The Challenges and the Utility of the MO Concept

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Thank you

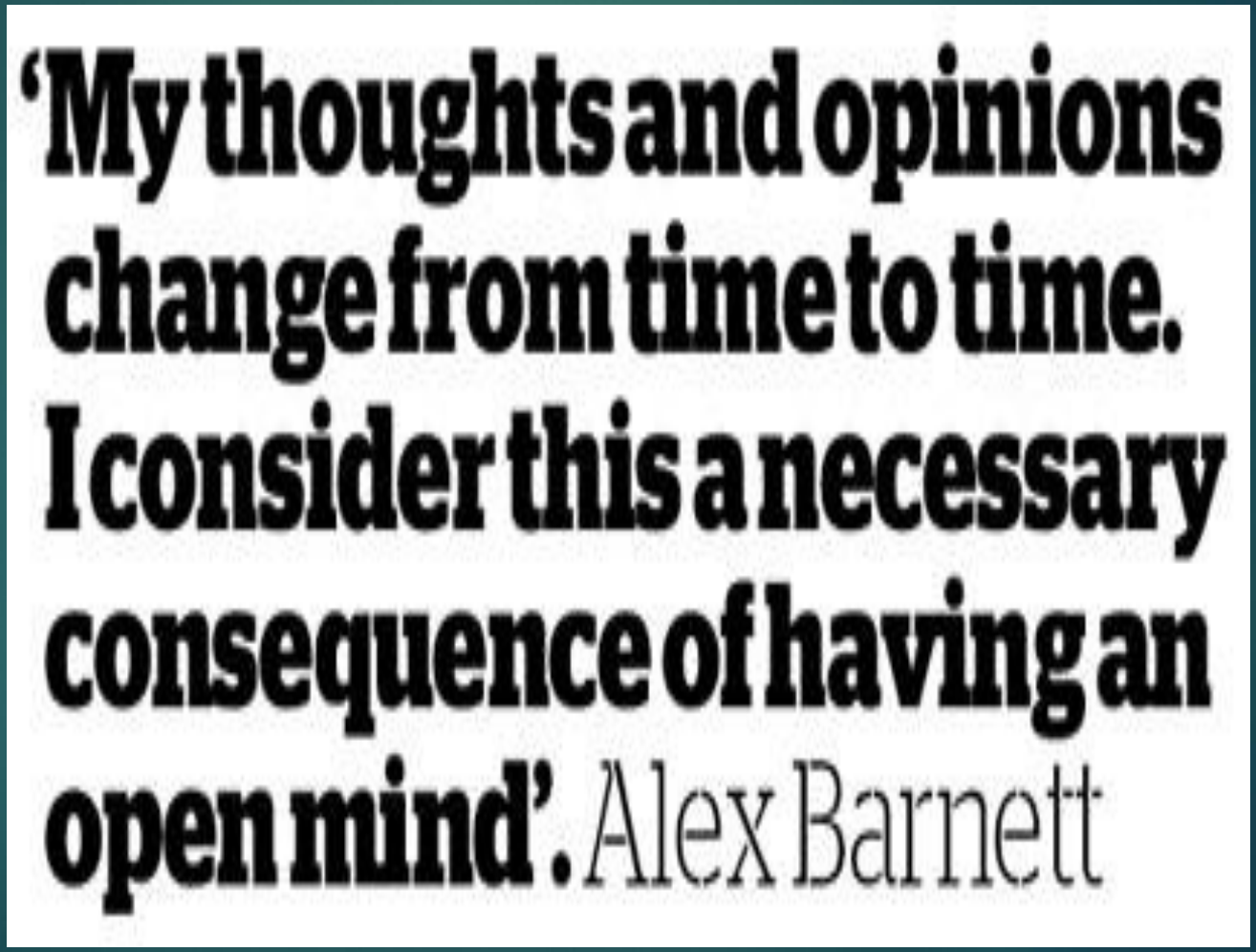
Conflict of Interest Statement

- I have no financial relationships or conflicts of interest to disclose

Learning Objectives

- Participants will be able to identify direct versus indirect measurement issues with the MO concept definition
- Participants will be able to describe how the MO concept does not account for the occurrence of specific topographies of responding
- Participants will be able to state why the phrase "SD's signal the availability of reinforcement" is not accurate and leads to a false discrimination
- Participants will be able to describe the primary value of and problems with using an MO based account for the initiation of Mands.

The importance of skepticism



Direct versus Indirect measurement in ABA

- "Direct measures of behavior are superior to indirect measures and therefore should be used whenever possible"
- "Indirect assessment is frequently used through necessity, as when some hypothetical construct… is of concern"
- Poling, Methot & LeSage, Fundamentals of Behavior Analytic Research, 1995

Point 1:
The MO definition references changes in stimulus properties that are not objectively and independently verifiable

Specifically: **Value**

MO Definition:

- **Laraway, Snycerski, Michael, & Poling, 2003**:
- They alter (a) the effectiveness of reinforces or punishers (**the value altering effect**) and (b) the frequency of operant response classes related to those consequences (the behavior altering effect).

