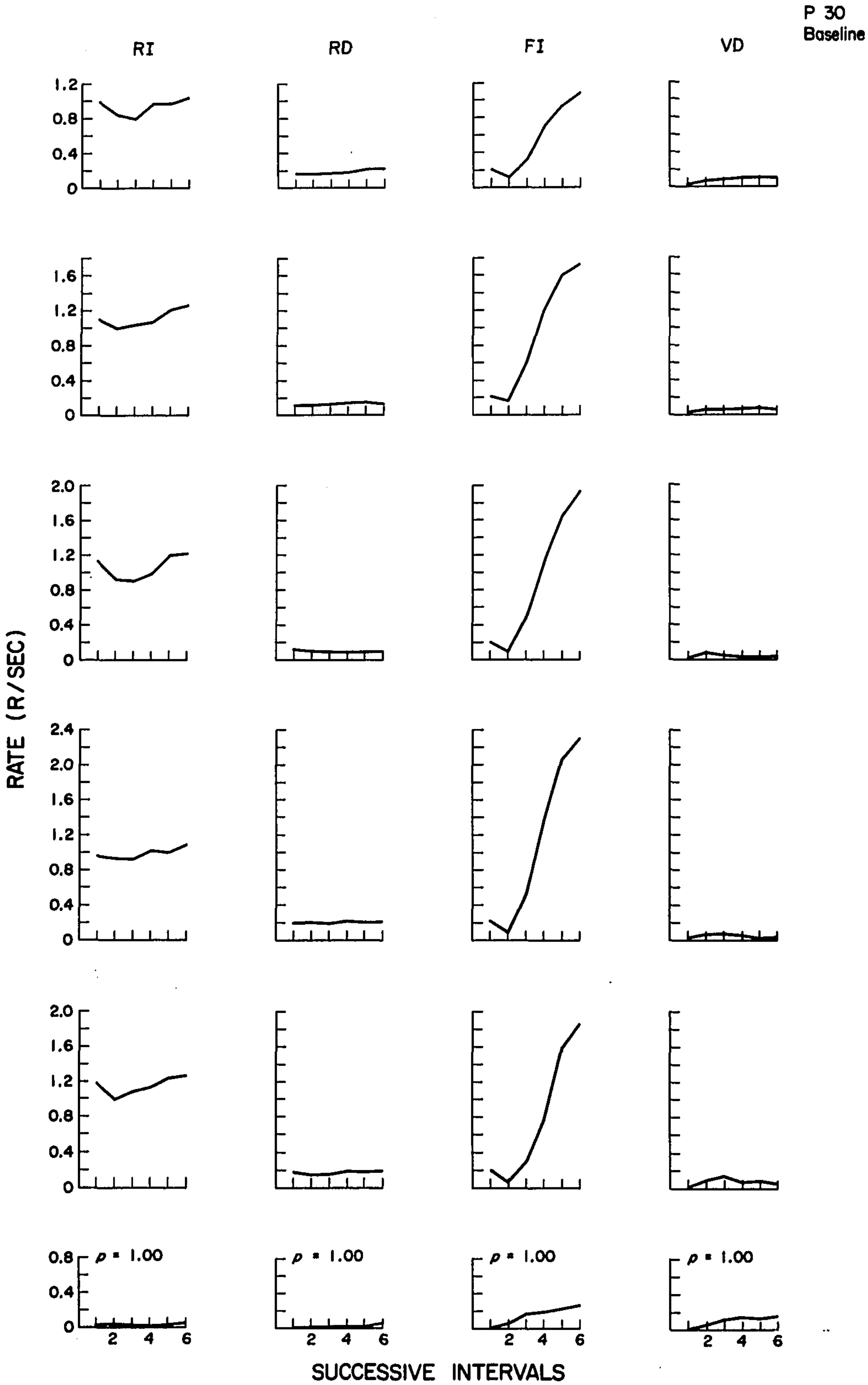
Figures 1-8: Mean Rate as a Function of Time Within the T-cycle

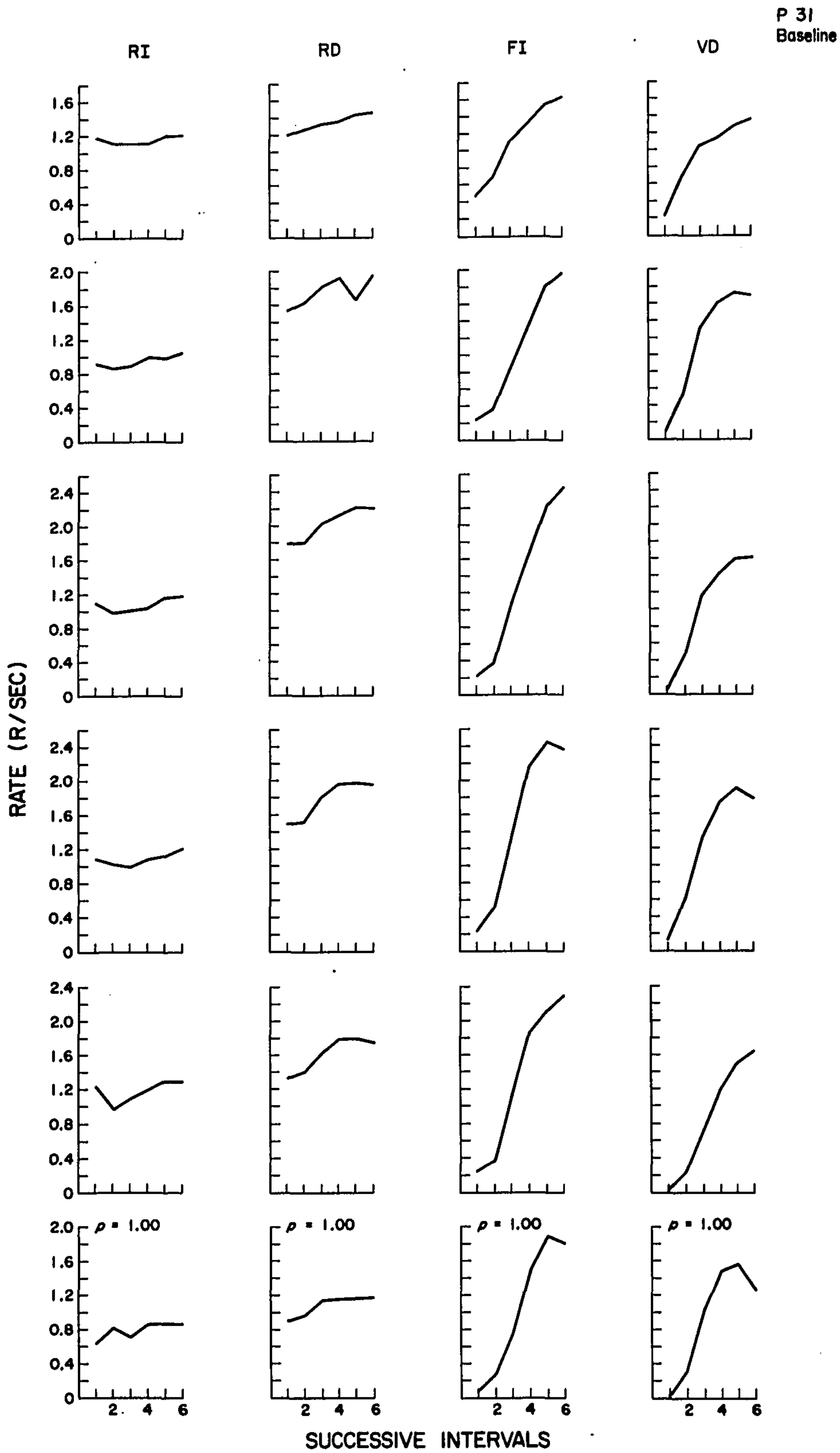
Each figure presents data from a single subject from the last eight days at each experimental point. The four components of the multiple schedule are represented in the columns from right to left; Random Interval (RI), Random Delay (RD), Fixed Interval (FI) and Variable Delay (VD), while each successive measurement is represented in the rows across. The T-cycle in each schedule is divided into six sub-intervals; in RI and RD the duration of each sub-interval is 1 sec, in VD and FI each sub-interval is 5 sec.

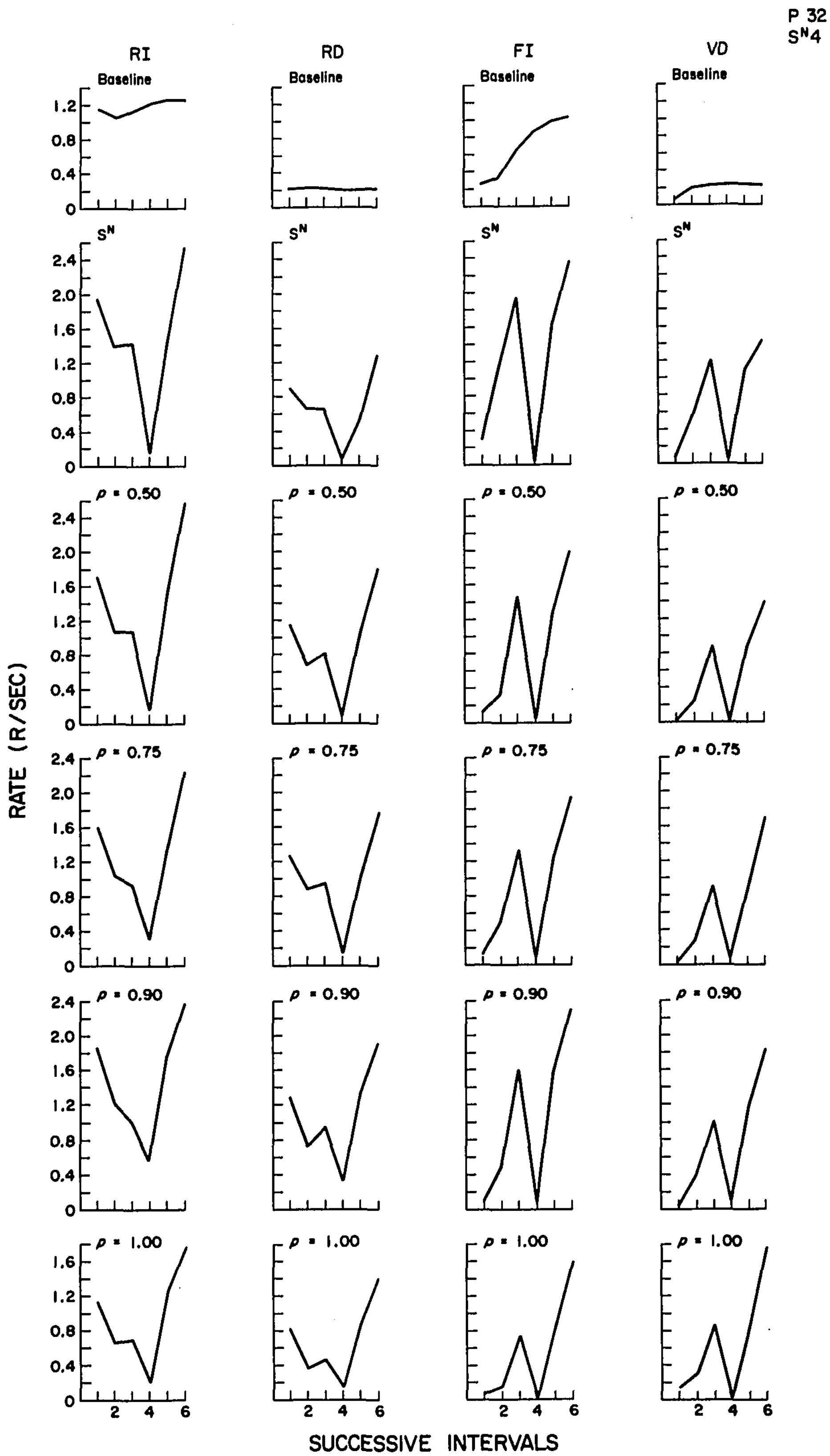
Figures 1 and 2 present in the first five rows successive measurements of rate for P30 and P31 on the fully contingent baseline schedule, made at the same time as those for the S^N_4 and S^N_6 subjects. The last row presents data from P30 and P31 when reinforcers were completely non-contingent, p(NC T-cycle)=1.00.

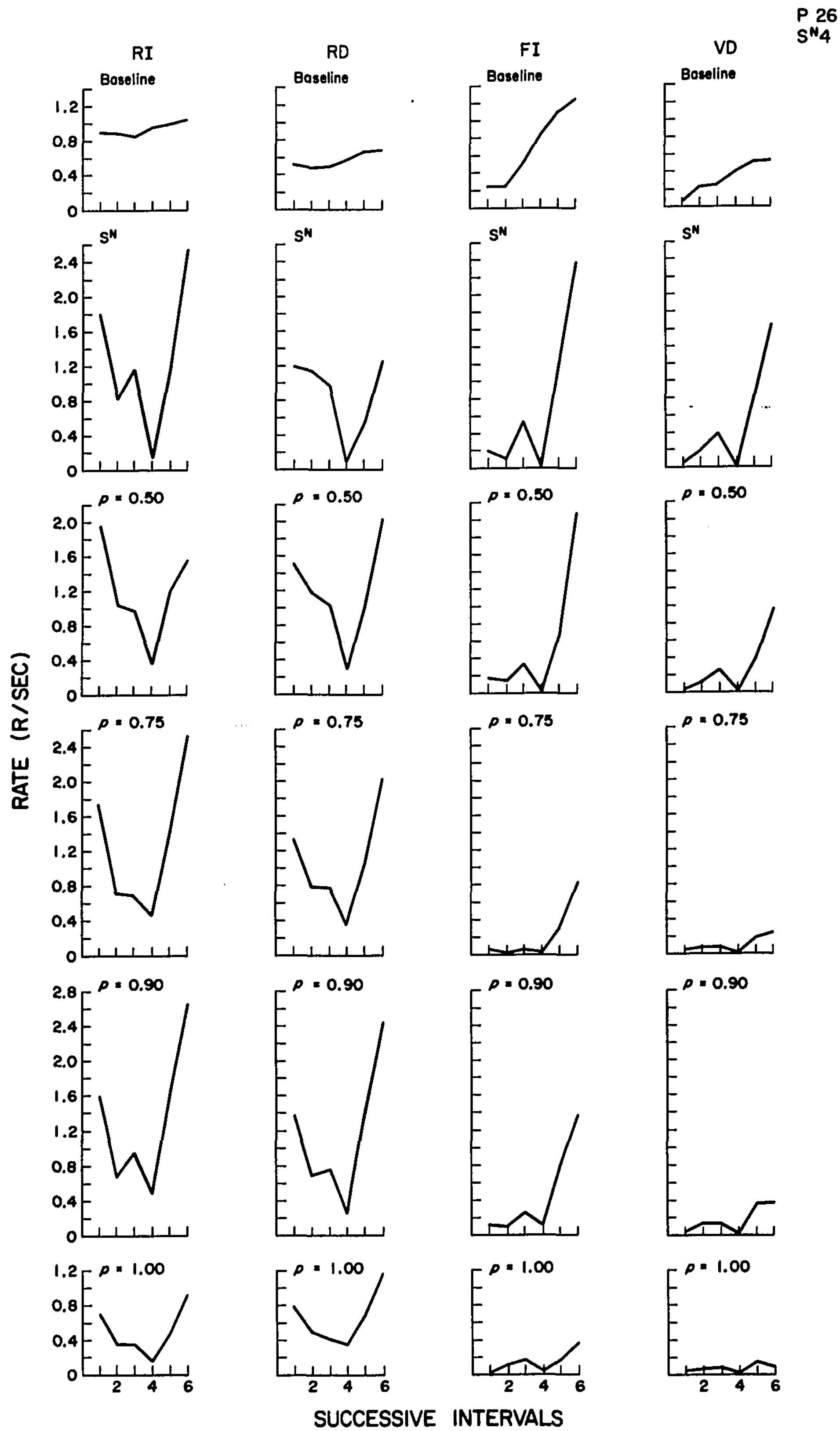
Figures 3-5 present data from the S^N_4 group. The S^N was intruded for the duration of the fourth sub-interval of each T-cycle in each component of the multiple schedule. Figures 6-8 present data from the S^N_6 group. The S^N was intruded for the duration of the sixth sub-interval of each T-cycle in each component of the multiple schedule.

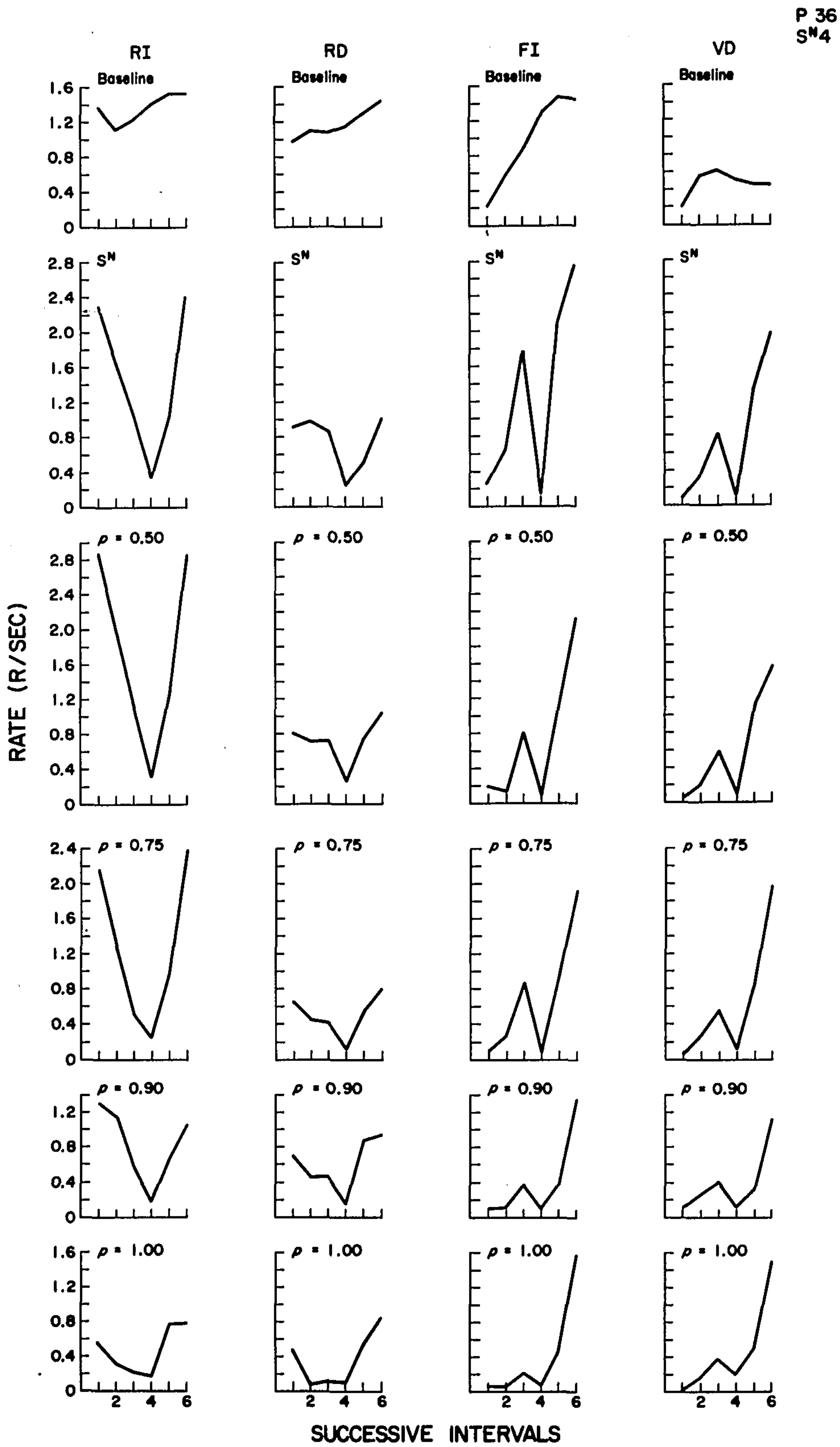
In Figures 3-8 each experimental procedure is represented in the rows across. From top to bottom they are: Baseline, S^N Intrusion, p(NC T-cycle)=0.50, 0.75, 0.90, and 1.00.

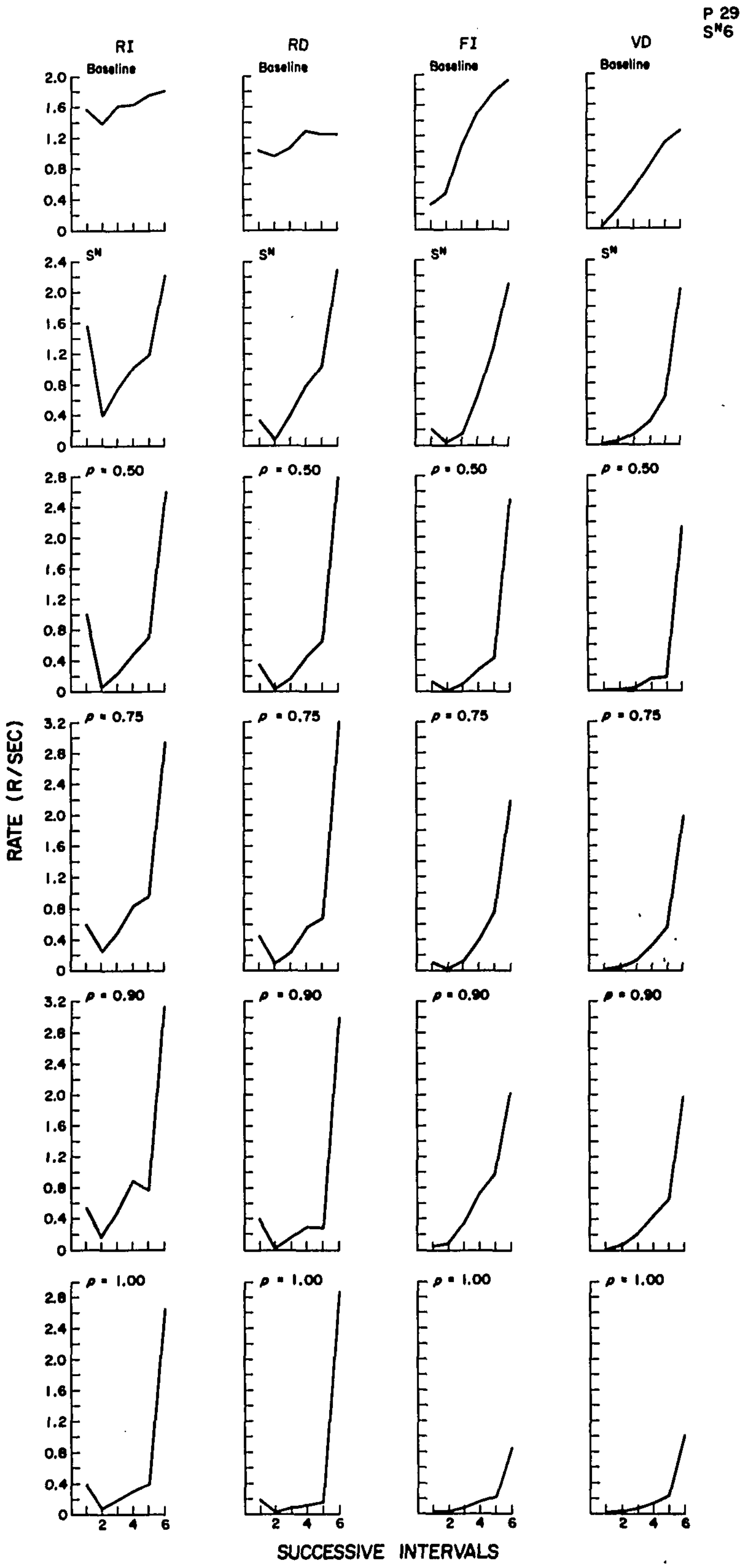

P 30
Baseline
RI
RD
FI
VD
RATE (R/SEC)
1.2
0.8
0.4
0
1.6
2.0
2.4
ρ = 1.00
2
4
6
SUCCESSIVE INTERVALS

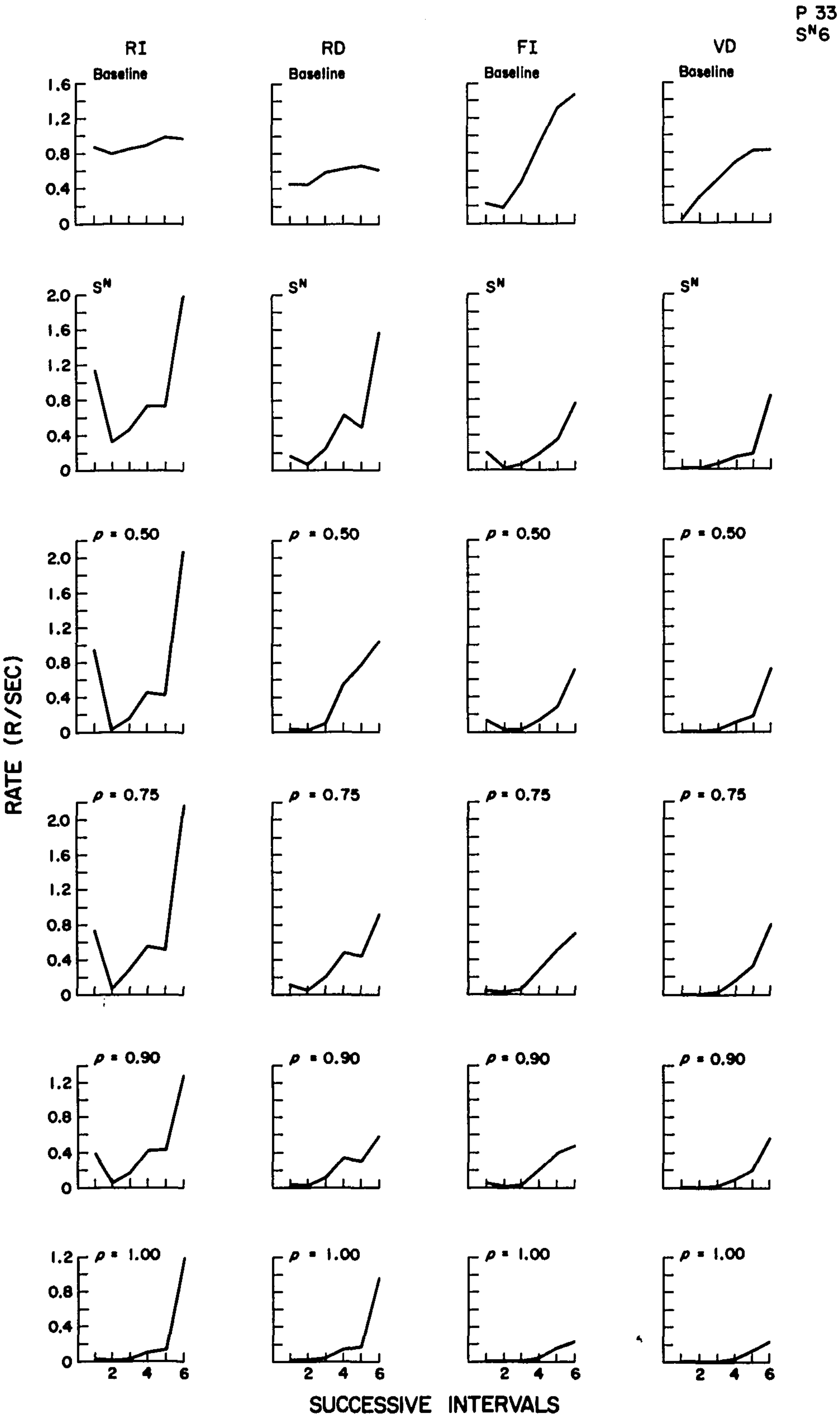

P 31
Baseline
RI
RD
FI
VD
RATE (R/SEC)
SUCCESSIVE INTERVALS
ρ = 1.00
ρ = 1.00
ρ = 1.00
ρ = 1.00

