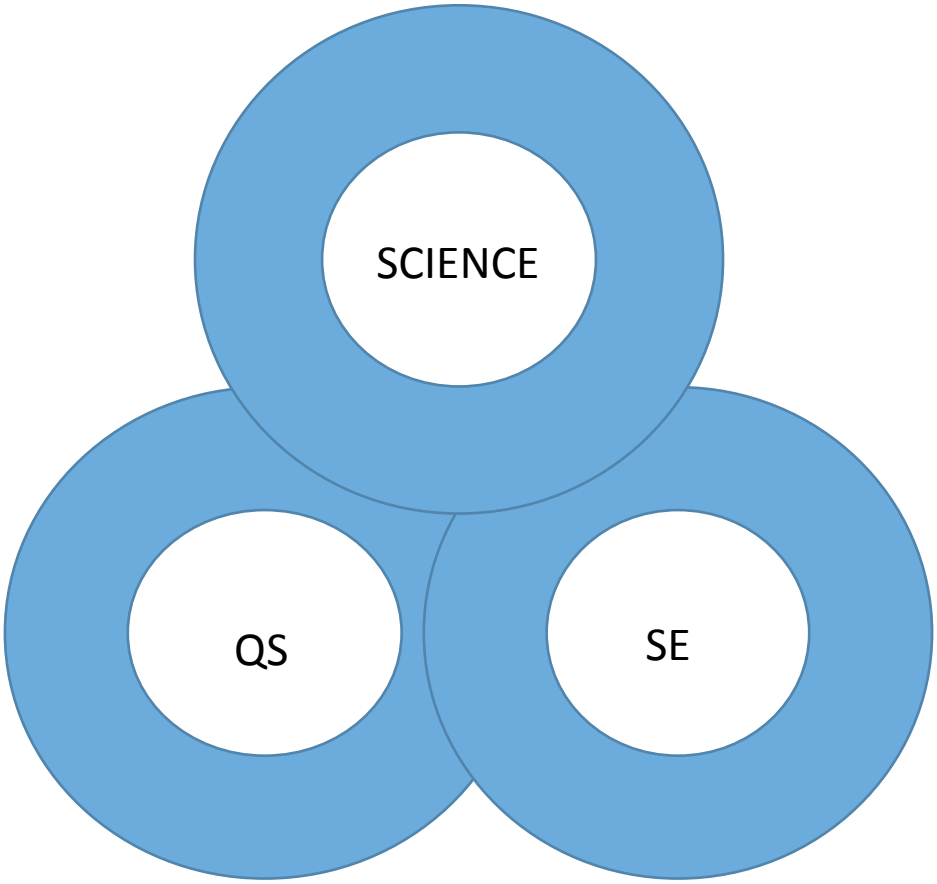
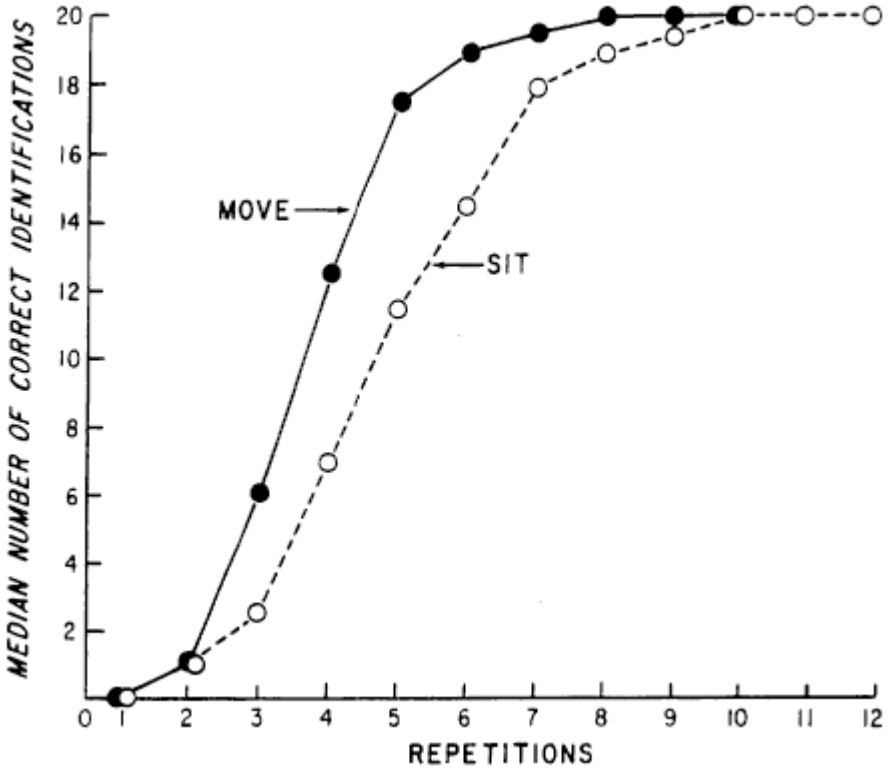
2018 QUANTIFIED SELF CONFERENCE

