



# Analyses of Relational Coherence and Rule-Following Consistent liars are preferred over occasional truth tellers

Dr Colin Harte







# The Team Involved



## Dr Jesus Alonso-Vega





## Dr Colin Harte

## Prof Dermot Barnes-Holmes

# The Behavior-analytic Study of Rule-following

- The capacity to engage in rule-governed behaviour has long been identified as important within the behaviour-analytic study of human learning
- This capacity is also highlighted as a critical behaviour that differentiates humans from non-human animals
- A wealth of research has emerged within the tradition on aspects such as rule-based contingency insensitivity, how rule-following is affected by different reinforcement schedules, generalisation of rule-following, how rules can influence how time and resources are allocated, how decisions are made, and how to respond to social cues

THE BEHAVIORAL AND BRAIN SCIENCES (1984)

Steven C. Hayes

CONTROL

RULE-

COGNITION,

AND

Edited By

An operant analysis of problem solving

3. F. Skinne

strengthened when it does so. Problem solving typically involves the construction of discriminative stimuli. Verbal responses produce especially useful stimuli, because they affect other people. As a culture formulates maxims, laws, grammar, and science, its nembers behave more effectively without direct or prolonged contact with the contingencies thus formulated. The culture solves problems for its members, and does so by transmitting the verbal discriminative stimuli called rules. Induction, deduction, and the construction of models are ways of producing rules. Behavior that solves a problem may result from direct shaping by contingencies or from rules constructed either by the problem solver or by others. Because different controlling variables are involved, contingencyshaped behavior is never exactly like rule-governed behavior. The distinction must take account of (1) a system which establishes ain contingencies of reinforcement, such as some part of the natural environment, a piece of equipment, or a verbal communit



# But why do we follow rules provided by some people but not others?

- One way of going about this is making a distinction between different types of rules (e.g., pliance, tracking and augmenting)
- But of course these are not precise technical terms maybe we could ask questions about rule-following using more technically precise terms (in the service of developing a precise experimental analysis of this behaviour)?
- That is, irrespective of whether you consider it a ply or track, why do you follow a rule provided by one individual but are less likely to follow it by another?
- What are the variables that impact on this likelihood?

The Psychological Record (2022) 72:145–158 https://doi.org/10.1007/s40732-021-00458-x

HEORETICAL ARTICLE

### The Status of Rule-Governed Behavior as Pliance, Tracking and Augmenting within Relational Frame Theory: Middle-Level Rather than Technical Terms

Colin Harte<sup>1</sup> · Dermot Barnes-Holmes<sup>2</sup>

Accepted: 1 February 2021 / Published online: 11 March 2021 © Association for Behavior Analysis International 2021

### Abstract

A recent systematic review has highlighted that the terms "pliance," "tracking," and "augmenting" have rarely been used as the basis for conducting systematic experimental-analytic research since their conception in 1982, despite their theoretical centrality to the study of rule-governed behavior and their presumed impact on psychological suffering. Given that some time has passed since the review article, it may be useful to reflect again upon their place within the literature on the experimental analysis of human behavior, and relational frame theory in particular. As such, the current article constitutes a "position piece" rather than another formal systematic review. In reviewing (informally) the literature since the systematic review, the recent emergence o psychometric research involving these concepts could be seen as reinforcing the original conclusions, in that researchers are recognizing that pliance, tracking, and augmenting may be of limited value in the experimental analysis of human behavior. Instead, the concept of rule-governed behavior itself, as well as the subcategories of pliance, tracking, and augmenting, should be considered middle-level terms, which lack the relative precision of more technical terms within the literature on relational frame theory.

Keywords pliance · tracking · augmenting · rule-governed behavior · RFT/ACT



## Rule-following and the Impact of C The Psychological Record (2020) 70:605-624

- One potential source is a history of relational coherence in terms of your history of interactions with a speaker
- Coherence refers to the extent to which a pattern of relational responding is consistent (coherent) with a previously established pattern
- The extent to which responding is generally predictable based on prior histories of reinforcement (Bern et al., 2021, p.280)
- Bianchi et al. began to "explore the extent to which manipulating coherence would impact upon the extent to which a listener would follow the advice of a speaker and would show a preference for one speaker over another" (p.6)