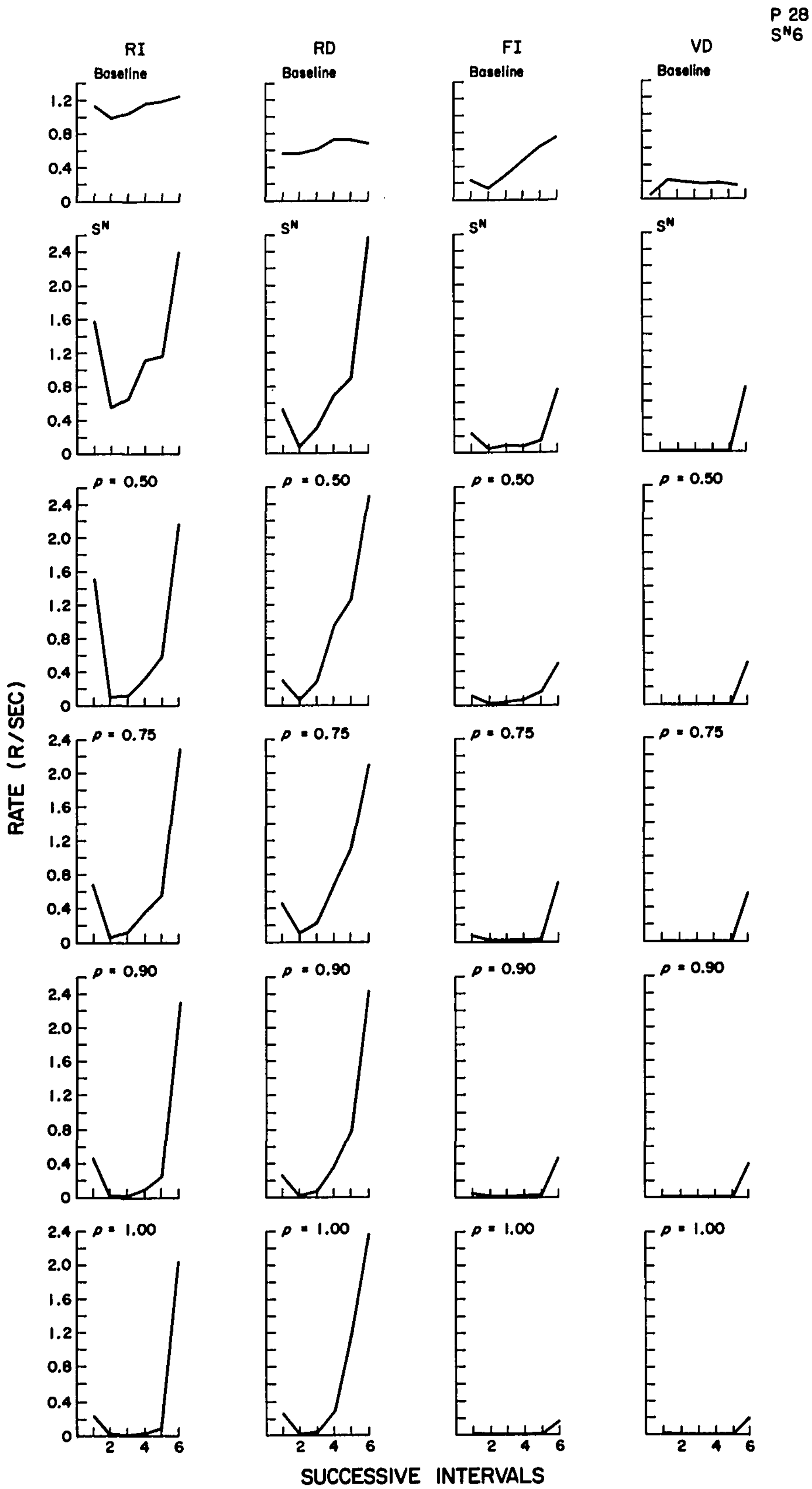

P 32
S^N4
RI
RD
FI
VD
Baseline
S^N
ρ = 0.50
ρ = 0.75
ρ = 0.90
ρ = 1.00
RATE (R/SEC)
SUCCESSIVE INTERVALS


P 26
S^N 4
RI
RD
FI
VD
Baseline
S^N
ρ = 0.50
ρ = 0.75
ρ = 0.90
ρ = 1.00
RATE (R/SEC)
SUCCESSIVE INTERVALS


P 36
S^N4
RI
RD
FI
VD
Baseline
S^N
p = 0.50
p = 0.75
p = 0.90
p = 1.00
RATE (R/SEC)
SUCCESSIVE INTERVALS


P 29
S^N6
RI
RD
FI
VD
Baseline
S^N
ρ = 0.50
ρ = 0.75
ρ = 0.90
ρ = 1.00
RATE (R/SEC)
SUCCESSIVE INTERVALS


P 33
S^N6
RI
RD
FI
VD
Baseline
S^N
ρ = 0.50
ρ = 0.75
ρ = 0.90
ρ = 1.00
RATE (R/SEC)
SUCCESSIVE INTERVALS
0
0.4
0.8
1.2
1.6
2.0
2
4
6


P 28
S^N6
RI
RD
FI
VD
Baseline
S^N
ρ = 0.50
ρ = 0.75
ρ = 0.90
ρ = 1.00
RATE (R/SEC)
0
0.4
0.8
1.2
1.6
2.0
2.4
2
4
6
SUCCESSIVE INTERVALS

was greater inter- and intra-subject variability on this schedule than on FI. Nonetheless, response rate was generally an increasing function of time within the T-cycle. In all cases, the variability in responding can be seen by referring to the Appendix which presents in table form response rate data within the T-cycles of all components in four day blocks from all procedures. These tables include, in addition to response rate within the T-cycle, running rate and $PS^{R}P$ data.

The stability of these behavior patterns is illustrated in Figures 1 and 2 which represent, in the first five rows, successive measurements of rate within a T-cycle for the subjects maintained on the baseline schedule. For both P30 and P31, the shape of the functions and their inter-relationships remained stable over the five measurement periods spanning 124 days. The validity of the stability concept has been subject to lengthy discussion (Schoenfeld, Cole et al, 1972; Martin, 1971; Cumming and Schoenfeld, 1960). In the present context, stability refers to the relative consistency of the patterns of responding within the T-cycle and the ordinal position of each component of the multiple schedule when these are compared visually for the several subjects.

S^{N} intrusion - Figures 3-5 present data from subjects that had S^{N} intruded on the fourth sub-interval, or bin, of the T-cycle (S^{N}_{4}). Data from the S^{N} intrusion are in the second row of all figures.

The intrusion of the neutral stimulus in the fourth sub-interval of the cycle had a noticeable effect in each component schedule. The FI data replicated Farmer and Schoenfeld's (1966 a and b) finding of the development of a "double scallop" which they said could be interpreted as showing a conditioned reinforcement effect from S^N intrusion. The response rate increased as the time of S^N occurrence neared, dropped during S^N, and then increased again as S^R time approached. In the Farmer and Schoenfeld studies one might argue against the interpretation of S^N as a conditioned reinforcer (S^r) by pointing out that the pre-S^N rate never exceeded the baseline rate in the same portion of the FI cycle. In the present study, however, two of the three subjects, P32 and P36, showed large increases in response rate in the pre-S^N period along with the drop in rate during S^N (Figures 3 and 5). This effect can more clearly be described as showing that S^N served as an S^r for the behavior which preceded it in this schedule. Farmer and Schoenfeld (1966 a) also suggested that the stimulus in this position might be considered an S^Δ for the behavior which occurred within it. In the present work, response rate during S^N was close to zero for all subjects, making this interpretation feasible. In addition, Farmer and Schoenfeld (1966 a) suggested that the stimulus may be interpreted as an S^D for the behavior which follows S^N. This criterion was met in the present data in that response rate in the portion of the T-cycle following S^N was considerably higher than on the baseline.

The temporal relationship between S^N and S^R in the Variable Delay (VD) schedule was similar to that in FI. If this temporal relationship can be said to account for the behavior which developed, then the effect of S^N intrusion in VD should have been similar to the effect of S^N in FI, as indeed it was. All subjects showed an increase in rate over baseline in the pre-S^N portion of the T-cycle, a zero rate in S^N, and a large increase in response rate following S^N. It should be noted that while Farmer and Schoenfeld (1966 a and b) used a 60 sec FI, the present experiment used FI 30 sec and VD 30 sec. The replication of effect shown in the present data indicates that S^N-S^R interval determines the effect of S^N intrusion consistently over some range of IS^RTs, and that control by this variable is related to the IS^RT distribution rather than to the absolute value of S^N-S^R interval.

When S^N was intruded on an FT schedule into the fourth sub-interval of the T-cycle in RI and RD, the effect was distinct in both schedules. As in FI and VD, response rate during the stimulus was low for all subjects. Rate following S^N was higher than on the baseline schedule and so the designation of S^N as S^Δ and S^D applies in these cases as well as in FI and VD. The case for designation of S^N as S^r was not as clear in the RI and RD components as it was in FI and VD. For P34 and P26 (Figures 3 and 4) behavior did not show a clear scalloping effect in either schedule. While response rate was increased over the baseline rate, there was an initial drop in rate between sub-intervals one and two which might be attributed to the $PS^{R}P$, and leave the plausibility of the inferred S^{r} effect intact. For P36, however, although there was a scallop pattern in RD the rates were lower than on the baseline procedure. Farmer and Schoenfeld (1966 a and b) considered similar cases to be adequately interpreted as showing an S^{r} effect by S^{N} intrusion in view of the consistency of the pattern of responding. In addition, RI data from P36 show no pattern of increasing rate before S^{N} intrusion, although in all pre-S^{N} bins response rate is higher than on the baseline procedure.

Figures 6-8 present responding within the T-cycle for subjects with S^{N} intruded in the last sixth of the T-cycle (S^{N}_{6}). In all component schedules, rate during S^{N} was increased over the baseline rate, replicating Farmer and Schoenfeld (1966 a and b) for FI, and Martin (1971) for RI. In this position within the T-cycle S^{N} acted as an S^{D} for behavior which occurred in its presence in all components of the multiple schedule, and in FI and VD, S^{N} functioned as an S^{Δ} for behavior which preceded S^{N}. The exaggeration of the scallop to the point where responding appeared to be "break-run" for all three subjects indicated an enhancement of what is often interpreted as a "temporal discrimination" relative to the position of S^N intrusion. This effect was especially prominent in the VD data.

While rate had been generally uniform on both RI and RD during the baseline procedure, S^N intrusion altered rates within the T-cycle to produce a scalloped pattern often associated with the inference of a "temporal discrimination." For all subjects on these schedules the pattern of responding corresponded to the schedule of S^N intrusion. The procedure used in RI is similar to those used by Stevenson and Reese (1962) and Zimmerman (1969, 1957) who recommend this procedure to produce patterns of responding which result in what they interpreted as a durable conditioned reinforcement effect.

<u>Contingency</u> - The two subjects (P30 and P31) maintained on the baseline schedule for 124 days were switched to a fully non-contingent procedure for the last 28 days of running. Data from this point are presented in the last row of Figures 1 and 2. The switch to non-contingency, while it did reduce rates for P32 (Figure 3), did not disturb the shape of the functions representing responding within the T-cycle. Subject P31 showed better maintenance in both FI and VD than in either random schedule, although responding remained high in the RI and RD components. On both FI and VD schedules an inversion

of the response rate functions appeared immediately before S^R presentation. This pattern of responding within the T-cycle had initially developed during the contingent reinforcement phase of the experiment, but was exaggerated by the non-contingent procedure. The effects for P30 (Figure 1) were reduced in magnitude, but in the same direction as for P31. Maintenance of the pattern of responding within the T-cycle was obtained with all schedules but at very deflated rates. FI and VD schedules showed better maintenance of response rate than either random schedule.

As contingency was reduced for S^N_4 subjects (Figures 3-5) the pattern of responding within the T-cycle was maintained by all subjects, in all components, even in those cases in which response rates were reduced. The double scallop effect seen in FI and VD for all subjects when S^Rs were contingent became attenuated for P26 and P36 (Figures 4 and 5) although it was clearly maintained for P32 (Figure 3). The S^N maintained its "function" for all birds in both schedules with the single exception of the VD component for P36 (Figure 4) in which response rate dropped very low by the final non-contingent point. Even in this case, however, remnants of the double scallop effect were visible. RI and RD response patterns were also maintained throughout the non-contingent procedures for all birds, especially P32 (Figure 3). All subjects in this group showed better maintenance in RD and VD components than in RI and FI, although responding was present in all components throughout the contingency manipulation.

Within T-cycle response rate functions as p(NC T-cycle) was increased for S_6^N subjects (Figures 6-8) were as consistent as for the S_4^N subjects. In all schedules for all subjects in the S_6^N group response rate was low in the pre-S^N bins and high in the presence of S^N. The "break-run" pattern became more distinct for each subject as contingency was reduced. For every bird in this group responding was clearly maintained in the random IS^RT schedules (RI and RD), and not so clearly maintained in FI and VD.

The relative constancy of the within T-cycle functions for all subjects in all groups is similar to Zeiler's (1968) finding of maintained response patterns in the IS^RT when S^R was non-contingent. Zeiler attributed the maintenance of the pattern of responding to the maintenance of the pattern of the IS^RT distribution (in the present work the IS^RT and IS^NT distributions) a contention also supported by these data, for subjects with, as well as those without, the intruded S^N. The maintenance of substantial response rates as well as the rate patterns within the T-cycles when all S^Rs were non-contingent minimized the need for a baseline recovery procedure.

<u>Running rate and PS^RP</u>

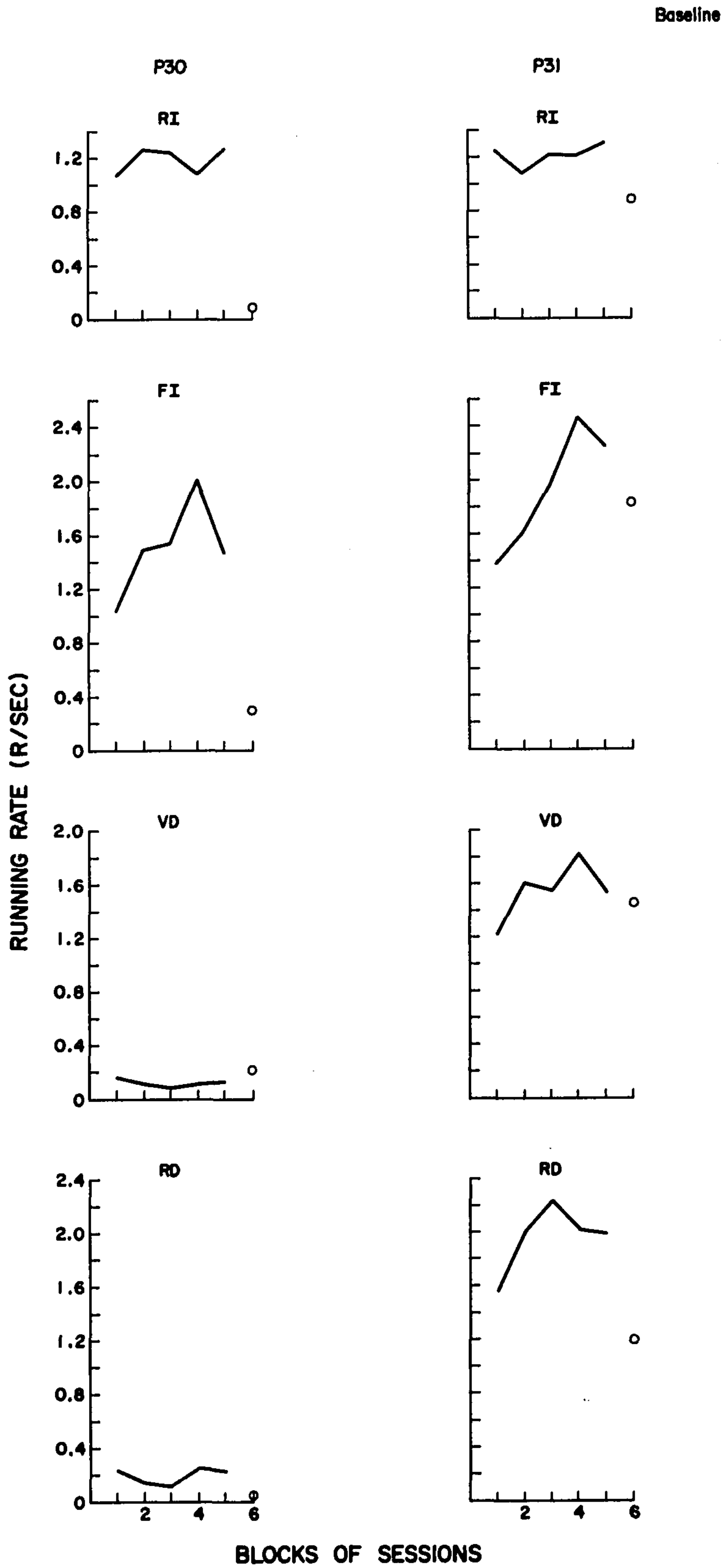
Running rate data for the Baseline group are presented in Figure 9. This measure (Total Responses/Total Time-S^R time-PS^RP, Farmer, 1962) was variable over time for both subjects (see Appendix). When reinforcements were made non-contingent (open circles) running rate dropped substantially in all schedules except VD for both birds. The highest rates were maintained on FI and VD. While P30 showed large decreases in rate in RI and RD, P31 still maintained relatively high rates in these two schedules.

For S^N_4 subjects the intrusion of S^N (Figure 10) resulted in an increase in running rate for all subjects in all schedules with the single exception of P36 in VD. In general, running rate remained substantial in all components for all birds as S^Rs were made non-contingent with the exception of P26 in the VD component. The running rate was maintained most consistently by all subjects in the RD component. Rate in VD also showed little change for two subjects (P32 and P36) while P26 showed large decreases in this component. Maintenance was good for the same two subjects in FI with P26 again showing a large decrease. Rate in the RI component dropped for two birds (P26 and P36) while P32 showed virtually no change.

Running rate data for the S^N_6 group are presented in Figure 11. The effect of S^N intrusion on running rate is not consistent in this group, either between schedules in a single subject, or across subjects on a single schedule. For all

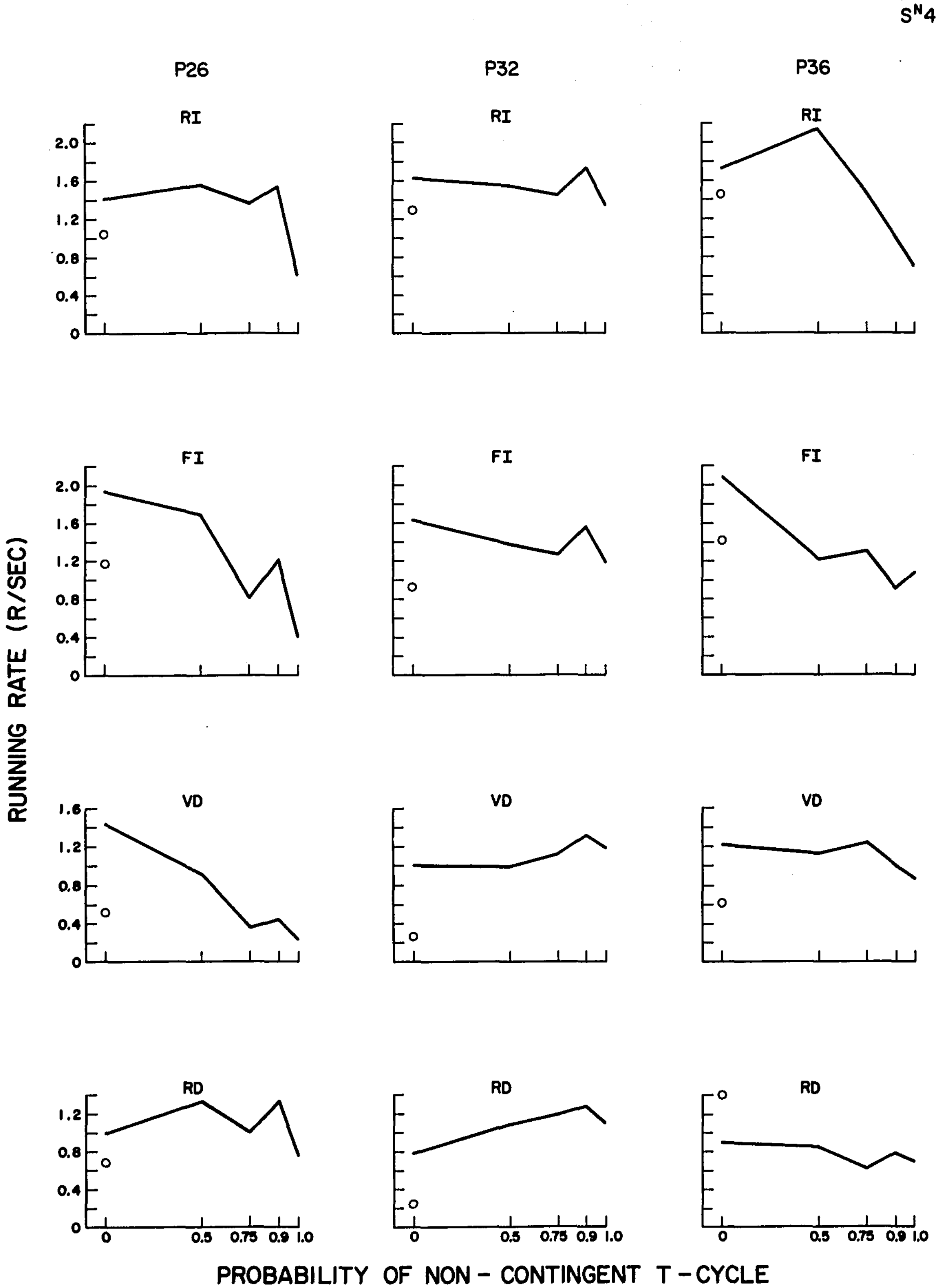
Figur 9: Mean Running Rate (Total Responses divided by Total Time minus S^R Time and PS^RP)

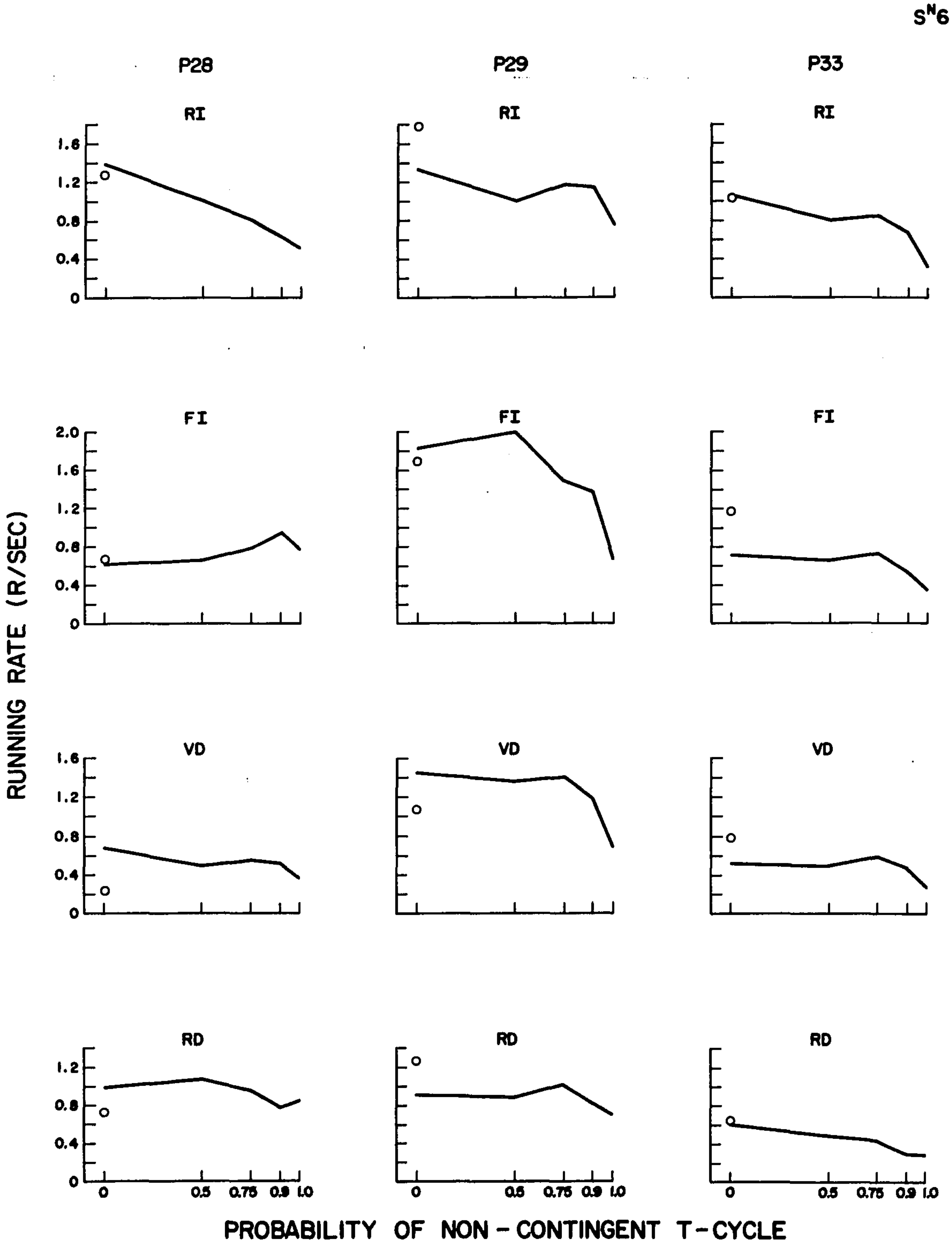
Each column presents data from 8 day blocks for one subject, each row shows a component of the multiple schedule for subjects in the Baseline group. The open circle represents the mean running rate when p(NC T-cycle)= 1.00. See Method section for details concerning when each measurement was made.


