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EVALUATION OF A RELATIONAL FRAME THEORY APPROACH TO TEACHING PROBLEM-SOLVING SKILLS TO CHILDREN WITH AUTISM

Jonathan Tarbox, PhD, BCBA-D
Lisa Stoddard, M.A., BCBA
Ashley Farag, M.Ed., BCBA
Erica Christin, M.S., BCBA
Amanda Murray, M.Ed., RBT

CHAPTER 1 - SENTENCE 1

"Applied behavior analysis is a science devoted to the understanding and improvement of human behavior."

Applied Behavior Analysis
Second Edition

John O. Cooper • Timothy E. Heron • William L. Heward

EXECUTIVE FUNCTIONS?

- Definition: Umbrella term used to describe the "chief operating system" localized in the prefrontal regions which includes higher level cognitive processes necessary for future oriented, **goal-directed behavior**.

  - **Working Memory**

  - **Attention**

  - **Inhibition**

  - **Cognitive Flexibility**

  - **Planning + Goal Setting**

  - **Self-Monitoring**

  - **Problem Solving**

SECONDARY REPERTOIRES OF BEHAVIOR


Self-control in action

- **Neuroscience:** EF brain mechanisms / chemistry controls our behavior

- **Behavioral Approach:** WE *learn* to control our own behavior by using other "secondary" behaviors to do it

- Practically speaking, these approaches can be complimentary, not contradictory

PROBLEM-SOLVING

- B. F. Skinner: A problem is a situation where an outcome would be reinforcing, if only you had a behavior needed to produce it (1953; 1957)

- In other words, you know what you want but you don't know what to do to get it

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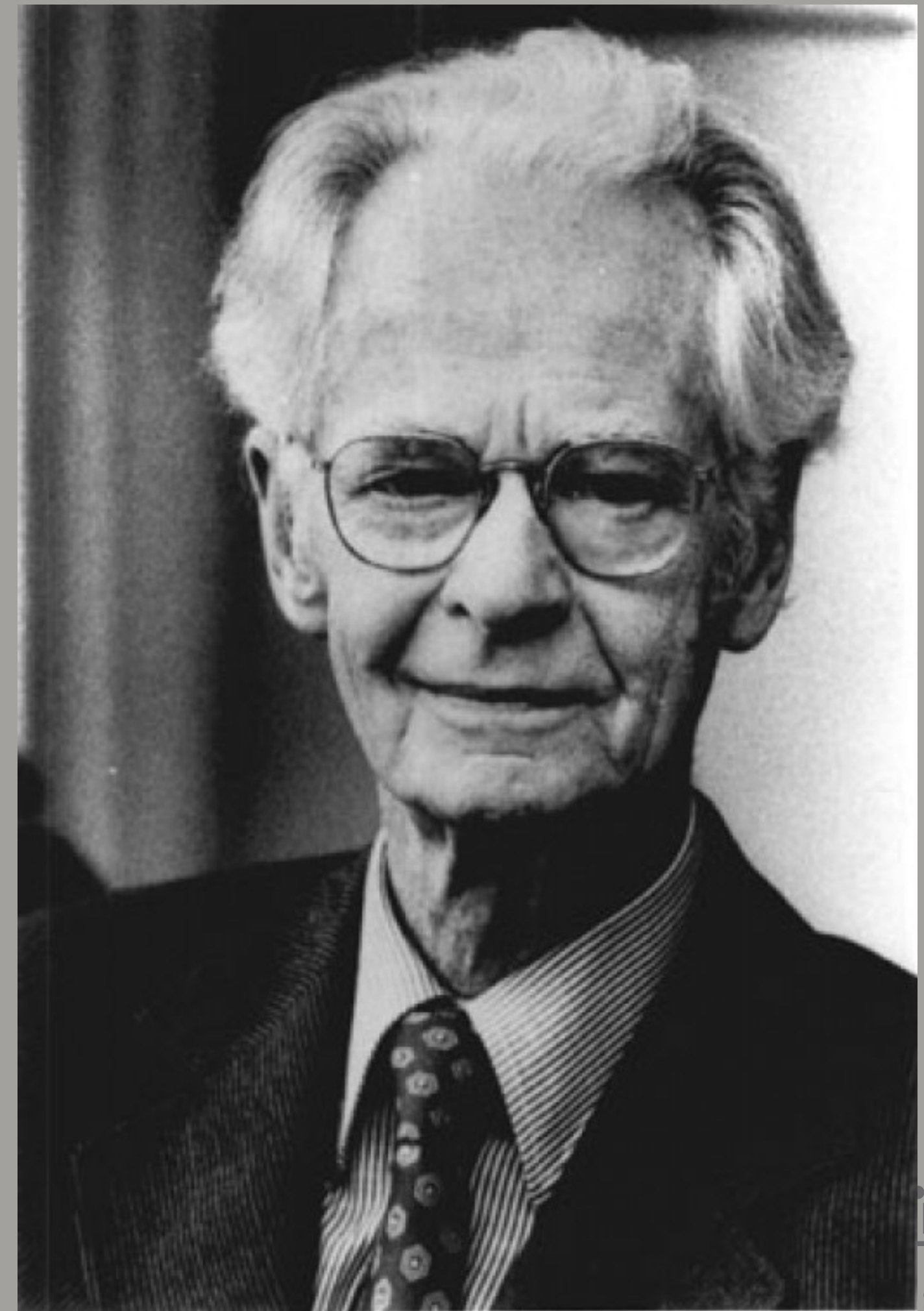
PROBLEM-SOLVING

