Behaviorism

Out with the mental

Functionalism & the Russian School

Behaviorism in many ways compatible w/ functionalism

reaction to Structuralism / move away from introspection

McK. Cattell: adopt the behavioristic position

much could be gained without the use of introspection

move from study of consciousness to study of behavior

Ivan M. Sechenov

Objective psychology / reflexology

behavior has external causes; consciousness explained in terms of physiological processes

the importance of the inhibitory response

voluntary and involuntary control

Pavlov

The conditioned reflex

salivation, gastric acid secretion and digestion

events associated with meat powder (law of contiguit

evide

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BEFO

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eventually neutral stimulus will evoke response

Conditioned **S**timulus → **C**onditioned **R**esponse

bell → salivation

Principles

all behaviors (and acquisitions) could be explained in this way including "higher-level" associations and language

Acquisition

CR rarely occurs after single pairing

Response increases with successive CS - UCS pairings

timing is critical - forward conditioning quickest (CS then UCS)

Extinction

Brought about by repeated presentation of CS **without** UCS

extinction does not erase what is learned, only suppresses

spontaneous recovery (inhibition)

Generalization

other similar neutral stimuli may evoke response

e.g. other tones

Discrimination

Taught to differentiate between previously over-generalized CS

CS+UCS: response becomes stronger
CS-UCS: response becomes inhibited

Behaviorism

influenced by J. Loeb's work on tropism and inspired by Pavlov

animal psychology - "knew more about the white rat"

Psychology is...

purely objective, experimental science with the goal of predicting and controlling behavior

rejection of mentalism and introspection

mind as epiphenomena

primary concerns in S-R relationships

"The Myth of the Unconscious", "On Reconditioning People", "Why men 50 years from now won't marry", "After the Family-What?", "Why I don't commit suicide"

Watson (con't)

apply classical conditioning (Pavlov) to human <u>behavior</u>

operate on law of contiguity

- overt learned
- covert learned
- explicit unlearned
- implicit unlearned

emotion and the little Albert experiment

Applied principles to behavioral therapy, child rearing and education

environment as primary determinant of behavior

"Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select —a doctor, lawyer, artist, merchant-chief and, yes, even into beggarman and thief, regardless of his talents, penchants, ten- dencies, abilities, vocations and race of his ancestors."

Neobehaviorism

Classical behaviorism reinforces psychology-physiology marriage

Watson's brand of behaviorism denied mental causation… other "soft" types emerge

appreciation that human behavior is more complex than classical conditioning allows

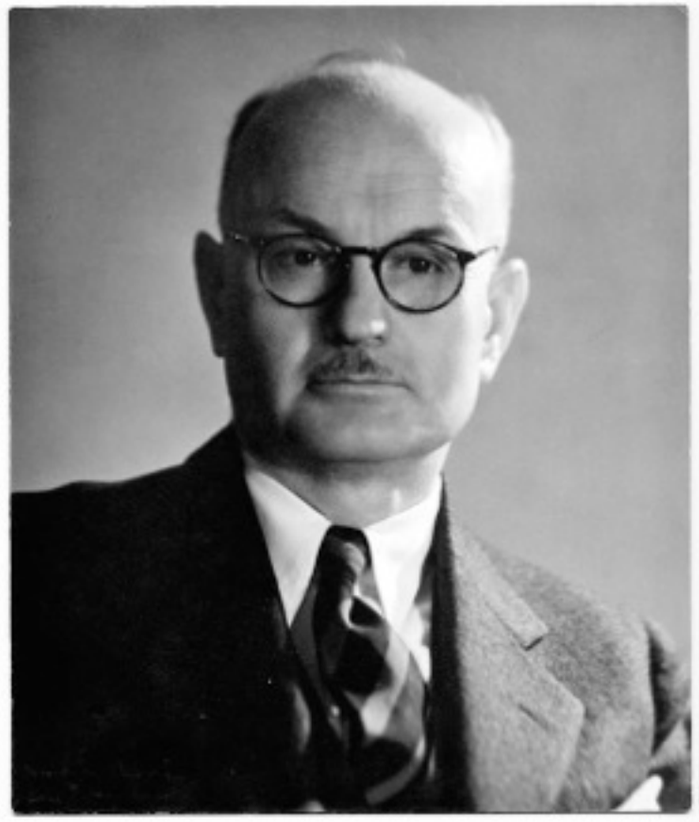
methodological behaviorism: behavior as *index* of mental activity

Watson v. McDougall: "Battle of Behaviorism"

positivism v. logical positivism and avoiding the trap of metaphysical speculation

operationalization: hypothetical contracts grounded in empirically observed phenomena (behavior, environmental variables)

Tolman



Does conditioning explain everything?