Baseline
P30
P31
RI
FI
VD
RD
RUNNING RATE (R/SEC)
BLOCKS OF SESSIONS
0
0.4
0.8
1.2
1.6
2.0
2.4
2
4
6

Figures 10 and 11: Mean Running Rate (Total Responses divided by Total Time minus S^R Time and PS^RP) as a Function of Increasing p(NC T-cycle)

Each column presents data for a single subject, each row shows a component of the multiple schedule for S_4^N and S_6^N subjects. The open circles represent mean running rate on the baseline schedule.


S^N4
P26
P32
P36
RI
FI
VD
RD
2.0
1.6
1.2
0.8
0.4
0
RUNNING RATE (R/SEC)
0.5
0.75
0.9
1.0
PROBABILITY OF NON - CONTINGENT T - CYCLE

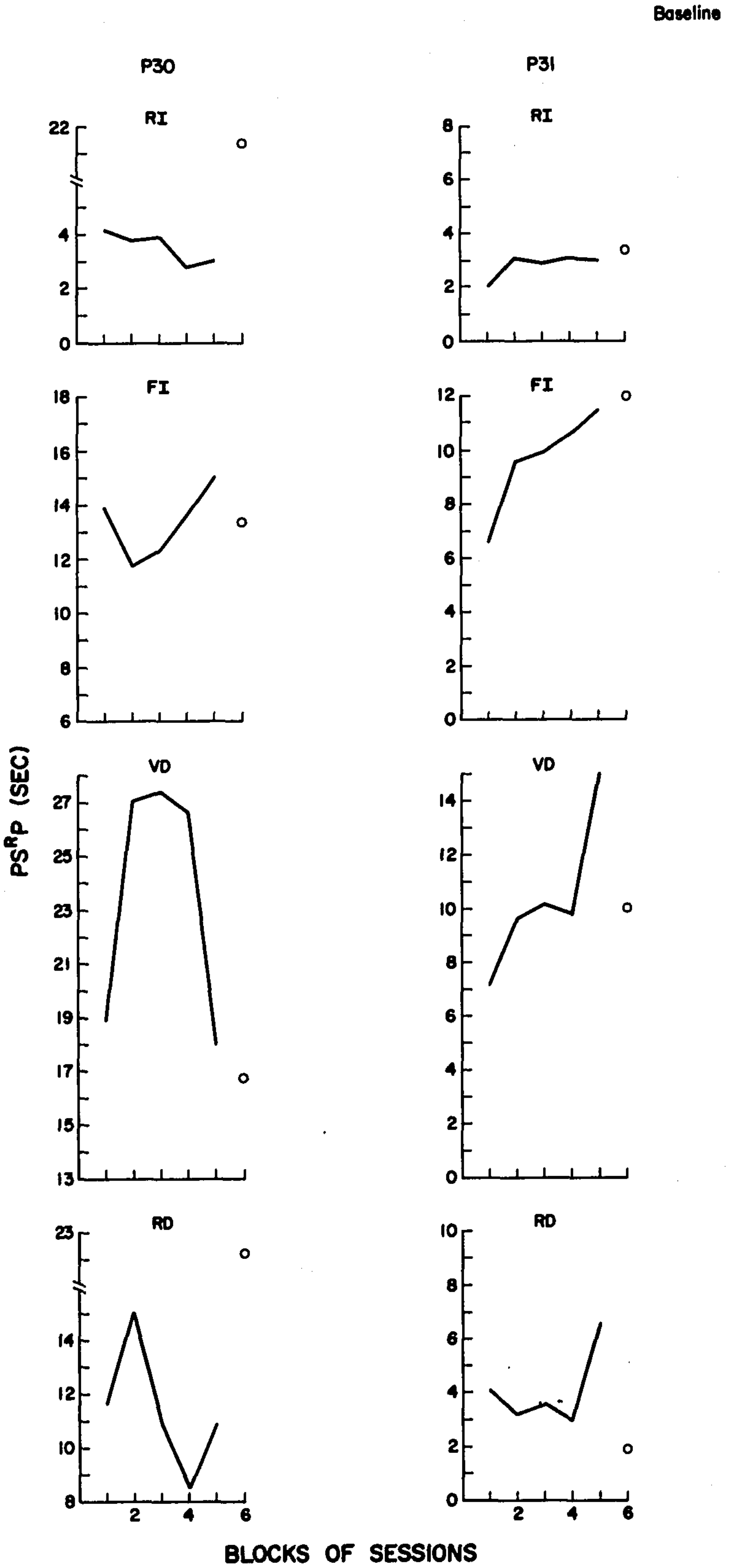

S^N6
P28
P29
P33
RI
FI
VD
RD
RUNNING RATE (R/SEC)
0
0.4
0.8
1.2
1.6
2.0
0.5
0.75
0.9
1.0
PROBABILITY OF NON - CONTINGENT T-CYCLE

subjects, however, substantial running rates were maintained as more S^Rs became non-contingent.

PS^RP for the Baseline subjects (Figure 12) showed patterns of variability that seemed related to variations in running rate which were reported above (see Appendix). When reinforcements were made non-contingent, P30 showed large increases in PS^RP in both RI and RD. Mean PS^RP became longer than the T-cycle and in many cases longer than the IS^RT. The increase in PS^RP is reflected in the T-cycle response rate functions (Figure 1) in which responding dropped almost to zero early in the RI and RD T-cycles. For P30 both FI and VD PS^RP decreased slightly when S^Rs were made non-contingent, but these decreases are not visible in the T-cycle response rate functions. P31 showed small increases in RI and FI PS^RPs when S^R was made non-contingent (Figure 12). These changes are reflected in the T-cycle response rate functions (Figure 2) as a decrease in rate early in the T-cycle. In RD and VD components PS^RP for P31 showed large decreases when S^Rs were made non-contingent. In the RD component mean PS^RP had been, at the measurement just prior to exposure to non-contingent S^R, equal to the duration of the T-cycle and is reflected in Figure 2 by a higher response rate near the end of the T-cycle than at the beginning of the cycle. The decrease in PS^RP when S^R was made non-contingent is seen in the T-cycle response rate function as the flattening out of the function at this

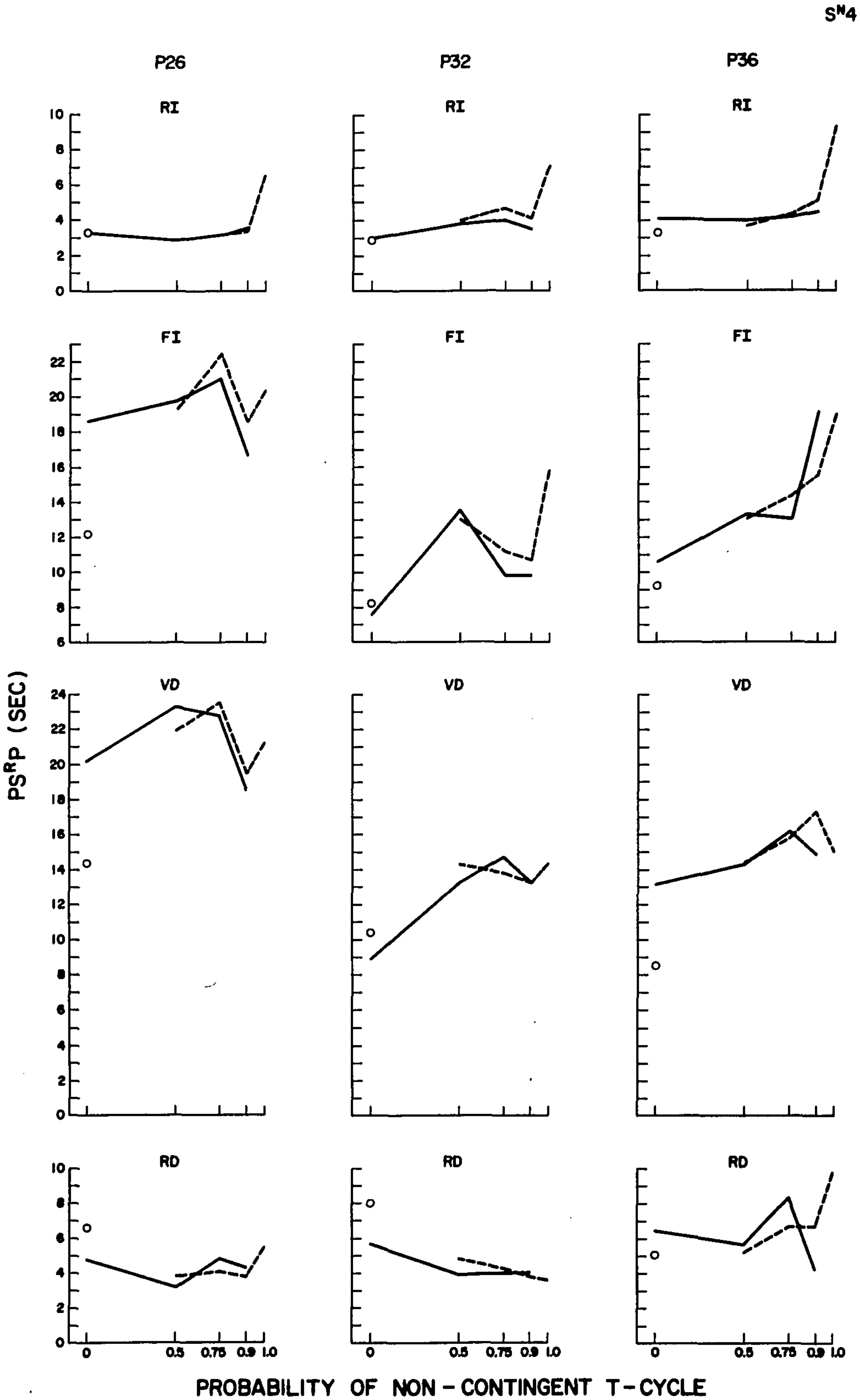
Figure 12: Mean Post-Reinforcement-Pause ($PS^{R}P$)

Each column represents mean $PS^{R}P$ data for 8 day blocks from a single subject, each row a component of the multiple schedule for Baseline subjects. The open circles represent mean $PS^{R}P$ when p(NC T-cycle)=1.0. See Method section for details concerning when each measurement was made.

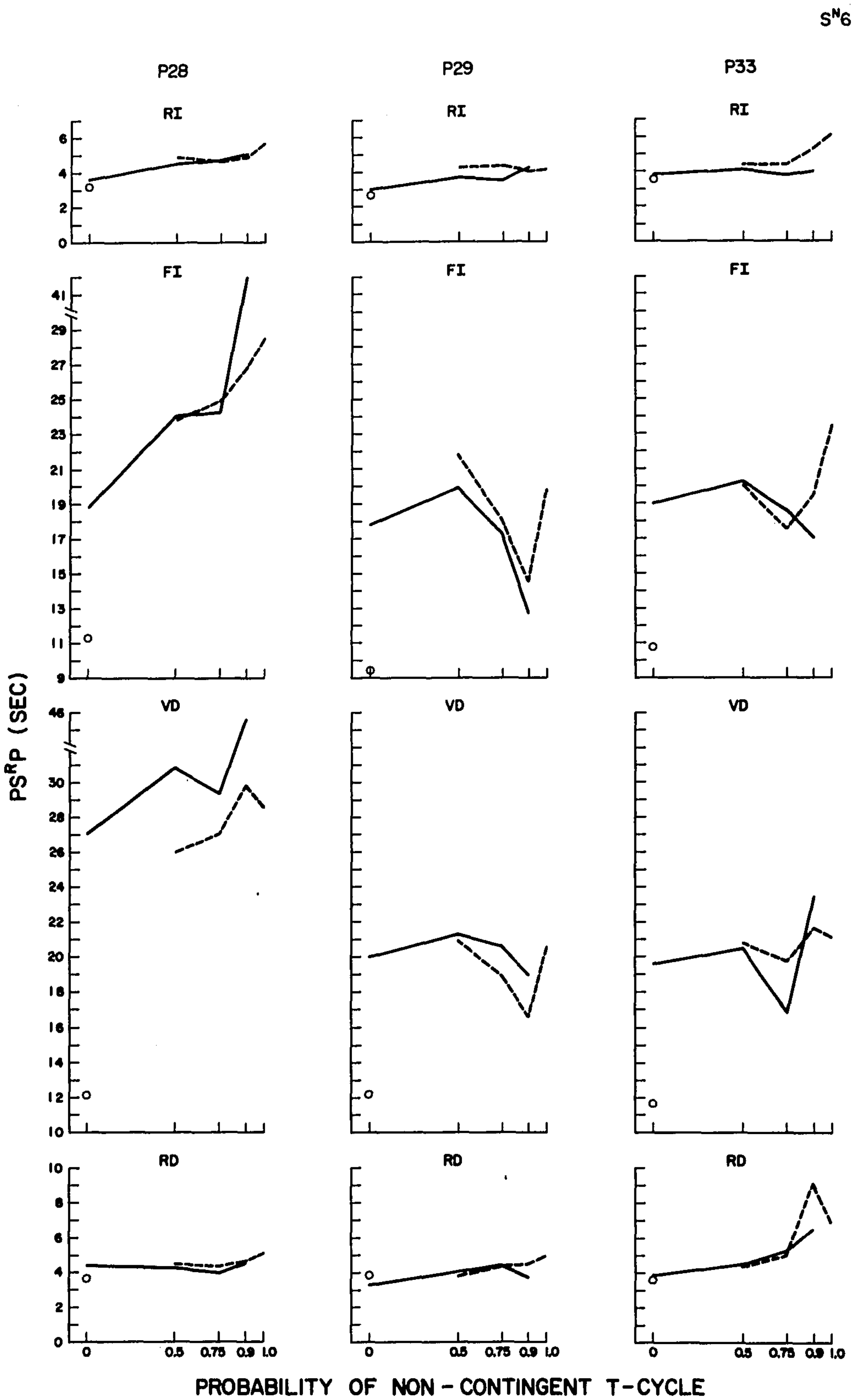

Baseline
P30
P31
RI
FI
VD
RD
PS^RP (SEC)
BLOCKS OF SESSIONS

Figures 13 and 14: Mean Post-Reinforcement-Pause (PS^RP) for S_4^N and S_6^N Subjects as a Function of Increasing *p*(NC T-cycle)

Each column presents data from a single subject, each row from a component of the multiple schedule. The solid line function presents mean PS^RP following contingent S^Rs, while the dashed function represents PS^RP following non-contingent S^Rs.



S^N4
P26
P32
P36
RI
FI
VD
RD
PS^RP (SEC)
0
0.5
0.75
0.9
1.0
PROBABILITY OF NON - CONTINGENT T-CYCLE



S^N6
P28
P29
P33
RI
FI
VD
RD
PS^RP (SEC)
PROBABILITY OF NON - CONTINGENT T-CYCLE
0
0.5
0.75
0.9
1.0

point. The same correspondences between $PS^{R}P$ and response patterns within the T-cycle can be seen in the VD component for this subject.

For both S_4^N and S_6^N groups (Figures 13 and 14) intrusion of the neutral stimulus resulted in little or no change in $PS^{R}P$ in either RI or RD, and increased $PS^{R}P$ in both FI and VD. In all cases the value of $PS^{R}P$ following the intruded stimulus procedure reached a value which related the behavior directly to the time of S^N intrusion. This may be confirmed by referring back to the T-cycle response rate functions (Figures 3-8). Increasing non-contingency disrupted $PS^{R}P$ in FI and VD schedules in both groups, while RI and RD values remained relatively constant throughout this manipulation. In all schedules for all S_4^N and S_6^N subjects, $PS^{R}P$ following contingent reinforcers was close in value to $PS^{R}P$ value following non-contingent reinforcers. The $PS^{R}P$ on the final fully non-contingent point was, for the most part, well within the range of variability seen on earlier partially contingent points (see Appendix).

Summary

1. For all subjects on the baseline schedule the patterns of behavior were similar to those reported by earlier investigators (Ferster and Skinner, 1957; Farmer and Schoenfeld, 1966 a and b; Sussman, 1972; Schoenfeld, Cole et al, 1972).

Responding was relatively uniform within the T-cycle for RI and RD components, and scalloped or break-run within the T-cycle for FI and VD components.

2. The stability of these behavior patterns was demonstrated by their consistency during the 124 days that two subjects were maintained on the baseline schedule alone.

3. The intrusion of a neutral stimulus in the fourth sub-interval of the T-cycle resulted in

a. a general increase in running rate in all four component schedules

b. changes in $PS^{R}P$ that for most subjects placed the end of the $PS^{R}P$ before or during the S^{N}. The direction of $PS^{R}P$ change, if any, depended upon the original duration of $PS^{R}P$ on the baseline schedule

c. a pattern of responding within FI and VD T-cycles in which the scalloping seen on the baseline became the abrupt rate transitions normally referred to as "break-run"

d. a change in RI and RD response rate from relatively uniform patterns within the T-cycle to a pattern of steadily increasing rates throughout the T-cycle with the highest rates reached during S^{N}.

5. The abrupt change to non-contingent reinforcement for subjects maintained on the baseline schedule resulted in larger declines in response rate for RI and FI schedules than for RD and VD for both subjects.

6. The gradual increase in non-contingency for animals in the S_4^N and S_6^N groups resulted in:

a. substantial rates being maintained in all component schedules with the largest decreases seen in FI and RI

b. PS^RP remaining relatively constant in RI and RD, while in FI and VD they became more variable. Values of PS^RP were virtually identical for contingent and non-contingent S^Rs in all components when both types of S^Rs were concurrently available

c. even though some decreases in rate were seen in the within T-cycle response patterns, the form of the functions remaining stable throughout all manipulations of the probability of non-contingent S^R.

DISCUSSION

The present work had as its aim the identification and manipulation of a set of independent variables which determine the occurrence, relationship and placement of stimuli and responses in both Pavlovian and operant procedures. Two arguments have been made historically to support the distinction between conditioning paradigms: one argument relied on response differences, the other emphasized differences among independent variables. The response argument has been dealt with both empirically (Miller, 1969; Kimmel and Hill, 1960) and theoretically (Schoenfeld, 1972, 1971, 1970, 1966), while the procedural distinctions, although questioned, have remained without a convincing resolution. Two separate historical lines of inquiry, the first dealing with the scheduling of stimulus events other than S^R, and the other with the scheduling of reinforcer occurrence, can be integrated in order to resolve the procedural differences between operant and Pavlovian paradigms. This integration is accomplished by the combination of variables which account for all possible manner of scheduling both neutral stimuli (CS or S^N) and reinforcers (UCS or S^R) in time, and the specification of the relationship of the stimuli to responses. While the maintenance of behavioral control during the manipulation of the variables used in the present work was a hoped-for result, the integration of the several procedures identified in this study does not depend upon a particular behavioral outcome. However, the present development defines a system of independent variables which, at specific values, replicate both operant and Pavlovian procedures.

A set of independent variables [S^N-S^R interval or phase angle, the conditional probability between S^N and S^R, $p(S^R|S^N)$ and the conditional probability between S^R and S^N, $p(S^N|S^R)$] has been identified (Schoenfeld, Cole, et al, 1972; Martin, 1971) which replicate, at specific values, both the methods and effects of any operant procedure involving the presentation of contingent or non-contingent "neutral stimuli" and contingent reinforcers. In the present experiment, the procedure designated "S^N intrusion" shows the effects of these variables. A variety of stimulus control phenomena are replicated in this portion of the experiment. For example, as a function of where the S^N occurred in time relative to S^R, the S^N can be considered either an S^D, S^r or S^Δ. These designations of stimulus "function" were made in the present work on the basis of several behavioral criteria, not all of which were met in a single subject. In some cases, an attribution of a particular stimulus "function" was made on the basis of a change in absolute rate, while under the same circumstances the attribution of a "function" to the stimulus was made based upon a consistent pattern of responding relative to the stimulus intrusion. The data presented here are in agreement with data presented by Farmer and Schoenfeld (1966 a and b) and indicate that the occurrence of the intruded stimulus exerts its influence throughout the sequence of behavior and can be designated as serving any number of "functions" depending on where in the sequence of behavior the measurement is taken. These sequential possibilities are visible in the present work not only in the two "fixed" $IS^{R}T$ schedules (FI and VD), but also in the two "random" $IS^{R}T$ schedules (RI and RD). The findings of Farmer and Schoenfeld (1966 a and b) which resulted from fixed S^{N}-S^{R} schedules and the findings by Martin (1971), which were from "random" S^{N} and S^{R} schedules, are replicated in the broadened design of the present experiment. In Martin's (1971) data the visibility of sequential effects was lost since both S^{N} and S^{R} were presented irregularly and the sequence of stimulus events was not constant. In the present work, the regular schedule of S^{N} intrusion combined with the two "random" $IS^{R}T$ schedules resulted in a more consistent sequence of stimulus presentations than did Martin's procedure, allowing for the presentation of response rate data before, during and following S^{N}, making the effects of S^{N} intrusion more visible in these two schedules than had been the case in Martin's RI data. It is interesting to note that the various effects seen in the FI and VD schedules were replicated in RI and RD, when $\underline{p}(S^R|S^N)$ was equal to 0.20. These data are consistent with Martin's (1971) findings that "...stimulus probability _per se_ had little or no effect across its range when the phase angle was small..." (p.111). In Martin's case "small" S^N-S^R intervals were 0, 3, and 6 sec in a 30 sec T-cycle; in the present work the S^N_6 group had an S^N-S^R interval of 5 sec in the FI and VD 30 sec T-cycles, and a 1 sec interval in the 6 sec RI and RD T-cycles. The effects of S^N intrusion were comparable in in both "fixed" and "random" IS^RT schedules. The range of phase angles over which this finding applies was extended in the present study to include longer S^N-S^R intervals in both the "fixed" and "random" IS^RT schedules. The replication of effect in the short and long T-cycle schedules indicated that S^N-S^R interval exerted its effect relative to the IS^RT duration rather than as a function of the absolute S^N-S^R interval, and that at both long and short S^N-S^R intervals manipulation of $\underline{p}(S^R|S^N)$ exerted little differential control. This finding replicated Eckerman's (1969) finding of no disruption in the maintenance of discriminative control by S^N when $\underline{p}(S^R|S^N)$ was less than 1.0. In addition, the procedures of the present work were similar to those of Stevenson and Reese (1962) and Zimmerman (1969, 1957) which produce a "durable" conditioned reinforcer effect by making $\underline{p}(S^R|S^N)$ less than 1.0.

The intruded stimulus paradigm can be interpreted as replicating the temporal relationship between stimuli (CS and UCS) which is seen in the various Pavlovian trace, delay and simultaneous procedures. However, the usual dependency relationship between R and S^R and/or between R and S^N which was present in both the Farmer and Schoenfeld (1966 a and b) and Martin (1971) studies, and which is never present in the Pavlovian procedures, excludes the identification of these variables alone (phase angle and the conditional probabilities between the stimuli) as sufficient to provide the basis for an operant-respondent resolution.

The present work investigated an additional variable, [$\underline{p}$(NC T-cycle)] which manipulated the degree to which the distribution of Rs in time influenced the distribution of S^Rs in time. By varying the degree of dependence of the S^R distribution on Rs, the temporal relationship between R and S^R was also varied. In FI and RI components of the multiple schedule during "Baseline" and "S^N intrusion" phases, the occurrence of S^R was completely dependent upon the occurrence of R. In addition, S^R always followed the qualified R immediately. When $\underline{p}$(NC T-cycle) was increased, S^R no longer maintained its fixed position relative to R. In VD and RD schedules, the temporal relationship between R and S^R remained within the same limits (the duration of the T-cycle) in all phases of the present work, although dependency relationship was eliminated by the manipulation of p(NC T-cycle). In each of the four component schedules at the final experimental point, one of two Pavlovian procedures was in effect: for the S^N_4 group, a "trace" procedure; for the S^N_6 group, a "delay" procedure. By manipulation of the p(NC T-cycle) variable in combination with phase angle and $p(S^R|S^N)$, it was possible to move from operant to Pavlovian procedures and, in this study, to maintain behavioral control.

FOOTNOTES

[1] In the portion of the t-system directly applicable to the present work, the following variables determine the presentation of reinforcers:

- a repeating time cycle (T) defines periods of reinforcer availability;
- the variable probability (p) defines the probability of a reinforcer in each cycle. In contingent schedules the p value is assigned only to the first response in each T-cycle, so that each cycle can be considered a trial, with one opportunity (the first R) to obtain the reinforcer;
- T/p the ratio of the duration of T to the p value (Farmer 1962), this ratio predicts the mean inter-reinforcement time or IS^RT.

While the p value always applies to the first response in T, it is possible to deliver the obtained reinforcer at any point during T. In the present experiment two sets of schedules were compared; those which deliver reinforcement immediately following the response and those which deliver reinforcers at the end of the T-cycle.

In the cases in which S^R is delivered immediately following the qualifying R, the T-system defines the following schedules:

- Fixed Interval (FI) - when $p=1.0$ an FI schedule equal in value to T is obtained;
- Random Interval (RI) - in these schedules $p<1.0$, and T/p predicts the mean IS^RT.

In the cases in which S^R is delivered at the end of the T-cycle, the following schedules are defined within the t-system:

- Variable Delay (VD) - when $p=1.0$ and at least one R occurs in each T-cycle, reinforcers will occur exactly every T sec;
- Random Delay (RD) - in these schedules $p<1.0$, and the minimum IS^RT = T sec.