Allen Neuringer

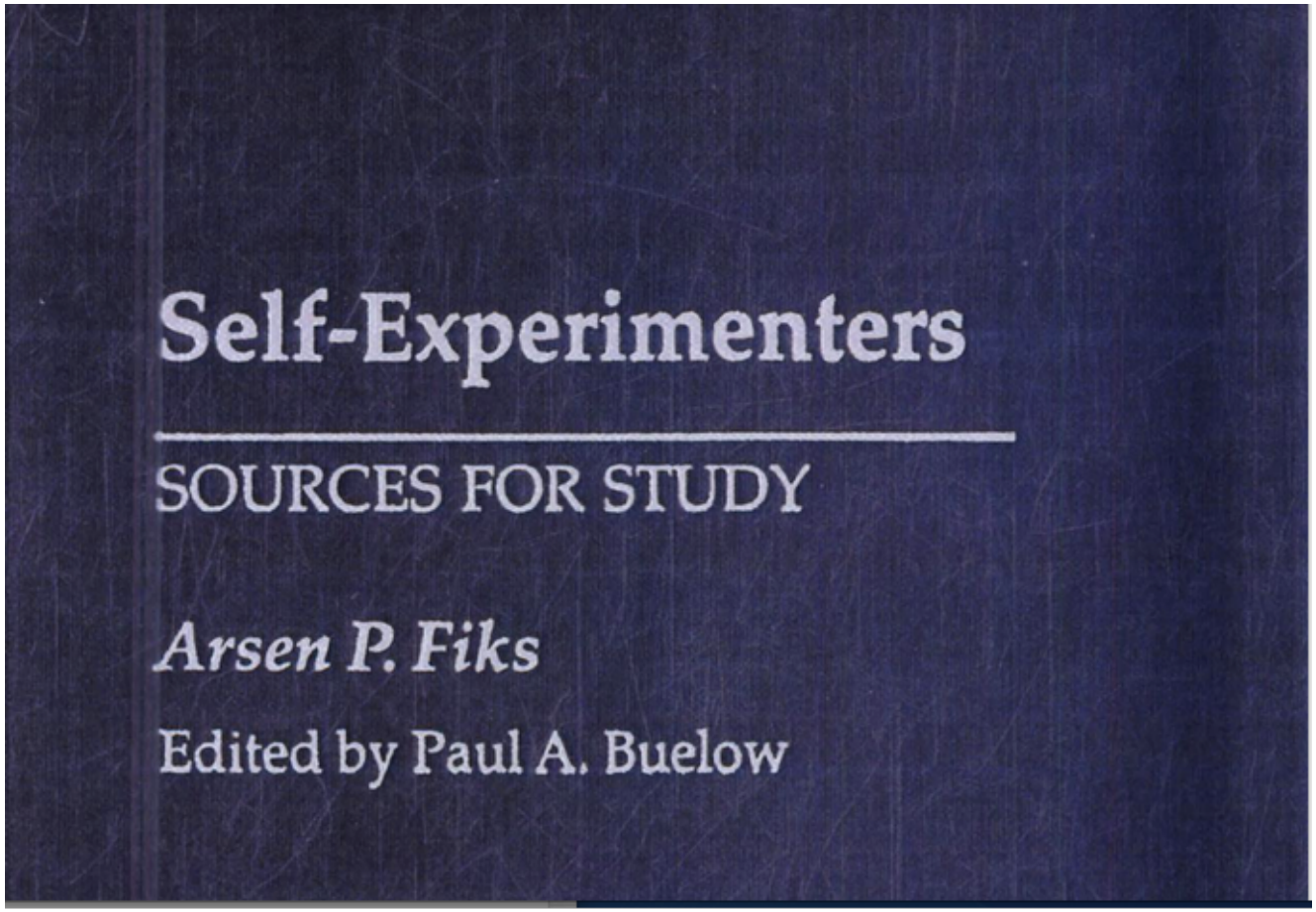



MEDIAN NUMBER OF CORRECT IDENTIFICATIONS
20
18
16
14
12
10
8
6
4
2
0
1
2
3
4
5
6
7
8
9
10
11
12
REPETITIONS
MOVE
SIT

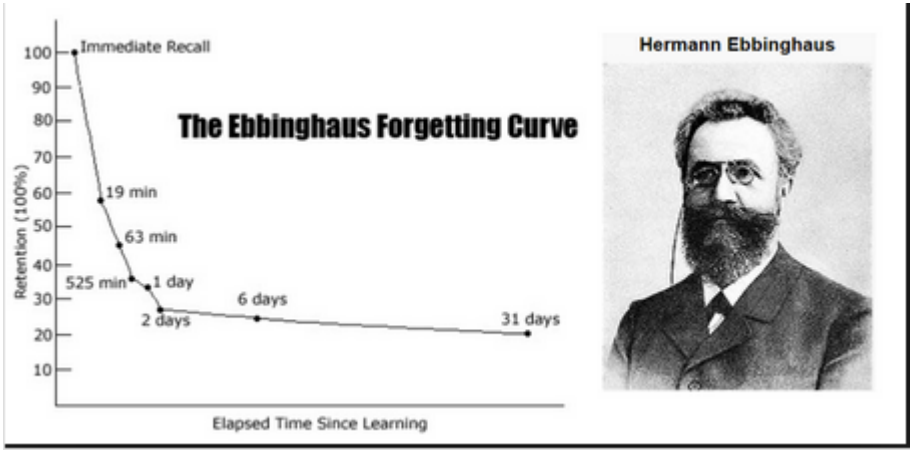
CONTINGENCY

CONTEXT

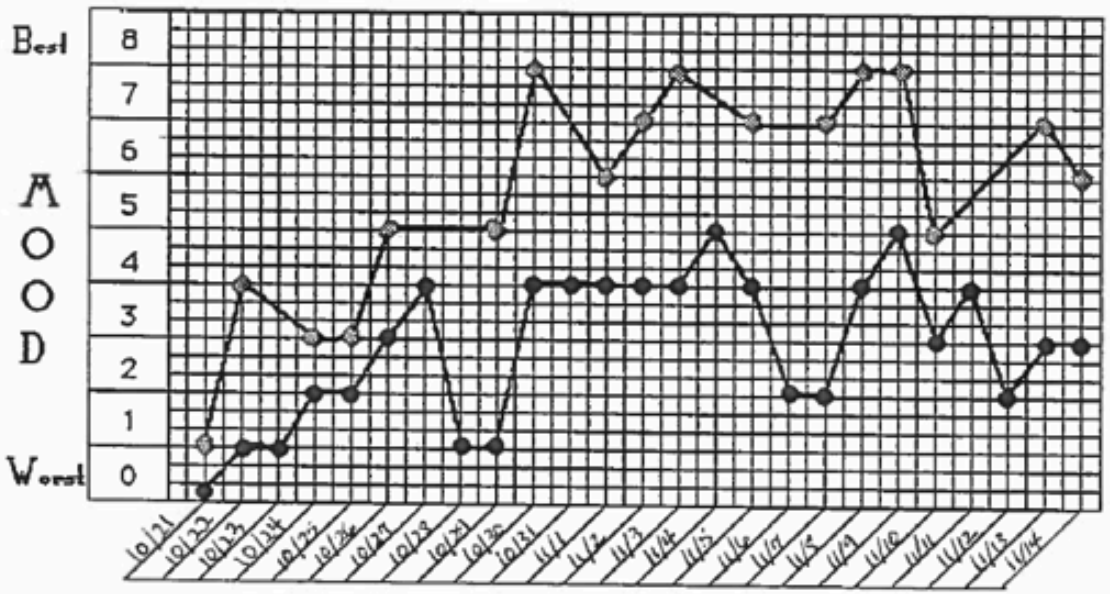
HABIT



Prager Publishers, 2003