Problem-Solving as a Class of Behavior:

- Behaviors you engage in that result in identifying the behavior needed to bring about the desired outcome

  - *Using your "secondary-repertoire"*

- In other words, it's the skill of figuring out what you need to do to get what you want

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THE ROLE OF RULE DERIVING
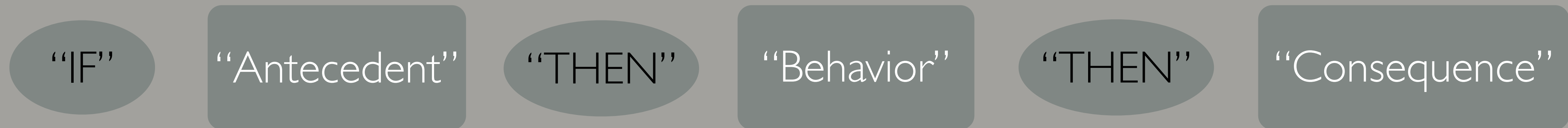
"IF" "Antecedent" "THEN" "Behavior" "THEN" "Consequence"

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THE ROLE OF RULE DERIVING

Contextual Cues for Conditional Relating

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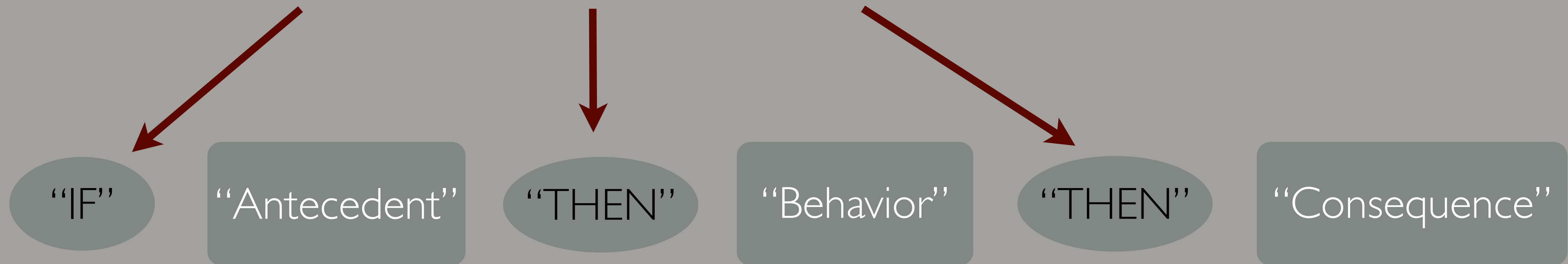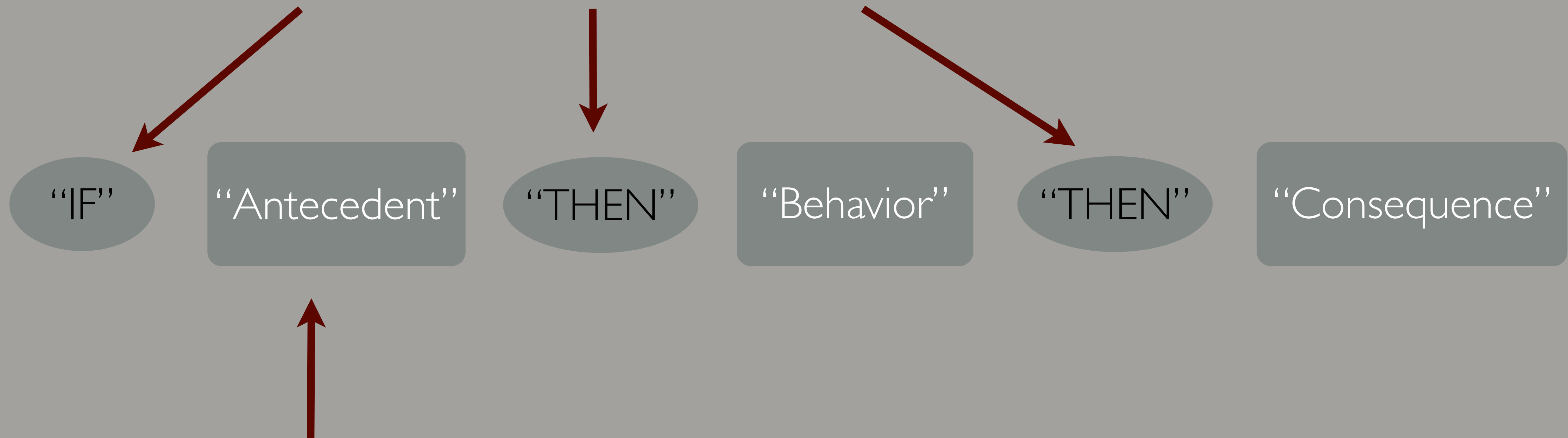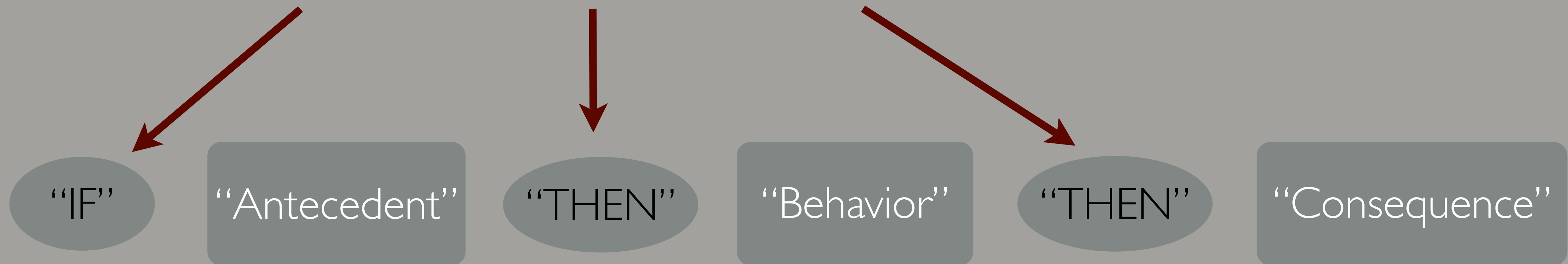
Transforms the function of the actual antecedent to cue the behavior, *as though* it were an Sd for that behavior

THE ROLE OF RULE DERIVING

"IF"   "My toy doesn't work"   "THEN"   "I put new batteries in it"   "THEN"   "I can play with it"

INCOMPLETE RULES

"IF"   "My toy doesn't work"   "THEN"   ...   "THEN"   "I can play with it"

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THE ROLE OF FLEXIBILITY / CREATIVITY

- Problem solving seems to be the repertoire of behavior of creatively and flexibly deriving possible behaviors for incomplete rules

- Poor problem solving skills may be:

  - Nonexistent / inadequate rule deriving repertoire

  - Rigid / inflexible / repetitive rule driving repertoire

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PROBLEM SOLVING + AUTISM

- Solving novel problems is **critical to human functioning**

- Previous research has shown that many children with ASD have **deficits in problem solving skills** (Minshew et al., 1997)

- **Very little previous research** has evaluated procedures for teaching problem solving skills to children with ASD

INTERVENTION RESEARCH

Teaching Problem-Solving Skills Across Ages and Populations

SELF-DETERMINED LEARNING MODEL OF INSTRUCTION

- Manual by Palmer and Wehmeyer (2002)

- Empirical support in

  - Moderate to severe intellectual disabilities in general education (Agran et al, 2006)

  - Middle school students developmental disabilities (including one participant with autism) (Agran et al, 2002)

- Limited to one problem, in school setting

- Solutions are usually doing what teacher says

SAUTTER, LEBLANC, JAY, GOLDSMITH, AND CARR (2011)

- **Trained typically developing preschoolers to use category names to prompt themselves to remember animals**

- **"Tell me 12 animals"**

- **"ZOO: elephant, zebra, giraffe, FARM: cow, pig, chicken, OCEAN: fish, whale, dolphin"**

- **Self-prompting to use category names was prompting self with cues for hierarchical framing**

- **Didn't generalize to other categories**

- **Not really a problem that mattered to the students**

SZABO AND STUDENTS

- **Taught generalized rule-deriving repertoire to kids with autism**

- **Amazing data - look for it in print soon!**

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1. Can we teach our clients to identify real life "problems" and generate potential solutions?

2. Can children with **ASD** be taught a generalized repertoire of rule-deriving with respect to problems?

3. Will multiple exemplar training be effective for establishing a generalized repertoire of conditionally relating names for potential future antecedents, behaviors, and consequences?

PARTICIPANTS

- 4 children, 5-9 years old, with ASD receiving home-based behavior intervention services

- High verbal skills but had problems responding to problems

  - Deficient independent task completion, responding flexibly to changes

  - Excessive problem behaviors in response to daily-life challenges

- Had basic **causal relating repertoires** (i.e., generalized ability to describe simple cause and effect relations and to follow novel rules)

- All sessions conducted as a part of their ongoing treatment

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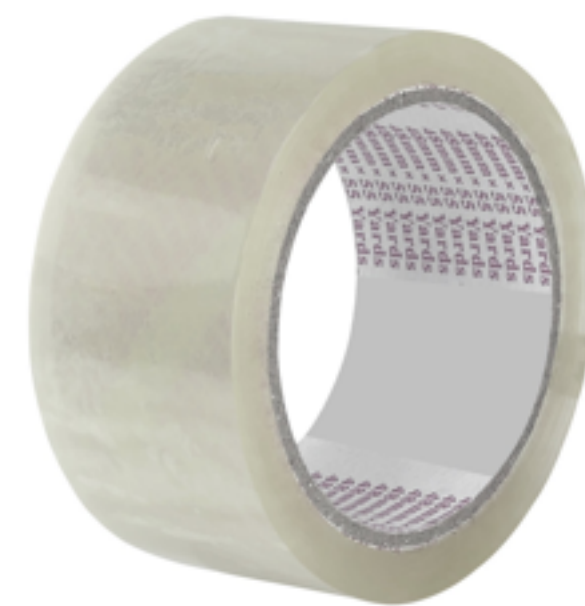early intervention program

PROCEDURES

- **Non-Concurrent Multiple Baseline** across clients

- **Baseline**

  - Real-life problem presented, no prompts provided

- **Multiple Exemplar Training**

  - Variety of untrained problems presented throughout intervention

  - Training to use chain of verbal (secondary repertoire) and non-verbal steps in problem-solving task analysis

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SOMETHING'S BROKEN	CAN'T GET OPEN	NOT ENOUGH SOMETHING
• Squirt gun doesn't squirt • Toy car wheel broken • Pencil tip breaks	• Locked • Taped Package • Lid too tight	• Too few game pieces • Not enough bread • Run out of glue

REAL-LIFE PROBLEMS
Sample Exemplars

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Step	Target	Sample Responses	Sample Prompts

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Step	Target	Sample Responses	Sample Prompts
1.	Identify Problem	"There aren't enough pieces for everyone to play"	"Uh oh!" "What's the problem?"