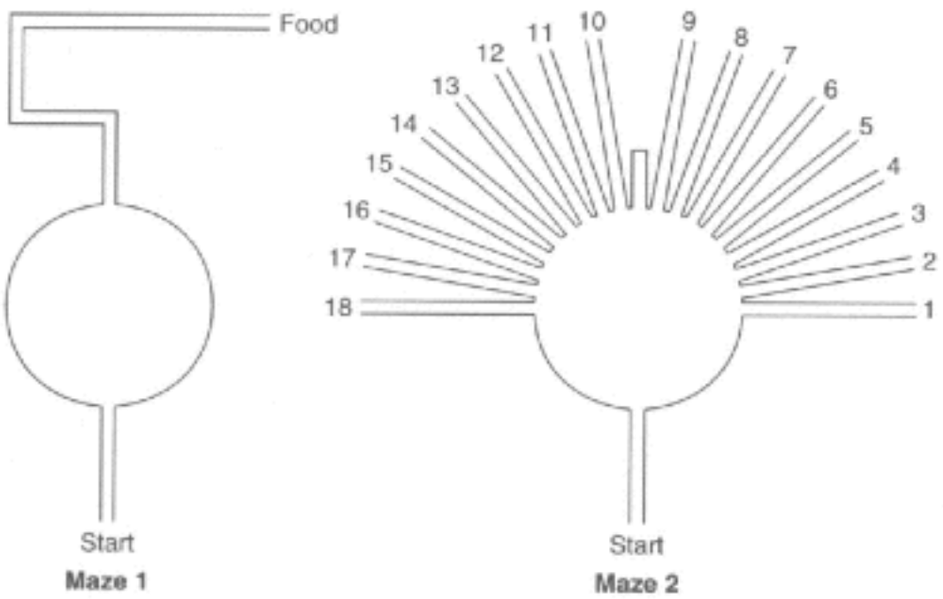
molecular v. molar (purposive) behavior

over the course of career becomes increasingly mentalistic

treats mental activity as intervening variable
unobservable but operationalized

Cognitive Maps* in Rats & Men / Monkeys & Bananas

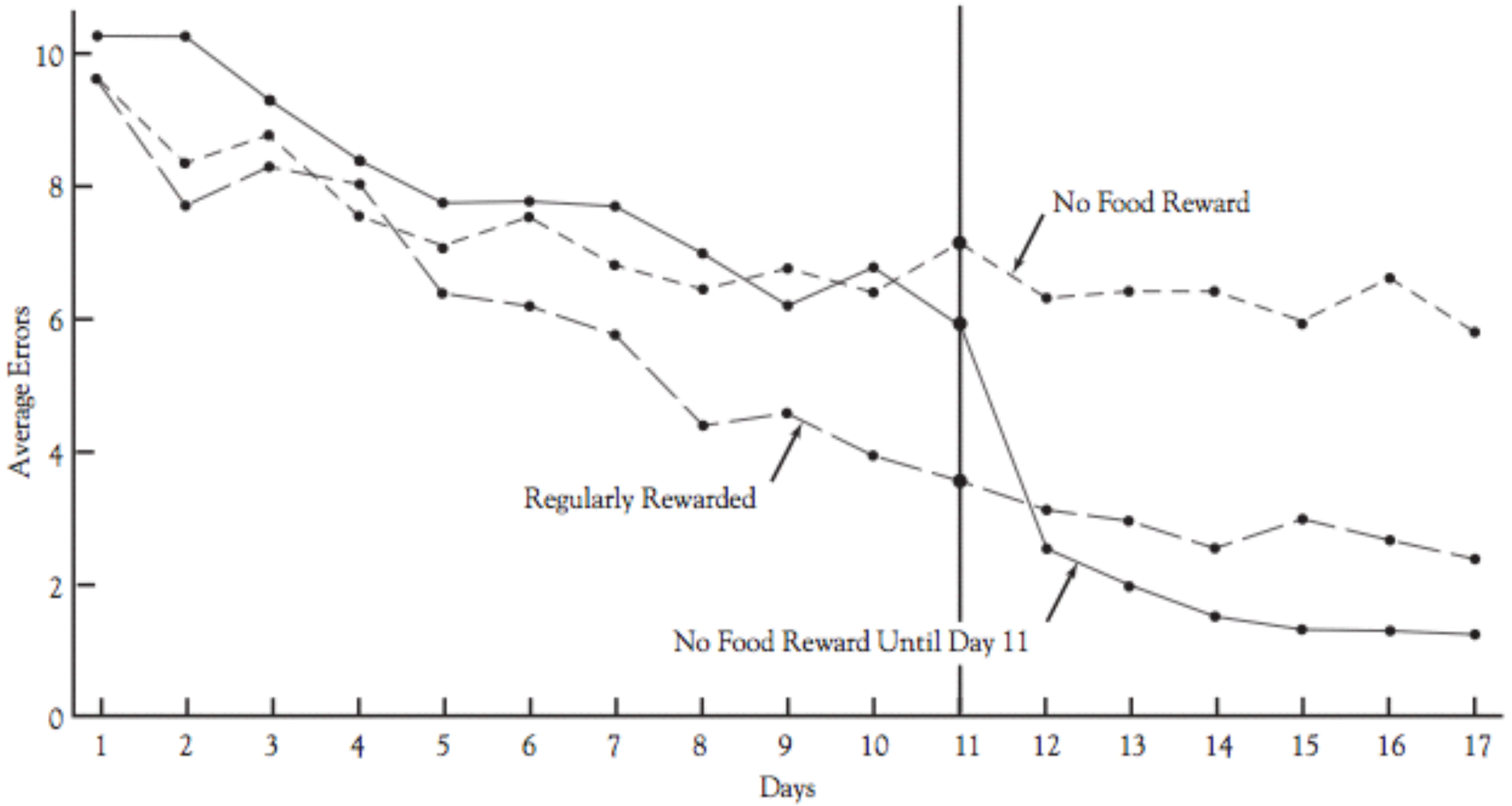
hypothesis formation → trial and error → expectancy → belief