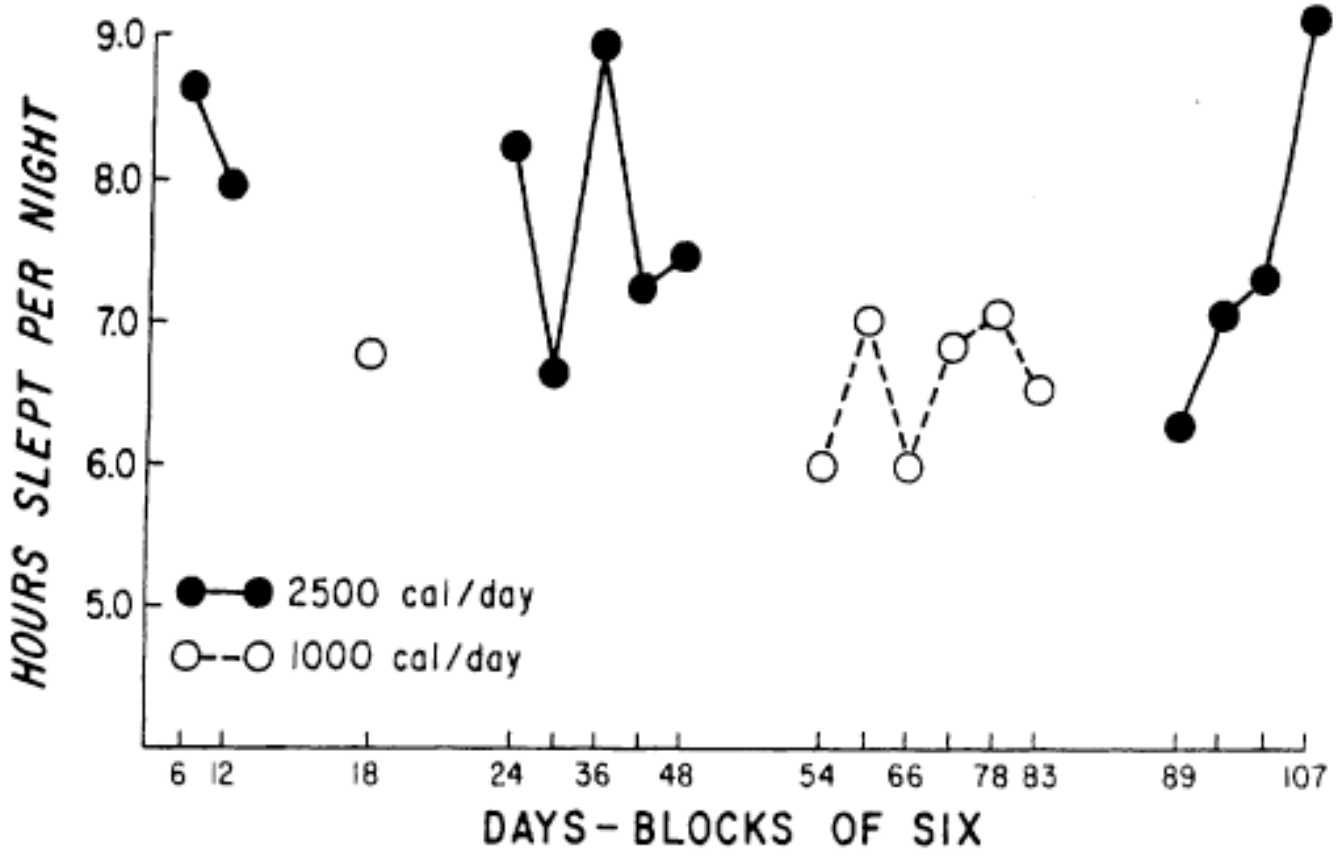

The Ebbinghaus Forgetting Curve
Retention (100%)
100
90
80
70
60
50
40
30
20
10
Immediate Recall
19 min
63 min
525 min
1 day
2 days
6 days
31 days
Elapsed Time Since Learning
Hermann Ebbinghaus

Quality of Mood Before and After Exercise



● = mood before exercise