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Step	Target	Sample Responses	Sample Prompts
1.	Identify Problem	"There aren't enough pieces for everyone to play"	"Uh oh!" "What's the problem?"
2.	State Why it's a Problem	"We can't play the game"	"Why is that a problem?" "So?"

Step	Target	Sample Responses	Sample Prompts
1.	Identify Problem	"There aren't enough pieces for everyone to play"	"Uh oh!" "What's the problem?"
2.	State Why it's a Problem	"We can't play the game"	"Why is that a problem?" "So?"
3.	Create 1-3 Possible Solutions	"I can look for the missing piece, we can make a new one, or we can play a different game"	"What's one solution?" "What else could you do?"

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4.	Choose One Solution	"I'll make a new piece out of paper"	"What do you think the best choice is?"

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5.	Implement the Solution	Does it	"Ok, go for it!" "Great idea, do it!"

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5.	Implement the Solution	Does it	"Ok, go for it!" "Great idea, do it!"
6.	Evaluate the Solution	"It worked!" "We did it!"	"Did it work?" "What's the problem?"
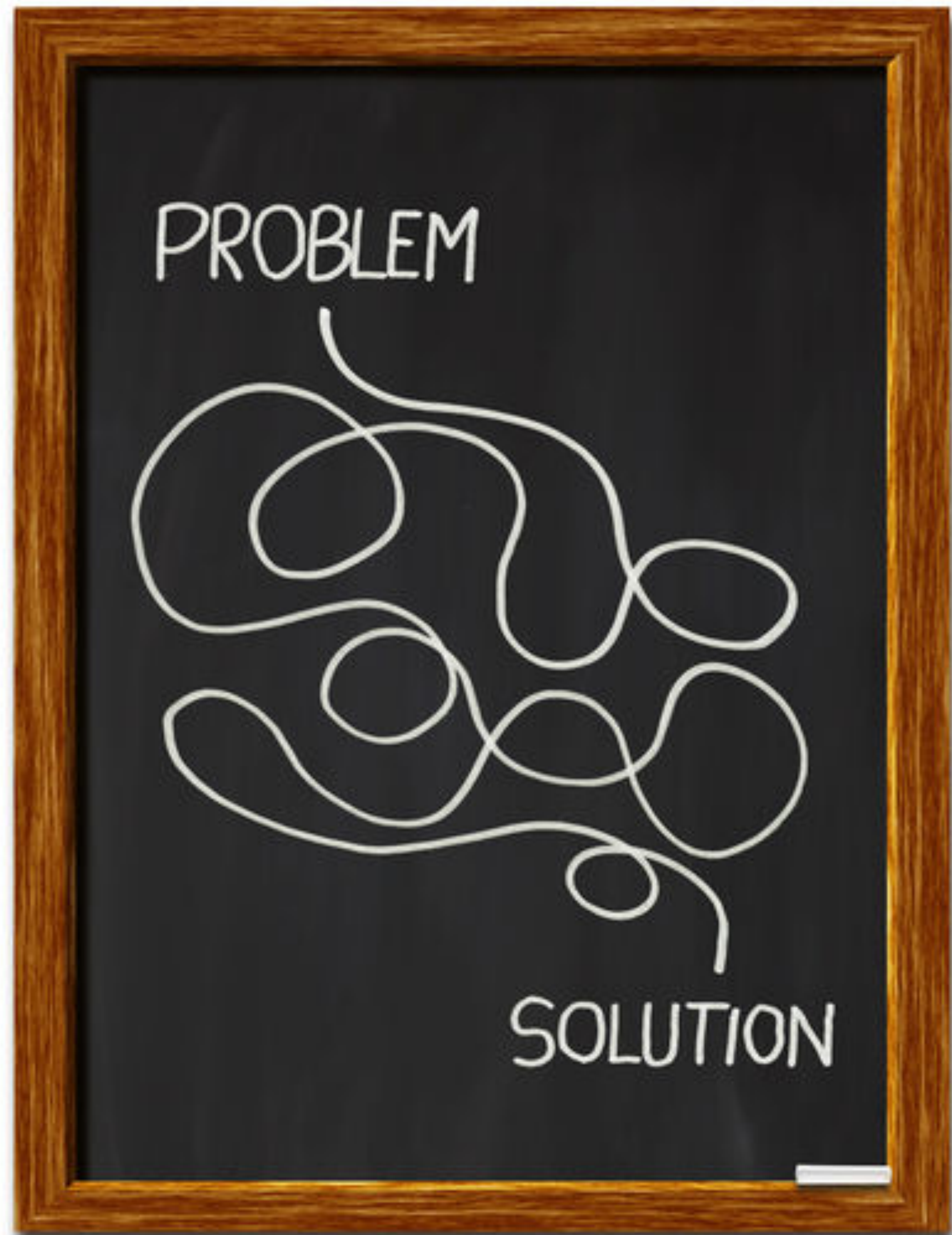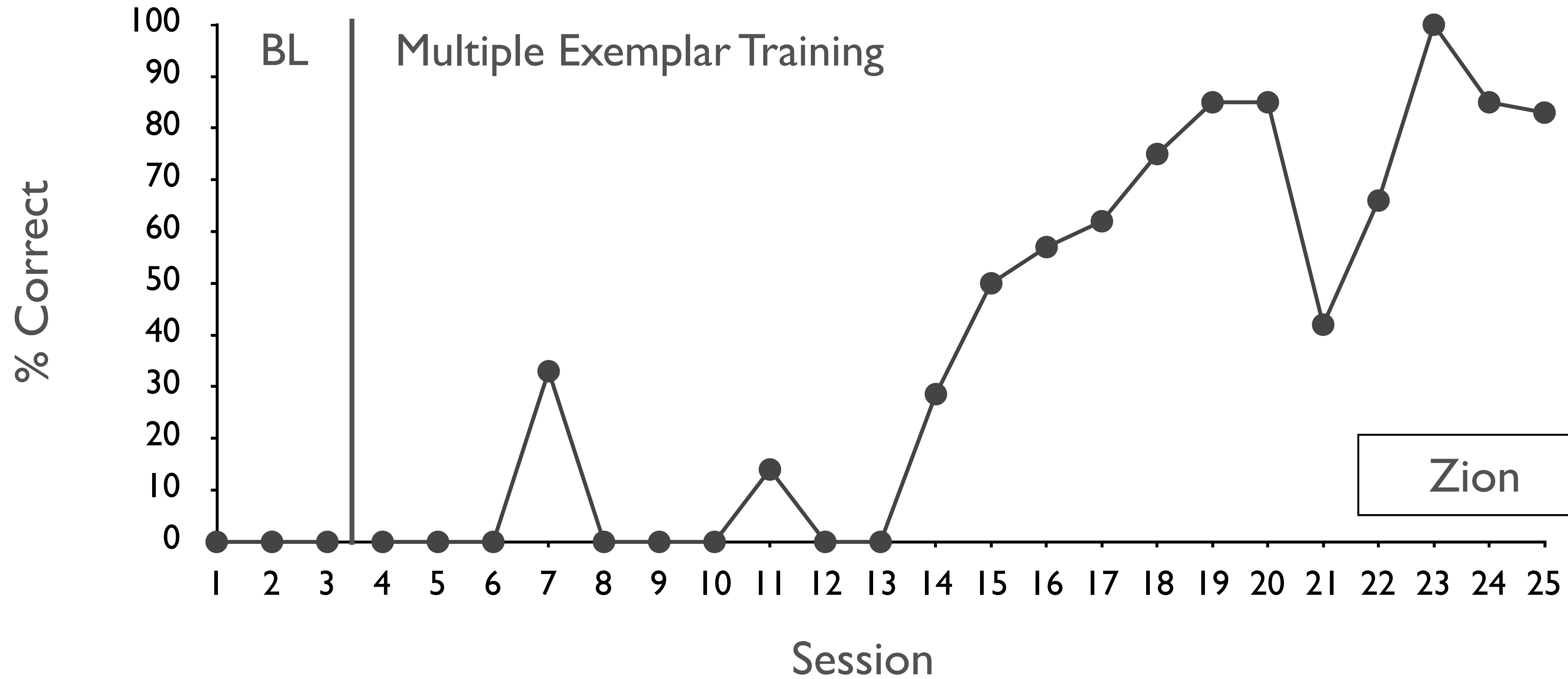
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RESULTS

PROBLEM SOLVED!