learning exists outside of overt behavior

performance v. latent learning
without reinforcement

**** see Gestalt***



in many respects Tolman can be viewed as early progenitor of modern cognitive psychology (at least in practice): behavior as index, pointing to theoretical constructs

Clark L. Hull

rejection of mentalese - psychology as physics

Early work in computer technology "psychic machines" (explain behavior in mechanistic terms)

Newton and Euclid

hypothetico-deductive system: logic derived from small, restricted set of given axioms used to deduce new derived, logically consistent statements. These new statements (theories) should be empirically verified.

- **if deductions lacking, no theory**
- **if observation is impossible, metaphysical speculation**
- **if conditions present, but deduce phenomena not present, theory is false**

S-R psychology, with intervening variables

explain behavior in terms of stimulus and intervening variables

in the end, Hull's program was complex

drive-reduction theory of reinforcement

- When needs are not met, an internal "drive force" builds in the organism that compels it to actions to attain the substances that satisfy the need

- **Behavior is a function of drive needs**

  - Learn S-R associations that reduce drive (repetition strengthens). Behaviors that do not reduce drive are eliminated

Effective excitatory potential **drive** **incentive value of reward** **inhibition** **conditioned** **reactive**

$$sEr = D \times K \times sHr - sIr - Ir$$

habit strength
reinforced trials, intensity

B.F. Skinner

positivist, atheoretical, radical behaviorism

modeled program after Thorndike (outcomes of response)

behavior is operant (operates on the environment) and emitted

learning the association between a behavior and its consequences.

genetic and experiential: innate behaviors result of natural selection, however the conditions that originally lead to selection can change

animals must adapt or become extinct (ex. fight or flight)