● = mood after exercise


HOURS SLEPT PER NIGHT
9.0
8.0
7.0
6.0
5.0
2500 cal/day
1000 cal/day
6
12
18
24
36
48
54
66
78
83
89
107
DAYS – BLOCKS OF SIX

A eating between meals; B no eating between meals.

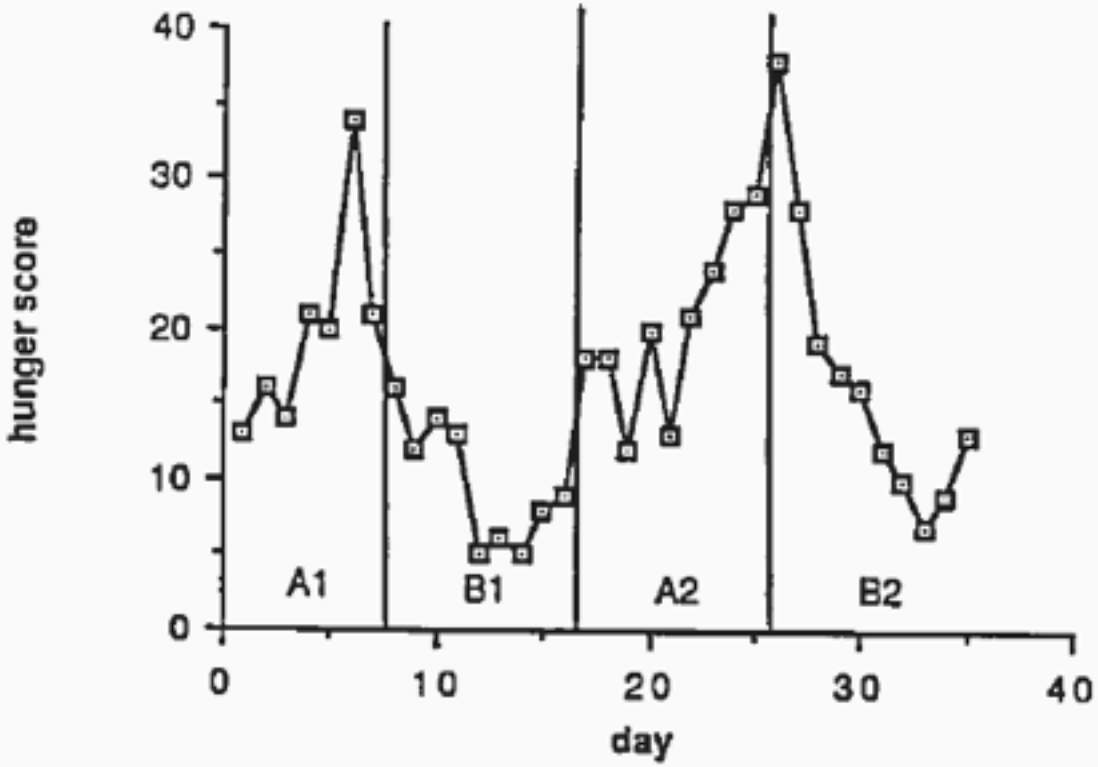


Fig. 1. Daily hunger score as a function of time over the course of the experiment.

