Behavior Reduction through Differential Reinforcement

DRO (Differential reinforcement of other behavior): A schedule in which reinforcement is delivered for the nonoccurrence of the target R

DRA (Differential reinforcement of alternative behavior): A schedule in which reinforcement is delivered for the occurrence of an alternative R (Alt R)

Differential Reinforcement of Other Behavior (DRO)

Procedural variations:
- Consequence for not R: Maintaining (functional) Sr vs. different (arbitrary) Sr
- Requirement for Sr: Interval (No R during interval) vs. momentary (No R at end of interval)
- Initial schedule (should be based on IRT): FI or VI
- Interval resetting feature: Interval resets when R occurs
- Schedule change: Fixed, proportional, IRT-adjusting

Advantage: Relatively easy to implement

Disadvantages:
- Does not specifically strengthen appropriate R
- Failure to meet criterion for Sr could function as an EO (deprivation) and occasion target R

Differential Reinforcement of Alternative Behavior (DRA)

Procedural variations:
- Alt R: Distinctions among DRA, DRI, DRC unimportant
- Consequence for Alt R: Maintaining (functional) Sr vs. different (arbitrary) Sr
- Initial schedule: Usually FR 1
- Schedule change: Any schedule (FR, VR, FI, VI)

Advantage: Replaces target R with Alt R

Disadvantages: None
Liberman, Teigen, Patterson, & Baker (1973) “Reducing delusional speech in chronic paranoid schizophrenics”

General focus: To apply operant procedures with behavioral manifestations of schizophrenia
Specific aims: To manipulate social consequences of paranoid speech
To assess generalization of treatment effects

Procedures

Participants: N=4 (2F, 2M) paranoid schizophrenics
DV: “Delusional speech”
   Daily interviews: 4 x 10 min daily, RN prompted topics, duration of rational conversation?
   Evening chats: 30 min, duration of rational, irrational, silence measured on alternating nights
   Speech on the ward: RN measured # delusional statements/day
Reliability: Daily interviews and evening chats only
   Agreement = 5-s tolerance
BL: All speech → Social Sr+

Phase A: Delusional speech during 10-min interviews → Int. terminated
   Duration of evening chat/snack = duration of rational speech during 4 daily interviews
   What type of differential reinforcement contingencies?
Phase B: 8, 5-min daily interviews; same contingency as in Phase A
   Evening chat/snack every other night; duration = .5 rational speech over 2 days
Phase C (Jack and Mary only): Challenge questions during every other 5-min interview

Experimental Design: Multiple baseline across subjects

Results
Daily interviews: Phase A: Latency to delusional speech Δ+ 200% - 600%
   Phase B: Latency maintained for 3/4 Ss
   Phase C: Latency Δ- for Jack and Mary (but better than BL)
Evening chats: Phase A: Rational talk Δ+ or delusional talk Δ- for 3/4 Ss
   Phase B: Maintenance for 3/3 Ss
   Phase C: Maintenance for Jack and Mary
Speech on the ward: No changes observed

Implications & Extensions
Major contribution: Extension of learning principles to treatment of paranoid schizophrenia
   Some indication of generalization (evening chats)
Limitations: No functional analysis; maintenance by attention assumed
   No improvements observed on the ward
Extensions: Application with other symptoms of schizophrenia (cure?)
   Extension to other “mental illnesses” and psychosocial disorders
   Alternative ways to implement Sr+ and EXT