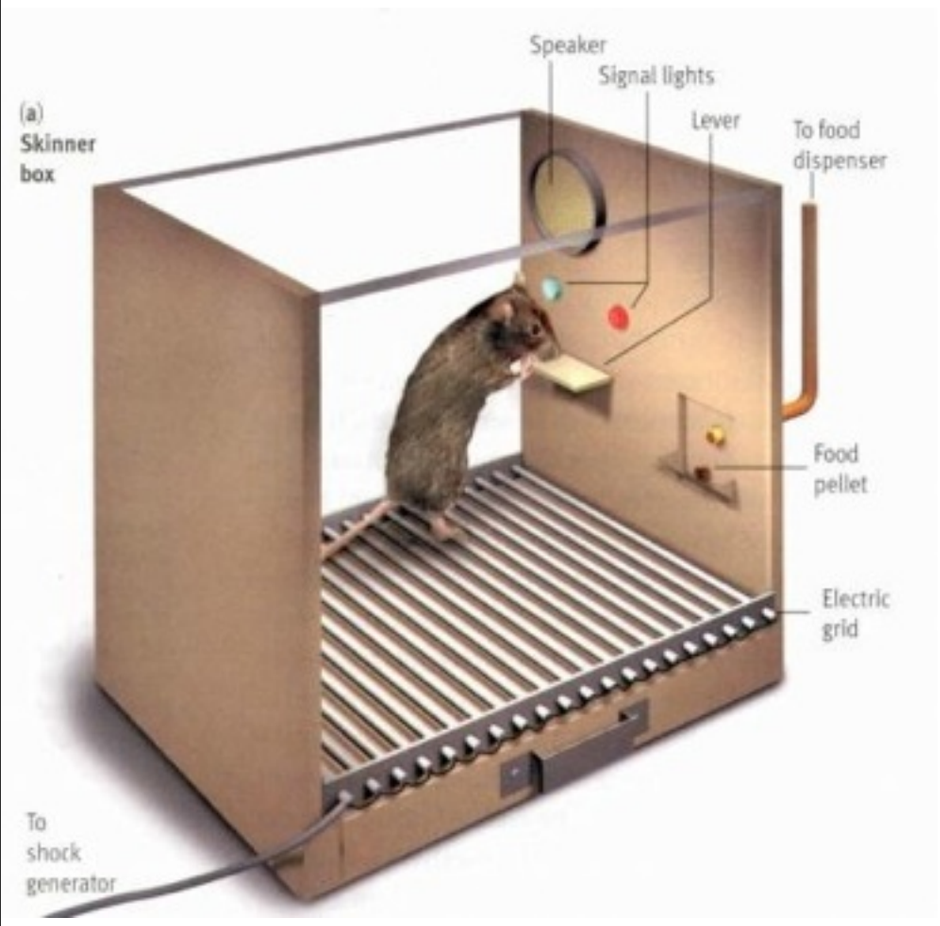
uniqueness of individual

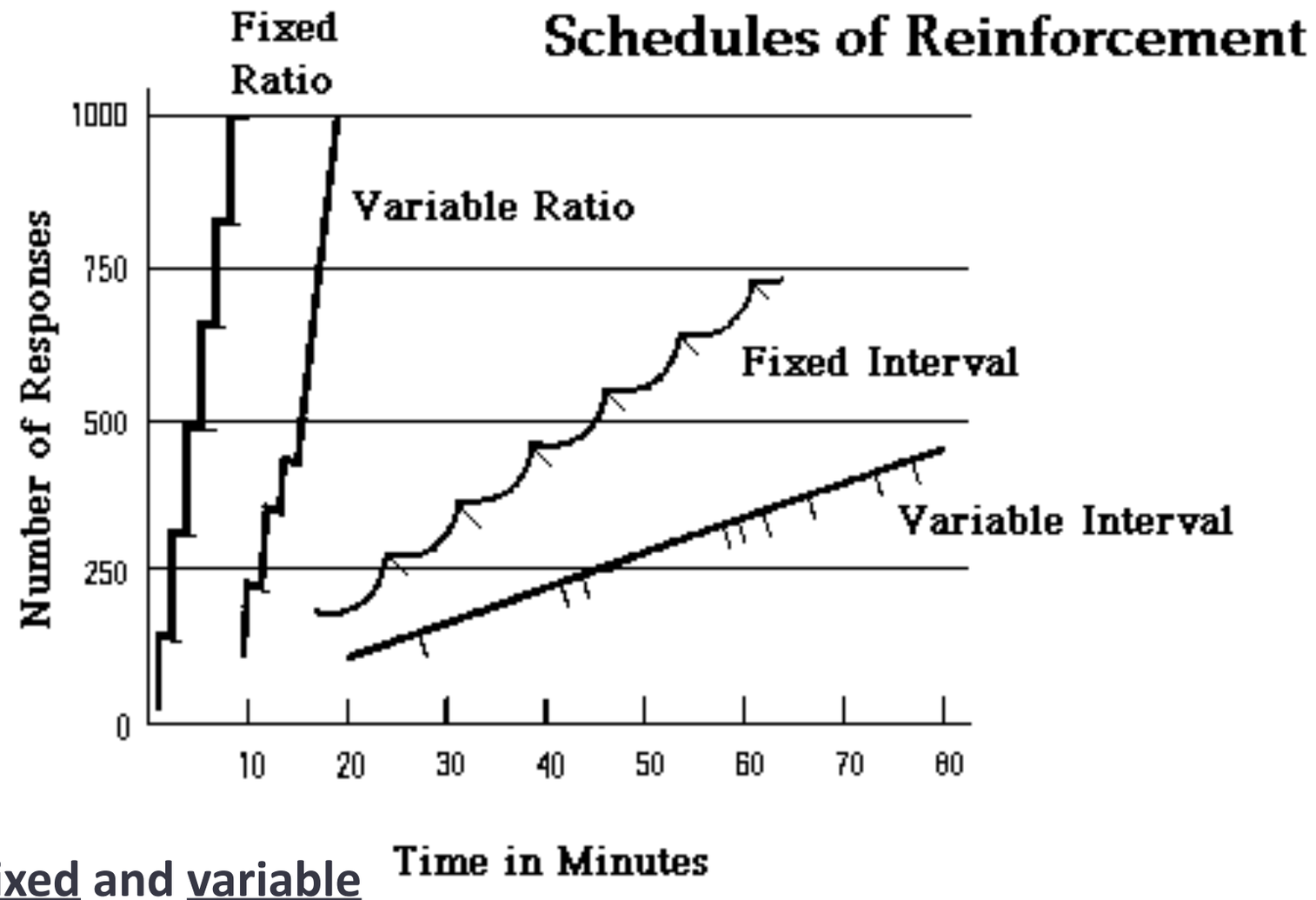
***N=1* method and the baseline-intervention-baseline method (ABA)**