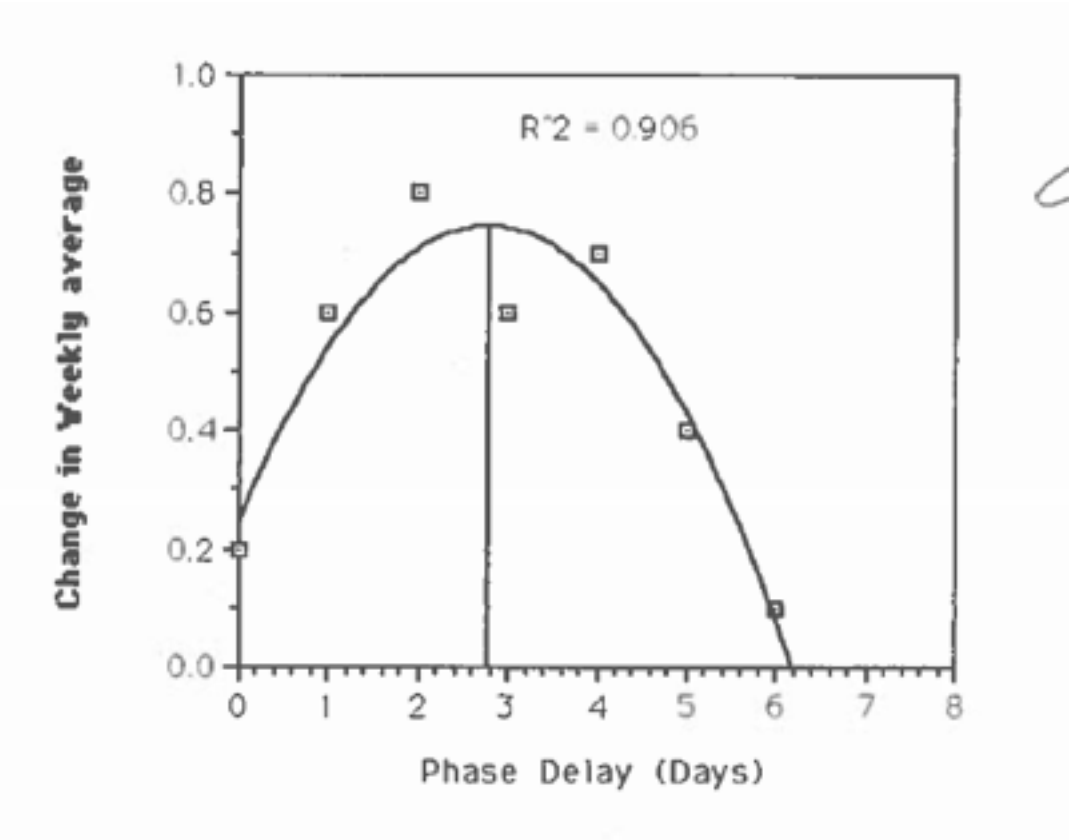

R^2 = 0.906
Change in Weekly average
1.0
0.8
0.6
0.4
0.2
0.0
0
1
2
3
4
5
6
7
8
Phase Delay (Days)

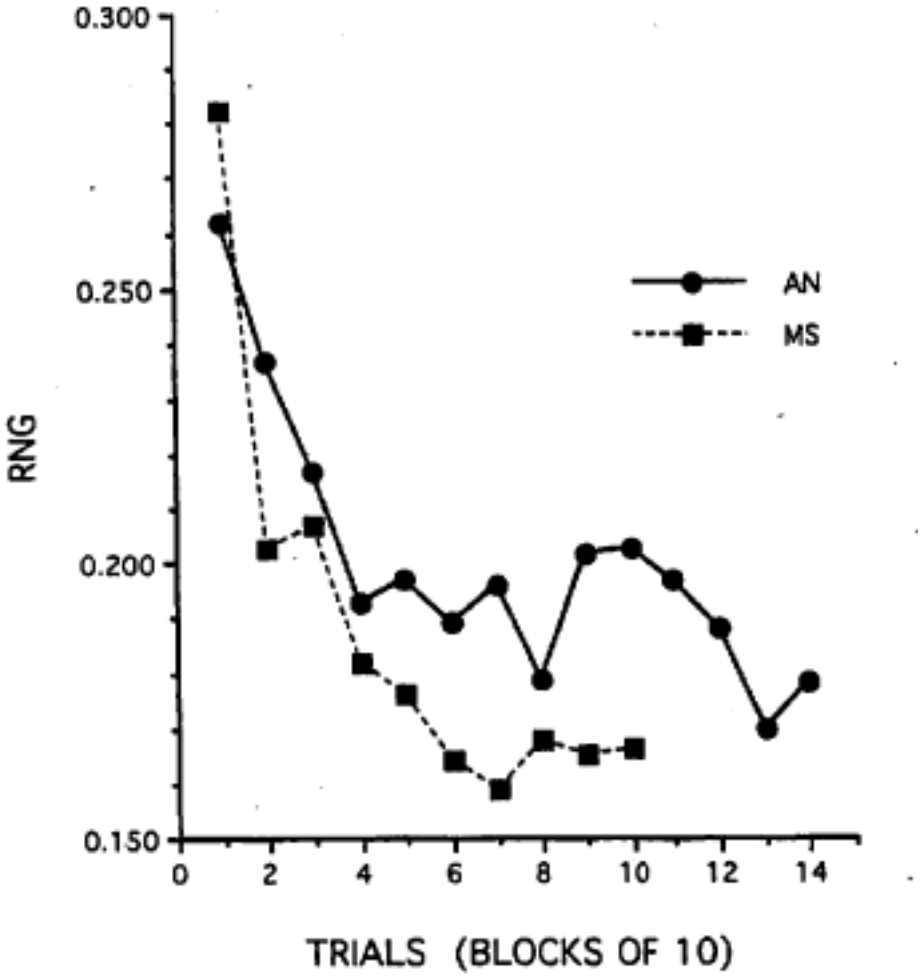
Table 1.
Chocolate Consumption and Incidence of Night Terrors