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BEGINNING TO USE SECONDARY REPERTOIRE
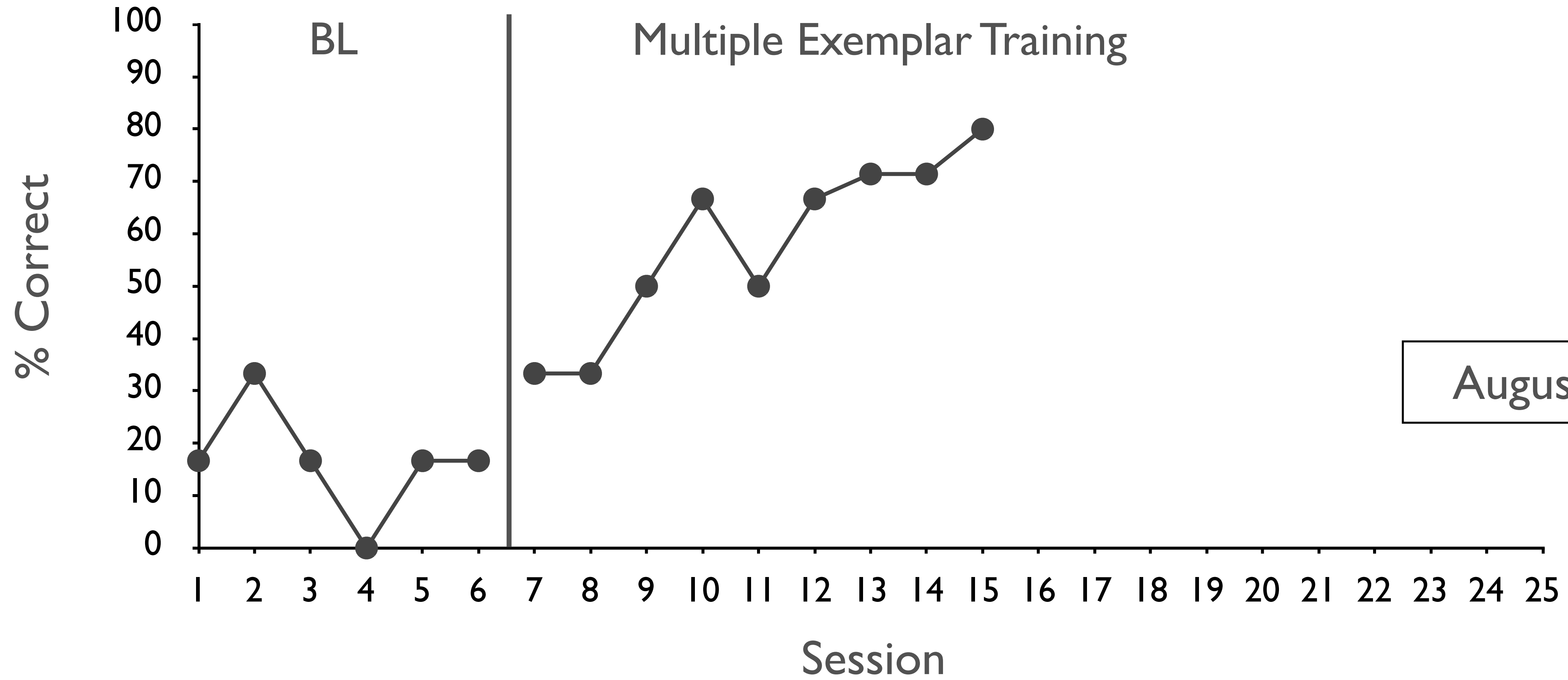
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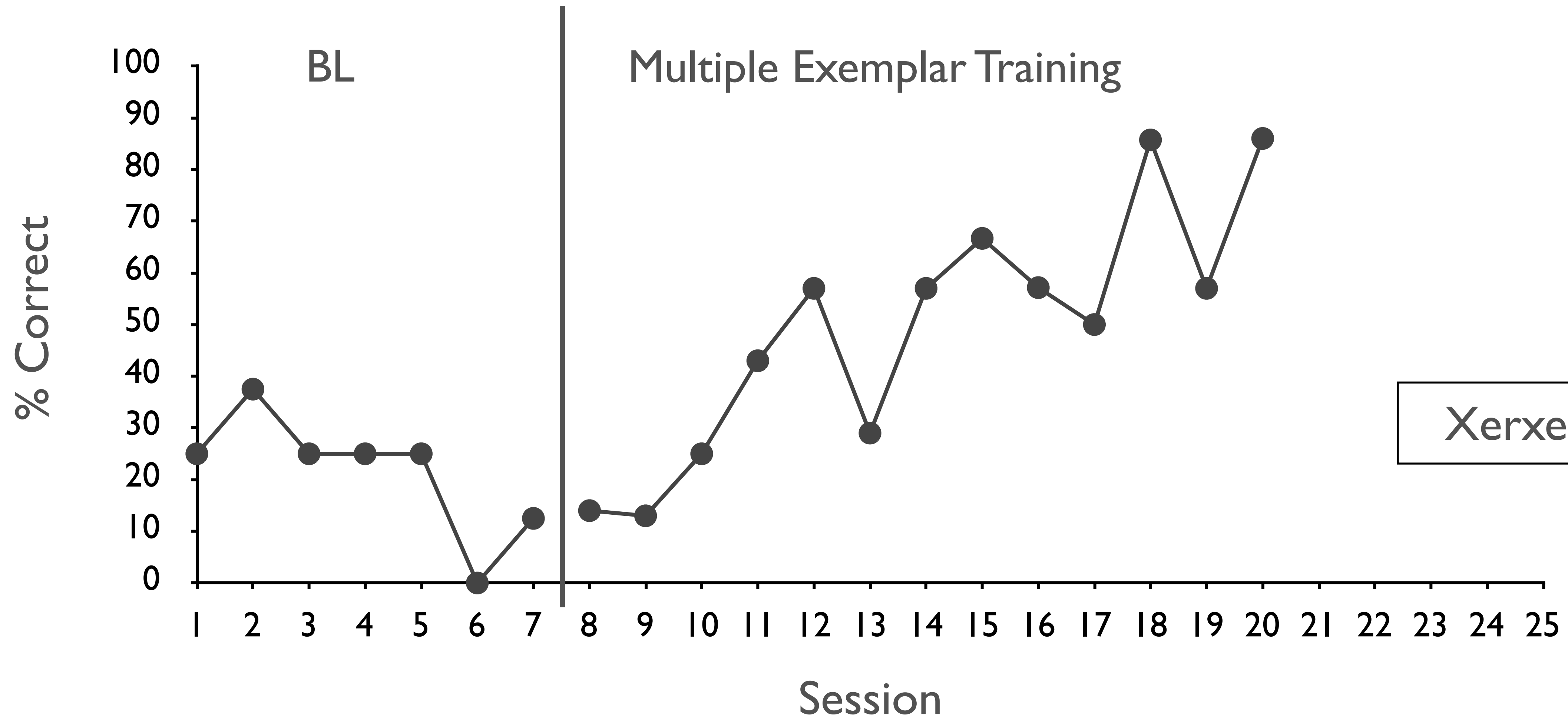early intervention program

BEGINNING TO USE
SECONDARY REPERTOIRE

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DISCUSSION

- Multiple exemplar training of a task analysis for problem solving appears to be working

- Project still ongoing

- Prompting still needs to be faded out completely

DISCUSSION

- Problem-solving may be teachable for children with autism

- Rule deriving (conditionally relating potential future antecedents, behaviors, and consequences) appears to be teachable via multiple exemplar training

FUTURE RESEARCH

- Necessary prerequisite skills?

- Can the procedure be simplified?

- Will gains generalize to completely different settings (e.g., school) and problems (e.g., social)?

THANK YOU!

jtarbox@firststepsforkids.com