- Is this a description of what it is or what it does?

Explanation for responding to the MO?

- When we discuss the MO - we are talking about what the MO "hypothetically" does to a consequent stimulus
  - The mechanism of action for the MO
  - How it "works" ?- We assign agency to the MO

- **It** changes the **Value** of a stimulus as a reinforcer
- **It** changes the **Effectiveness** of a stimulus as a reinforcer

Does "Value" Change?

- What is **value**? Does the term meet a definition of being technological?

- Test: How much value does this stimulus contain?
  - IOA??
- Has the value changed….
  - After 5 hours of deprivation?
  - If no responding occurs?
  - If responding occurs ?
  - No IOA !!

- Claiming that a change has taken place in some hypothesized property of the stimulus which is not independently verifiable at any moment is not consistent with the methods of science
- How much responding occurred under X or Y conditions – IOA +

Value is inferred – It is NOT directly observed

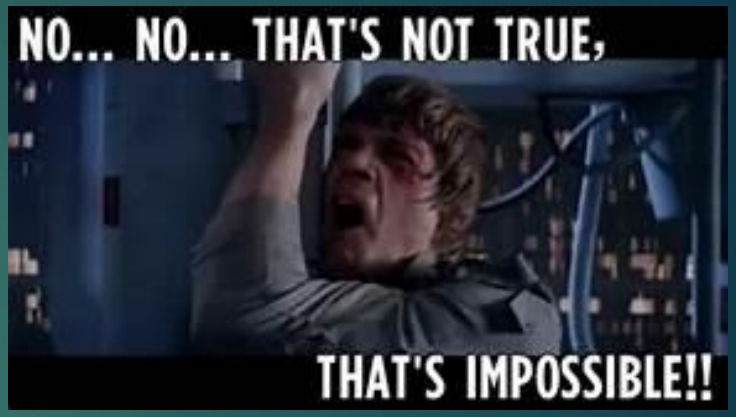
- With the current MO definition, we are correct to talk about actual changes in responding (behavior) of the **organism** that occur
- But… then we add "changes" in consequent stimuli -that do not actually occur-
- We infer that they must happen and these changes "explain" responding

Value as an Explanation?

- There is, of course, the traditional "motive" and "drive," but these terms have a number of distinct disadvantages, not the least of which is the strong implication of a determining inner state.
  - Jack Michael, JEAB, 1982, pg. 150
- Who "values" the stimulus?
  - Reinforcers work without an appeal to self, because we define them by the **effect on responding**
  - Value changes requires a "valuer" an inner entity

Behavior Changes

- Objectively and verifiably
- Value changes are INFERED -
  - Not observed-
  - As scientists – We are required to reject them as explanations