night terrors \ chocolate consumption	Y	N	total
Y	13	3	16
N	4	22	26
total	17	25	42

$x^2 = 15.2$

$P < .001$

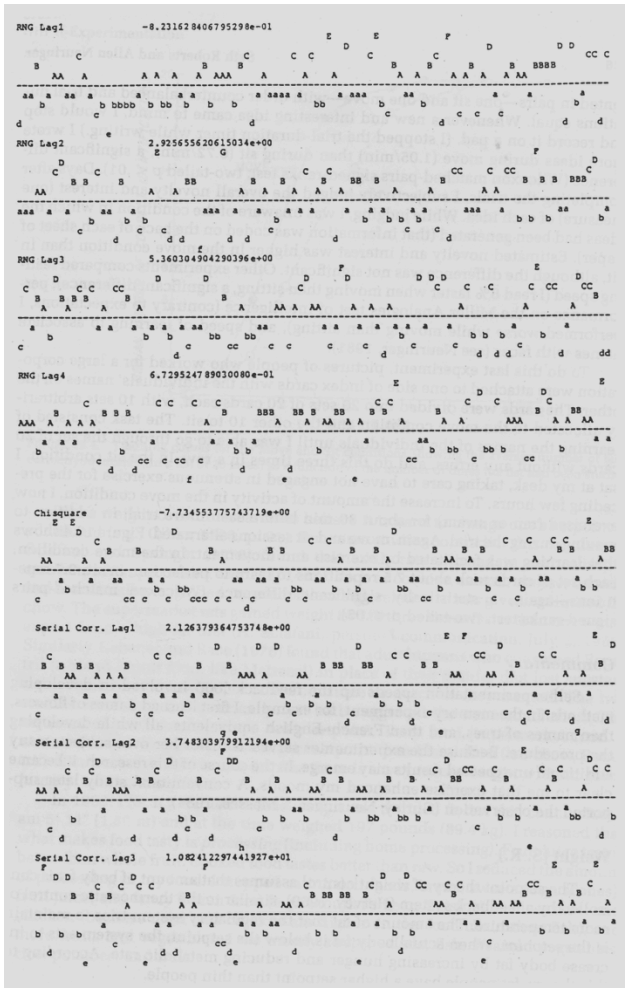
	Stuttering episodes per day
BASELINE:	32
8 Hrs. sleep:	36
Slowed speech:	30
BASELINE:	39
"mmm…”:	21
Rhythmic speech:	9


0.300
0.250
0.200
0.150
RNG
0
2
4
6
8
10
12
14
TRIALS (BLOCKS OF 10)
AN
MS


OSBORNE 1


OSBORNE 1
For $1,250 the only personal business computer you can take anywhere.
OSBORNE


OSBORNE 1


RNG Lag1 -8.23162 8406795298e-01
RNG Lag2 2.925655620615034e+00
RNG Lag3 5.360304904290396e+00
RNG Lag4 6.729524789030080e-01
Chisquare -7.734553775743719e+00
Serial Corr. Lag1 2.126379364753748e+00
Serial Corr. Lag2 3.748303979912194e+00
Serial Corr. Lag3 1.082412297441927e+01

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Operant Variability and Voluntary Action