erspectives on Behavior Science (2020) 43:361-385 ttps://doi.org/10.1007/s40614-020-00256-w The Study of Rule-Governed Behavior and Derived Check for Stimulus Relations: Bridging the Gap Dermot Barnes-Holmes ',<sup>2</sup> · Yvonne Barnes-Holmes<sup>1</sup> · Ama Kiss Published online: 21 May 2020 The concept of rule-governed behavior or instructional control has been widely recognize for many decades within the behavior-analytic literature. It has also been argued that th human capacity to formulate and follow increasingly complex rules may undermine sensitivity to direct contingencies of reinforcement, and that excessive reliance upon rules may be an important variable in human psychological suffering. Although the concept of ules would appear to have been relatively useful within behavior analysis, it seems wis rom time to time to reflect upon the utility of even well-established concepts within a scientific discipline. Doing so may be particularly important if it begins to emerge that the existing concept does not readily orient researchers toward potentially important variable associated with that very concept. The primary purpose of this article is to engage in this reflection. In particular, we will focus on the link that has been made between rule governed behavior and derived relational responding, and consider the extent to which i hight be useful to supplement talk of rules or instructions with terms that refer to the dynamics of derived relational responding **Keywords** Rule-governed behavior · Derived relations · Relational networks · Relational rame theory · HDML framewor

https://doi.org/10.1007/s40732-019-00372-3

### Updating RFT (More Field than Frame) and its Implications for Process-based Therapy

Dermot Barnes-Holmes<sup>1</sup> • Yvonne Barnes-Holmes<sup>1</sup> • Ciara McEnteggart<sup>1</sup> 💿

nse to the recent call for a focus on psychological pro cess-based focus, the need for clarity in defining psyc lop process-based therapy. In grappling with this challe dern view of behavioral processes as they apply specifical

### AND EDUCATIONAL SCIENCES

Exploring the Behavioral Dyn Involved in Persistent Rule-f the Context of an Updated Ve **Relational Frame Theory** 

Colin Harte

Supervisor: Prof. Dr. Dermot Barnes-Holmes o-supervisor: Prof. Dr. Yvonne Barnes-Holme

perspectivas em análise do comportamento



Effects of coherence on speaker preference and rule-following

Efeitos da coerência na preferência pelo falante e no seguimento de regras

Efectos de la coherencia sobre las preferencias del hablante y el seguimiento de reglas

Paulo H. Bianchi<sup>1, 2</sup>, William F. Perez<sup>1, 3</sup>, Colin Harte<sup>4</sup>, Dermot Barnes-Holmes<sup>5</sup>

] Paradigma - Centro de Ciências e Tecnologia do Comportamento, Brazil [2] IPEN - Instituto de Pesquisas Energéticas e Nucleares, Brazil [3] Instituto Nacional de Ciência e Tecnologia sobre Comportamento, Cognição e Ensino (INCT-ECCE), Brazil [4] National College of Ireland, Dublin, Ireland [5] Ulster University, Northern Ireland, UK | Título abreviado: Coherence, preference and rule-following | Email: William F. Perez: will.f.perez@gmail.com | doi: 10.18761/PAC.2021.v12.RFT.07



### 

Check for updates

ses of change in p	osychotherapy. In	
ological processes	s per se becomes cle is divided into	
ly to verbally soph	isticated humans.	
ithin bobouioral	nieros relational	
	he lens	
	he core	
	4	
amics	3	
		i
ollowing	in a	
rsion of	<b>4</b>	
	1	
	1	
	2	
	E C	
	2	
	1	
	2	
	1	
	1 A	
	2	
	1	
	5	
Harris and the second second second		

# How do different levels of speaker coherence impact upon speaker preference and rulefollowing?



Experiment 1



# Phase 1 Simple Discrimination Training





## Mastery Criteria





# Phase 2 Speaker Relational Coherence Training







Speaker 1: 100% correct

Speaker 2: 50% correct

Speaker 3: 0% correct

Mastery Criteria

450 points



# Phase 3 Generalisation Test





# Phase 4 Preference Test







Speakers 1 vs 3



Speakers 2 vs 3



## No feedback provided!







# Phase 5 Simple Discrimination Maintenance



## No feedback provided!



# Results



# Simple Discrimination Training Phase 1



# Speaker Relational Coherence Training Phase 2



## Generalisation Test Phase 3

![](_page_15_Figure_1.jpeg)

# Phase 4

![](_page_16_Figure_1.jpeg)