The t-system can be used to describe the distribution of occurrence of any stimulus events.

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APPENDIX

The following tables present data in successive four day blocks for all subjects for all procedures. The final entry for each procedure is the mean of the last eight days of that procedure, and corresponds to the values which are presented in the figures.

Reading across the page the headings are:

Days- Indicates the four day blocks and the final eight day block

1-6- Indicate the successive sixths of the T-cycle in each schedule component. Data in these columns are mean rate in each portion of the T-cycle. In RI and RD schedules the duration of each sub-interval is 1 sec, and in FI and VD components each sub-interval is 5 sec in duration. The total time of each sub-interval in each session was 100 sec

RR- Indicates the mean running rate. This is computed by Dividing the total responses by the total time minus both reinforcement time and post-reinforcement-pause.

$\#CS^R$- Indicates the mean number of contingent reinforcers per session

PS^RPC- Indicates the mean post-reinforcement-pause following contingent reinforcers

$\#NCS^R$- Indicates the mean number of non-contingent reinforcers per session

PS^RPNC- Indicates the mean post-reinforcement-pause following non-contingent reinforcers.

P#30 Schedule: RI

Days	1	2	3	4	5	6	RR	#CS^R	$PS^R PC$	#NCS^R	$PS^R NC$	
1-4	.83	.69	.82	.83	.80	.81	.89	21	3.30			Baseline
5-8	.74	.67	.71	.69	.82	.74	.81	24	4.44			
9-12	.93	.82	.82	.98	.98	1.02	.97	19	2.93			
13-16	1.10	1.02	1.13	1.15	1.22	1.18	1.26	18	4.74			
17-20	1.25	1.03	1.07	1.17	1.29	1.29	1.33	21	3.50			
21-24	1.14	1.08	1.12	1.20	1.24	1.29	1.34	24	3.15			
25-28	1.16	.96	1.02	1.12	1.19	1.18	1.25	17	3.86			
29-32	1.09	1.02	1.00	1.07	1.14	1.24	1.24	15	3.77			
33-36	1.09	.94	.94	1.10	1.09	1.18	1.25	23	4.39			
37-40	1.07	.86	.93	1.05	1.07	1.10	1.17	24	3.92			
41-44	.91	.82	.68	.88	.88	.97	.98	20	4.53			
37-44	.99	.84	.80	.97	.97	1.03	1.07	22	4.22			
45-48	1.22	.96	1.11	1.19	1.30	1.38	1.37	21	3.53			Baseline
49-52	1.15	1.03	.93	1.12	1.15	1.27	1.25	23	3.62			
53-56	.79	1.01	.97	1.11	1.13	1.21	1.17	21	3.57			
57-60	1.16	.99	1.03	1.12	1.21	1.23	1.26	24	4.83			
61-64	1.37	1.20	1.17	1.24	1.34	1.39	1.45	19	3.59			
65-68	1.06	1.19	1.07	1.02	1.06	1.14	1.27	23	4.58			
69-72	1.11	.95	1.09	1.08	1.23	1.24	1.27	21	3.58			
73-76	1.09	1.04	.99	1.06	1.19	1.28	1.26	21	4.10			
69-76	1.10	1.00	1.04	1.07	1.21	1.26	1.27	21	3.54			
77-80	1.19	.96	.95	1.00	1.23	1.17	1.24	23	3.80			Baseline
81-84	1.16	1.08	1.14	1.06	1.22	1.21	1.22	21	3.61			
85-88	1.05	.93	.81	.90	1.08	1.14	1.16	24	4.02			
89-92	1.20	.92	1.00	1.07	1.32	1.30	1.33	20	3.80			
85-92	1.13	.93	.91	.99	1.20	1.22	1.24	22	3.91			

P#30 Schedule: RI

93-96	1.15	1.03	1.03	1.21	1.18	1.23	1.29	21	3.13			Baseline
97-100	1.10	1.00	1.11	1.08	1.32	1.15	1.25	23	3.14			
101-104	.98	.95	.95	1.00	.98	1.07	1.09	19	2.56			
105-108	.95	.93	.91	1.04	1.02	1.11	1.08	18	3.11			
101-108	.97	.94	.93	1.02	1.00	1.09	1.09	18	2.84			
109-112	1.03	.87	.96	1.01	1.01	1.04	1.12	17	3.53			Baseline
113-116	1.10	1.10	.99	1.23	1.22	1.30	1.29	23	2.99			
117-120	1.22	1.07	1.13	1.19	1.25	1.29	1.31	24	3.07			
121-124	1.14	.94	1.03	1.05	1.21	1.23	1.22	22	3.18			
117-124	1.19	1.01	1.09	1.13	1.24	1.26	1.27	23	3.11			
1-4	.73	.70	.70	.86	.75	.79	.84			22	3.80	p(NCT-cycle)=1.00
5-8	.40	.37	.37	.38	.44	.46	.50			21	5.07	
9-12	.66	.53	.65	.56	.77	.73	.73			16	3.94	
13-16	.33	.25	.22	.32	.31	.36	.36			22	5.88	
17-20	.12	.09	.08	.11	.11	.08	.13			20	7.01	
21-24	.03	.01	.01	.01	.01	.02	.09			20	25.01	
25-28	.03	.07	.05	.05	.07	.10	.09			22	23.21	
21-28	.03	.04	.03	.03	.04	.06	.09			21	21.41	

P#30 Schedule: FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	PS^RPC	$\#NCS^R$	PS^RNC	
1-4	.53	.78	.94	.92	.84	.81	.86	20	3.01			Baseline
5-8	.39	.76	.98	1.01	.98	.96	.95	20	4.33			
9-12	.29	.72	.99	1.18	1.24	1.20	1.18	20	6.34			
13-16	.24	.48	.94	1.27	1.36	1.29	1.36	20	9.36			
17-20	.22	.46	1.02	1.28	1.46	1.51	1.39	20	8.74			
21-24	.38	.57	.97	1.18	1.38	1.43	1.37	20	8.36			
25-28	.24	.31	.60	.93	1.22	1.23	1.15	20	10.27			
29-32	.25.	.32	.71	1.03	1.25	1.32	1.20	20	10.28			
33-36	.23	.21	.42	.75	1.10	1.27	1.17	20	13.06			
37-40	.22	.14	.32	.62	.94	1.11	1.01	20	13.89			
41-44	.19	.10	.34	.77	.94	1.05	1.04	20	14.15			
37-44	.21	.12	.33	.70	.94	1.08	1.02	20	13.98			
45-48	.22	.21	.45	.88	1.04	1.13	1.09	20	12.06			Baseline
49-52	.20	.20	.54	.87	1.24	1.32	1.22	20	11.94			
53-56	.20	.17	.50	1.09	1.48	1.48	1.39	20	12.17			
57-60	.23	.21	.62	.93	1.24	1.47	1.22	20	10.69			
61-64	.21	.23	.59	1.08	1.36	1.53	1.41	20	12.46			
65-68	.21	.16	.52	.85	1.20	1.51	.92	20	11.72			
69-72	.20	.18	.55	1.22	1.63	1.71	1.47	20	11.37			
73-76	.21	.14	.61	1.13	1.54	1.73	1.50	20	12.21			
69-76	.21	.16	.58	1.18	1.59	1.72	1.49	20	11.79			
77-80	.20	.12	.50	1.13	1.61	1.85	1.55	20	12.59			Baseline
81-84	.20	.14	.40	1.05	1.58	1.89	1.47	20	11.99			
85-88	.20	.10	.54	1.06	1.49	1.81	1.40	20	12.29			
89-92	.22	.09	.48	1-22	1.80	2.05	1.68	20	12.46			
85-92	.21	.10	.50	1.14	1.65	1.93	1.54	20	12.38			

P#30 Schedule: FI

93-96	.22	.07	.37	1.04	1.65	1.83	1.56	20	13.49			Baseline
97-100	.22	.11	.45	1.19	1.89	2.26	1.78	20	12.68			
101-104	.23	.09	.57	1.37	2.12	2.38	2.03	20	13.41			
105-108	.23	.11	.51	1.32	2.01	2.22	2.00	20	13.97			
101-108	.23	.10	.54	1.35	2.07	2.30	2.02	20	13.69			
109-112	.20	.06	.34	.96	1.58	2.09	1.64	20	14.13			Baseline
113-116	.21	.08	.38	1.13	1.81	1.99	1.99	20	13.64			
117-120	.21	.04	.32	.92	1.55	1.90	1.55	20	14.02			
121-124	.20	.08	.27	.79	1.61	1.81	1.38	20	12.67			
117-124	.20	.06	.30	.86	1.58	1.86	1.47	20	13.44			
1-4	.07	.08	.24	.48	.87	1.06	.86			20	13.58	p(NCT-cycle)=1.00
5-8	.04	.05	.15	.45	.83	.92	.81			20	14.38	
9-12	.09	.09	.39	.65	1.07	1.05	.99			20	13.09	
13-16	.01	.06	.23	.38	.47	.55	.48			20	12.28	
17-20	.01	.13	.18	.23	.25	.22	.30			20	13.21	
21-24	0	.06	.19	.19	.22	.27	.30			20	14.65	
25-28	0	.04	.18	.17	.24	.25	.30			20	15.69	
21-28	0	.05	.17	.18	.23	.26	.30			20	15.17	

P#30 Schedule: VD

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4	.13	.37	.44	.40	.34	.39	.46	20	7.75			Baseline
5-8	.08	.17	.26	.23	.27	.23	.35	18	17.18			
9-12	.04	.19	.36	.41	.44	.44	.48	20	12.20			
13-16	.04	.08	.11	.09	.17	.12	.19	14	22.33			
17-20	.05	.09	.05	.06	.04	.04	.12	12	27.22			
21-24	.06	.06	.06	.05	.07	.05	.14	12	32.33			
25-28	.04	.06	.06	.05	.05	.05	.13	14	29.45			
29-32	.04	.10	.15	.11	.11	.11	.19	14	35.73			
33-36	.03	.11	.07	.10	.09	.14	.15	15	23.89			
37-40	.03	.07	.11	.13	.13	.13	.19	17	17.86			
41-44	.02	.07	.06	.07	.09	.07	.13	17	20.02			
37-41	.02	.07	.08	.10	.11	.10	.16	17	18.94			
45-48	.02	.07	.04	.07	.03	.05	.10	15	20.83			Baseline
49-52	.01	.06	.10	.08	.07	.05	.14	14	26.08			
53-56	.03	.10	.08	.07	.06	.03	.12	15	21.40			
57-60	.02	.10	.13	.09	.10	.10	.15	17	16.76			
61-64	.02	.06	.09	.09	.09	.09	.14	17	19.99			
65-68	.03	.06	.04	.05	.01	.03	.10	10	40.59			
69-72	.02	.07	.06	.06	.05	.03	.09	12	29.93			
73-76	.03	.05	.06	.08	.08	.08	.15	18	24.26			
69-76	.03	.06	.06	.07	.08	.06	.12	15	27.10			
77-80	.03	.07	.06	.02	.04	.04	.08	15	30.97			Baseline
81-84	.03	.06	.04	.04	.03	.03	.09	11	33.22			
85-88	.02	.08	.03	.03	.01	.02	.07	12	31.82			
89-92	.04	.08	.06	.05	.03	.03	.10	13	22.99			
85-92	.03	.08	.05	.04	.03	.03	.09	12	27.11			

P#30 Schedule: VD

93-96	.05	.16	.16	.09	.06	.04	.14	14	12.34			Baseline
97-100	.02	.09	.04	.05	.03	.04	.10	12	24.41			
101-104	.03	.11	.12	.08	.04	.03	.13	15	20.96			
105-108	.03	.04	.06	.05	.02	.04	.10	12	32.39			
101-108	.03	.08	.09	.07	.03	.04	.12	13	26.68			
109-112	.01	.03	.10	.06	.05	.03	.10	15	22.09			Baseline
113-116	.02	.05	.08	.06	.02	.01	.08	12	28.98			
117-120	.03	.08	.14	.08	.10	.04	.15	16	19.98			
121-124	.01	.13	.15	.06	.07	.06	.13	20	14.21			
117-124	.02	.10	.14	.07	.09	.05	.14	18	18.09			
1-4	.01	.11	.25	.19	.17	.17	.24			20	13.67	p(NCT-cycle)=1.00
5-8	.01	.07	.25	.35	.30	.27	.35			20	12.99	
9-12	.03	.14	.24	.42	.37	.19	.27			20	11.83	
13-16	0	.16	.28	.22	.13	.20	.27			20	12.13	
17-20	0	.07	.12	.10	.11	.18	.20			20	16.56	
21-24	0	.05	.11	.13	.10	.15	.21			20	18.13	
25-28	0	.05	.13	.17	.18	.17	.23			20	15.55	
21-28	0	.05	.12	.15	.14	.16	.22			20	16.84	

P#30 Schedule: RD

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4	.25	.22	.28	.24	.30	.32	.30	18	3.04			Baseline
5-8	.24	.21	.27	.31	.25	.26	.31	13	8.93			
9-12	.06	.09	.07	.08	.07	.06	.10	10	23.77			
13-16	.08	.07	.07	.09	.08	.06	.10	13	16.32			
17-20	.20	.14	.16	.18	.16	.22	.22	11	15.09			
21-24	.24	.24	.25	.25	.25	.24	.31	17	9.32			
25-28	.18	.19	.16	.17	.19	.17	.22	15	10.62			
29-32	.35	.34	.39	.47	.45	.46	.54	21	7.04			
33-36	.35	.32	.37	.40	.44	.42	.47	17	6.72			
37-40	.23	.22	.24	.26	.30	.32	.32	14	8.06			
41-44	.11	.11	.11	.11	.11	.13	.15	12	15.20			
37-44	.17	.16	.17	.18	.22	.22	.24	13	11.63			
45-48	.15	.16	.10	.12	.13	.16	.17	12	10.34			Baseline
49-52	.10	.10	.12	.14	.11	.14	.14	9	13.23			
53-56	.10	.10	.10	.07	.09	.08	.11	11	14.84			
57-60	.18	.20	.16	.16	.19	.20	.23	10	9.64			
61-64	.16	.18	.17	.21	.19	.15	.22	15	10.11			
65-68	.09	.08	.08	.05	.09	.10	.12	12	13.97			
69-72	.09	.11	.16	.14	.14	.12	.16	11	12.29			
73-76	.12	.10	.08	.11	.13	.12	.14	10	17.79			
69-76	.11	.11	.12	.13	.14	.12	.15	10	15.04			
77-80	.17	.16	.13	.19	.14	.17	.19	9	11.21			Baseline
81-84	.12	.13	.13	.13	.11	.13	.15	10	11.00			
85-88	.14	.11	.12	.09	.10	.09	.12	8	9.33			
89-92	.12	.09	.07	.09	.09	.11	.11	9	12.52			
85-92	.13	.10	.10	.09	.10	.10	.12	8	10.93			

P#30 Schedule:RD

93-96	.09	.10	.06	.08	.09	.11	.10	11	9.86			Baseline
97-100	.09	.10	.09	.10	.07	.09	.10	8	11.80			
101-104	.16	.17	.16	.17	.16	.19	.20	13	8.48			
105-108	.24	.25	.24	.28	.25	.24	.31	14	8.57			
101-108	.20	.21	.20	.23	.21	.22	.26	13	8.53			
109-112	.20	.19	.22	.24	.19	.22	.26	12	9.51			Baseline
113-116	.16	.17	.13	.13	.13	.12	.18	12	12.94			
117-120	.15	.17	.16	.18	.16	.19	.22	14	9.67			
121-124	.21	.13	.14	.20	.21	.20	.24	16	12.60			
117-124	.18	.15	.15	.19	.18	.19	.23	15	10.93			
1-4	.22	.23	.22	.23	.19	.27	.33			23	9.36	p(NCT-cycle)=1.00
5-8	.20	.24	.23	.20	.19	.25	.30			19	9.94	
9-12	.28	.22	.28	.17	.23	.27	.34			16	11.11	
13-16	.04	.04	.05	.06	.03	.03	.12			16	24.72	
17-20	.01	0	.01	0	.01	.01	.03			19	25.12	
21-24	0	.01	0	.01	.01	0	.06			21	21.73	
25-28	.02	.01	.02	.01	.01	.02	.04			23	22.85	
21-28	.01	.01	.01	.01	.01	.01	.05			22	22.29	

P#31 Schedule: RI

Days	1	2	3	4	5	6	RR	#CS^R	PS^{R}PC	#NCS^R	PS^{R}NC	
1-4	.83	.75	.73	.82	.80	.85	.92	19	3.63			Baseline
5-8	.96	.84	.91	.87	.97	.96	1.04	18	3.42			
9-12	.96	.90	.96	.99	1.08	1.02	1.09	19	3.09			
13-16	.93	.81	.87	.91	1.04	.96	1.03	20	3.57			
17-20	.93	.88	.91	1.01	1.03	1.07	1.10	19	2.96			
21-24	1.07	.94	.95	.94	1.03	1.07	1.15	23	3.71			
25-28	.94	.80	.81	.94	1.10	.96	1.08	19	3.39			
29-32	1.07	.94	.94	.94	1.03	1.11	1.13	21	3.73			
33-36	1.06	.85	.81	.75	1.03	1.01	1.05	22	3.64			
37-40	1.07	1.06	1.05	.95	1.10	1.11	1.16	21	2.26			
41-44	1.29	1.15	1.16	1.25	1.30	1.30	1.33	22	1.82			
37-44	1.18	1.11	1.11	1.11	1.20	1.21	1.25	21	2.04			
45-48	1.27	1.08	1.07	1.24	1.36	1.37	1.35	22	2.88			Baseline
49-52	1.18	1.01	.88	.96	1.12	1.22	1.22	19	3.75			
53-56	.87	.86	.85	.95	1.01	1.04	1.07	19	3.14			
57-60	.86	.87	.84	.96	1.02	1.03	1.06	18	3.20			
61-64	.98	.99	1.02	1.18	1.17	1.12	1.24	23	3.37			
65-68	.99	.87	.98	.86	1.00	99	1.09	25	3.08			
69-72	.97	.90	.93	1.03	1.02	1.01	1.11	20	3.14			
73-76	.87	.84	.89	.99	.96	1.01	1.05	16	3.22			
69-76	.92	.87	.91	1.01	.99	1.01	1.08	18	3.18			
77-80	1.00	.97	.97	1.10	1.09	1.04	1.15	21	3.08			Baseline
81-84	1.01	.93	.97	1.14	1.02	1.11	1.16	20	3.24			
85-88	1.14	1.03	1.06	1.11	1.31	1.23	1.24	19	2.79			
89-92	.98	.95	.98	.99	1.03	1.13	1.20	19	3.15			
85-92	1.11	.99	1.02	1.05	1.17	1.18	1.22	19	2.97			

P#31 Schedule: RI

93-96	1.19	1.05	1.02	1.16	1.10	1.33	1.29	20	3.89			Baseline
97-100	1.14	.98	1.10	1.13	1.24	1.23	1.27	17	3.24			
101-104	1.12	1.02	1.00	1.08	1.19	1.25	1.24	23	3.27			
105-108	1.08	1.03	.99	1.08	1.05	1.18	1.18	24	3.11			
101-108	1.10	1.03	1.00	1.08	1.12	1.22	1.21	12	3.19			
109-112	1.19	1.06	1.12	1.17	1.31	1.30	1.34	21	3.31			Baseline
113-116	1.30	1.08	1.16	1.26	1.38	1.34	1.40	18	3.06			
117-120	1.27	1.00	1.14	1.20	1.28	1.29	1.31	17	2.95			
121-124	1.19	.96	1.06	1.19	1.31	1.29	1.32	23	3.18			
117-124	1.23	.98	1.10	1.19	1.29	1.29	1.31	20	3.04			
1-4	1.12	1.06	1.07	1.31	1.29	1.34	1.39			21	3.62	p(NCT-cycle)=1.00
5-8	.87	.83	.92	.95	.98	1.09	1.09			24	3.97	
9-12	.89	.87	.89	1.05	1.10	1.06	1.12			20	4.42	
13-16	.86	.76	.78	.89	.97	1.00	.97			15	3.67	
17-20	.72	.71	.83	1.02	1.11	.98	1.05			27	3.33	
21-24	.64	.63	.73	.84	.90	.86	.88			21	3.43	
25-28	.66	1.01	.71	.88	.86	.86	.88			23	3.39	
21-28	.65	.82	.72	.86	.88	.86	.88			22	3.41	

P#31 Schedule: FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R{}_{PC}$	$\#NCS^R$	$PS^R{}_{NC}$	
1-4	.28	.48	.58	.66	.68	.73	.71	20	5.88			Baseline
5-8	.33	.54	.73	.77	.76	.73	.79	20	5.51			
9-12	.34	.56	.75	.85	.84	.92	.88	20	6.02			
13-16	.39	.70	.95	1.01	1.06	1.04	.95	20	4.72			
17-20	.28	.65	1.03	1.34	1.34	1.34	1.24	20	5.97			
21-24	.35	.58	.85	1.08	1.22	1.29	1.10	20	5.51			
25-28	.37	.61	.96	1.19	1.38	1.44	1.30	20	7.16			
29-32	.25	.53	1.11	1.37	1.39	1.41	1.53	20	7.17			
33-36	.26	.61	.98	1.19	1.39	1.44	1.36	20	8.85			
37-40	.33	.65	1.10	1.31	1.49	1.52	1.36	20	6.51			
41-44	61	.71	1.14	1.32	1.61	1.76	1.37	20	5.80			
37-44	.47	.68	1.12	1.32	1.55	1.64	1.37	20	6.16			
45-48	.31	.55	1.31	1.44	1.56	1.84	1.62	20	8.37			Baseline
49-52	.22	.59	1.36	1.76	2.10	2.25	1.92	20	8.48			
53-56	.23	.44	1.13	1.70	2.14	2.37	1.87	20	8.61			
57-60	.28	.23	.89	1.27	1.88	2.01	1.52	20	8.36			
61-64	.25	.49	1.24	1.58	1.83	1.98	1.75	20	8.86			
65-68	.23	.35	1.04	1.63	2.03	2.26	1.87	20	9.87			
69-72	.26	.40	.86	1.25	1.77	1.89	1.52	20	8.88			
73-76	.23	.32	.85	1.32	1.86	2.02	1.67	20	10.17			
69-76	.24	.35	.85	1.29	1.82	1.97	1.60	20	9.62			
77-80	.25	.26	.84	1.24	1.71	2.07	1.62	20	10.41			Baseline
81-84	.20	.18	.71	1.13	1.67	2.11	1.66	20	11.94			
85-88	.23	.41	1.33	1.56	2.24	2.54	2.00	20	11.10			
89-92	.23	.35	1.21	1.76	2.24	2.34	1.92	20	8.86			
85-92	.23	.38	1.09	1.66	2.24	2.44	1.96	10	9.98			

P#31 Schedule: FI

93-96	.23	.62	1.66	2.30	2.70	2.73	2.43	20	8.96			Baseline
97-100	.24	.55	1.51	2.13	2.59	2.67	2.43	20	10.08			
101-104	.26	.50	1.38	2.14	2.61	2.58	2.41	20	10.36			
105-108	.21	.51	1.37	2.20	2.70	2.56	2.51	20	10.96			
101-108	.24	.51	1.38	2.17	2.65	2.57	2.46	20	10.67			
109-112	.23	.38	1.21	2.16	2.44	2.43	2.31	20	10.83			Baseline
113-116	.21	.37	1.21	1.95	2.40	2.34	2.23	20	10.94			
117-120	.27	.45	1.27	1.93	2.28	2.46	2.21	20	10.99			
121-124	.23	.27	.99	1.79	2.38	2.54	2.29	20	12.01			
117-124	.25	.36	1.13	1.86	2.33	2.50	2.25	20	11.50			
1-4	.09	.25	1.03	1.87	2.39	2.52	2.25			20	12.12	p(NCT-cycle)=1.00
5-8	.05	.26	1.11	1.98	2.42	2.28	2.26			20	11.99	
9-12	.09	.11	.90	1.79	2.50	2.29	2.37			20	13.83	
13-16	.02	.17	1.01	1.71	2.58	2.39	2.41			20	11.95	
17-20	.06	.27	.94	2.05	2.53	2.45	2.28			20	11.80	
21-24	.04	.15	.66	1.53	2.09	1.99	2.04			20	13.34	
25-28	.12	.35	.86	1.43	1.69	1.69	1.63			20	11.70	
21-28	.08	.26	.76	1.48	1.89	1.80	1.83			20	12.02	

P#31 Schedule: VD

Days	1	2	3	4	5	6	RR	#CS^R	PS^{R}PC	#NCS^R	PS^{R}NC	
1-4	.10	.50	.53	.59	.51	.48	.57	20	6.57			Baseline
5-8	.08	.30	.48	.55	.61	.57	.59	20	8.54			
9-12	.16	.39	.50	.59	.64	.61	.71	20	20.44			
13-16	.13	.56	.54	.65	.64	.61	.71	20	15.44			
17-20	.15	.51	.77	.90	1.01	1.00	.96	20	9.05			
21-24	.15	.60	.89	1.00	1.11	1.12	1.05	20	7.34			
25-28	.32	.75	.94	1.17	1.20	1.21	1.16	20	5.31			
29-32	.18	.87	1.24	1.32	1.30	1.35	1.35	20	7.22			
33-36	.10	.79	1.03	1.14	1.18	1.17	1.31	20	12.94			
37-40	.15	.77	1.19	1.17	1.28	1.38	1.26	20	7.26			
41-44	.30	.63	.91	1.11	1.29	1.37	1.20	20	7.17			
37-44	.23	.70	1.05	1.14	1.29	1.38	1.23	20	7.22			
45-48	.06	.58	1.24	1.57	1.79	1.80	1.70	20	9.79			Baseline
49-52	.05	.73	1.77	1.83	1.89	1.90	1.86	20	8.42			
53-56	.11	.59	1.09	1.46	1.52	1.71	1.66	20	11.07			
57-60	.08	.46	.99	1.31	1.22	1.25	1.37	20	11.19			
61-64	.05	.16	1.32	1.47	1.71	1.71	1.63	20	10.48			
65-69	.06	.67	1.31	1.55	1.69	1.66	1.53	20	7.66			
69-72	.13	.56	1.43	1.67	1.80	1.69	1.68	20	8.84			
72-76	.04	.50	1.25	1.56	1.67	1.67	1.52	20	10.33			
69-76	.08	.53	1.32	1.61	1.73	1.68	1.60	20	9.69			
77-80	.17	.63	1.03	1.39	1.49	1.51	1.48	20	9.48			Baseline
81-84	.10	.43	.98	1.25	1.26	1.36	1.32	20	10.19			
85-88	.08	.47	1.20	1.37	1.57	1.52	1.51	20	10.24			
89-92	.05	.46	1.16	1.51	1.66	1.73	1.62	20	10.15			
85-92	.07	.46	1.18	1.43	1.60	1.61	1.55	20	10.20			