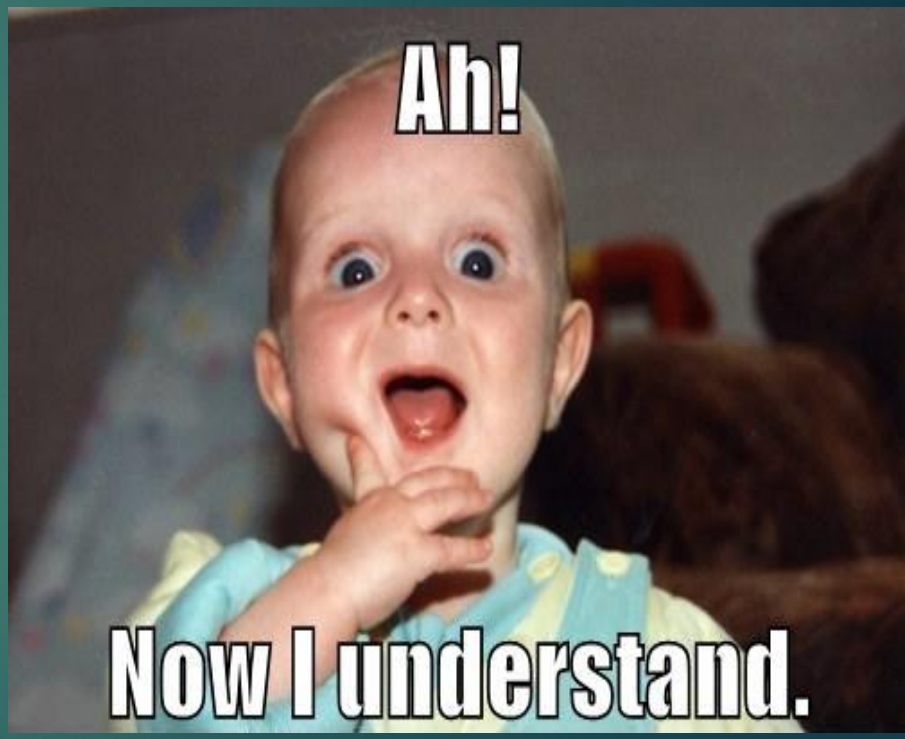


The consequent stimulus does not change-

We have no verifiable objective evidence that it does

Point 1 Summary

- "Value" not a directly measurable property of a stimulus
  - So we cannot use it to explain behavior change
- Behavior to access/avoid consequent stimuli does occur
- And it does so under some conditions and not others
- Our job is to study and identify these
  - **Stimulus Conditions &**
  - **Stimulus Condition Changes**



Point #2: MOs do not account for specific topographies of behavior occurring

- The MO of Food deprivation can absolutely account for food seeking behavior
  - However it does not account for
    - lever pressing,
    - Going to the pantry,
    - using a Dominos app, or
    - driving to get Chinese takeout.
- Each of these complex topographies of responding have been operantly acquired – and they occur in some stimulus conditions and not others.

Selection By Consequence-
(A scary but true idea)

- **Skinner knew that people are looking for an in initiating agent:**
- "We try to identify such an agent when we say (i) that a species adapts to an environment, rather than that the environment selects the adaptive traits; (ii) than an individual adjusts to a situation, rather than that the situation shapes and maintains adjusted behavior.."

- **Discrimination responding**: Response topographies are selected and rejected as function of reinforcement/punishment for some responses and not for others in these stimulus conditions. Consequences make stimulus conditions relevant and they are discriminated from other conditions by the organism

Is Skinner wrong? Is he enough?

- Attempts to explain specific topographies of behavior by appealing to antecedents is not consistent with the operant learning paradigm

- It is also not parsimonious
  - You must invent hypothetical entities to account for specific response forms
    - Value, drive, motivation (explain responding – but not specific topographies)
- Operant learning is sufficient to account for variability in response forms and rates/dimensions of responding under specific stimulus conditions

When versus Why

- When I am deprived of food/water/reinforcers etc.
  - I will likely engage in behavior to access them.
- What form of behavior I will use to obtain them…
  - That depends upon my specific history in these or similar stimulus conditions (e.g., my history)

- Consequences account for **WHY** the specific form occurs and not others – MOs do not and cannot select response forms

POINT #3: MOs do not allow us make accurate predictions about future behavior

- If a persons has been deprived of food for 3 days - will they eat food if offered?
- That Depends:
  - Hunger strike
  - Allergy
  - Religious prohibition for specific food offered

- Without explicit knowledge of specific history you cannot make accurate predictions
- Group design versus single subject

If you know…

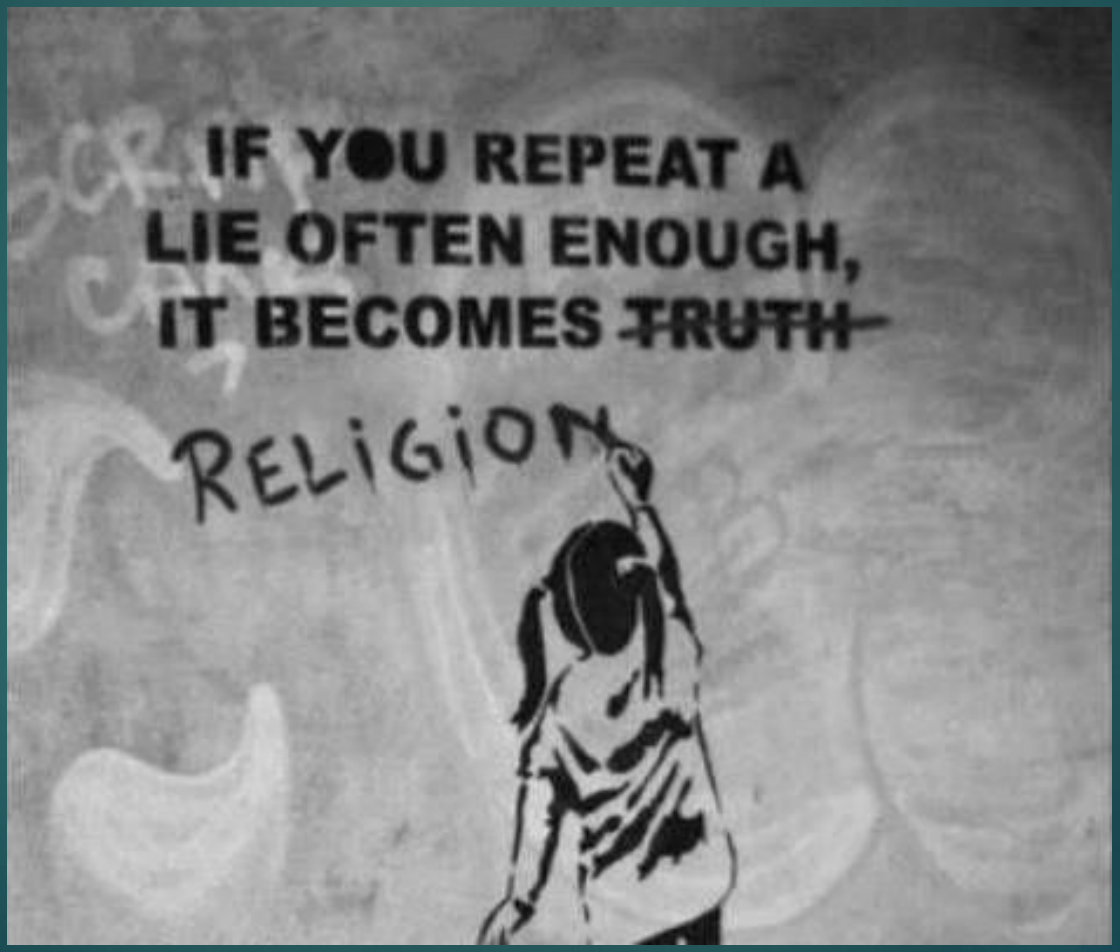
- The individuals specific history of responding in similar conditions in the past
  - Food items being offered and history with those items etc.
  - In short- Facts about the specific persons behavior
- Accurate predictions can be made in one set of **stimulus conditions** or when a **change in a set of stimulus conditions** occurs