# Simple Discrimination Maintenance Test Phase 5

![](_page_17_Figure_1.jpeg)

![](_page_17_Picture_2.jpeg)

# Summary Experiment 1

- Results were relatively consistent across participants in that they:
  - Tended to follow the rules provided by the coherent speaker but not the incoherent speaker (in the absence of feedback and with new stimuli)
  - Vacillated between following and not following the rule for the 50% coherent speaker
  - Demonstrated preference for the coherent over incoherent speaker (even though they could obtain the same amount of points with each)
  - Interestingly, participants preferred the consistent liar (S3) than the occasional truth teller (S2)
- However, in the natural environment, speakers rarely provide accurate rules 100% vs 0% of the time
- Experiment 2 sought to partially replicate Experiment 1 but varying the accuracy of the rules provided by the speakers

Experiment 2

![](_page_19_Picture_1.jpeg)

# Phase 2 Speaker Relational Coherence Training

![](_page_20_Picture_1.jpeg)

![](_page_20_Picture_2.jpeg)

![](_page_20_Picture_3.jpeg)

Speaker 1: 80% correct

Speaker 2: 50% correct

Speaker 3: 20% correct

Mastery Criteria

450 points

![](_page_20_Picture_9.jpeg)

# Results

![](_page_21_Picture_1.jpeg)

![](_page_22_Figure_1.jpeg)

![](_page_23_Figure_1.jpeg)

![](_page_24_Figure_0.jpeg)

- Extent to which responding varied by experiment — — one really tight and the other much more scattered
- Just to get a sense of what a big difference it made to go from 100% vs 0% to 80% vs 20%

![](_page_25_Figure_1.jpeg)

# Speaker Preference Phase 4

Participant choice ratio

0,9 0,8 0,7 0,6 0,5 0 0,4 0,3 0,2 0,1 0

e Test	1 0,9 0,8 0,7 0,6 0,5 0,4		
		<ul> <li>\$1/\$2</li> <li>\$1/\$3</li> <li>\$3/\$2</li> </ul>	Exp1

![](_page_27_Figure_1.jpeg)

## Summary Experiment 2

- Replicated results of Exp 1 in that:
  - contingencies (and when these were discontinued)
  - Participants rarely followed the rules provided by Speaker 3
  - A distributed pattern was observed for Speaker 2
  - Participants generally appeared to prefer Speaker 3 over 2

- some participants

• Participants tended to follow rules provided by a speaker when those rules cohered with the feedback

• However, there was more variability in responding which suggest sensitivity to changes in speaker relational coherence

Probability of following the rule seemed to reduce when coherence was reduced (in both training and testing)

Changes in relational coherence may have affected the generalisation of rule-following and speaker preference for

# Discussion

- incoherent speaker rules during training and testing
- It appears that following or not following the rules provided by identifiable speakers generalised to novel stimuli and were maintained in the absence of differential reinforcement
- Participants did not consistently prefer speakers with higher relational coherence over lower consistent liars (100% inaccurate or 80% inaccurate) were preferred over occasional truth tellers (50% accurate/ inaccurate)
- In one sense, a consistent liar may obtain some of the functions of a consistent truth teller in that the participant can obtain every point by just not following their rule
- Interestingly, participants preferred the coherent speaker in both experiments even though in principle they could receive a similar amount of points from each
- Preference, therefore, was not determined simply by number of points to be earned, but perhaps also by a pre-experimentally established preference for verbal coherence over incoherence

# • Overall, participants demonstrated a tendency to follow coherent speaker rules and avoid following

![](_page_29_Picture_8.jpeg)

## Discussion Moving forward...

- relational coherence on rule following and subsequent speaker preferences
- Still, limited ecological validity
- time they do not comply with a rule
- What if we increase the complexity of the relating involved?
  - What about when the speakers themselves participate in derived relations with other speakers?
  - Could this contribute toward developing a more complete model of rule-following in the natural provided by a stranger if they belong to an in-rather than out-group?)?

The current study was also about developing an experimental paradigm for analysing the impact of speaker

What about removing punishment contingencies? In real life situations, people do not receive punishment every

environment and speak to domains such as social prejudice (are people more likely to follow advice or rules

![](_page_31_Picture_1.jpeg)

![](_page_31_Picture_2.jpeg)

![](_page_31_Picture_3.jpeg)