P#31 Schedule: VD

93-96	.14	.33	1.00	1.42	1.62	1.60	1.64	20	12.41			Baseline
97-100	.13	.74	1.53	1.88	1.95	1.81	1.84	20	8.69			
101-104	.21	.69	1.45	1.83	1.95	1.78	1.85	20	9.27			
105-108	.04	.52	1.23	1.67	1.86	1.80	1.76	20	10.40			
101-109	.13	.61	1.34	1.75	1.91	1.79	1.81	20	9.84			
109-112	.06	.37	.87	1.37	1.47	1.31	1.45	20	12.56			Baseline
113-116	.06	.50	1.09	1.43	1.65	1.65	1.55	20	9.89			
117-120	.03	.27	.78	1.39	1.67	1.81	1.62	20	11.85			
121-124	.04	.21	.60	.96	1.28	1.43	1.43	20	19.34			
117-124	.03	.24	.70	1.20	1.50	1.65	1.54	20	15.06			
1-4	.06	.32	.94	1.40	1.74	1.63	1.57			20	11.26	p(NCT-cycle)=1.00
5-8	.06	.27	.82	1.20	1.43	1.38	1.45			20	13.10	
9-12	.04	.18	.76	1.35	1.58	1.41	1.47			20	12.47	
13-16	.08	.25	.81	1.41	1.90	1.50	1.60			20	11.95	
17-20	.02	.21	.76	1.62	1.92	1.46	1.58			20	11.61	
21-24	.03	.31	1.01	1.48	1.70	1.31	1.51			20	11.26	
25-28	.01	.33	1.05	1.48	1.42	1.19	1.39			20	10.78	
21-28	.02	.32	1.03	1.48	1.56	1.25	1.45			20	10.97	

P#31 Schedule: RD

Days	1	2	3	4	5	6	RR	$\#CS^R$	PS^RPC	$\#NCS^R$	PS^RNC	
1-4	.39	.39	.40	.38	.45	.46	.44	21	5.54			Baseline
5-8	.32	.39	.39	.39	.40	.44	.49	23	6.74			
9-12	.44	.40	.47	.44	.47	.48	.55	19	5.61			
13-16	.70	.75	.78	.76	.82	.85	.93	18	5.54			
17-20	.64	.77	.67	.70	.84	.76	.86	25	5.90			
21-24	.70	.68	.73	.77	.82	.78	1.06	20	10.05			
25-28	.86	.80	.94	.98	1.02	1.07	1.12	21	4.32			
29-32	1.12	1.17	1.26	1.38	1.38	1.43	1.52	23	4.21			
33-36	1.09	1.10	1.13	1.23	1.39	1.42	1.51	17	5.70			
37-40	1.19	1.32	1.35	1.43	1.50	1.46	1.57	21	4.18			
41-44	1.21	1.20	1.32	1.35	1.37	1.48	1.54	23	4.15			
37-44	1.20	1.26	1.34	1.37	1.44	1.47	1.56	22	4.17			
45-48	1.41	1.65	1.49	1.67	1.67	1.77	1.78	13	4.35			Baseline
49-52	1.36	1.47	1.85	2.03	2.01	1.95	1.99	22	2.88			
53-56	1.59	1.66	1.88	1.95	2.07	1.94	2.10	21	3.45			
57-61	1.45	1.37	1.63	1.75	1.65	1.54	1.72	16	3.44			
61-64	1.44	1.58	1.49	1.64	1.58	1.74	1.73	19	3.84			
65-68	1.48	1.58	1.82	1.90	1.97	1.95	2.03	24	3.51			
69-72	1.53	1.61	1.75	1.82	1.63	1.93	1.91	18	3.22			
73-76	1.52	1.64	1.88	1.99	1.68	1.97	2.09	22	3.21			
69-76	1.53	1.63	1.82	1.91	1.66	1.95	3.00	20	3.21			
77-80	1.73	1.83	2.02	2.19	2.16	2.04	2.19	22	2.77			Baseline
81-84	1.48	1.58	1.97	2.01	1.97	2.00	2.09	18	3.21			
85-88	1.88	1.83	2.08	2.24	2.30	2.26	2.26	23	3.28			
89-92	1.67	1.77	1.96	1.99	2.09	2.09	2.21	21	4.11			
85-92	1.79	1.80	2.03	2.13	2.21	2.19	2.24	22	3.64			

P#31 Schedule: RD

93-96	1.81	1.79	2.11	2.34	2.40	2.33	2.42	19	3.17			Baseline
97-100	1.81	1.89	2.22	2.36	2.29	2.32	2.32	23	2.55			
101-104	1.48	1.50	1.95	1.93	1.98	1.94	2.01	21	2.98			
105-108	1.51	1.54	1.75	1.98	1.98	1.98	2.03	23	3.13			
101-108	1.50	1.52	1.81	1.96	1.98	1.96	2.02	22	3.06			
109-112	1.24	1.24	1.46	1.57	1.64	1.56	1.73	19	13.04			Baseline
113-116	1.59	1.62	1.81	2.07	2.05	2.57	2.19	25	3.68			
117-120	1.52	1.58	1.87	1.97	2.01	1.94	2.16	18	4.46			
121-124	1.12	1.19	1.30	1.55	1.54	1.52	1.76	24	9.66			
117-124	1.34	1.41	1.63	1.79	1.80	1.76	1.99	22	6.69			
1-4	1.33	1.37	1.47	1.65	1.68	1.71	1.90			21	8.37	p(NCT-cycle)=1.00
5-8	1.35	1.39	1.64	1.72	1.77	1.77	1.81			23	3.04	
9-12	1.27	1.31	1.52	1.64	1.74	1.66	1.79			24	3.73	
13-16	1.16	1.17	1.36	1.32	1.38	1.46	1.44			16	3.48	
17-20	1.11	1.07	1.12	1.28	1.44	1.37	1.50			22	4.85	
21-24	1.00	1.01	1.18	1.15	1.24	1.26	1.31			19	2.96	
25-28	.82	.93	1.12	1.15	1.08	1.08	1.11			23	3.00	
21-28	.91	.97	1.14	1.15	1.16	1.17	1.20			21	2.98	

P#32 S^N_4 Schedule: RI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4	.73	.78	.74	.75	.81	.76	.82	27	2.60			Baseline
5-8	.75	.71	.83	.88	.76	.81	.85	12	2.26			
9-12	.68	.66	.69	.70	.70	.74	.74	18	2.88			
13-16	.85	.69	.81	.82	.90	.83	.89	23	2.79			
17-20	.81	.72	.77	.84	.87	.91	.91	21	3.24			
21-24	.93	.80	.84	.94	.95	.92	.98	24	2.60			
25-28	.99	.79	.88	1.01	1.03	1.05	1.10	27	5.61			
29-32	1.06	1.05	1.11	1.11	1.16	1.14	1.10	18	2.35			
33-36	1.09	.93	1.07	1.04	1.11	1.15	1.17	17	3.11			
37-40	1.15	1.05	1.04	1.20	1.25	1.21	1.29	25	3.16			
41-44	1.15	1.05	1.20	1.22	1.28	1.31	1.30	21	2.71			
37-44	1.15	1.05	1.12	1.21	1.26	1.25	1.30	23	2.94			
1-4	1.16	1.06	1.09	.09	.62	1.52	.99	27	3.09			S^N Intrusion
5-8	1.74	1.35	1.48	.15	1.01	2.25	1.46	23	2.12			
9-12	1.65	1.29	1.49	.18	1.08	2.36	1.47	17	2.28			
13-16	1.83	1.43	1.61	.18	1.46	2.54	1.69	16	3.02			
17-20	1.95	1.45	1.59	.19	1.29	2.28	1.55	24	2.40			
21-24	1.94	1.62	1.62	.20	1.12	2.43	1.62	21	2.40			
25-28	1.94	1.39	1.45	.16	1.26	2.53	1.62	20	3.03			
29-32	1.91	1.39	1.38	.18	1.62	2.53	1.66	22	3.08			
25-32	1.93	1.39	1.42	.17	1.44	2.53	1.64	21	3.06			
1-4	1.83	1.23	1.30	.23	1.74	2.39	1.63	19	3.49	12	3.01	p(NCT-cycle)=0.50
5-8	1.84	1.15	1.15	.19	1.41	2.50	1.59	10	3.82	12	3.99	
9-12	1.85	1.18	1.27	.22	1.71	2.65	1.70	10	3.68	10	4.03	
13-16	1.56	.94	.86	.16	1.28	2.30	1.39	10	4.02	12	4.11	
9-16	1.71	1.06	1.07	.19	1.50	2.48	1.55	10	3.85	11	4.07	

P#32 S^N_4 Schedule: RI

1-4	2.02	1.43	1.28	.29	1.62	2.56	1.72	4	4.12	12	3.83	p(NCT-cycle)=0.75
5-8	1.80	1.22	1.12	.29	1.32	2.38	1.54	5	3.27	13	4.52	
9-12	1.73	1.10	.93	.38	1.45	2.34	1.52	7	4.24	12	4.14	
13-16	1.43	.97	.94	.21	1.18	2.0	1.40	5	3.83	19	5.60	
9-16	1.60	1.04	.93	.30	1.34	2.23	1.47	6	4.07	15	4.76	
1-4	1.62	1.06	.89	.25	1.06	2.27	1.37	2	2.61	16	4.67	p(NCT-cycle)=0.90
5-8	1.57	1.00	.87	.27	1.16	2.16	1.39	3	4.08	19	4.54	
9-12	1.78	1.19	.96	.46	1.80	2.29	1.67	1	3.15	22	4.25	
13-16	1.94	1.28	1.07	1.07	.72	2.48	1.83	3	3.78	22	3.90	
9-16	1.85	1.23	1.01	.57	1.77	2.37	1.74	2	3.53	22	4.10	
1-4	1.67	1.08	1.07	.62	1.87	2.37	1.70			21	4.54	p(NCT-cycle)=1.00
5-8	1.59	.94	.96	.41	1.86	2.40	1.64			22	4.89	
9-12	2.08	1.39	.91	.13	2.39	2.77	1.79			16	3.76	
13-16	1.87	.79	1.01	.36	2.17	2.70	1.70			20	3.89	
17-20	1.58	.98	.89	.37	1.54	1.95	1.37			18	3.74	
21-24	1.13	.69	.62	.20	1.38	1.67	1.32			24	5.73	
25-28	1.11	.63	.78	.26	1.18	1.57	1.38			22	8.85	
21-28	1.12	.66	.70	.23	1.28	1.77	1.35			23	7.29	

P#32 S^N_4 Schedule: FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R{}_{PC}$	$\#NCS^R$	$PS^R{}_{NC}$	
1-4	.37	.82	1.11	1.34	1.39	1.41	1.27	23	4.78			Baseline
5-8	.36	.71	1.10	1.27	1.35	1.44	1.30	16	5.87			
9-12	.32	.65	.92	1.03	1.13	1.12	.99	19	5.30			
13-16	.26	.42	.70	.89	1.03	1.06	.93	21	6.63			
17-20	.24	.31	.62	.81	.92	.94	.90	15	8.73			
21-24	.26	.30	.53	.75	.87	.94	.83	18	7.96			
25-28	.28	.34	.59	.72	.80	.85	.75	19	6.21			
29-32	.35	.64	.88	1.14	1.27	1.25	1.15	22	6.06			
33-36	.26	.43	.74	.91	1.09	1.11	.99	15	7.32			
37-40	.23	.23	.56	.77	.88	.93	.86	19	9.03			
41-44	.29	.43	.74	.95	1.09	1.13	1.02	19	7.47			
37-44	.26	.33	.65	.86	.98	1.03	.94	18	8.25			
1-4	.18	.98	1.39	.03	1.22	1.55	1.15	23	5.81			S^N Intrusion
5-8	.76	1.72	2.21	.05	1.67	2.35	1.68	21	4.30			
9-12	.44	1.15	1.87	.05	1.45	2.07	1.44	20	5.95			
13-16	.32	.94	1.87	.05	1.41	2.16	1.50	19	7.56			
17-20	.30	.87	1.61	.05	1.30	2.05	1.45	16	8.77			
21-24	.33	1.02	1.83	.04	1.27	1.05	1.44	16	7.34			
25-28	.27	1.06	1.98	.07	1.61	2.37	1.58	23	7.27			
29-32	.33	1.21	1.90	.05	1.67	2.35	1.68	20	8.07			
25-32	.30	1.14	1.94	.06	1.64	2.36	1.63	22	7.67			
1-4	.17	.67	1.74	.06	1.15	2.03	1.49	11	9.48	6	8.99	p(NCT-cycle)=0.50
5-8	.25	.81	1.84	.08	1.82	2.39	1.73	10	9.69	10	8.83	
9-12	.14	.40	1.41	.05	1.64	2.21	1.53	11	9.81	9	12.11	
13-19	.11	.25	.86	.05	.89	1.74	1.23	9	17.30	11	13.91	
9-16	.13	.33	1.14	.05	1.27	1.98	1.38	10	13.56	10	13.01	

P#32 S^{N}_{4} Schedule: FI

1-4	.12	.60	1.25	.06	1.27	2.01	1.36	7	13.95	13	10.32	p(NCT-cycle)=0.75
5-8	.13	.95	1.99	.04	1.72	2.34	1.69	5	8.50	15	8.87	
9-12	.11	.38	1.17	.05	1.21	1.78	1.20	5	9.38	14	12.19	
13-16	.10	.60	1.46	.06	1.24	2.10	1.35	5	11.29	15	10.33	
9-16	.11	.49	1.32	.06	1.23	1.94	1.28	5	9.86	15	11.26	
1-4	.08	.56	1.53	.05	1.23	2.02	1.34	2	10.74	18	10.40	p(NCT-cycle)=0.90
5-8	.14	.63	1.69	.08	1.54	2.37	1.59	3	6.97	17	10.37	
9-12	.12	.51	1.59	.09	1.66	2.38	1.61	2	14.32	18	10.21	
13-16	.11	.47	1.59	.13	1.51	2.17	1.49	6	8.58	13	11.37	
9-16	.11	.49	1.59	.11	1.60	2.29	1.56	3	9.82	16	10.71	
1-4	.12	.49	1.41	.10	1.67	2.41	1.64			20	11.44	p(NCT-cycle)=1.00
5-8	.05	.27	.99	.08	1.14	1.84	1.38			20	14.52	
9-12	.03	.09	.60	.08	.59	1.03	.99			20	17.72	
13-16	.08	.59	1.49	.10	1.83	2.25	1.71			20	11.52	
17-20	.12	.30	.85	.13	1.33	2.26	1.64			20	14.75	
21-24	.10	.18	.81	.04	.83	1.57	1.14			20	15.11	
25-28	.06	.14	.65	.02	.83	1.63	1.24			20	16.41	
21-28	.08	.16	.73	.03	.83	1.60	1.19			20	15.76	

P#32 S^N_4 Schedule: VD

Days	1	2	3	4	5	6	RR	#CS^R	PS^{R}PC	#NCS^R	PS^{R}NC	
1-4	.13	.21	.26	.26	.25	.27	.31	20	12.81			Baseline
5-8	.14	.30	.38	.38	.38	.33	.41	20	7.44			
9-12	.12	.33	.34	.34	.36	.35	.37	20	9.22			
13-16	.14	.42	.43	.49	.55	.56	.56	20	7.75			
17-20	.10	.34	.22	.42	.34	.37	.46	20	19.47			
21-24	.17	.40	.41	.36	.38	.36	.44	20	7.12			
25-28	.10	.25	.22	.28	.27	.25	.30	20	8.16			
29-32	.15	.45	.51	.59	.60	.46	.56	20	6.07			
33-36	.04	.24	.25	.33	.36	.30	.34	20	9.28			
37-40	.06	.22	.24	.22	.24	.24	.29	20	10.24			
41-44	.07	.14	.20	.24	.24	.21	.25	20	12.77			
37-44	.06	.18	.22	.23	.24	.22	.27	20	10.49			
1-4	.14	.39	.54	.01	.57	.62	.49	20	7.25			S^N Intrusion
5-8	.12	.63	.79	.02	.80	.89	.68	20	6.55			
9-12	.12	.49	.80	.02	.63	.87	.66	20	9.30			
13-16	.06	.41	.71	.02	.60	.91	.65	20	11.27			
17-20	.07	.33	.47	.01	.46	.75	.55	20	12.71			
21-24	.08	.36	.72	.03	.72	.98	.71	20	10.51			
25-28	.12	.63	1.04	.05	.97	1.34	.93	20	8.64			
29-32	.03	.51	1.34	.06	1.20	1.51	1.08	20	9.21			
25-32	.08	.57	1.19	.06	1.09	1.43	1.01	20	8.93			
1-4	.03	.45	1.26	.08	1.36	1.67	1.27	11	12.77	8	9.05	p(NCT-cycle)=0.50
5-8	.04	.38	1.13	.05	1.26	1.60	1.14	11	11.11	9	11.63	
9-12	.03	.28	.93	.02	.94	1.40	1.00	11	12.16	8	15.18	
13-16	.02	.21	.82	.02	.81	1.40	.97	9	14.52	10	13.42	
9-16	.03	.25	.88	.02	.88	1.40	.99	10	13.34	10	14.30	

P#32 S_4^N Schedule: VD

1-4	.04	.43	1.17	.07	1.13	1.77	1.16	6	15.83	14	12.16	p(NCT-cycle)=0.75
5-8	.08	.56	1.38	.07	1.29	2.07	1.27	7	10.27	13	9.92	
9-12	.04	.29	.95	.12	.91	1.68	1.11	5	12.31	14	12.43	
13-16	.03	.26	.86	.03	.79	1.69	1.15	4	17.99	16	14.66	
9-16	.03	.27	.91	.08	.86	1.68	1.12	4	14.74	14	13.81	
1-4	.09	.52	1.22	.05	1.11	1.89	1.30	3	6.55	16	11.98	p(NCT-cycle)=0.90
5-8	.07	.46	1.10	.04	1.25	1.88	1.33	2	7.46	18	13.52	
9-12	.05	.51	1.27	.14	1.39	1.99	1.42	3	14.45	17	11.95	
13-16	.02	.20	.64	.06	.93	1.88	1.18	2	11.95	18	15.23	
9-16	.03	.38	1.00	.11	1.19	1.84	1.32	2	13.38	18	13.33	
1-4	.07	.59	1.43	.09	1.36	2.11	1.44			20	11.57	p(NCTcycle)=1.00
5-8	.08	.32	1.11	.07	1.34	2.25	1.42			20	12.49	
9-12	.05	.46	1.88	.04	1.27	2.24	1.60			20	21.53	
13-16	.17	.85	2.24	.08	1.92	2.55	1.79			20	7.75	
17-20	.30	.58	1.30	.07	.73	1.63	1.25			20	12.14	
21-24	.05	.23	.91	.04	.93	1.78	1.26			20	15.27	
25-28	.15	.31	.86	.03	.83	1.76	1.19			20	14.27	
21-28	.10	.27	.88	.03	.88	1.77	1.22			20	14.77	

P#32 S^N_4 Schedule: RD

Days	1	2	3	4	5	6	RR	#CS^R	$PS^R PC$	#NCS^R	$PS^R NC$	
1-4	.28	.19	.24	.27	.33	.33	.46	18	8.80			Baseline
5-8	.28	.28	.34	.36	.33	.33	.37	16	5.41			
9-12	.37	.35	.33	.39	.44	.39	.43	17	7.88			
13-16	.16	.14	.18	.18	.16	.16	.18	9	10.62			
17-20	.18	.12	.14	.16	.15	.20	.20	12	17.60			
21-24	.30	.30	.30	.30	.35	.37	.39	16	6.59			
25-28	.17	.09	.21	.16	.16	.16	.21	19	9.12			
29-32	.27	.28	.27	.33	.31	.35	.37	17	6.94			
33-36	.25	.23	.26	.24	.30	.28	.32	21	7.63			
37-40	.22	.23	.23	.20	.17	.23	.32	21	7.63			
41-44	.20	.21	.22	.20	.22	.22	.24	19	8.86			
37-44	.21	.22	.22	.20	.20	.22	.24	19	8.07			
1-4	.21	.11	.14	.01	.03	.18	.14	15	12.04			S^N Intrusion
5-8	.55	.47	.38	.03	.16	.66	.44	23	5.57			
9-12	.41	.29	.36	.02	.15	.65	.37	19	6.90			
13-16	.62	.43	.47	.04	.32	1.12	.60	23	6.14			
17-20	.94	.66	.60	.05	.52	1.40	.82	17	5.81			
21-24	.78	.58	.59	.06	.43	1.11	.67	23	5.88			
25-28	.74	.53	.52	.05	.42	1.11	.67	20	7.05			
29-32	1.04	.76	.76	.07	.61	1.42	.89	25	4.41			
25-32	.89	.65	.64	.06	.52	1.27	.78	22	5.73			
1-4	1.31	.95	1.12	.10	.96	1.88	1.26	10	4.72	11	4.90	p(NCT-cycle)=0.50
5-8	1.19	.81	1.02	.22	.95	1.72	1.15	10	3.66	12	4.60	
9-12	1.23	.73	1.00	.14	1.14	1.97	1.17	10	3.76	9	3.95	
13-16	1.05	.65	.62	.08	.94	1.60	.98	8	4.20	12	5.74	
9-16	1.14	.69	.81	.11	1.04	1.79	1.08	9	3.98	10	4.85	

P#32 S_4^N Schedule: RD

1-4	1.35	.81	.69	.14	.90	1.67	1.10	3	3.76	16	5.23	p(NCT-cycle)=0.75
5-8	1.45	1.09	1.07	.14	.98	1.83	1.25	6	4.30	12	6.18	
9-12	1.25	.92	1.00	.18	1.07	1.76	1.25	4	4.08	18	4.61	
13-16	1.25	.89	.88	.12	1.01	1.76	1.10	5	4.10	13	4.01	
9-16	1.25	.89	.95	.16	1.04	1.76	1.18	5	4.09	16	4.35	
1-4	1.28	.77	.67	.11	.67	1.68	1.00	2	1.86	18	4.46	p (NCT-cycle)=0.90
5-8	1.57	.95	.81	.11	.98	1.86	1.19	4	3.28	16	3.82	
9-12	1.55	.77	.94	.30	1.36	2.07	1.35	1	3.92	19	3.51	
13-16	.95	.66	.75	.30	1.32	1.69	1.17	3	4.17	19	4.20	
9-16	1.29	.72	.94	.34	1.34	1.91	1.27	2	4.02	19	3.81	
1-4	1.39	.70	.75	.36	1.39	1.98	1.32			21	5.61	p(NCT-cycle)=1.00
5-8	1.11	.58	.45	.21	1.01	1.57	.96			18	5.02	
9-12	1.27	.62	.44	.18	1.34	1.66	1.10			23	4.22	
13-16	1.11	.59	.45	.17	.81	1.36	.87			18	4.99	
17-20	.89	.66	.58	.10	.77	1.45	.83			17	3.88	
21-24	.67	.30	.39	.17	.81	1.14	.95			23	9.86	
25-28	.97	.44	.55	.15	.95	1.64	.98			19	7.36	
21-28	.82	.37	.47	.16	.88	1.39	.96			21	8.61	

P#26 S^N_4 Schedule:RI

Days	1	2	3	4	5	6	RR	#CS^R	PS^RPC	#NS^R	PS^RPNC	
1-4	.67	.71	.73	.78	.79	.74	.81	21	2.50			Baseline
5-8	.97	.82	.85	.78	.89	.91	.95	20	2.41			
9-12	.79	.74	.83	.76	.85	.86	.88	23	2.26			
13-16	.82	.79	.82	.81	.82	.82	.89	25	2.42			
17-20	.66	.66	.66	.77	.81	.76	.78	18	2.43			
21-24	.79	.83	.88	.92	.86	.95	.93	21	1.95			
25-28	1.00	.93	1.04	1.13	1.09	1.09	1.14	22	2.13			
29-32	1.22	1.16	1.19	1.28	1.26	1.34	1.34	23	2.09			
33-36	1.16	1.03	1.04	1.14	1.33	1.19	1.30	23	3.12			
37-40	.85	.86	.83	.93	.98	1.03	1.04	21	3.48			
41-44	.94	.92	.87	.99	1.02	1.05	1.07	24	3.21			
37-44	.90	.89	.85	.96	1.00	1.04	1.05	22	3.34			
1-4	1.36	1.06	1.05	.11	.63	1.67	1.10	21	3.73			S^N Intrusion
4-8	1.36	1.18	1.08	.15	.74	1.90	1.20	25	3.06			
9-12	1.34	1.17	1.18	.15	.86	1.81	1.16	23	2.33			
13-16	1.63	1.15	1.16	.19	.76	2.48	1.39	18	2.83			
17-20	2.05	1.28	1.39	.19	.89	2.71	1.57	23	2.67			
21-24	2.14	1.28	1.06	.19	1.02	2.61	1.54	27	3.30			
25-28	1.63	.81	1.38	.14	.97	2.47	1.36	25	3.08			
29-32	1.96	.83	.93	.16	1.07	2.64	1.46	25	3.61			
25-32	1.80	.82	1.16	.15	1.02	2.56	1.41	25	3.35			
1-4	1.96	.92	.89	.17	1.07	2.60	1.42	13	2.93	10	3.01	p(NCT-cycle)=0.50
5-8	1.43	1.06	1.43	.26	1.27	2.51	1.43	8	2.69	10	2.52	
9-12	1.88	1.14	1.14	.29	1.11	2.51	1.57	10	2.93	11	2.68	
13-16	1.94	.92	.78	.53	1.34	2.72	1.54	12	3.02	8	3.36	
9-16	1.92	1.04	.98	.37	1.21	2.60	1.56	12	2.97	9	2.97	