and cultural

to change a learned behavior, change the animal's reinforcement contingencies

measure rate of response





<u>fixed</u> and <u>variable</u>

Ratio - number of events (button press)
FR-5: every 5 presses / **VR-5**: 5 press average

response rate: high / moderately high
resistance to extinction: moderate/ high

Interval - time between events (5 min)
FI-5: every 5 min / **VI-5**: 5 press average

response rate: uneven - low/ high
resistance to extinction: moderate/ very high

behavior is...

S → R → S-r

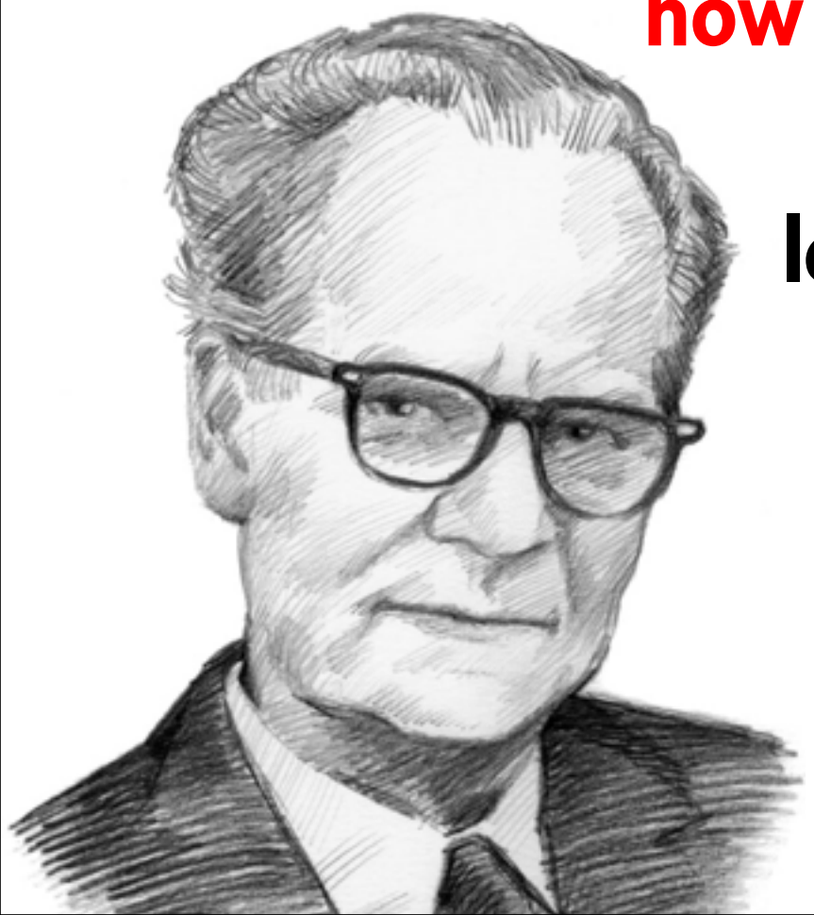
reinforced

any stimulus that **increases** likelihood of a prior response.

punished

stimulus **decreases** likelihood of prior response

*** problems: confusing, reinforcing, only works as long as contingencies are in place**



how would Skinner describe classical conditioning?

learn to respond to bell because reward follows

reinforced & strengthened

extinction occurs b/c reinforcement is no longer provided

applied behavior analysis

to change a learned behavior, change the animal's reinforcement contingencies

design and assessment of environmental contingies to lead to improvements in behavior (desired)

applications in behavioral therapy, pedagogy, token economies

can shaped: molding an organism's responses through a series of presenting and withholding reinforcements