Allen Neuringer and Greg Jensen
Reed College

A behavior-based theory identified 2 characteristics of voluntary acts. The first, extensively explored in operant-conditioning experiments, is that voluntary responses produce the reinforcers that control them. This bidirectional relationship—in which reinforcer depends on response and response on reinforcer—demonstrates the functional nature of the voluntary act. The present article focuses on the second characteristic: a similar bidirectional relationship between reinforcement and the predictability/unpredictability of voluntary acts. Support for the theory comes from 2 areas of research. The first shows that levels of behavioral variability—from highly predictable to randomlike—are directly influenced by reinforcers. Put another way, variability is an operant dimension, analogous to response rate and force. The second source of support comes from psychophysical experiments in which human participants judged the degree to which "choices" by virtual actors on a computer screen appeared to be voluntary. The choices were intermittently reinforced according to concurrently operating schedules. The actors' behaviors appeared to most closely approximate voluntary human choices when response distributions matched reinforcer distributions (an indication of functionality) and when levels of variability, from repetitive to random, changed with reinforcement contingencies. Thus, voluntary acts are characterized by reinforcement-controlled functionality and unpredictability.

Keywords: voluntary action, theories of free will, reinforced variability, concurrent schedules of reinforcement, choice

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BEHAVIORAL VARIABILITY AND AUTISM SPECTRUM DISORDER

NICOLE M. RODRIGUEZ AND RACHEL H. THOMPSON

WESTERN NEW ENGLAND UNIVERSITY

Restricted and repetitive behavior is a diagnostic characteristic of autism spectrum disorder (ASD). To the extent that the behavior of individuals with ASD can be conceptualized as problems of invariance, our understanding of environmental variables that influence restricted and repetitive behavior may be informed by the basic and applied literature on response variability. The purposes of this paper are (a) to describe how restricted and repetitive behavior can be conceptualized as problems of invariance, (b) to consider the implications of a lack of varied responding for individuals with ASD, (c) to review relevant basic and applied research on response variability, (d) to present methods to address invariant responding for individuals with ASD, and (e) to suggest areas for future research.

Key words: autism, behavioral variability, invariance, response variability, restricted and repetitive behavior