P26 S_4^N Schedule: RI

1-4	1.81	.91	1.07	.63	1.83	2.80	1.66	5	2.93	13	2.98	p(NCT-cycle)=0.75
5-8	2.01	1.01	1.06	.52	1.81	2.48	1.67	5	2.41	13	3.06	
9-12	1.85	.93	.77	.43	1.49	2.50	1.38	5	3.67	14	3.07	
13-16	1.61	.56	.65	.50	1.39	2.57	1.36	5	2.95	15	3.35	
9-16	1.72	.72	.70	.47	1.43	2.54	1.37	5	3.26	15	3.21	
1-4	1.42	.46	.93	.46	1.31	2.53	1.30	4	3.29	16	3.31	p(NCT-cycle)=0.90
5-8	1.65	.62	.86	.36	1.36	2.54	1.39	1	1.91	20	3.31	
9-12	1.66	.59	.98	.45	1.53	2.76	1.48	1	3.96	17	3.23	
13-16	1.50	.84	.94	.54	1.85	2.55	1.63	2	3.36	23	3.80	
9-16	1.59	.69	.96	.49	1.66	2.67	1.54	2	3.66	20	3.47	
1-4	1.49	.67	.65	.47	1.80	2.46	1.44			19	4.02	p(NCT-cycle)=1.00
5-8	1.40	.69	.59	.42	1.64	2.34	1.39			24	3.81	
9-11	1.24	.62	.56	.37	1.46	2.05	1.32			18	3.52	
13-16	1.07	.89	.65	.58	1.25	1.63	1.08			20	3.38	
17-20	1.02	.81	.59	.25	.98	1.24	1.01			22	3.12	
21-24	.48	.30	.25	.06	.23	.54	.42			20	10.25	
25-28	.86	.38	.42	.24	.67	1.21	.73			19	4.48	
21-28	.70	.35	.35	.16	.47	.92	.60			20	6.96	

P26 S^N_4 Schedule:FI

Days	1	2	3	4	5	6	RR	#CS^R	PS^RPC	#NCS^R	PS^RPNC	
1-4	.33	.49	.51	.49	.51	.50	.56	20	5.07			Baseline
5-8	.50	.58	.83	.85	.88	.93	1.29	20	7.92			
9-12	.31	.45	.67	.80	.81	.80	.82	20	6.50			
13-16	.28	.39	.69	.83	.94	.98	.97	20	8.20			
17-20	.29	.24	.56	.84	1.08	1.18	1.13	20	11.52			
21-24	.35	.36	.65	1.03	1.17	1.26	1.22	20	10.36			
25-28	.28	.30	.59	1.00	1.27	1.42	1.25	20	10.62			
29-32	.33	.49	.74	1.44	1.72	1.76	1.60	20	8.80			
33-36	.26	.22	.46	.94	1.58	1.94	1.74	20	14.50			
37-40	.21	.26	.61	1,01	1.28	1.41	1.35	20	12.32			
41-44	.26	.25	.41	.69	.93	1.09	1.02	20	12.27			
37-44	.24	.25	.51	.85	1.10	1.25	1.18	20	12.29			
1-4	.22	.31	.69	.02	1.17	1.87	1.31	20	14.38			S^N Intrusion
5-8	.25	.19	.52	.02	.88	1.67	1.21	20	16.57			
9-12	.29	.34	.73	.03	.89	1.90	1.49	20	15.81			
13-15	.21	.20	.49	.02	.65	1.65	1.45	20	18.86			
17-20	.28	.39	.83	.03	1.12	2.14	1.76	20	16.28			
21-24	.22	.15	.52	.02	1.17	2.26	1.95	20	18.31			
25-28	.20	.13	.50	.01	1.14	2.28	1.93	20	19.49			
29-31	.20	.10	.56	.03	1.25	2.47	1.93	20	17.87			
25-32	.20	.11	.53	.02	1.20	2.38	1.93	20	18.68			
1-4	.16	.05	.14	0	1.09	2.40	1.96	13	19.69	7	20.15	p(NCT-cycle)=0.50
5-8	.20	.05	.25	.01	.77	2.15	1.91	12	21.26	9	21.11	
9-12	.16	.14	.35	.02	.64	2.04	1.62	9	18.95	11	19.91	
13-16	.18	.15	.31	.02	.67	2.09	1.75	12	20.80	9	18.76	
9-16	.17	.15	.33	.02	.66	2.07	1.69	11	19.88	10	19.34	

P#26 S^{N}_{4} Schedule: FI

1-4	.11	.12	.29	.01	.74	1.95	1.76	5	25.09	15	21.00	p(NCT-cycle)=0.75
5-8	.09	.05	.28	.03	.57	1.86	1.37	6	17.99	14	21.25	
9-12	.10	.01	.10	.07	.36	.81	.78	8	16.91	11	22.63	
13-16	.06	.01	.05	.01	.29	.83	.76	6	22.42	14	22.47	
9-16	.07	.01	.06	.03	.31	.83	.81	7	21.11	13	22.52	
1-4	.07	.05	.13	.02	.35	1.20	1.29	1	16.09	19	23.05	p(NCT-cycle)=0.90
5-8	.08	.02	.07		.39	1.48	1.30	2	14.39	18	22.70	
9-11	.12	.04	.26	.03	.73	1.42	1.19	2	16.45	18	18.90	
13-16	.11	.18	.27	.26	.87	1.32	1.27	2	17.40	18	18.25	
9-16	.12	.10	.26	.12	.79	1.38	1.22	2	16.77	18	18.62	
1-4	.08	.10	.16	.01	.44	1.20	1.22			20	21.82	p(NCT-cycle)-1.00
5-8	.04	.08	.15	.01	.36	.85	.97			20	21.53	
9-12	.12	.12	.17	.02	.53	.91	.92			20	19.58	
13-16	.06	.08	.12	.06	.42	.47	.71			20	21.62	
17-20	.05	.02	.08	.05	.33	.42	.39			20	17.89	

P#26 S^N_4 Schedule: VD

Days	1	2	3	4	5	6	RR	#CS^R	$PS^R PC$	#NCS^R	$PS^R PNC$	
1-4	.15	.36	.29	.30	.27	.31	.38	20	10.81			Baseline
5-8	.12	.35	.42	.39	.35	.41	.44	20	8.88			
9-12	.12	.37	.39	.40	.44	.40	.50	20	9.16			
13-16	.06	.17	.15	.24	.15	.17	.25	20	16.89			
17-20	.08	.32	.26	.31	.34	.24	.37	20	10.31			
21-24	.05	.12	.11	.12	.12	.18	.27	20	24.55			
25-28	.06	.12	.12	.11	.09	.09	.23	20	21.35			
29-32	.10	.31	.41	.39	.37	.40	.53	20	12.76			
33-36	.03	.17	.33	.50	.66	.72	.71	20	14.42			
37-40	.10	.31	.32	.42	.73	.62	.84	20	10.80			
41-44	.04	.12	.18	.29	.29	.46	.43	20	15.82			
37-44	.06	.22	.25	.40	.51	.52	.54	20	14.41			
1-4	.10	.34	.63	.02	.92	1.47	.97	20	12.43			S^N Intrusion
5-8	.14	.35	.53	.02	1.02	1.55	1.13	20	14.94			
9-12	.16	.25	.45	.03	.94	1.60	1.27	20	17.70			
13-16	.08	.24	.58	.03	.83	1.50	1.22	20	18.00			
17-20	.09	.36	.71	.02	.92	1.57	1.23	20	17.50			
21-24	.01	.28	.61	.02	1.00	1.76	1.41	20	16.89			
25-28	.06	.16	.31	.02	.73	1.60	1.44	20	21.40			
29-32	.04	.22	.46	.02	.87	1.68	1.43	20	19.15			
25-32	.05	.19	.39	.02	.80	1.64	1.44	20	20.28			
1-4	.05	.23	.32	.02	.76	1.44	1.35	10	21.71	10	20.50	p(NCT-cycle)=0.50
5-8	.12	.36	.32	.02	.52	1.03	.95	9	20.98	11	18.51	
9-12	.03	.09	.22	0	.36	.95	.95	10	24.15	10	21.73	
13-16	.05	.14	.30	.04	.40	.95	.89	9	22.54	11	22.16	
9-16	.04	12	.26	.02	.38	.95	.92	9	23.35	10	21.95	

P#26 S^N_4 Schedule: VD

1-4	.02	.03	.04	.02	.33	.96	.86	6	23.40	14	23.25	p(NCT-cycle)=0.75
5-8	.04	.10	.23	.04	.45	.69	.75	4	22.29	16	22.25	
9-12	.05	.08	.09	.01	.22	.32	.47	5	19.30	15	23.59	
13-16	.03	.08	.08	.02	.13	.18	.28	5	25.51	15	23.05	
9-16	.04	.08	.08	.01	.18	.24	.37	5	22.85	15	23.67	
1-4	.01	.06	.07	.01	.12	.35	.49	1	10.50	19	25.53	p(NCT-cycle)=0.90
5-8	.01	.04	.08	.01	.12	.30	.37	2	7.93	18	24.71	
9-12	.04	.10	.09	.02	.24	.40	.39	2	19.41	18	20.68	
13-16	.07	.22	.13	.02	.55	.35	.55	2	16.88	18	18.27	
9-16	.05	.15	.15	.02	.37	.38	.45	2	18.57	18	19.64	
1-4	.02	.04	.16	0	.26	.35	.43			20	21.97	p(NCT-cycle)=1.00
5-8	.02	.11	.06	.01	.20	.28	.40			20	22.94	
9-12	.04	.12	.17	.02	.27	.34	.41			20	20.43	
13-16	.01	.08	.13	.03	.25	.24	.35			20	22.49	
17-20	.02	.06	.09	.02	.18	.15	.24			20	21.65	
21-24	.03	.04	.05	.01	.12	.07	.16			20	20.91	
25-28	.06	.11	.12	.03	.17	.15	.30			20	21.63	
21-28	.05	.08	.09	.02	.15	.10	.24			20	21.32	

P#26 S^N_4 Schedule: RD

Days	1	2	3	4	5	6	RR	#CS^R	PS^RPC	#NCS^R	PS^RPNC	
1-4	.34	.35	.34	.33	.34	.32	.40	16	6.65			Baseline
5-8	.44	.41	.57	.50	.56	.56	.66	21	4.64			
9-12	.33	.39	.39	.38	.38	.37	.44	18	6.15			
13-16	.19	.19	.26	.25	.22	.24	.28	17	7.69			
17-20	.31	.37	.41	.45	.39	.44	.51	21	8.20			
21-24	.26	.25	.27	.25	.26	.31	.33	18	10.36			
25-28	.23	.26	.24	.29	.30	.27	.34	23	17.23			
29-32	.46	.54	.56	.57	.55	.56	.59	21	5.04			
33-36	.44	.46	.51	.52	.48	.60	.60	20	6.46			
37-40	.59	.52	.49	.50	.61	.73	.69	25	5.66			
41-44	.48	.44	.49	.64	.72	.62	.68	19	7.67			
37-44	.52	.48	.49	.57	.66	.68	.69	22	6.66			
1-4	.76	.79	.81	.06	.32	.88	.72	23	7.24			S^N Intrusion
5-8	1.03	.94	.96	.09	.63	1.50	1.00	21	4.82			
9-12	1.02	.98	.93	.13	.68	1.27	.95	29	4.69			
13-16	1.14	1.11	1.14	.14	.81	1.45	1.13	24	4.93			
17-20	1.13	1.00	.72	.23	.77	1.25	.97	18	5.36			
21-24	1.40	1.34	1.30	.16	.98	1.85	1.36	19	3.10			
25-28	1.26	1.22	1.05	.12	.65	1.41	1.07	23	4.53			
29-32	1.14	1.05	.87	.09	.41	1.10	.91	24	5.04			
25-32	1.20	1.14	.96	.11	.53	1.26	.99	23	4.79			
1-4	1.50	1.27	1.06	.15	.66	1.55	1.15	9	3.05	10	3.47	p(NCT-cycle)=0.50
5-8	1.45	1.12	.95	.25	.95	1.87	1.24	11	3.33	11	3.29	
9-12	1.65	1.32	1.01	.23	1.04	1.98	1.36	9	3.45	11	3.98	
13-16	1.32	.96	1.06	.36	.98	2.10	1.28	10	3.02	11	3.77	
9-16	1.51	1.17	1.03	.29	1.01	2.03	1.33	9	3.27	11	3.89	

P#26 S^N_4 Schedule: RD

1-4	1.20	.95	.69	.59	1.11	1.63	1.14	3	3.05	15	3.35	p(NCT-cycle)=0.75
5-8	1.57	1.27	1.07	.35	1.01	1.97	1.34	5	3.62	14	3.51	
9-12	1.71	1.11	.99	.43	1.21	2.47	1.50	5	3.46	17	3.30	
13-16	1.06	.54	.63	.30	.93	1.93	1.02	5	5.91	17	4.75	
9-16	1.34	.79	.78	.36	1.05	2.02	1.00	5	4.86	17	4.13	
1-4	1.15	.46	.52	.32	1.05	2.07	1.08	3	3.91	19	3.80	p(NCT-cycle)=0.90
5-8	1.50	.70	.66	.29	1.19	2.33	1.26	1	2.78	18	3.68	
9-12	1.34	.64	.77	.27	1.40	2.40	1.31	3	4.87	17	3.87	
13-16	1.41	.77	.74	.26	1.44	2.49	1.37	2	3.66	19	3.79	
9-16	1.37	.69	.76	.26	1.42	2.44	1.33	3	4.35	18	3.84	
1-4	1.27	.38	.56	.27	1.30	2.51	1.24			21	4.35	p(NCT-cycle)=1.00
5-8	.97	.54	.67	.27	1.33	2.12	1.12			19	3.98	
9-12	1.10	.66	.48	.34	1.38	2.00	1.20			20	3.70	
13-16	1.13	.67	.36	.35	1.06	1.74	.99			17	3.27	
17-20	.85	.47	.43	.23	.67	1.20	.74			21	3.86	
21-24	.88	.59	.49	.42	.84	1.26	.88			23	3.85	
25-28	.73	.42	.35	.30	.57	1.06	.70			20	6.81	
21-28	.79	.49	.41	.35	.68	1.15	.76			21	5.54	

P#36 S^N_4 Schedule: RI

Days	1	2	3	4	5	6	RR	#CS^R	PS^{R}PC	#NS^R	PS^{R}PNC	
1-4	.86	.82	.82	.87	.92	.88	.92	18	2.92			Baseline
5-8	.90	.99	.93	1.05	1.14	1.03	1.09	21	2.50			
9-12	.71	.69	.70	.81	.71	.73	.79	23	2.40			
13-16	1.00	1.05	.99	.98	1.14	1.12	1.15	17	3.08			
17-20	1.53	1.43	1.64	1.77	1.75	1.76	1.82	22	2.88			
21-24	1.28	1.17	1.13	1.32	1.42	1.49	1.51	25	3.53			
25-28	1.18	1.17	1.18	1.21	1.32	1.37	1.43	21	3.25			
29-32	1.29	1.20	1.28	1.38	1.57	1.44	1.54	22	3.52			
33-36	1.56	1.47	1.32	1.32	1.65	1.70	1.72	19	3.83			
37-40	1.41	1.26	1.27	1.38	1.52	1.52	1.60	23	4.00			
41-44	1.24	1.23	1.24	1.44	1.51	1.51	1.49	25	2.66			
37-44	1.32	1.12	1.23	1.41	1.52	1.52	1.55	24	3.33			
1-4	3.20	2.48	2.10	.28	.55	2.61	1.99	17	2.05			S^N Intrusion
5-8	2.19	1.89	1.48	.36	.81	2.66	1.73	19	2.67			
9-12	2.54	1.90	1.29	.37	.65	2.08	1.62	25	3.86			
13-16	2.32	2.29	1.69	.30	.46	1.60	1.64	21	4.11			
17-20	2.11	1.92	1.52	.30	.55	1.66	1.59	23	4.08			
21-24	2.11	2.02	1.38	.27	.57	1.76	1.59	27	4.53			
25-28	2.41	1.73	1.18	.32	.77	2.18	1.67	18	4.06			
29-32	2.16	1.56	.95	.36	1.27	2.62	1.79	23	4.14			
25-32	2.29	1.65	1.07	.34	1.02	2.40	1.73	20	4.10			
1-4	2.89	2.27	1.48	.43	1.05	2.97	2.3	12	3.90	10	3.68	p(NCT-cycle)=0.50
5-8	2.70	1.97	1.15	.32	1.01	2.55	1.84	9	3.41	11	3.85	
9-12	3.06	2.16	1.28	.32	1.12	2.76	2.06	11	4.17	10	3.73	
13-16	2.70	1.81	.97	.33	1.35	2.94	2.22	12	3.98	7	3.79	
9-16	2.88	1.99	1.13	.33	1.24	2.85	2.14	12	4.08	8	3.76	

P#36 S^N_4 Schedule: RI

1-4	2.63	1.90	1.07	.41	1.31	2.65	1.90	5	3.94	14	4.10	p(NCT-cycle)=0.75
5-8	2.19	1.33	.84	.39	1.48	2.63	1.75	6	4.91	17	3.86	
9-12	2.39	1.25	.60	.19	.97	2.68	1.58	5	4.04	17	4.38	
13-16	1.95	1.27	.41	.33	.96	2.10	1.38	7	4.49	13	4.55	
9-16	2.17	1.26	.51	.26	.97	2.39	1.48	6	4.27	15	4.47	
1-4	2.19	.98	.47	.15	1.17	2.02	1.40	4	4.95	19	4.49	p(NCT-cycle)=0.90
5-8	2.12	1.19	.40	.14	1.04	2.09	1.37	2	4.18	20	4.16	
9-12	1.37	1.16	.55	.22	.76	1.09	1.05	1	4.52	20	5.47	
13-16	1.18	1.20	.61	.12	.53	1.02	.93	1	4.48	19	4.86	
9-16	1.31	1.17	.57	.18	.68	1.06	1.01	1	4.50	20	5.17	
1-4	1.09	.95	.63	.18	.67	1.01	.93			25	6.00	p(NCT-cycle)=1.00
5-8	.99	.82	.36	.25	1.17	1.02	.95			26	4.47	
9-12	1.24	.54	.48	.21	1.35	1.57	1.02			16	4.41	
13-16	1.05	1.33	.76	.32	.61	.83	.90			17	4.48	
17-20	.78	.44	.30	.08	1.03	1.12	.82			20	7.04	
21-24	.60	.32	.21	.20	.87	.95	.77			24	7.90	
25-28	.54	.32	.22	.16	.40	.67	.62			20	10.60	
21-28	.56	.32	.22	.18	.77	.79	.70			22	9.44	

P#36 S^N_4 Schedule:FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	PS^RPC	$\#NS^R$	PS^RPNC	
1-4	.29	.58	.68	.75	.79	.79	.78	20	5.25			Baseline
5-8	.36	.52	.73	.75	.93	.84	.85	20	5.63			
9-12	.23	.45	.87	1.11	1.35	1.36	1.25	20	8.52			
13-16	.28	.21	.68	1.01	1.27	1.25	1.13	20	9.03			
17-20	.36	.89	1.44	1.90	2.11	2.26	2.02	20	8.02			
21-24	.44	.89	1.69	2.01	2.19	2.22	2.00	20	6.47			
25-28	.36	.73	1.17	1.67	2.04	2.13	1.73	20	6.77			
29-32	.35	.65	1.39	1.83	1.99	2.17	1.89	20	8.20			
33-36	.27	.55	1.03	1.53	1.65	1.76	1.60	20	8.84			
37-40	.22	.33	.75	1.26	1.54	1.69	1.51	20	11.04			
41-44	.24	.83	1.01	1.29	1.40	1.19	1.31	20	7.37			
37-44	.23	.58	.88	1.28	1.47	1.44	1.41	20	9.20			
1-4	.28	1.11	1.50	.08	1.73	1.98	1.43	20	6.62			S^N Intrusion
5-8	.30	1.44	3.07	.19	2.58	3.89	2.53	20	7.38			
9-12	.22	.65	2.16	.19	2.61	3.57	2.34	20	9.87			
13-19	.26	.84	1.76	.16	1.80	2.82	1.81	20	8.84			
17-20	.24	.55	1.33	.09	1.20	2.23	1.48	20	10.83			
21-24	.27	.35	1.03	.08	1.47	2.19	1.44	20	10.95			
25-28	.26	.57	1.66	.14	2.10	1.90	1.98	20	10.81			
29-32	.27	.70	1.88	.14	2.08	2.59	2.19	20	10.43			
25-32	.27	.64	1.77	.14	2.09	2.75	2.09	20	10.62			
1-4	.17	.41	1.19	.14	1.24	1.80	1.23	9	11.14	11	10.13	p(NCT-cycle)=0.50
5-8	.32	.31	1.05	.13	1.08	1.90	1.30	10	11.19	10	11.67	
9-12	.21	.13	.83	.10	.99	1.85	1.23	8	12.84	12	13.58	
13-16	.19	.14	.77	.08	1.25	2.39	1.21	12	13.91	8	12.62	
9-16	.20	.14	.80	.09	1.12	2.12	1.22	15	13.28	10	13.10	

P#36 S_4^N Schedule:FI

1-4	.17	.05	.29	.05	1.23	2.32	1.57	6	18.43	15	16.60	p(NCT-cycle)=0.75
5-8	.12	.22	.82	.11	1.58	2.18	1.62	6	16.33	14	13.42	
9-12	.09	.15	.97	.09	.86	1.64	1.20	5	12.20	15	14.32	
13-16	.09	.35	.73	.07	1.01	2.19	1.42	5	14.01	15	14.59	
9-16	.09	.25	.85	.08	.94	1.92	1.31	5	13.11	15	14.46	
1-4	.17	.40	.49	.33	.65	2.03	1.47	2	11.30	18	14.56	p(NCT-cycle)=o.90
5-8	.12	.14	.20	.03	.38	1.54	1.09	1	10.85	19	19.80	
9-12	.09	.12	.17	.06	.30	1.23	.88	2	24.31	18	15.64	
13-16	.09	.10	.49	.15	.46	1.50	.97	2	12.58	18	15.58	
9-16	.10	.11	.37	.10	.37	1.35	.92	2	19.32	18	15.61	
1-4	.21	.07	.38	.10	.57	1.47	1.09			20	17.37	p(NCT-cycle)=1.00
5-8	.11	.08	.21	.11	.56	1.63	1.03			20	17.08	
9-12	.14	.14	.37	.14	.47	1.48	1.16			20	18.19	
13-16	.08	.06	.12	.09	.23	1.76	1.04			20	18.72	
17-20	.04	.06	.48	.10	.48	1.30	.85			20	18.40	
21-24	.08	.08	.24	.07	.46	1.64	1.09			20	18.36	
25-28	.03	.03	.17	.08	.46	1.47	1.06			20	19.72	
21-28	.06	.06	.21	.08	.46	1.57	1.08			20	19.04	

P#36 S^N_4 Schedule: VD

Days	1	2	3	4	5	6	RR	#CS^R	PS^R PC	#NS^R	PS^R PNC	
1-4	.01	.05	.09	.06	.09	.10	.13	20	6.35			Baseline
5-8	.09	.29	.42	.48	.48	.47	.50	19	13.30			
9-12	.08	.29	.47	.42	.51	.48	.54	19	10.70			
13-16	.07	.33	.53	.57	.62	.59	.61	20	9.51			
17-20	.27	.82	1.01	1.09	1.03	1.10	1.12	20	7.06			
21-14	.17	.59	.68	.70	.63	.61	.73	20	7.74			
25-28	.10	.32	.41	.44	.39	.42	.48	20	8.99			
29-32	.11	.39	.55	.58	.56	.60	.68	20	9.38			
33-36	.07	.57	.80	.58	.61	.56	.74	20	8.56			
37-40	.04	.30	.62	.46	.44	.39	.54	19	10.73			
41-44	.37	.82	.62	.58	.49	.51	.71	20	6.45			
37-44	.21	.56	.62	.52	.46	.45	.62	20	8.59			
1-4	.16	.78	.62	.03	1.02	.61	.68	20	7.30			S^N Intrusion
5-8	.15	.88	1.75	.16	1.72	2.45	1.52	20	6.71			
9-12	.13	.80	1.55	.16	2.23	3.20	1.91	20	8.75			
13-16	.10	.45	1.15	.12	1.55	2.42	1.40	19	10.23			
17-20	.05	.21	.94	.06	1.54	2.47	1.47	19	12.69			
21-24	.03	.11	.47	.06	.95	2.04	1.21	20	15.65			
25-28	.09	.26	.86	.10	1.39	2.12	1.31	20	12.57			
29-32	.09	.37	.76	.14	1.23	1.80	1.15	20	13.88			
25-32	.09	.32	.81	.12	1.31	1.96	1.23	20	13.12			
1-4	.15	.33	.74	.15	.87	1.50	1.01	8	11.34	12	12.45	p(NCT-cycle)=0.50
5-8	.05	.19	.57	.13	1.20	2.00	1.25	9	14.03	11	14.13	
9-12	.04	.27	.60	.11	.98	1.18	.98	11	14.08	8	13.20	
13-16	.05	.12	.54	.09	1.23	1.92	1.17	11	14.64	9	15.61	
9-16	.05	.20	.57	.10	1.11	1.55	1.13	11	14.36	8	14.41	

P#36 S^N_4 Schedule: VD

1-4	.05	.05	.26	03	1.14	1.99	1.48	4	23.63	15	17.84	p(NCT-cycle)=0.75
5-8	.06	.20	.60	.14	1.05	2.20	1.33	5	13.43	15	14.75	
9-12	.05	.33	.70	.12	.99	2.02	1.34	5	12.78	14	15.85	
13-16	.04	.17	.32	.07	.63	1.92	1.14	6	20.93	12	15.58	
9-16	.04	.26	.54	.10	.84	1.97	1.25	5	16.27	12	15.73	
1-4	.03	.46	.54	.08	.64	2.35	1.35	3	13.85	17	15.02	p(NCT-cycle)=0.90
5-8	.03	.18	.49	.10	.52	1.65	.97	1	10.59	18	15.63	
9-12	.16	.35	.42	.09	.28	1.04	1.16	2	16.97	18	17.93	
13-16	.04	.12	.38	.16	.35	1.24	.78	4	12.74	16	16.61	
9-16	.11	.25	.40	.12	.31	1.12	1.00	3	14.85	17	17.36	
1-4	.04	.07	.34	.09	.80	1.30	1.03			20	18.22	p(NCT-cycle)=1.00
5-8	.07	.10	.31	.17	.56	1.50	.97			20	16.91	
9-12	.02	.02	.40	.22	.39	1.48	.86			20	16.18	
13-16	.04	.07	.16	.23	.54	1.45	.80			20	15.10	
17-20	.04	.07	.19	.36	.69	1.53	.87			20	14.12	
21-14	.03	.17	.41	.20	.41	1.37	.82			20	15.23	
25-28	.02	.15	.33	.22	.62	1.68	.92			20	14.74	
21-28	.02	.16	.38	.21	.50	1.50	.86			20	15.02	