- MOs do not allow such accuracy and mask variability within subjects that occurs as a function of **changes in stimulus conditions**

Elaboration on the Example

- **Is an MO for eating food in effect?**
- 3 days of food deprivation?
- If they are offered food and do not eat it ?
- No? Deprivation occurred but it is not an EO?
- Yes - there is an EO – but a weak EO and there is also a strong AO for eating
- Deprivation: Hunger strike and Allergy, EO, and 2 AOs?
- 1-2-3 Possible accounts – same set of conditions
- IOA – we have a problem

Point 4: The fallacy of the "Availability" argument



Difference between MO and SD?

- **Classic Explanation**:
- SD's: Signal the "availability" of reinforcement.
- MO's do not make the reinforcer more available (sight of the slotted screw, car gas light coming on)
- Beware of categorical answers
  - Is the screw a stimulus?
  - Is the light a stimulus?

- Can the function of these stimuli change as a function of different histories? And the function be different for different organisms?
- Context and history determine what it is and how it functions (operant learning history)

Among the many problems:

- Slotted screws and lights are **stimuli**, with histories of responding and consequences, they are discriminated and operantly controlled
  - Responding occurs (responses that function as reinforcers change depending upon the conditions)
- SD's actually signal what **responses** have produced or are more likely to produce reinforcement in these or similar conditions.

- **The availability of the reinforcer is NOT relevant**
- The context of the stimulus occurring is relevant to what will function as reinforcers at that moment and which responses have been reinforced in that condition in the past

Discriminated Operated Behavior

- Is the MO an explanation that adds to our understanding of WHY behavior occurs?
- NO: It is **When** responding changes - and is necessary to account for the initiation of responding in some conditions and not others
  - Reinforcement seeking behavior- can be accounted for with the MO
- HOWEVER: It does not explain response forms (topography)
  - This requires **discrimination** of the stimulus conditions and changes in these conditions and responding differentially in those conditions
- Currently this can ONLY be accounted for using the operant learning paradigm

Summary

- The MO definition as we currently accept it is deeply flawed and arguable anti-operant. Can we reconcile this problem?

- **The MO Definition Re-conceptualized**:
- Stimulus Conditions and Stimulus Condition Changes associated with changes in some measurable dimension of responding.

- Four types
  - Internal environment changes
  - External environment change
  - Simple stimulus condition changes
  - Complex stimulus condition changes

Types of MOs

- **Simple and Complex**
  - Simple: Single stimulus change-
    - Examples: Phone rings, light goes on, person days "Hello"
  - Complex: Multiple condition changes
    - Example: It is cold out, you have not eaten yet and you smell pastry as you walk by a store on your way to work

- **Internal and External environment:**
  - Internal: Measurable changes in the organism (within the skin)
    - Examples: having consumed very spicy foods, drank alcohol, or not having water for 10 hours
  - External: Measurable changes outside of the organism
    - Examples: lights, sounds, smells, etc.

One Last Question

- Who still thinks that VALUE is a concept we should be using when talking about the MO?
- Who does not??

Chaos, panic and disorder.

My work here is done.

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