Applications of Derived Relational Responding Research: Getting a Sense of What Has Been Done

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Where Has It Been

• DRR Work has Been Evolving in the Basic Science World for ~ 20 years
  ▪ Currently ~ 200 empirical articles investigating DRR
  ▪ More on the way
  ▪ No other area exploding like this
  ▪ Basic development is a necessary pre-requisite in our science
Where It Is Now

Basic

Bridge

Applied
Now……What Is It

• Derived Stimulus Relations
  ▪ When a relationship is drawn between two or more stimuli without direct learning/experience

• Derived Relational Responding
  ▪ The ACTION of drawing a relationship between two or more stimuli
Now......What Is It

• Currently 3 Main Accounts;
  ▪ Equivalence (Sidman)
  ▪ Naming Theory (Horne & Lowe)
  ▪ Relational Frame Theory (Hayes, Barnes-Holmes, & Roche)
Now……What Is It

• Currently 3 Main Accounts;
  ▪ Equivalence (Sidman)

\[ A = B = C \]

\[ A = C \]
Now……What Is It

• Currently 3 Main Accounts;
  ▪ Equivalence (Sidman)
  ▪ Naming Theory (Horne & Lowe)
  ▪ Relational Frame Theory (Hayes, Barnes-Holmes, & Roche)
Now……What Is It

- Currently 3 Main Accounts;
  - Naming Theory (Horne & Lowe)
    - Bi-Directional relation between a spoken word and particular stimulus
    - Speaker repertoire & Listener repertoire
    - Naming results when either repertoire is evoked
Now…….What Is It

• Currently 3 Main Accounts;
  ▪ Equivalence (Sidman)
  ▪ Naming Theory (Horne & Lowe)
  ▪ Relational Frame Theory (Hayes, Barnes-Holmes, & Roche)
Now……What Is It

• Relational Frame Theory seems to capture the essence of all other explanations and is thus seen as accounting for both Equivalence and Naming phenomena

• What does a behavior analytic account look like though
Now…….What Is It

- Currently 3 Main Accounts;
  - Relational Frame Theory (Hayes, Barnes-Holmes, & Roche)

\[ A \not\equiv B \not\equiv C \]

Not Just Equivalence—many, many relationships between stimuli and events
"I'm John Glynn. My dad is your dad's boss. Give me that swing."
TOO MUCH COFFEE MAN  BY SHANNOH WHEELER

I LIKE A GIRL

SHE DOESN'T LIKE ME

SHE FIGURES OUT THAT I'M A LOSER

WE DATE FOR A WHILE

SHE GETS RABIES

I DIE; SAD, LONELY, AND ALONE

SHE LIKES ME BACK

WE START DATING

WE FALL IN LOVE

THERE'S A NUCLEAR HOLOCAUST

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Now…….What Is It

• What Does a Behavior Analytic Account Look Like Though
  - From beginning it has been conceived of as a behavioral event
  - This requires certain criteria be met
Now……What Is It

• This Requires Certain Criteria be Met
  ▪ Cannot account for it by postulation of metaphysical entities
  ▪ Must submit to an analysis of the whole organism
  ▪ Must involve behavioral process(es)
    ➢ Much relational responding is covert; this is not an issue, however.
    ➢ This is a methodological constraint that is being worked out now (IRAP)
Now……What Is It

• This Requires Certain Criteria be Met
  • Must Develop Over Time
  • Must Come Under the Control of Antecedent/Contextual Stimulation
    • A result is alteration of what may function as an evokative/elicitive stimulus
  • Must Come Under the Control of Consequential Stimulation
    • A result is alteration in what may serve as a reinforcer/punisher
    • Coherence for instance
Now……What Is It

• I Want to Elaborate on an Important Implication of Deriving Relations
  • Flow-thru of stimulus function without direct experience

• Called Transformation of Stimulus Function
  • Results from combination of both trained and derived relations between stimuli
  • Function is not simply transferred, but transformed
Now......What Is It

The Core Verbal Process
Some Derived Relations

Husko  Limoo  Patar

Limoo  Patar  Husko

Many thanks to Ian Stewart for the timeless Limoo example
Now......What Is It

1. Mutual Entailment

2. Combinatorial Entailment

3. Transformation of Functions
Now.......What is it

• Studies evaluate this change in stimulus function in two ways.
  • We wanted to see if there was a difference in effect between the training strategies