P#36 S^N_4 Schedule: RD

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NS^R$	$PS^R NC$	
1-4	.54	.40	.49	.46	.55	.60	.62	17	6.52			Baseline
5-8	.42	.53	.38	.36	.46	.45	.54	14	11.78			
9-12	.21	.25	.20	.21	.20	.21	.28	12	24.58			
13-16	.19	.20	.17	.08	.17	.17	.20	10	27.78			
17-20	.89	.89	.94	.83	.90	1.04	1.16	18	7.38			
21-24	.63	.65	.75	.93	.89	.89	.98	18	6.45			
25-28	.62	.70	.62	.68	.72	.78	.85	16	8.21			
29-32	.64	.81	.77	.59	.75	.78	.85	19	8.06			
33-36	.84	.90	.94	.86	1.11	1.22	1.24	14	8.19			
37-40	.96	.98	.96	1.05	1.19	1.39	1.33	20	6.21			
41-44	1.03	1.23	1.22	1.25	1.41	1.50	1.43	21	4.14			
37-44	.99	1.10	1.09	1.15	1.30	1.44	1.40	20	5.18			
1-4	1.10	1.64	1.82	.40	.34	.94	1.17	17	4.04			S^N Intrusion
5-8	.78	1.15	1.35	.27	.38	.92	.94	19	6.25			
9-12	.93	.93	.87	.14	.33	.97	.81	23	6.50			
13-16	.85	.85	.82	.19	.34	.85	.82	15	6.64			
17-20	.87	.77	.93	.24	.55	1.06	.85	23	5.47			
21-24	.79	.67	.81	.22	.41	1.12	.86	19	6.44			
25-28	.80	.69	.70	.22	.42	.97	.78	21	7.94			
29-32	1.04	1.26	1.01	.17	.61	1.04	1.02	17	5.14			
25-32	.92	.98	.86	.25	.52	1.01	.90	18	6.54			
1-4	.96	1.07	1.19	.41	1.07	1.52	1.21	9	4.01	11	4.42	*p*(NCT-cycle)=0.50
5-8	1.05	1.06	.88	.33	.87	1.11	1.02	7	6.03	9	4.45	
9-12	.94	.88	.81	.31	.80	1.11	.96	8	4.81	11	5.06	
13-16	.68	.54	.62	.19	.72	.97	.73	7	6.63	9	5.48	
9-16	.81	.71	.72	.25	.75	1.04	.85	8	5.72	10	5.27	

P#36 S_4^N Schedule: RD

1-4	.45	.32	.29	.14	.35	.61	.52	3	15.71	15	9.56	p(NCT-cycle)=0.75
5-8	.70	.62	.63	.24	.70	1.03	.76	5	3.92	15	4.82	
9-12	.81	.52	.42	.11	.50	.88	.67	3	9.27	15	5.85	
13-16	.51	.37	.42	.13	.57	.69	.56	3	7.59	14	7.62	
9-16	.66	.45	.42	.12	.54	.79	.62	3	8.43	15	6.75	
1-4	.82	.55	.66	.28	1.05	1.23	.95	1	2.84	22	5.09	p(NCT-cycle)=0.90
5-8	.71	.42	.32	.19	.74	.87	.69	2	5.10	19	6.77	
9-12	.61	.40	.50	.13	.92	.85	.73	2	4.31	21	6.41	
13-16	.83	.52	.42	.17	.84	1.06	.85	2	5.13	20	7.16	
9-16	.70	.45	.46	.15	.88	.94	.78	2	4.25	20	6.73	
1-4	.70	.42	.35	.30	1.03	.99	.77			23	4.51	p(NCT-cycle)=1.00
5-8	.63	.35	.35	.30	.98	.84	.71			21	5.52	
9-12	.66	.34	.20	.09	.82	.75	.60			18	6.70	
13-16	.85	.49	.23	.17	1.47	1.33	1.01			25	6.05	
17-20	.56	.41	.23	.12	.87	.78	.61			15	7.50	
21-24	.52	.22	.18	.15	.96	.88	.68			18	9.15	
25-28	.43	.13	.05	.05	.12	.80	.70			18	10.25	
21-28	.48	.09	.12	.10	.54	.84	.69			18	9.84	

P#29 S^N_6 Schedule: RI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R{}_{PC}$	$\#NCS^R$	$PS^R{}_{NC}$	
1-4	1.17	1.01	.99	1.29	1.20	1.16	1.24	23	3.27			Baseline
5-8	1.25	.97	1.33	1.31	1.41	1.34	1.41	21	2.50			
9-12	1.23	1.02	1.19	1.34	1.23	1.24	1.32	18	2.63			
13-16	1.42	1.29	1.35	1.51	1.49	1.56	1.57	19	2.76			
17-20	1.26	1.07	1.27	1.36	1.31	1.36	1.39	27	2.73			
21-14	1.25	1.11	1.20	1.23	1.27	1.40	1.39	21	2.18			
25-28	1.20	1.06	1.11	1.18	1.28	1.23	1.29	23	3.30			
29-32	1.33	1.26	1.39	1.36	1.47	1.52	1.49	13	2.69			
33-36	1.42	1.30	1.48	1.64	1.56	1.58	1.62	20	2.57			
37-40	1.54	1.39	1.59	1.57	1.75	1.78	1.71	21	2.56			
41-44	1.57	1.40	1.64	1.71	1.76	1.84	1.86	18	2.75			
37-44	1.56	1.39	1.61	1.64	1.76	1.81	1.78	19	2.65			
1-4	1.28	.75	.97	1.06	1.09	.98	1.06	21	4.65			S^N Intrusion
5-8	1.50	1.37	1.60	1.70	1.77	2.03	1.83	24	3.41			
9-12	1.53	1.13	1.44	1.62	1.48	2.00	1.86	10	3.12			
13-16	2.04	1.13	1.61	1.63	1.59	3.00	2.00	18	2.15			
17-20	1.43	.76	1.00	1.07	1.27	2.40	1.45	23	3.86			
21-24	1.79	.70	1.07	1.32	1.44	2.58	1.64	25	2.52			
25-28	1.71	.50	.81	1.14	1.26	2.22	1.40	17	2.71			
29-32	1.43	.29	.68	.93	1.12	2.21	1.25	24	3.34			
25-32	1.57	.40	.75	1.04	1.19	2.22	1.33	20	3.03			
1-4	1.11	.07	.27	.47	.71	2.26	.94	7	4.07	12	4.27	$\underline{p}$(NCT-cycle)=0.50
5-8	1.17	.03	.19	.48	.62	2.37	.94	10	3.96	10	4.61	
9-12	1.02	.07	.28	.47	.64	2.50	.93	7	3.67	10	4.13	
13-16	.98	.07	.18	.52	.78	2.69	1.06	11	3.75	9	4.44	
9-16	1.00	.07	.23	.50	.71	2.60	1.00	9	3.71	9	4.29	

P#29 S^N_6 Schedule: RI

1-4	1.20	.12	.30	.86	1.36	2.71	1.25	7	3.39	14	3.95	p(NCT-cycle)=0.75
5-8	.91	.19	.41	.96	1.33	3.09	1.34	7	3.88	16	3.94	
9-12	.63	.21	.46	.91	1.00	2.82	1.17	6	3.49	15	4.31	
13-16	.56	.28	.52	.75	.92	3.09	1.19	5	3.65	15	4.54	
9-16	.60	.25	.49	.83	.96	2.96	1.18	6	3.57	15	4.43	
1-4	.57	.12	.33	.51	.80	3.03	1.04	2	4.04	18	4.63	p(NCT-cycle)=0.90
5-8	.60	.11	.30	.71	.76	3.00	1.05	1	4.00	17	4.16	
9-12	.53	.19	.47	.92	.72	3.15	1.14	2	5.09	17	3.91	
13-16	.58	.18	.52	.86	.84	3.11	1.16	2	3.47	16	4.23	
9-16	.55	.18	.49	.89	.77	3.13	1.15	2	4.28	16	4.05	
1-4	.53	.09	.38	.89	.48	2.86	1.01			22	3.91	p(NCT-cycle)=1.00
5-8	.55	.02	.16	.72	.54	3.10	.98			18	4.72	
9-12	.52	.04	.22	.84	.86	2.87	1.05			18	5.00	
13-16	.46	.04	.10	.13	.35	2.80	.86			26	5.32	
17-20	.46	.02	.24	.42	.25	2.49	.72			16	4.85	
21-24	.38	.08	.20	.27	.40	2.71	.78			21	4.11	
25-28	.39	.08	.19	.30	.39	2.66	.77			20	4.15	
21.28	.38	.08	.19	.28	.39	2.69	.77			20	4.13	

P#29 S^N_6 schedule: FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4	.32	.64	1.02	1.30	1.47	1.60	1.28	20	6.43			Baseline
5-8	.45	81	1.05	1.38	1.48	1.49	1.31	20	4.67			
9-12	.45	.59	1.03	1.24	1.34	1.50	1.26	20	6.24			
13-16	.33	.44	.71	.85	1.06	1.07	1.00	20	9.92			
17-20	.35	.54	.92	1.06	1.24	1.36	1.19	20	7.28			
21-24	.31	.45	.78	1.21	1.42	1.47	1.33	20	8.89			
25-28	.28	.33	.69	1.09	1.33	1.41	1.25	20	9.99			
29-32	.33	.53	1.07	1.54	1.61	1.70	1.61	20	9.18			
33-36	.24	.23	.61	1.04	1.32	1.51	1.48	20	13.42			
37-40	.32	.44	.93	1.41	1.66	1.80	1.61	20	9.81			
41-44	.32	.49	1.20	1.59	1.83	2.05	1.78	20	9.03			
37-44	.32	.46	1.06	1.50	1.75	1.72	1.69	20	9.40			
1-4	.42	.58	.99	1.32	1.50	1.34	1.38	20	7.50			S^N Intrusion
5-8	.22	.05	.43	.90	1.25	2.07	1.59	20	14.54			
9-12	.23	.09	.56	1.15	1.50	2.47	1.81	20	13.33			
13-16	.17	.10	.27	.61	.82	1.93	1.30	20	15.85			
17-20	.23	.04	.12	.54	.98	2.21	1.85	20	18.88			
21-24	.23	.04	.18	.52	1.29	2.06	1.91	20	19.00			
25-28	.21	.03	.13	.54	1.25	2.07	1.93	20	19.05			
29-32	.22	.03	.18	.75	1.25	2.12	1.72	20	16.66			
25-32	.22	.03	.16	.65	1.25	2.10	1.83	20	17.86			
1-4	.14	0	.06	.33	.75	1.86	1.58	9	20.23	11	20.01	p(NCT-cycle)=0.50
5-8	.23	.03	.07	.25	.80	2.26	1.67	10	18.97	10	19.63	
9-12	.14	.03	.07	.25	.71	2.39	1.75	11	19.37	10	19.17	
13-16	.13	.01	.11	.30	.43	2.49	2.00	10	19.94	10	21.74	
9-16	.13	.02	.09	.27	.57	2.44	1.88	10	19.66	10	20.45	

P#29 S^N_6 Schedule: FI

1-4	.16	.12	.31	.65	1.28	2.50	1.82	6	15.72	14	16.51	p(NCT-cycle)=0.75
5-8	.10	.02	.05	.11	.29	2.00	1.45	5	20.11	15	21.42	
9-12	.14	.03	.15	.44	.84	2.26	1.49	4	17.78	16	16.99	
13-16	.07	.01	.11	.33	.67	2.10	1.48	5	16.92	15	19.20	
9-16	.11	.02	.13	.39	.76	2.18	1.49	5	17.35	16	18.10	
1-4	.05	.01	.03	.20	.45	1.98	1.59	2	13.07	18	21.33	p(NCT-cycle)=0.90
5-8	.10	.05	.13	.29	.69	2.07	1.54	3	16.42	17	19.46	
9-12	.05	.10	.33	.75	.93	2.10	1.31	1	9.70	19	13.96	
13-16	.06	.07	.38	.69	1.02	1.93	1.45	4	16.89	16	15.51	
9-16	.05	.08	.35	.72	.97	2.02	1.37	2	12.78	18	14.62	
1-4	.06	.02	.18	.52	.82	1.52	1.17			20	16.54	p(NCT-cycle)=1.00
5-8	.04	.01	.13	.35	.59	1.26	1.03			20	18.63	
9-12	.01	.08	.24	.33	.40	.43	.48			20	14.43	
13-16	.01	.03	.05	.21	.35	1.94	1.07			20	17.44	
17-20	.02	0	.02	.12	.10	.83	.61			20	21.05	
21-24	.03	.04	.08	.13	.18	.80	.66			20	19.53	
25-28	.03	.03	.08	.21	.24	.92	.68			20	19.97	
21-28	.03	.03	.08	.17	.22	.86	.67			20	19.75	

P#29 S^N_6 Schedule: VD

Days	1	2	3	4	5	6	RR	#CS^R	$PS^R PC$	#NCS^R	$PS^R NC$	
1-4	.20	.49	.90	1.09	1.20	1.26	1.13	20	8.01			Baseline
5-8	.18	.60	.67	.78	1.05	1.11	1.04	20	18.24			
9-12	.14	.36	.58	.85	.95	1.07	.93	20	9.14			
13-16	.15	.41	.61	.75	.97	.98	.84	20	8.88			
17-20	.11	.27	.42	.57	.64	.78	.79	20	16.75			
21-14	.13	.20	.39	.62	.72	.64	.78	20	14.50			
25-28	.07	.18	.27	.54	.65	.75	.84	20	16.41			
29-32	.03	.28	.74	1.04	1.23	1.25	1.30	20	12.57			
33-36	.04	.24	.48	.72	.88	1.03	.96	20	13.10			
37-40	.04	.27	.52	.76	1.07	1.18	1.00	20	11.56			
41-44	.05	.20	.53	.87	1.15	1.33	1.15	20	12.84			
37-44	.04	.24	.52	.81	1.11	1.25	1.07	20	12.20			
1-4	.04	.04	.24	.40	.64	1.31	.96	20	18.58			S^N Intrusion
5-8	.02	.03	.12	.34	.51	1.99	1.33	20	19.98			
9-12	.01	.11	.12	.33	.49	2.24	1.22	20	16.35			
13-16	.02	.07	.28	.47	.85	1.99	1.22	20	17.49			
17-20	.01	.06	.14	.42	.69	2.08	1.58	20	20.57			
21-24	.01	.01	.05	.18	.39	1.84	1.43	20	23.11			
25-28	.02	.05	.14	.27	.70	2.10	1.58	20	20.52			
29-32	0	.06	.17	.40	.64	1.91	1.27	20	18.45			
25-32	.01	.05	.14	.31	.62	2.02	1.46	20	20.32			
1-4	.01	0	.09	.22	.32	1.83	1.25	9	20.61	10	21.60	p(NCT-cycle)=0.50
5-8	.01	.01	.04	.06	.13	2.13	1.37	9	22.68	11	21.28	
9-12	0	.01	.04	.17	.17	2.20	1.37	12	21.68	7	21.70	
13-16	.01	0	.03	.15	.19	2.44	1.36	9	21.08	11	20.18	
9-16	0	0	.04	.16	.18	2.32	1.37	10	21.38	10	20.94	

P#29 S^{N}_{6} Schedule: VD

1-4	0	.01	.08	.18	.18	2.60	1.44	6	18.01	13	20.69	p(NCT-cycle)=0.75
5-8	.01	.01	.06	.14	.22	2.19	1.27	6	21.60	14	20.27	
9-12	.03	.06	.18	.25	.43	1.71	1.35	5	20.90	14	18.70	
13-16	.01	.01	.09	.40	.66	2.24	1.47	4	20.44	15	19.11	
9-16	.02	.04	.14	.33	.55	1.98	1.41	5	20.67	15	18.91	
1-4	0	.02	.08	.25	.53	2.24	1.54	3	15.38	16	20.87	p(NCT-cycle)=0.90
5-8	.01	0	0	.07	.30	2.01	1.61	2	21.27	18	23.66	
9-12	0	.08	.24	.57	.65	2.13	1.25	3	17.61	17	16.16	
13-16	0	.04	.16	.29	.66	1.79	1.09	3	21.69	17	17.20	
9-13	0	.07	.21	.45	.65	1.98	1.18	2	18.99	18	16.60	
1-4	.01	.03	.19	.38	.63	1.84	1.08			20	16.76	p(NCT-cycle)=1.00
5-8	0	.07	.16	.31	.45	1.31	.91			20	17.74	
9-12	.01	.01	.12	.44	.35	.75	.56			20	15.81	
13-16	.01	.09	.23	.25	.35	.59	.49			20	14.20	
17-20	.01	.07	.07	.13	.17	1.34	.90			20	21.33	
21-24	.03	.03	.07	.11	.19	.89	.55			20	20.80	
25-28	.01	.03	.07	.17	.27	1.21	.81			20	20.36	
21-28	.02	.03	.07	.14	.23	1.02	.68			20	50.58	

P#29 S^N_6 Schedule: RD

Days	1	2	3	4	5	6	RR	#CS^R	$PS^R PC$	#NCS^R	$PS^R NC$	
1-4	.73	.68	.87	.80	.78	.76	.89	21	4.99			Baseline
5-8	.47	.56	.53	.75	.69	.69	.90	17	8.15			
9-12	.46	.38	.46	.47	.50	.50	.53	18	5.93			
13-16	.68	.77	.78	.87	.87	.92	1.00	14	6.38			
17-20	.75	.79	.88	1.04	.99	.95	1.03	23	3.98			
21-24	.87	.94	.90	1.05	1.14	1.17	1.17	21	4.32			
25-28	.75	.72	.76	.82	.83	.86	.94	20	6.74			
29-32	.99	.97	1.00	1.11	1.17	1.17	1.27	19	6.64			
33-36	.78	.81	.88	1.01	1.01	1.10	1.11	23	4.28			
37-40	1.10	1.11	1.11	1.30	1.32	1.35	1.34	21	3.41			
41-44	.96	.81	1.03	1.27	1.16	1.12	1.20	23	4.28			
37-44	1.03	.96	1.07	1.28	1.24	1.24	1.27	22	3.84			
1-4	.40	.36	.35	.45	.48	.61	.49	25	3.38			S^N Intrusion
5-8	.50	.49	.76	.93	1.22	1.60	1.05	23	3.81			
9-12	.62	.44	1.00	1.17	1.25	2.46	1.26	18	3.19			
13-16	.59	.50	1.08	1.03	1.11	2.31	1.23	16	2.78			
17-20	.45	.36	.66	.92	1.19	2.37	1.15	23	3.46			
21-24	.43	.31	.66	.96	1.36	1.76	1.03	27	3.90			
25-28	.39	.09	.32	.70	.88	2.17	.85	25	3.49			
29-32	.21	.09	.44	.84	1.14	2.37	.96	23	3.46			
25-32	.34	.09	.39	.78	1.03	2.28	.91	24	3.33			
1-4	.36	.07	.29	.68	.96	2.52	.91	11	3.61	9	3.72	p(NCT-cycle)=0.50
5-8	.65	.04	.25	.47	.78	2.80	.86	11	3.37	9	3.39	
9-12	.31	.04	.20	.41	.68	2.84	.84	9	3.66	10	3.48	
13-16	.40	.04	.14	.48	.63	3.12	.94	9	4.42	10	4.27	
9-16	.36	.04	.17	.45	.65	2.98	.89	9	4.04	10	3.88	

P#29 S^{N}_{6} Schedule: RD

1-4	.36	.07	.25	.74	.93	3.49	1.12	4	4.04	16	3.93	p(NCT-cycle)=0.75
5-8	.34	.05	.20	.55	.81	3.58	1.11	7	4.46	17	4.15	
9-12	.50	.12	.20	.59	.75	3.30	1.06	3	4.53	17	4.39	
13-16	.37	.07	.28	.49	.61	3.07	.98	6	4.39	16	4.53	
9-16	.44	.10	.24	.55	.68	3.19	1.02	5	4.46	17	4.46	
1-4	.37	.02	.16	.42	.59	3.00	.90	2	4.06	16	5.36	p(NCT-cycle)=0.90
5-8	.44	.01	.12	.32	.39	2.90	.81	1	5.68	18	4.68	
9-12	.38	.01	.16	.30	.31	2.91	.80	3	3.87	19	4.56	
13-16	.40	.02	.16	.28	.53	3.17	.86	2	3.57	14	4.41	
9-16	.39	.02	.16	.29	.38	2.99	.82	3	3.77	17	4.51	
1-4	.34	.01	.08	.21	.15	2.87	.73			19	4.89	p(NCT-cycle)=1.00
5-6	.21	.02	.10	.22	.38	2.65	.74			22	5.13	
7-8	.21	0	.08	.23	.29	2.96	.80			25	5.09	
9-12	.36	.12	.14	.24	.35	3.02	.82			16	5.06	
13-16	.22	.01	.08	.19	.23	3.32	.80			20	4.77	
17-20	.37	.01	.10	.17	.12	2.98	.73			16	5.50	
21-24	.32	.02	.08	.12	.10	2.82	.71			21	5.28	
25-28	.26	.02	.08	.11	.20	2.90	.70			20	4.60	
21-28	.29	.02	.08	.11	.15	2.86	.70			20	4.94	

P#33 S^N_6 Schedule: RI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4	.67	.65	.62	.68	.66	.65	.74	17	3.96			Baseline
5-8	.72	.72	.77	.74	.74	.81	.82	23	3.09			
9-12	.80	.71	.83	.79	.88	.81	.88	21	2.49			
13-16	.94	.83	.86	.93	1.01	1.05	1.01	18	2.54			
17-20	1.07	.82	.91	.91	1.08	1.04	1.06	24	2.92			
21-24	.96	.84	.88	.98	1.04	1.03	1.07	19	3.18			
25-28	1.00	.86	.88	1.02	1.01	1.14	1.10	24	3.18			
29-32	.94	.84	.88	.99	1.03	1.04	1.11	23	3.60			
33-36	.77	.88	.75	.78	.90	.87	.89	21	6.35			
37-40	.76	.73	.69	.74	.82	.89	.91	19	4.41			
41-44	.98	.84	1.00	1.05	1.16	1.06	1.13	25	2.77			
37-44	.86	.79	.85	.89	.99	.97	1.02	22	3.59			
1-4	1.20	.70	1.02	1.07	1.09	1.41	1.17	18	2.59			S^N Intrusion
5-8	1.27	.38	.61	.76	.77	1.93	1.09	21	3.63			
9-12	.88	.37	.53	.87	.90	2.08	1.07	23	3.41			
13-17	.93	.30	.49	.94	.97	2.32	1.14	24	3.33			
17-20	.98	.19	.50	1.00	.90	2.45	1.11	21	3.32			
21-24	.85	.33	.57	.75	.76	2.23	1.04	19	3.46			
25-28	1.09	.42	.60	.84	.84	2.06	1.11	18	3.44			
29-32	1.20	.23	.21	.61	.63	1.91	.96	24	4.00			
25-32	1.15	.33	.46	.73	.74	1.99	1.04	22	3.72			
1-4	.99	.10	.33	.75	.61	1.99	.91	10	3.47	10	3.95	p(NCT-cycle)=0.50
5-8	1.04	.14	.17	.57	.53	1.91	.85	12	3.62	11	4.01	
9-12	.84	.04	.15	.42	.35	1.87	.73	11	4.27	11	4.38	
13-16	1.03	.03	.17	.49	.49	2.26	.86	11	3.92	9	4.47	
9-16	.94	.04	.16	.46	.42	2.07	.80	11	4.10	10	4.43	

P#33 S^N_6 Schedule: RI

1-4	.61	.01	.19	.48	.58	2.31	.83	4	3.83	16	3.99	p(NCT-cycle)=0.75
5-8	.55	.02	.29	.55	.54	2.18	.77	5	3.61	14	3.88	
9-12	.74	.06	.18	.50	.50	2.27	.81	7	3.53	12	4.11	
13-16	.74	.11	.39	.61	.56	2.09	.89	7	4.11	15	4.85	
9-16	.74	.08	.29	.56	.53	2.18	.85	7	3.82	14	4.48	
1-4	.40	.05	.14	.42	.43	1.70	.65	2	2.84	22	5.05	p(NCT-cycle)=0.90
5-8	.66	.06	.17	.35	.42	1.63	.64	1	2.12	18	4.74	
9-12	.39	.07	.14	.34	.46	1.04	.73	1	3.61	21	5.40	
13-16	.40	.05	.21	.54	.39	1.64	.61	3	4.64	13	5.08	
9-16	.39	.06	.17	.42	.43	1.28	.67	2	4.05	17	5.36	
1-4	.18	.02	.10	.38	.36	1.11	.44			20	5.40	p(NCT-cycle)=1.00
5-8	.06	0	.04	.19	.20	.78	.34			19	6.78	
9-12	.03	0	.03	.23	.18	.99	.29			17	6.15	
13-16	.06	0	.10	.20	.26	1.32	.40			17	6.49	
17-20	.04	0	.03	.16	.19	1.18	.33			18	6.19	
21-24	.03	.01	.02	.15	.17	1.18	.33			21	6.09	
25-28	.03	.00	.02	.19	.11	1.20	.31			21	6.29	
21-28	.03	0	.02	.17	.14	1.19	.32			21	6.19	