SOS Methods

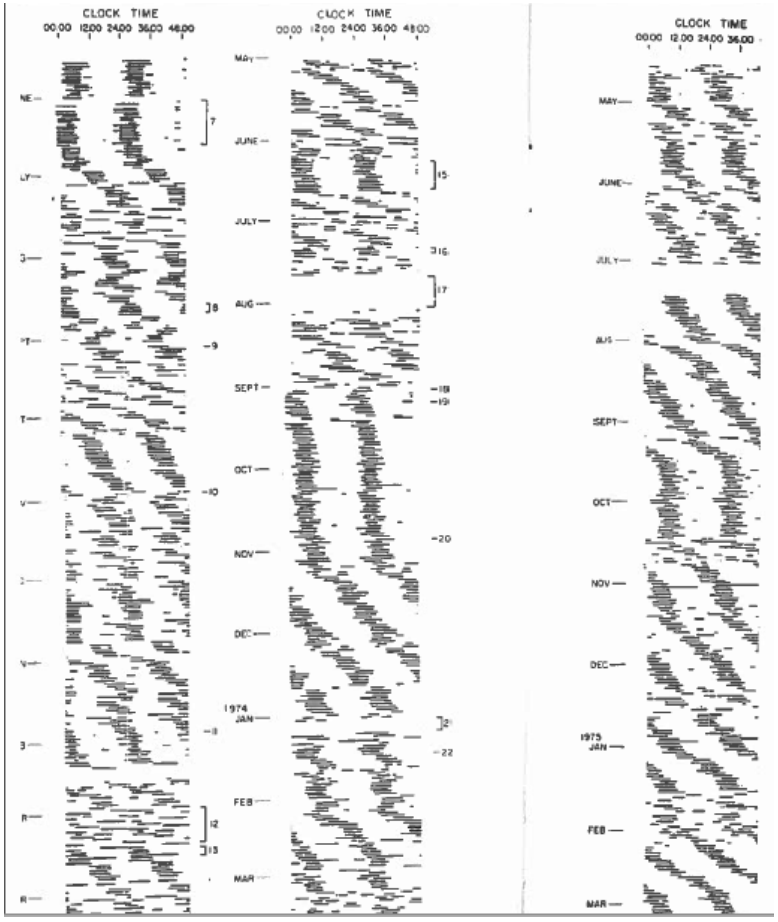
Observational

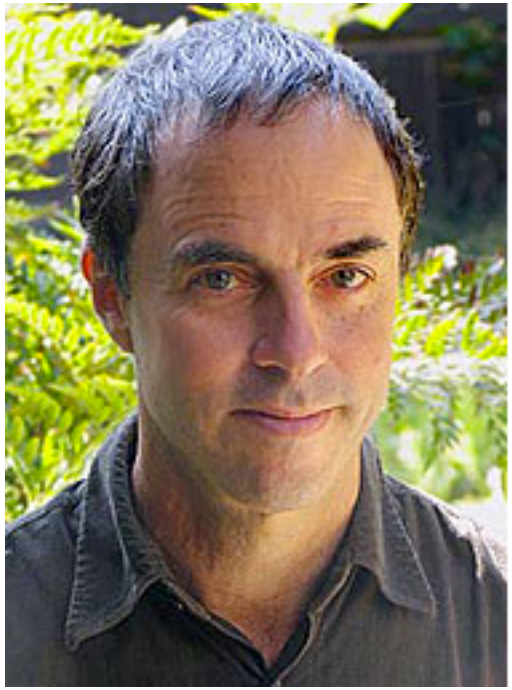
- Astronomy
- Economics

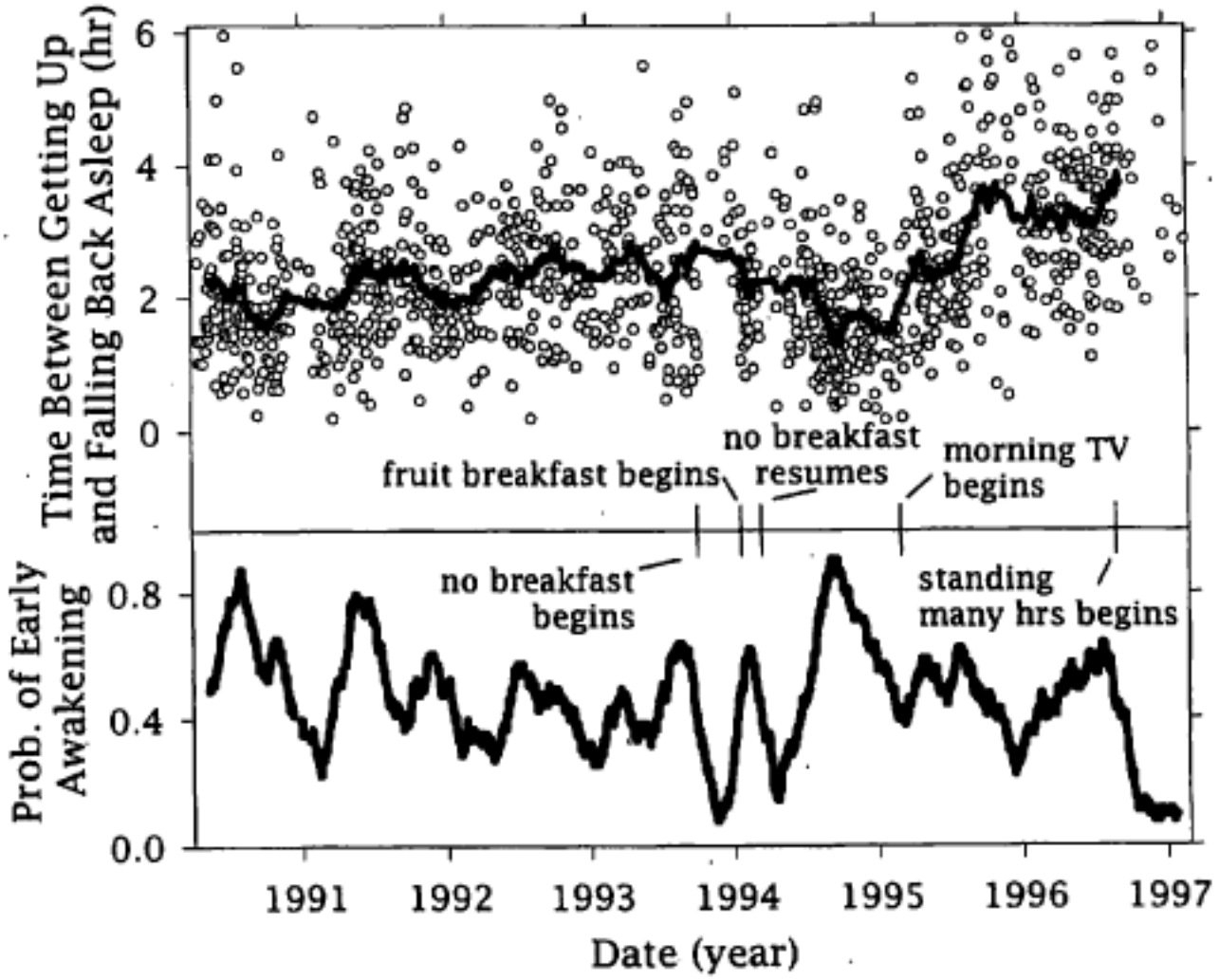
Experimental

- Physics
- Chemistry

Ned Conner’s Sleep Data






Time Between Getting Up and Falling Back Asleep (hr)
6
4
2
0
fruit breakfast begins
no breakfast resumes
morning TV begins
Prob. of Early Awakening
0.8
0.4
0.0
no breakfast begins
standing many hrs begins
1991
1992
1993
1994
1995
1996
1997
Date (year)

Roberts, S. & Neuringer, A. (1998). Self- Experimentation. In Lattal, K. A., & Perone, M. (Eds.) *Handbook of Research Methods in Human Operant Behavior* (pp 619-655). New York: Plenum Press.

allen.neuringer@reed.edu