• Established two networks based on “same as”

• Wanted to “make” an $S^D$ without Hx
Now…….What is it

• Establish stimulus class of 4 stimuli prior to establishing a function

First: A C B

Then: B D

• Barnes and Keenan (1993)
• Dougher, Augustson, Markham, Greenway, and Wulfert (1994)
Now……..What is it

• Establish a function prior to establishing a stimulus class of 4 stimuli

First: Function

Then:

• Gatch and Osborne (1989)
• Roche and Barnes (1997)
• Hayes, Kohlenberg, and Hayes (1991)
• Results indicate greater than chance levels of responding correctly in the presence of the C or D stimulus

• Without any specific reinforcement history, these stimuli acquired discriminative function
Now……..What Does It Look Like

• It looks like
  • matching to sample
  • Conditional discriminations
  • Various forms of avoidance
  • Problem solving
  • Pick up lines
  • Planning
  • Reasoning
  • Analogy, metaphor, simile
Now……What Does It Look Like


Bigger than

Smaller than
Now……What Does It Look Like

Deriving Intelligence Through Comparatives

“Dim” ↔ “Bright” ↔ “Smart”
Now.......What Does It Look Like

Alternating Treatments (A)

Lovett, Rehfeldt, Garcia & Dunning (2011)

Definition
This design involves evaluating the effects of 2 or more treatments on the same behavior via the rapid alternation of treatments within sessions, across different times of the same day, or across different days (B)

Clinical Vignette
Staff want to evaluate whether verbal praise or a token system is more effective at increasing the duration of Carla’s time on task (D)
Now... What Does It Look Like
Perspective Taking

• Ability to “see” another’s perspective

• Basically a behavioral repertoire that involves prediction of another persons’ behavior based on knowledge of past and present events

• Involves three deictic relations
  • I-You  Here-There  Now-Then
Now……..What Does It Look Like

Deictic Relations In Typical Conversation

“Yesterday I went sailing at Lake Tahoe with Bob, but you weren’t around. Maybe we can go next weekend if he’s in town?”
“Yesterday (Then) I (I) went sailing at Lake Tahoe (There) with Bob (I-Him--we—coordination), but you (You) weren’t around (Here-Then). Maybe we (I-You) can go (There) next weekend (Then) if he’s in town (Here)?”
Deceptive Container Task

Mastery Level

Baseline
Reversed
Double

Percent Correct

True Self
True Another
False Self
False Another

Hinting Task & RSAS

Mastery Level

Baseline
Reversed
Double

RSAS Score

Hinting Task Score

RSAS
Hinting Task
This model captures one of the ‘core’ properties of analogy -- the relating of derived relations.
The Analogy Allows Two Sets of Formal Properties to Function as Contextual Cues for the Two Equivalence Relations

Cues
Round, juicy, edible etc.

Equivalent
Limoo
Kiwi

Cues
Hairy, four legs, lives in groups, etc.

Equivalent
Wolf
Moose

Equivalence-Equivalence

Shark

• Study 1: Typically developing 8-12 year olds
• Training Group received *SAME, SAME & OPPOSITE* and *MORE & LESS* M.E.T. across a period of 24 months
Cassidy, Roche & Hayes (2011)

- **Figure 2**: Data for Individual Participants in Training and Control Groups
Cassidy, Roche & Hayes (2011)

- Study 2: Eight 11-12 year olds with educational difficulties
- Received training in SAME, SAME & OPPOSITE and MORE & LESS M.E.T. across a period of 9 calendar months


Now.......What Does It Look Like

• Many things in human experience can be re-lived through language and/or can be produced short of experience.

• A clinical technology has been developed on the foundation of deriving stimulus relations to help deal in this area:

  Acceptance &
  Commitment
  Therapy
Now.......What Does It Look Like
Now......What Does It Look Like

This was with a bottle cap... Normally I choose a razorblade. But I was horribly distraught at the time. So I grabbed whatever was around. I’m 17 years old and have been cutting off and on since I was about 14. For me, it’s not about the pain, because I have a high tolerance.

I think the validation for me is the blood. To actually see it speaks to me in an equality with the mental pain. I’ve been trying to quit. I went even 5 months after I moved away from my grandmother. But then it came back. As it always does....Also, I realized I’m not alone. And no one ever is.
Scary?
Perhaps