P#33 S^N_6 Schedule: FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	PS^RPC	$\#NCS^R$	PS^RNC	
1-4	.23	.39	.58	.71	.73	.73	.71	20	6.20			Baseline
5-8	.27	.50	.77	.93	1.00	.93	.92	20	6.29			
9-12	.24	.43	.71	.94	1.08	1.06	.99	20	7.48			
13-16	.25	.40	.70	.89	1.03	1.08	.98	20	7.77			
17-20	.21	.30	.69	1.14	1.32	1.34	1.19	20	9.47			
21-24	.23	.25	.69	1.09	1.48	1.51	1.35	20	10.58			
25-28	.21	.14	.53	.99	1.39	1.47	1.17	20	10.17			
29-32	.29	.30	.68	1.10	1.45	1.56	1.48	20	12.33			
33-36	.21	.11	.44	.89	1.25	1.40	1.28	20	13.53			
37-40	.24	.18	.45	.83	1.30	1.47	1.16	10	10.99			
41-44	.22	.17	.47	.98	1.35	1.47	1.20	20	10.59			
37-44	.23	.18	.46	.90	1.32	1.47	1.18	10	10.79			
1-4	.25	.14	.39	.72	.99	1.22	1.00	20	11.31			S^N Intrusion
5-8	.22	.03	.08	.25	.41	1.34	.83	20	15.91			
9-12	.20	.01	.03	.09	.15	.86	.72	20	21.10			
13-16	.21	.02	.03	.08	.21	.68	.74	20	20.76			
17-20	.21	.02	.06	.21	.48	.88	.80	20	18.52			
21-24	.20	.02	.07	.15	.30	.77	.67	20	18.75			
25-28	.20	.02	.07	.20	.39	.68	.69	20	19.02			
29-32	.20	0	.04	.17	.31	.84	.74	20	19.14			
25-32	.20	.01	.06	.19	.35	.76	.72	20	19.08			
1-4	.13	0	.03	.13	.32	.66	.73	10	19.55	10	20.64	*p*(NCT-cycle)=0.50
5-8	.15	.02	.08	.10	.20	.70	.65	8	21.27	12	19.96	
9-12	.15	.02	.05	.11	.22	.67	.65	12	21.07	8	20.59	
13-16	.11	.01	.02	.17	.35	.74	.67	10	19.66	10	19.62	
9-16	.13	.02	.03	.14	.29	.71	.66	11	20.37	9	20.11	

P#33 S^{N}_{6} Schedule: FI

1-4	.07	.02	.08	.26	.40	.93	.68	5	15.09	15	18.24	p(NCT-cycle)=0.75
5-8	.08	.01	.06	.22	.40	.81	.62	7	17.32	13	17.47	
9-12	.06	0	.06	.29	.57	.73	.69	4	18.07	16	17.55	
13-16	.04	.02	.05	.31	.46	.69	.77	3	19.30	17	17.63	
9-16	.05	.01	.06	.30	.52	.71	.73	4	18.69	17	17.59	
1-4	.06	0	.03	.19	.46	.57	.63	2	23.78	18	19.45	p(NCT-cycle)=0.90
5-8	.06	.01	.04	.17	.40	.47	.51	2	19.46	18	18.93	
9-12	.07	0	.04	.25	.42	.51	.54	5	14.95	15	18.53	
13-16	.05	0	0	.15	.38	.44	.55	3	19.78	17	20.88	
9-16	.06	0	.03	.21	.40	.48	.54	4	17.02	16	19.53	
1-4	.05	0	.02	.12	.53	.47	.57			20	19.65	p(NCT-cycle)=1.00
5-8	.01	0	.04	.16	.32	.28	.40			20	19.64	
9-12	0	.01	.02	.17	.51	.09	.39			20	19.78	
13-16	.01	.04	.05	.29	.59	.26	.49			20	17.26	
17-20	.01	0	.01	.08	.23	.21	.29			20	20.79	
21-24	.01	0	0	.07	.20	.19	.34			20	23.48	
25-28	0	0	0	.03	.12	.27	.34			20	23.64	
21-28	0	0	0	.05	.16	.23	.34			20	23.56	

P#33 S^N_6 Schedule: VD

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4	.06	.29	.38	.38	.41	.42	.47	20	10.69			Baseline
5-8	.06	.29	.37	.47	.42	.43	.50	20	12.27			
9-12	.11	.41	.53	.63	.69	.61	.66	20	8.64			
13-16	.14	.40	.54	.69	.67	.69	.90	20	8.37			
17-20	.13	.38	.65	.85	.93	.97	.98	20	12.11			
21-24	.12	.38	.66	.77	.86	.97	.90	20	10.35			
25-28	.04	.24	.37	.56	.60	.64	.66	20	15.37			
29-32	.04	.27	.56	.83	.91	.97	.95	20	12.13			
33-36	.04	.29	.46	.79	.92	1.10	.96	20	13.10			
37-40	.08	.29	.46	.58	.70	.69	.69	20	12.11			
41-44	.05	.28	.53	.76	.72	.96	.89	20	11.18			
37-44	.04	.29	.49	.68	.81	.82	.79	20	11.65			
1-4	.05	.15	.32	.46	.66	1.16	.79	20	13.07			S^N Intrusion
5-8	.01	.04	.05	.13	.20	1.43	.74	20	18.16			
9-12	.02	.02	.05	.07	.10	.79	.54	20	21.73			
13-16	.01	.01	.03	.11	.20	.78	.58	20	21.32			
17-20	.01	0	.02	.09	.15	1.04	.70	20	22.58			
21-24	0	0	.06	.08	.14	.70	.48	20	20.56			
25-28	0	0	.04	.13	.16	.76	.51	20	20.30			
29-32	0	.01	.07	.15	.18	.91	.53	20	18.90			
25-32	0	0	.06	.14	.17	.84	.52	20	19.60			
1-4	0	.01	.05	.15	.18	.96	.58	11	18.51	9	20.30	p(NCT-cycle)=0.50
5-8	.01	0	.01	.08	.15	.76	.59	12	22.77	8	22.17	
9-12	0	0	.02	.11	.13	.65	.46	10	21.74	10	21.67	
13-16	.01	0	.04	.13	.24	.81	.52	9	19.34	11	20.04	
9-16	.01	0	.03	.12	.19	.73	.49	10	20.54	10	20.86	

P#33 S^N_6 Schedule: VD

1-4	0	0	.05	.24	.34	.94	.60	4	19.74	16	15.91	p(NCT-cycle)=0.75
5-8	0	0	.01	.10	.20	.77	.55	5	21.36	15	20.94	
9-12	0	0	.03	.16	.32	.88	.60	3	13.90	17	19.60	
13-16	0	0	.02	.17	.33	.74	.57	4	20.01	16	20.11	
9-16	0	0	.03	.17	.33	.81	.59	3	16.96	17	19.86	
1-4	0	0	0	.08	.18	.78	.67	2	18.68	18	23.35	p(NCT-cycle)=0.90
5-8	0	0	.01	.08	.19	.55	.46	3	24.30	17	22.20	
9-12	0	0	.02	.08	.22	.55	.47	2	22.83	18	22.83	
13-16	0	0	.02	.10	.16	.57	.47	4	24.52	16	21.87	
9-16	0	0	.02	.09	.19	.56	.47	3	23.55	17	21.76	
1-4	0	0	.02	.12	.25	.38	.42			20	21.71	p(NCT-cycle)=1.00
5-8	0	0	.03	.09	.18	.28	.32			20	22.18	
9-12	0	.01	.01	.09	.24	.23	.21			20	20.57	
13-16	0	.01	.01	.06	.27	.12	.27			20	22.27	
17-20	0	0	.02	.08	.21	.47	.52			20	23.66	
21-24	0	0	.02	.04	.15	.23	.28			20	24.02	
25-28	0	0	0	.03	.13	.23	.27			20	21.14	
21-28	0	0	.01	.03	.14	.23	.27			20	27.58	

P#33 S^N_6 Schedule: RD

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NCS^R$	$PS^R NC$	
1-4								no responding				Baseline
5-8								no responding				
9-12								no responding				
13-16	.10	.13	.12	.12	.10	.12	.15	10	14.96			
17-20	.25	.31	.31	.29	.32	.35	.39	12	8.47			
21-24	.31	.30	.34	.39	.35	.40	.43	15	6.10			
25-28	.29	.36	.35	.34	.40	.42	.44	14	18.23			
29-32	.40	.58	.58	.61	.59	.69	.74	15	5.84			
33-36	.43	.48	.57	.65	.72	.69	.73	18	4.95			
37-40	.40	.39	.51	.60	.65	.61	.62	21	4.27			
41-44	.51	.51	.67	.66	.66	.61	.68	21	3.07			
37-44	.45	.45	.59	.63	.66	.61	.65	21	3.67			
1-4	.44	.20	.45	.54	.49	1.03	.60	21	3.43			S^N Intrusion
5-8	.36	.18	.43	.79	.61	1.90	.81	23	3.27			
9-12	.30	.07	.30	.61	.62	2.14	.76	24	3.49			
13-16	.28	.08	.30	.70	.74	2.36	.84	19	3.44			
17-20	.31	.06	.25	.74	.86	2.23	.87	17	4.13			
21-24	.25	.05	.27	.66	.81	1.89	.75	21	3.64			
25-28	.20	.07	.22	.67	.51	1.75	.65	24	3.80			
29-32	.12	.04	.28	.58	.46	1.39	.57	22	3.95			
25-32	.16	.06	.15	.63	.49	1.57	.61	23	3.88			
1-4	.05	.05	.26	.68	.68	1.25	.58	10	5.60	12	4.01	p(NCT-cycle)=0.50
5-8	.06	.02	.14	.56	.76	1.01	.49	10	4.75	9	4.33	
9-12	.04	.03	.11	.48	.65	.93	.43	9	4.60	8	4.41	
13-16	.04	.01	.10	.61	.88	1.14	.54	10	4.51	10	4.45	
9-16	.04	.02	.11	.55	.77	1.04	.49	10	4.56	9	4.43	

P#33 S^N_6 Schedule: RD

1-4	.03	.01	.14	.66	.87	.93	.51	6	4.04	13	3.93	p(NCT-cycle)=0.75
5-8	.01	.03	.18	.58	.60	.67	.42	7	4.77	15	4.79	
9-12	.17	.07	.21	.53	.49	1.04	.49	4	4.17	16	4.33	
13-16	.06	.04	.20	.42	.41	.76	.39	4	6.52	16	5.73	
9-16	.12	.06	.21	.48	.45	.92	.44	4	5.35	16	5.03	
1-4	.03	.03	.14	.35	.33	.67	.34	3	5.68	19	6.24	p(NCT-cycle)=0.90
5-8	.02	.01	.13	.36	.50	.56	.32	1	8.13	17	5.41	
9-12	.04	.01	.10	.34	.32	.58	.29	2	7.39	15	7.16	
13-16	.03	.01	.12	.31	.28	.57	.33	2	5.38	15	11.80	
9-16	.03	.01	.11	.33	.30	.58	.30	2	6.53	15	9.15	
1-4	.04	.03	.13	.36	.27	.64	.29			16	6.60	p(NCT-cycle)=1.00
5-8	.02	0	.09	.24	.16	.52	.23			22	7.10	
9-12	.01	.04	.08	.26	.15	.49	.27			23	9.32	
13-16	0	.01	.12	.39	.14	.50	.29			20	9.85	
17-20	.02	0	.01	.19	.21	.68	.25			16	9.40	
21-24	.01	0	.04	.15	.17	.88	.27			21	6.84	
25-28	.01	0	.04	.15	.17	1.04	.31			23	6.96	
21-28	.01	0	.04	.15	.17	.96	.29			22	6.90	

P#28 S^N_6 Schedule: RI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NS^R$	$PS^R NC$	
1-4	.83	.72	.80	.82	.85	.84	.88	22	2.64			Baseline
5-8	.82	.67	.85	.78	.88	.82	.88	22	2.50			
9-12	1.00	.95	.97	1.09	1.05	1.09	1.10	19	2.46			
13-16	.99	.97	1.06	1.14	1.08	1.10	1.13	20	2.01			
17-20	1.22	1.22	1.39	1.47	1.39	1.41	1.45	25	2.13			
21-24	1.27	1.24	1.43	1.43	1.52	1.47	1.48	19	1.94			
25-28	1.37	1.19	1.40	1.46	1.48	1.52	1.52	23	2.15			
29-32	.98	.94	.86	.99	1.08	1.09	1.12	21	3.43			
33-36	1.26	1.19	1.21	1.45	1.45	1.43	1.49	24	2.90			
37-40	1.08	.90	1.04	1.17	1.18	1.23	1.26	23	3.19			
41-44	1.18	1.07	1.07	1.18	1.21	1.27	1.31	21	3.22			
37-44	1.13	.98	1.05	1.17	1.19	1.25	1.28	22	3.20			
1-4	1.37	.94	1.11	1.18	1.37	.88	1.27	18	3.04			S^N Intrusion
5-8	1.96	.69	1.21	1.41	1.44	1.48	1.51	24	2.92			
9-12	2.00	1.10	1.59	1.72	1.81	1.89	1.83	25	2.48			
13-16	1.89	.97	1.25	1.52	1.42	1.81	1.64	17	2.85			
17-20	1.76	.58	.98	1.08	1.24	2.07	1.49	20	3.33			
21-24	1.80	.49	.72	1.00	1.02	2.28	1.37	21	3.39			
25-28	1.60	.59	.73	1.17	1.09	2.42	1.39	24	3.68			
29-32	1.54	.57	.55	.54	1.33	2.38	1.40	22	3.56			
25-32	1.58	.57	.67	1.12	1.17	2.40	1.39	12	3.64			
1-4	1.48	.49	.66	1.11	1.21	2.32	1.42	13	3.79	10	3.85	p(NCT-cycle)=0.50
5-8	1.42	.24	.38	.62	.89	2.35	1.15	9	3.99	11	4.11	
9-12	1.50	.15	.19	.47	.77	2.36	1.06	11	4.41	7	5.36	
13-16	1.51	.07	.06	.18	.41	2.38	.96	12	4.73	13	4.57	
9-16	1.51	.11	.13	.33	.59	2.37	1.01	12	4.57	10	4.97	

P#28 SN_6 Schedule: RI

1-4	1.30	.07	.08	.29	.48	2.33	.90	5	4.22	15	4.92	p(NCT-cycle)=0.75
5-8	.80	.05	.14	.37	.58	2.37	.86	4	4.18	17	4.84	
9-12	.52	.04	.15	.47	.53	2.31	.82	7	5.14	17	4.68	
13-16	.78	.07	.12	.32	.58	2.28	.79	6	4.54	10	4.72	
9-16	.69	.06	.13	.37	.56	2.29	.80	6	4.74	12	4.71	
1-4	.52	.03	.03	.12	.18	2.15	.63	2	5.04	18	5.00	p(NCT-cycle)=p.90
5-8	.75	.02	.03	.09	.20	2.29	.67	3	4.95	16	5.06	
9-12	.56	.03	.02	.08	.19	2.29	.63	2	5.52	18	4.89	
13-16	.33	0	.02	.10	.31	2.31	.64	2	4.63	22	5.12	
9-16	.46	.02	.02	.09	.24	2.30	.63	2	5.14	19	4.99	
1-4	.39	.01	.02	.05	.15	2.05	.54			18	5.93	p(NCT-cycle)=1.00
5-8	.46	0	.02	.08	.15	2.39	.64			21	5.05	
9-12	.49	0	.01	.03	.11	2.29	.57			17	4.98	
13-16	.43	.03	.03	.11	.34	2.45	.66			18	4.95	
17-20	.32	0	0	.06	.17	2.16	.56			22	5.24	
21-24	.26	0	.01	.03	.07	1.98	.49			24	5.30	

P#28 S^N_6 Schedule: FI

Days	1	2	3	4	5	6	RR	$\#CS^R$	$PS^R PC$	$\#NS^R$	$PS^R NC$	
1-4	.36	.48	.61	.76	.74	.81	.77	20	5.71			Baseline
5-8	.31	.39	.52	.78	.73	.99	.84	20	6.75			
9-12	.31	.35	.53	.74	.86	.96	.83	20	7.60			
13-16	.38	.45	.58	.62	.74	.90	.74	20	5.08			
17-20	.24	.23	.32	.41	.48	.53	.54	20	9.82			
21-24	.29	.31	.40	.60	.78	.84	.73	20	8.06			
25-28	.37	.41	.63	.87	.98	1.07	.93	20	6.71			
29-32	.25	.14	.40	.70	.77	.87	.80	20	10.58			
33-36	.25	.16	.32	.60	.82	.79	.77	20	10.89			
37-40	.12	.14	.26	.45	.63	.74	.67	20	11.82			
41-44	.22	.17	.30	.48	.63	.77	.68	20	10.90			
37-44	.23	.15	.28	.47	.63	.75	.67	20	11.36			
1-4	.27	.13	.27	.35	.60	.20	.51	20	12.50			S^N Intrusion
5-8	.24	.07	.11	.16	.32	.25	.36	20	14.44			
9-12	.34	.26	.25	.35	.55	.20	.65	20	15.38			
13-16	.30	.15	.20	.28	.48	.33	.59	20	15.61			
17-20	.26	.04	.08	.14	.25	.58	.56	20	17.71			
21-24	.24	.04	.03	.06	.03	.49	.61	20	22.46			
25-28	.24	.02	.05	.05	.09	.75	.53	20	18.49			
29-32	.20	.08	.10	.09	.21	.78	.73	20	19.41			
25-32	.22	.04	.08	.07	.14	.76	.62	20	18.88			
1-4	.13	.02	.02	.05	.08	.56	.57	11	23.42	10	22.87	p(NCT-cycle)=0.50
5-8	.13	.03	.07	.07	.16	.43	.56	10	21.93	10	22.75	
9-12	.11	0	.01	.04	.06	.53	.65	11	22.65	9	26.32	
13-16	.10	0	.04	.06	.23	.47	.67	10	25.48	7	21.32	
9-16	.11	0	.03	.05	.15	.50	.66	11	24.07	8	23.82	

P#28 S_6^N Schedule: FI

1-4	.07	0	.05	.05	.15	.56	.67	5	21.56	15	23.74	p(NCT-cycle)=0.75
5-8	.07	.01	.03	.06	.11	.42	.49	3	23.73	17	22.87	
9-12	.06	.03	.04	.02	.05	.74	.68	5	23.60	15	23.00	
13-16	.07	0	0	0	.01	.70	.87	7	24.75	12	26.22	
9-16	.07	.01	.02	.01	.03	.71	.79	6	24.29	13	24.93	
1-4	.04	.01	.01	.02	.04	.36	.72	2	23.73	19	26.82	p(NCT-cycle)=0.90
5-8	.04	0	0	.02	.03	.47	.77	2	30.97	18	26.50	
9-12	.05	.01	.02	.04	.03	.27	.50	3	42.47	17	26.41	
13-16	.06	0	0	0	.02	.73	1.55	2	41.38	18	27.34	
9-16	.05	.01	.01	.02	.03	.46	.95	3	42.20	17	26.81	
1-4	.03	0	0	.04	.07	.47	.71			20	25.88	p(NCT-cycle)=1.00
5-8	.06	.03	.01	0	.07	.34	1.08			20	27.25	
9-12	.03	0	0	0	.05	.94	1.18			20	25.67	
13-16	.02	0	0	.01	.03	.12	.48			20	25.26	
17-20	.01	0	0	.03	.01	.38	.53			20	25.92	
21-24	.02	0	0	0	.02	.13	.70			20	28.70	

P#28 S^N_6 Schedule: VD

Days	1	2	3	4	5	6	RR	#CD^R	$PS^R{}_{PC}$	#NS^R	$PS^R{}_{NC}$	
1-4	.18	.22	.35	.32	.30	.33	.35	20	6.99			Baseline
5-8	.05	.22	.22	.31	.32	.35	.33	20	10.46			
9-12	.12	.34	.46	.48	.58	.56	.55	20	7.31			
13-16	.10	.27	.26	.31	.36	.31	.37	19	9.25			
17-20	.03	.17	.19	.18	.18	.16	.25	19	14.74			
21-24	.03	.09	.14	.14	.15	.17	.23	17	23.85			
25-28	.04	.18	.19	.21	.16	.18	.31	19	15.35			
29-32	.00	.02	.05	.08	.13	.15	.29	15	26.43			
33-36	.04	.17	.24	.25	.26	.28	.33	19	15.47			
37-40	.03	.12	.14	.10	.14	.12	.19	19	12.28			
41-44	.07	.20	.26	.25	.25	.20	.30	19	11.91			
37-44	.05	.22	.20	.18	.19	.16	.24	19	12.10			
1-4	.03	.04	.10	.10	.11	.32	.28	19	21.78			S^N Intrusion
5-8	.03	.08	.13	.17	.13	.37	.37	19	19.30			
9-12	.01	.02	.03	.07	.07	.42	.37	20	26.49			
13-16	.03	.01	.01	.01	0	.41	.35	17	30.91			
17-20	.02	.02	0	.01	.02	.73	.58	20	25.76			
21-24	.02	0	0	0	.01	.69	.61	19	27.60			
25.28	.01	0	0	0	0	.80	.71	20	26.90			
29-32	0	0	0	0	0	.73	.67	19	27.39			
25-32	.01	0	0	0	0	.77	.69	20	27.11			
1-4	0	0	0	0	.10	.57	.47	10	24.95	8	26.26	p(NCT-cycle)=0.50
5-8	0	0	0	0	0	.54	.51	10	29.64	9	25.82	
9-12	0	0	.01	0	0	.49	.46	8	28.45	12	27.10	
13-16	0	0	0	0	0	.52	.54	7	33.33	11	25.14	
9-16	0	0	0	0	0	.51	.50	7	30.89	12	26.12	

P#28 S_6^N Schedule: VD

1-4	0	0	0	.01	0	.80	.75	6	25.79	13	25.84	p(NCT-cycle)=0.75
5-8	0	0	.01	.01	.01	.62	.58	5	26.85	14	26.88	
9-12	0	0	0	0	0	.80	.70	5	26.23	15	25.39	
13-16	0	0	0	0	0	.44	.47	4	31.63	14	28.24	
9-16	0	0	0	0	0	.58	.56	4	29.47	14	27.10	
1-4	0	0	0	0	0	.18	.32	2	26.60	17	23.76	p(NCT-cycle)=0.90
5-8	0	0	0	0	0	.44	.62	3	27.95	17	27.89	
9-12	.01	0	0	0	0	.26	.38	2	56.44	17	29.15	
13-16	0	0	0	0	0	.58	.73	4	38.53	15	31.01	
9-16	0	0	0	0	0	.40	.53	3	45.69	16	29.95	
1-4	0	0	0	0	0	.42	.56			20	27.79	p(NCT-cycle)=1.00
5-8	.01	0	0	0	0	.38	.57			20	28.07	
9-12	0	.01	0	.01	0	.63	.80			20	27.33	
13-19	.01	0	0	0	0	.31	.53			20	28.42	
17-20	0	0	0	.01	0	.15	.32			20	28.98	
21-24	.01	0	0	0	0	.17	.35			20	28.67	
25-28	.02	0	0	0	0	.22	.35			20	28.32	
21-18	.01	0	0	0	0	.19	.35			20	28.49	

P#28 S^N_6 Schedule: RD

Days	1	2	3	4	5	6	RR	#CD^R	$PS^R PC$	#NS^R	$PS^R NC$	
1-4	.83	.72	.80	.82	.85	.83	.88	19	2.64			Baseline
5-8	.82	.67	.85	.78	.88	.82	.88	21	2.50			
9-12	1.00	.95	.97	1.09	1.05	1.08	1.10	23	2.46			
13-16	.99	.98	1.06	1.14	1.08	1.10	1.13	25	2.01			
17-20	1.22	1.22	1.39	1.47	1.39	1.41	1.45	17	2.13			
21-24	1.27	1.24	1.43	1.43	1.52	1.47	1.48	21	1.94			
25-28	1.37	1.19	1.40	1.46	1.48	1.52	1.52	24	2.15			
29-32	.64	.71	.60	.72	.78	.88	.87	15	5.50			
33-36	.88	.88	1.01	1.06	1.12	1.22	1.13	19	3.35			
37-40	.46	.49	.55	.66	.64	.62	.65	22	3.77			
41-44	.67	.65	.66	.80	.80	.74	.82	19	3.75			
37-44	.57	.57	.61	.73	.72	.68	.74	20	3.76			
1-4	.78	.36	.46	.61	.73	.63	.67	21	3.74			S^N Intrusion
5-8	.73	.30	.83	.94	.82	1.00	.88	27	3.32			
9-12	1.11	.64	1.25	1.46	1.23	1.44	1.32	19	3.62			
13-16	.82	.46	1.06	1.33	1.08	1.68	1.18	19	7.42			
17-20	.74	.29	.88	1.13	1.15	2.23	1.25	23	3.61			
21-24	.52	.11	.46	.77	.83	2.51	1.01	21	4.44			
25-28	.50	.10	.38	.75	.90	2.64	1.03	23	4.32			
29-32	.53	.06	.20	.61	.88	2.45	.93	21	4.50			
25-32	.51	.08	.31	.69	.89	2.56	.99	22	4.40			
1-4	.37	.06	.18	.86	.98	2.48	.97	10	3.88	12	4.14	*p*(NCT-cycle)=0.50
5-8	.32	.02	.21	.75	1.09	2.55	.96	10	3.94	11	4.17	
9-12	.32	.05	.28	.98	1.25	2.71	1.10	9	4.35	12	4.18	
13-16	.30	.08	.28	.92	1.24	2.67	1.06	10	4.36	9	4.90	
9-16	.31	.07	.28	.95	1.25	2.69	1.08	10	4.36	11	4.54	

P#28 S^N_6 Schedule: RD

1-4	.32	.04	.27	.85	1.20	2.35	.97	6	4.39	13	4.46	p(NCT-cycle)=0.75
5-8	.27	.03	.20	.87	1.28	2.60	1.02	6	4.64	13	4.65	
9-12	.59	.23	.34	.86	1.47	2.40	1.14	4	3.90	14	3.88	
13-16	.39	.06	.16	.56	.93	2.25	.85	7	4.13	14	4.66	
9-16	.46	.12	.22	.66	1.11	2.30	.95	6	4.05	14	4.40	
1-4	.32	.01	.08	.44	.77	2.27	.79	2	4.23	23	4.42	p(NCT-cycle)=0.90
5-8	.25	.01	.05	.30	.74	2.52	.75	2	4.41	15	4.77	
9-12	.24	.02	.08	.35	.77	2.37	.77	3	5.16	18	4.69	
13-16	.28	.02	.06	.34	.79	2.50	.77	2	3.79	16	4.67	
9-16	.16	.02	.07	.35	.78	2.43	.77	3	4.57	17	4.68	
1-4	.26	.02	.07	.44	.98	2.59	.86			20	4.68	p(NCT-cycle)=1.00
5-8	.30	.03	.11	.43	1.12	2.58	.90			21	4.53	
9-12	.35	.04	.11	.74	1.74	2.67	1.12			23	4.15	
13-16	.32	.11	.12	.52	1.73	2.62	1.08			22	4.39	
17-20	.23	0	0	.24	1.28	2.01	.76			22	4.67	
21-24	.28	0	.02	.18	1.06	2.35	.76			16	5.24	
25-28	.27	.01	.04	.28	1.18	2.36	.85			20	5.15	
21-28	.27	0	.03	.23	1.12	2.35	.80			18	5.19	